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Simple Summary: Leprosy, a chronic infectious disease, leads to blood mineral imbalances: low levels of zinc, calcium, magnesium, and iron and high levels of copper. Interestingly, in late medieval Europe, minerals were used to treat leprosy. We investigated physiological responses to leprosy and possible evidence of treatment in dental tissues of leprosy sufferers from medieval Denmark and early 20th century Romania when multidrug therapy was not then yet invented. Using Synchrotron Fluorescence (SXRF) and laser ablation (LA-ICP-TOFMS), we show marked covariations in the zinc, calcium, and magnesium distributions, which are compatible with clinical studies but cannot be directly attributed to leprosy. Minerals used historically as a treatment for leprosy show no detectable intake (arsenic, mercury) or a diffuse distribution (lead) related to the daily consumption of contaminated water and food. Intense lead enrichments indicate acute incorporations, potentially through the administration of lead-enriched medication or the mobilization of lead from bone stores to the bloodstream during intense physiological stress related to leprosy. However, comparisons with a healthy control group are needed to ascertain these interpretations. The positive correlations and the patterns observed between lead and essential elements may indicate underlying pathophysiological conditions, demonstrating the potential of the two techniques for investigating diseases in past populations.

Abstract: Leprosy can lead to blood depletion in Zn, Ca, Mg, and Fe and blood enrichment in Cu. In late medieval Europe, minerals were used to treat leprosy. Here, physiological responses to leprosy and possible evidence of treatment are investigated in enamel, dentine, and cementum of leprosy sufferers from medieval Denmark (n = 12) and early 20th century Romania (n = 2). Using

SXRF and LA-ICP-TOFMS, 12 elements were mapped in 15 tooth thin sections, and the statistical covariation of paired elements was computed to assess their biological relevance. The results show marked covariations in the Zn, Ca, and Mg distributions, which are compatible with clinical studies but cannot be directly attributed to leprosy. Minerals used historically as a treatment for leprosy show no detectable intake (As, Hg) or a diffuse distribution (Pb) related to daily ingestion. Intense Pb enrichments indicate acute incorporations of Pb, potentially through the administration of Pb-enriched medication or the mobilization of Pb from bone stores to the bloodstream during intense physiological stress related to leprosy. However, comparisons with a healthy control group are needed to ascertain these interpretations. The positive correlations and the patterns observed between Pb and essential elements may indicate underlying pathophysiological conditions, demonstrating the potential of SXRF and LA-ICP-TOFMS for paleopathological investigations.

Keywords: dental tissues; mineral imbalances; zinc; calcium; leprosy treatment; lead

1. Introduction

Leprosy (a.k.a. Hansen's disease) is a chronic infectious disease that is mainly encountered today in South-East Asia, Africa, and Latin America [1]. However, during the medieval period, the disease was highly prevalent in Europe. Caused by two bacteria (*Mycobacterium leprae* and *Mycobacterium lepromatosis*) [2,3], leprosy is expressed through a range of clinical manifestations, with tuberculoid leprosy and lepromatous leprosy being the two extremes of the spectrum. They usually represent, respectively, a paucibacillary (low bacterial load) and a multibacillary (high bacterial load) form [4]. The expression of leprosy depends on the immune status of each infected individual [5], and several factors that affect the immune system's performance, such as poor living conditions, inadequate diets, and food shortages [6–10], have been considered in relation to the manifestation of the disease. There is a vicious cycle between malnutrition and infection [11,12]. On the one hand, nutritional deficiencies of vitamins and minerals lower the immune status, which increases the susceptibility to infections. On the other hand, however, the micronutrients are further depleted during infections by the invading pathogens, while the requirements are increased [13]. Several studies have reported mineral deficiencies or excesses in the blood serum of individuals suffering from leprosy (e.g., [14–18]).

Using Synchrotron X-ray Fluorescence (SXRF) and Laser Ablation-Inductively Coupled Plasma-Time of Flight Mass Spectrometry (LA-ICP-TOFMS), the present study investigates whether mineral imbalances of calcium (Ca), zinc (Zn), copper (Cu), iron (Fe), and magnesium (Mg) are recorded in dental hard tissues (enamel, dentine, and cementum) of leprosy sufferers from medieval Denmark and early 20th century Romania; an observation that could provide an insight into the physiological responses of leprosy sufferers from past populations. Due to repeated leprosy reactions, which are "acute exacerbations of the signs and symptoms of leprosy occurring during the natural course of the disease" and are the result of the body's immune response to the bacteria [19], periodicity and variation in strength (depletions and enrichments) in the elemental distributions could be expected. Additional elements of interest are lead (Pb), mercury (Hg), and arsenic (As) since historical records attest to the use of these heavy metals to treat skin diseases, including leprosy, in late medieval and early 20th century Europe [20–22].

Unlike bone, dental tissues do not remodel once formed, constituting a record of life and health, as well as age at death [23–28]. Having different mineralization processes [29,30], enamel and primary dentine complete their formation during infancy and adolescence, while (cellular and acellular) cementum and secondary dentine develop throughout an individual's life [29]. Consequently, when combined, enamel, dentine (primary and secondary), and cementum may provide information from as early as the first few months of life until the death of the individual under study. SXRF and synchrotron X-ray absorption spectroscopy have been widely employed to explore the normal and

pathological distributions of trace elements in human tissues of modern populations (for a review, see [31]). By visualizing biochemical variations in thin-sectioned dental hard tissues, the present study is the first to explore the potential of SXRF and LA-ICP-TOFMS for the study of pathophysiological changes in past populations.

Mineral Imbalances in Leprosy

Mineral elements are inorganic substances that are essential in living organisms for a variety of functions, such as the formation and maintenance of bone tissue [32]. They are classified as major (e.g., calcium, potassium, and phosphorus) or trace (e.g., manganese and copper) elements based on the required amounts, which are greater and lesser than 100 mg per day, respectively [33]. Mineral deficiencies or excesses, as well as interrelationships between different mineral elements (i.e., covariations with similar or opposite behaviors) related to diet or disease, lead to disturbances in normal metabolism and tissue structure [34–36].

By comparing blood serum levels between leprosy sufferers and a healthy control group, Rao et al. [37] reported depleted levels of Zn, Ca and Mg but elevated levels of Cu in the leprosy group. Such mineral imbalances in leprosy sufferers were also reported by several other studies (e.g., [14,16,38–44]). The depleted Zn levels correlate with an increased bacterial load [45] and not with the presence or absence of leprosy-related skin lesions [46]. Comparisons of serum levels between leprosy and non-leprosy patients with the same diet revealed that depleted Zn and Ca levels are associated with the disease and not with dietary depletions [47,48]. Moreover, by examining the serum Cu and Zn concentrations of leprosy patients before and during multidrug therapy, Sethi et al. [13] demonstrated a correlation between low Zn and high Cu serum levels with the severity and type of leprosy. Specifically, over the course of the treatment, the levels of both trace elements shifted toward the values of the control group [13].

The progressively depleted blood serum mineral levels in patients suffering from low to high bacterial loads could indicate the redistribution of the minerals from the blood to various tissues (e.g., liver), which is induced by the liberation of endogenous leukocyte mediators caused by the bacilli [49]. However, this has been reported in relation to acute, and not chronic, infections [50]. An alternative explanation could be the low absorption of the elements from the intestine; however, Kumar et al. [51] examined the small bowel in lepromatous leprosy patients and reported a normal absorptive function. Bhattacharya et al. [52] suggest that high blood levels of Cu in leprosy sufferers result from low levels of ascorbic acid (Vitamin C) that facilitate an increased absorption of Cu by the gut. Additionally, depleted serum levels of iron (Fe) in leprosy patients seem to result not from a failure to deliver Fe from Fe stores in the bone marrow but from an impaired circulation of Fe [53–55]. The accumulation of mineral elements in leprosy bacilli suggests that the bacteria retain elements originating from the host to cover their metabolic needs [13,56]. Furthermore, the values of oxidative stress in leprosy patients, which are potentially associated with the utilization of mineral elements by leprosy bacilli, are related to the duration of the infection, the bacterial load as well as the type of leprosy [57]. The imbalance of elemental levels in leprosy sufferers may also be related to the defense mechanisms of the hosts. This may either involve withholding nutrient metals from invading bacteria (known as "nutritional immunity"; [58,59]) and/or using the toxic properties of the mineral elements against the bacilli [60–62].

2. Materials and Methods

Material included in this study derives from the cemeteries of two medieval leprosy hospitals, which were located outside of Næstved and Odense in Denmark (Figure 1). Both hospitals functioned from around 1260 CE (Næstved [63,64]) and 1270 CE (Odense [65,66]) until their dissolution in 1542 CE [67]. The leprosy hospitals at Næstved and Odense are historically documented institutions that have been archaeologically investigated [68–72].

Hundreds of skeletons found in their associated cemeteries have been previously studied [73–75].

Figure 1. Map of Denmark depicting the location of Odense and Næstved (CC0 1.0 Universal; edited). Graphic programs used: Adobe Photoshop CS5.1 and Adobe Illustrator CS5.1.

Six individuals with osteological evidence of leprosy were selected from each site (Table S1). A permanent canine (C) and a permanent first molar (M1) was chosen from each individual (a total of 24 teeth) based on minimal wear and the absence of obvious pathologies, including carious lesions. These two tooth types were preferred as permanent first molars record information from as early as the perinatal period, while permanent canines from the first 4–5 months after birth [76]. Additionally, permanent teeth from two modern (beginning of the 20th century) Romanian individuals with documented evidence of a leprosy infection and who predate the advent of multidrug therapy were included for comparative purposes: the upper right canine and the lower right M1 of individual A1651; and the upper right canine and the lower right M2 of individual R1386. Authorization to work on these teeth was provided by the curating institutions (i.e., Odense Bys Museer, Medicinsk Museion, and the "Francisc I. Rainer" Institute of Anthropology, Romanian Academy).

Teeth were thin-sectioned using a Buehler Linear Precision Saw Isomet 5000 in the Histology Laboratory at PACEA (University of Bordeaux, France). Transmitted light micrographs (TLM) were used to assess the quality of dental tissue microstructure and select the best teeth for SXRF scanning. The visibility of growth increments was screened in both acellular and cellular cementum. Additional selection criteria were also considered, such as minimal visible taphonomic damages, including cracks, as well as tracks left by fungi. In total, 15 teeth from 10 different individuals (eight medieval—four from each site and two modern) were selected to undergo SXRF scanning (Table 1). Sex and age estimations, as well as radiocarbon dates for the eight medieval individuals, are presented in Table S2.

Table 1. Medieval and modern tooth samples for SXRF and LA-ICP-TOFMS multiscale imaging.

Site	Gr. Nr.	Teeth	SXRF Overview Scan		SXRF High-Resolution Scan			LA-ICP-TOFMS
			Spot Size (µm)	Exposure Time (ms)	Tissue	Spot Size (µm)	Exposure Time (ms)	
Odense	533	LLM1	10	3	AC CC SD	– 1 1	– 1 3	2 µm 1 µm 2 µm
Odense	896	LLC LLM1	10 10	3 2.5	– TC	– 1.5	– 3	– –
Odense	914	ULM1	10	3	CC	1	3	–
Odense	1149	URC ULM1	10 10	4 4	AC CMSC?	1 1	10 3	– –
Næstved	6	ULC	10	4	AC	1	10	–
Næstved	211	URC LRM1	10 10	3 2.5	CC AC	1 1.5	– 3	20 µm overview + 2 µm –
Næstved	268	LLM1	10	4	CC	1.5	3	–
Næstved	305	LLC LRM1	10 10	3 2.5	– CC	– 1.5	– 3	– –
Romania	A1651	URC LRM1	10 10	3 2.5	CC TC	1 1.5	3 3	– –
Romania	R1386	LRM2	10	2.5	CC	1.5	3	–

"Gr. Nr." stands for "Grave Number." "AC" stands for "acellular cementum" (on the cervical half of the root), "CC" for "cellular cementum" (apical half of the root), and "SD" stands for "secondary dentine." "T" stands for "transition," depicting a zone between acellular and cellular cementum, and "CMSC" for "cellular mixed stratified cementum." Abbreviations of teeth are designed as follows: "L" or "U" for "lower" or "upper"; "L" or "R" for "left" or "right"; "C" or "M" for "canine" or "molar"; and finally, the tooth position in Arabic numerals. For instance, "LLM1" represents "lower left first molar."

SXRF experiments were performed on the P06 Beamline [77,78], Petra III, at DESY (Deutsches Elektronen-Synchrotron, Hamburg, Germany). The scanning strategy followed a multiscale approach for each tooth (Table 1). First, a fast overview scan with a step size of 200 or 100 µm (dwell time: 10 ms) was acquired to check that the tooth section was well-centered in the field of view and to assess the overall signal-to-noise ratio of the elemental signature. Second, a higher resolution overview scan (10 µm; integration time: 2.5–4 ms) was used to visualize the elemental variation within the entire tooth section (i.e., enamel, dentine, pulp cavity, and cementum). Finally, based on prior observations of the tooth sections under the microscope and on the SXRF signal quality in the 10 µm scans, a small region of interest was selected in the cementum of 14 teeth and the secondary dentine of one tooth (Odense 533M) for scanning at 1–1.5 µm (integration time of 3 ms or 10 ms).

All dental tissues of permanent canines and first molars were targeted with the aim of acquiring elemental values reflecting the entire life period of the individuals under study. Indeed, while enamel and primary dentine start developing shortly before birth in permanent first molars or within the first 4–5 months of postnatal life in permanent canines, both tissues complete their formation between 7 and 10 years of age [79]. Secondary dentine and (cellular and acellular) cementum start forming incrementally once the root dentine area is completed and continue slowly developing until the death of the individual [29,30].

Two teeth that showed the best SXRF signal in cellular cementum (especially regarding the Zn pattern) were selected for comparative LA-ICP-TOFMS. LA-ICP-TOFMS offers high-speed multiplexed nuclide imaging [80,81] and quantitatively reliable images of the distribution of elements that were not quantifiable or reliably detectable with the SXRF setup (notably Pb). LA-ICP-TOFMS imaging was performed at the Department of Chemistry, Ghent University (Belgium) with an Iridia 193 nm ArF* excimer-based laser ablation system

(Teledyne Photon Machines, Bozeman, MT, U.S.A.) coupled to an icpTOF 2R (TOFWERK AG, Thun, Switzerland) TOF-based ICP-MS instrument. During the calibration of the LA-ICP-TOFMS data, limits of detection (LOD) and quantitation (LOQ) were calculated, both in ppm, for each captured isotope (see [82]). LOD and LOQ values are reported in Table S3 for the isotopes selected to represent the chemical element it belongs to, based on their natural abundance, ionization potential, and lack of spectral interferences, which can induce some bias in the data. In summary, the isotope providing the cleanest signal was selected to represent each element of interest. Note that, compared to SXRF, LA-ICP-TOFMS shows better detection power in the higher-mass range, since detection power for SXRF is poor in the high-mass range. These are used as a guide for interpreting the results and for comparison with previously published studies. Note the LA-ICP-TOFMS scans left only a barely visible mark (a slight rectangular shadow) on the tooth section as a result of laser ablation. This was corrected with a fine polishing at 1 µm to recover an artefact-free thin section. Visualization and analysis of the SXRF and LA-ICP-TOFMS data were performed in HDIP v-1.3.3.1073 (Teledyne CETAC Technologies, Bozeman, MT, USA). With the aim to denoise the images, a 2D Gauss filter was applied, the kernel size of which is indicated in the Supplementary Information (Files S2 and S3).

To assess whether pairs of elements vary together or in opposition within statistical significance, Pearson's r and Spearman's ϱ correlation coefficients were calculated on the concentration data measured along a transect on the high-resolution LA-ICP-TOFMS scans. The raw data for the transect of each LA-ICP-TOFMS scan are reported in Tables S4–S7. Note that Spearman's "ϱ" is henceforth spelled "rho" to avoid confusion with *p*-values. Statistical tests and graphs were performed in RStudio (version 1.3.1093 [83]) and Excel; *p*-values were computed with a significance level of $\alpha = 0.05$. An extensive description of the statistical analysis, as well as of the tooth thin section preparation, the SXRF data acquisition and processing, and the LA-ICP-TOFMS imaging, is provided in the Supplementary Information (File S1).

3. Results

3.1. Copper (Cu) and Iron (Fe)

No distinct pattern was observed in the Cu and Fe distributions in the SXRF overview maps of the modern and archaeological teeth. In overview and high-resolution SXRF maps (Figures 2 and 3, File S2), Cu shows a uniform distribution within all tooth tissues, with baseline levels at ~100 ppm. In all teeth, the enamel is depleted in Fe, and dentine and cementum show values similar to the epoxy bond of the thin section, presumably reflecting a negligible Fe content close to ~0 ppm. Fe enrichment on the root surface and within dental cracks and the pulp chamber indicates exogenous contamination from the burial environment. High-resolution LA-ICP-TOFMS scans (File S3) reveal that in Odense 533M, Fe is at ~0 ppm in the acellular cementum, probably also in the cellular cementum, where the concentration is at ~600–700 ppm, which is similar to the epoxy of the thin section. Copper is <5 ppm in acellular cementum and probably at ~0 ppm in cellular cementum (concentrations similar to epoxy: ~10–20 ppm). The cellular cementum of Næstved 211C shows a considerable Fe enrichment of the surface (1400 ppm) and Fe and Cu enrichment of the sub-surface (Figure 4), respectively, of 200 ppm and ~15 ppm. The secondary dentine of Odense 533M has Cu levels close to ~2–4 ppm, while Fe reaches ~220 ppm, although this could be contamination as the epoxy shows similar values.

3.2. Calcium (Ca) and Magnesium (Mg)

The SXRF overview maps of the medieval Danish and modern Romanian teeth show the well-established pattern of Ca-rich enamel (Figure 2, File S2). The enriched Ca levels in enamel (ranging from ~370,000–400,000 ppm) reflect its higher calcification levels compared to dentine (ranging from ~300,000–~380,000 ppm). Dentine has a homogenous Ca distribution with slightly depleted Ca levels around the pulp cavity due to the presence of secondary dentine, as well as within the cementum and at the junction between cemen-

tum and primary dentine. Some teeth, among which the modern Romanian A1651C and R1386M2, and the archaeological teeth Næstved 6C, 305M and C and Odense 533M, present accentuated lines reflecting variations in the Ca levels, often located (and best visible) in the dentine above the roof of the pulp chamber. The higher resolution Ca maps reveal subtle alternating enrichments and depletions in the cementum of three teeth (Næstved 211M, Odense 533M, and R1386M; see also Figure 4 showing calibrated LA-ICP-TOFMS high-resolution maps in the cellular cementum of Næstved 211C).

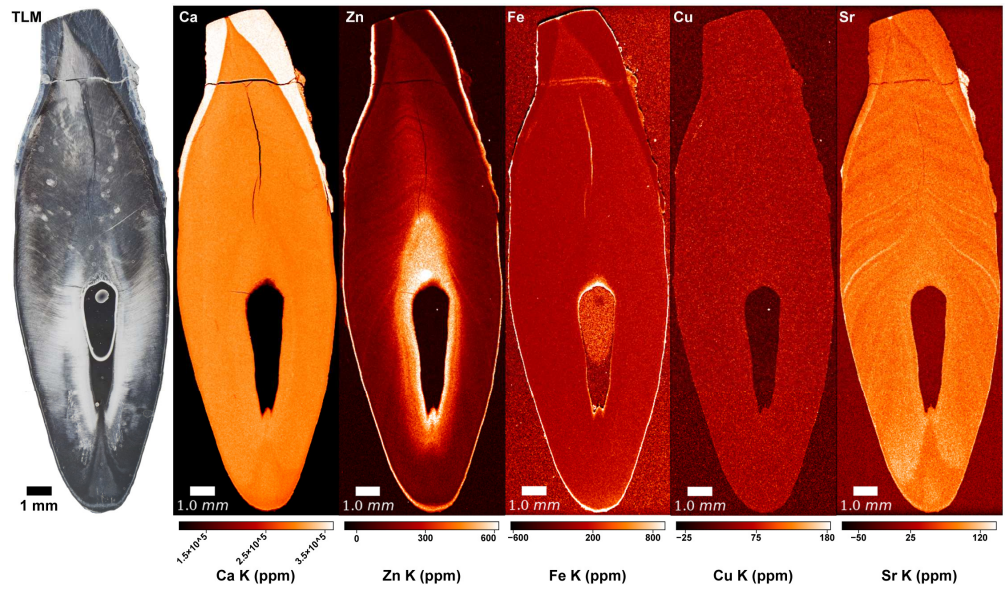

Figure 2. SXRF overview maps of Næstved 305C depicting the distributions of elements potentially impacted in leprosy, i.e., Ca, Zn, Fe, and Cu. The Sr map is shown for comparison with the Zn map since it also shows a pattern of alternating enrichments and depletions visible in the primary dentine. Ca, Fe, and Cu present uniform distributions. Contamination of Fe is visible on the surfaces of the tooth and within cracks. The Zn map reveals a rich pattern of enrichments and depletions in the primary dentine and a substantial enrichment at the outer enamel surface, the secondary dentine, and the cementum. Graphic programs used: Adobe Photoshop CS6 and Adobe Illustrator CS6.

The uncalibrated LA-ICP-TOFMS overview map of Mg acquired in Næstved 211C reveals that cementum is strongly Mg-depleted in comparison to dentine (File S3). At high-resolution (calibrated LA-ICP-TOFMS data), the Mg content in primary dentine ranges from 2000–2200 ppm, while the cellular cementum shows values fluctuating between 1000–1800 ppm (Figure 4). Interestingly, the Mg distribution generally follows the Ca and Zn distributions (rho = 0.45 and 0.19, respectively, $p < 0.05$, File S1). In Odense 533M, the cellular cementum contains Mg between ~1000–~1400 ppm, and these covary positively with Ca (rho = 0.47, $p < 0.05$; File S1) and Zn (rho = 0.50, $p < 0.05$). The secondary dentine is at ~1000 ppm Mg content, with no visible pattern of fluctuations. Ca and Zn show a moderate positive correlation with Mg in secondary dentine (rho = 0.79 and 0.55, respectively, $p < 0.05$; File S1). On the LA-ICP-TOFMS scan for acellular cementum of Odense 533M, the primary dentine contains 1000–1300 ppm, while the acellular cementum is Mg-enriched at 1800–2200 ppm. Note that this area of acellular cementum is affected by cracks, which, however, do not affect the reported concentrations, as they contain no Mg, thus, attesting to an endogenous origin of the Mg detected in the tooth tissues.

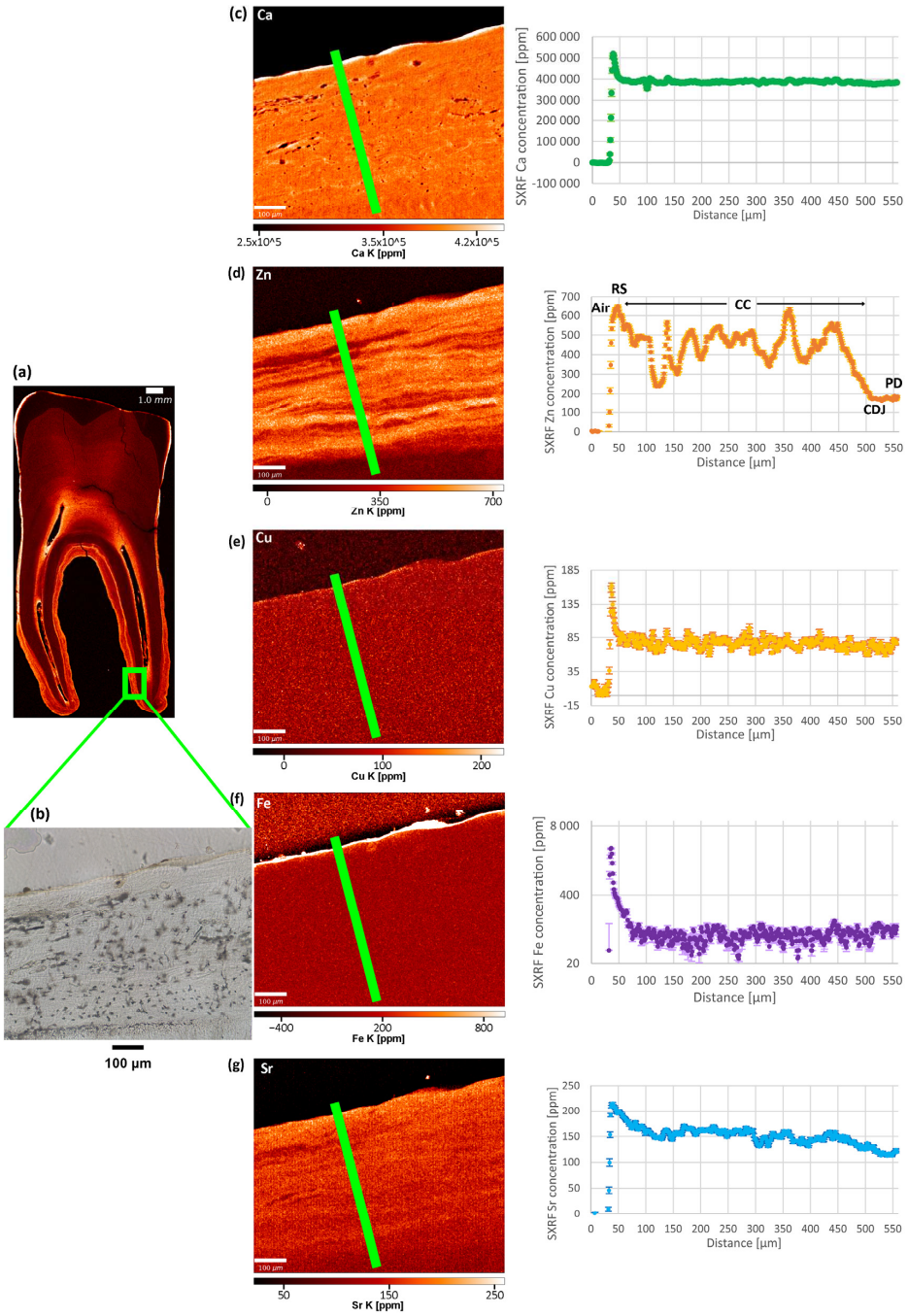

Figure 3. Distributions of elements potentially affected in leprosy (Ca, Zn, Cu, Fe) and Sr in Næstved 268M. The region of interest in the cellular cementum (green frame on the Zn overview map (**a**)) shows few identifiable increments in TLM (**b**). The SXRF data were collected on a scan at 1 µm, for each element of interest, along the green path (**c**–**g**). Elemental concentrations (in ppm) were then plotted against distance along the path in µm. As depicted on the Zn map, the path starts in the air ("Air"), reaches the root surface (RS), the cellular cementum (CC), the cementum-dentine junction (CDJ), and ends in the primary dentine (PD). Calcium (**c**) shows little variation, although a slight regular pattern may be visible on the Ca map. The Zn map (**d**) displays the clearest pattern of alternating enrichments and depletions, while Cu (**e**) and Fe (**f**) show uniform levels throughout the cementum. A subtle pattern recalling that of the Zn map can be observed in the Sr map (**g**). Note that a logarithmic scale was used to plot Fe, as the root surface enrichment at ~3000 ppm obscured the visibility of the pattern within the cementum at ~40–100 ppm. Graphic programs used: Adobe Photoshop CS6 and Adobe Illustrator CS6.

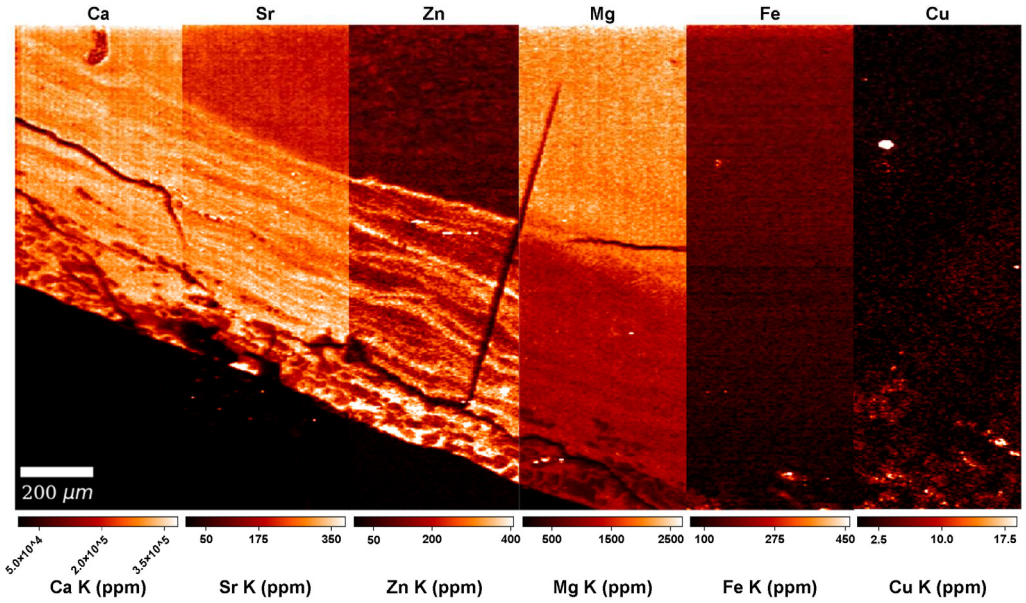

Figure 4. Calibrated LA-ICP-TOFMS high-resolution (2 µm) maps of the cellular cementum of Næstved 211C (See File S3) depicting the distributions of elements potentially impacted in leprosy, i.e., Ca, Zn, Mg, Fe, and Cu, as well as Sr. Note the weak signal in the Mg map, showing the same enrichment and depletion events as in the Ca, Zn, and Sr maps, with a positive, although weak, correlation to the Mg variations (rho = 0.45 for Ca, rho = 0.19 for Zn, and rho = 0.27 for Sr). Graphic programs used: Adobe Photoshop CS6 and Adobe Illustrator CS6.

3.3. Zinc (Zn)

In all teeth, Zn content follows a similar distribution, with an enriched layer at the outer enamel surface and an accumulation in cementum and secondary dentine (Figure 2, see overview SXRF maps in File S2). In enamel, Zn is ~100 ppm with an enriched layer at ~650 ppm within the first tens of microns of the enamel surface, which has been interpreted in light of the process of enamel mineralization and maturation [84–86]. In dentine, the Zn baseline fluctuates between ~150–350 ppm, with marked alternating enrichments and depletions following the direction of the long-period growth increments. At higher resolution, a clear banding pattern is seen in the SXRF and LA-ICP-TOFMS Zn maps of cellular cementum (Figures 3 and 4, Files S2 and S3). The secondary dentine seems to record this pattern slightly less clearly (range: ~200–600 ppm; File S2). In TLM, the border between secondary and primary dentine is visible due to the difference in orientation of the long-period growth lines in both tissues (Figure 2). However, due to their similar chemical composition, this border is difficult to identify in elemental mapping when looking at the Ca, P, and Sr maps (File S2). As seen by the Zn map in the secondary dentine of Odense 533M, Zn is the only element that allows this border to be identified with confidence (Figure 2, Files S2 and S3). No differences in the Zn (as well as Cu, Fe, Ca, and Mg) content and distribution are observed between sex and age groups or across chronological periods (Table S2).

3.4. Strontium (Sr)

Another observation concerns Sr (Figures 2–4), which appears to covary positively with Ca, Mg, and Zn, although Sr is not an element known to bear any significance regarding leprosy. The strongest positive correlations are between Sr and Ca (in the cellular cementum of Næstved 211C, rho = 0.88, while in Odense 533M rho = 0.57, $p < 0.05$ for both; File S1) as well as Sr and Zn (cellular cementum: rho = 0.77 for Næstved 211C and rho = 0.78 for Odense 533M, $p < 0.05$ for both). Sr is slightly less strongly correlated with Mg (rho = 0.69 for Odense 533M and rho = 0.27 for Naestved 211C in the cellular cementum, rho = 0.86 and rho = −0.34 for the secondary dentine and the acellular cementum of Odense 533M).

The correlations of Sr with these elements (also for all other pairs of elements concerned) are weak (although significant) in the acellular cementum since the growth increments and accentuated markings are harder to resolve and much more tightly packed in this tissue (File S1). In general, Sr shows a clear pattern of variation, mostly in the primary dentine and in the cellular cementum (Figure 3), which is attested to be an authentic biological signal since these Sr variations follow the direction of the growth increments.

3.5. Arsenic (As) and Mercury (Hg)

In the SXRF data, the fitting of the As signal was not good enough to provide reliable data (the second emission peak was missing to safely identify the elemental signature). In the uncalibrated high-resolution LA-ICP-TOFMS map of the cellular cementum of Næstved 211C (File S3), the As level in cementum and primary dentine is close to ~1 ppm with noisy values at ~2–4 ppm. Similarly, in Odense 533M, high-resolution maps (File S3) in the acellular cementum and secondary dentine show a background noise in the tooth tissues at 3–5 ppm (as opposed to ~0 ppm in epoxy), while As is not detected in the cellular cementum. However, with a LOD ≈ of 380 ppm and a LOQ ≈ of 1250 ppm (Table S3), this cannot be considered a reliable biological signal. Additionally, neither the SXRF nor LA-ICP-TOFMS setups were sensitive enough to detect Hg concentrations.

3.6. Lead (Pb)

The SXRF datasets for Pb are uncalibrated and, thus, no quantitative values can be provided; instead, "arbitrary units" ("a.u.") give an idea about the relative Pb distribution across specimens. Qualitative values are hereafter reported from direct measurements in the software HDIP, while the contrast has been adjusted in the Pb maps (File S2) to better reveal the Pb banding pattern. Overview SXRF maps (Figure 5, File S2) show that primary dentine (50–60 a.u.) is slightly enriched in Pb compared to enamel (~30–40 a.u.), while secondary dentine and cementum reach, overall, higher levels (60–70 a.u.). In Næstved 211C and 6C, the primary dentine contains 40–50 a.u. of Pb, while cementum and secondary dentine reach ~80 a.u.. Lead accumulation increases between dental tissues in Odense 914M (40–50 a.u. in enamel, ~60 a.u. in primary dentine, > 60–80 a.u. in cementum, and 120–140 a.u. in secondary dentine). The modern Romanian teeth show the greatest Pb accumulation with ~40–60 a.u. in enamel, 50–60 a.u. and 80 a.u. in the primary dentine of A1651M and R1386M, respectively, 80–100 a.u. in the secondary dentine of A1651M, while in R1386M it reaches 300 a.u. R1386M seems to concentrate Pb in cementum (Figure 5) with values of ~300 a.u. and peaks at 400 a.u., while in A1651M, the cementum is at ~100 a.u. with peaks at 120 a.u. An alternation of Pb enrichments and depletions is visible within the cementum and secondary dentine of R1386M (Figure 5, File S2). A consistent enrichment of Pb, probably linked to post-eruptive remineralization processes [87], is observed within the first 10 µm of the outer enamel surface in some of the teeth, reaching maximum amounts from ~500–700 a.u. in the M2 of R1386 and weaker values in the archaeological specimens (~80–100 a.u.). No obvious pattern could be observed between sexes or chronological periods in the specimens (Table S2) besides the strong enrichment seen in the modern teeth. The data do not reveal an accumulation of Pb in older individuals, as was suggested by Bercovitz and Laufer [88].

Using LA-ICP-TOFMS, quantitative Pb concentrations were measured in areas of interest in the cellular cementum of Næstved 211C (Figure 5), in the acellular and cellular cementum, and in the secondary dentine of Odense 533M (Table 1). The limits of the current instrumentation are 5 ppm (LOD) and 16 ppm (LOQ) (Table S3). Both teeth show a substantial Pb enrichment at the surface of the cellular cementum, at ~10 ppm in Næstved 211C and at 40–100 ppm in Odense 533M (File S3). No cracks are visible on the surface of the scanned area for Odense 533M, while the three cracks seen in the cementum of Næstved 211C do not show any diffusion of Pb in the inner layers, suggesting that these surface enrichments are biogenic and not taphonomic. Further Pb surface enrichment in Odense 533M involves the surface of the acellular cementum at ~60–80 ppm and the surface of

secondary dentine (facing pulp cavity) at ~2–7 ppm (File S3). In Odense 533M, average background Pb levels range from ~0.1–0.3 ppm in primary dentine, ~0.2–0.4 ppm (with peaks at ~2–4 ppm) within the secondary dentine, to ~1.1–1.5 ppm (with a peak at ~8 ppm) in acellular cementum and ~1 ppm (peaks at ~2 ppm and a maximum at ~7 ppm) in cellular cementum.

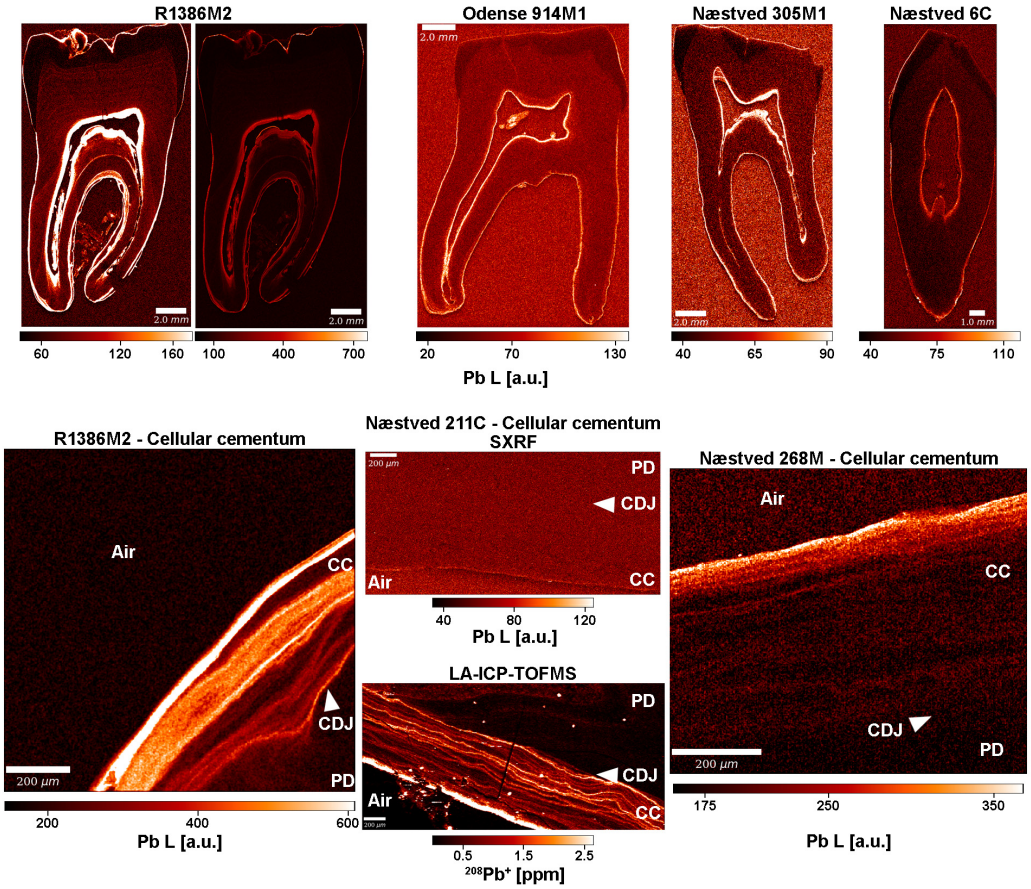

Figure 5. Uncalibrated SXRF Pb maps (detection of the Pb L lines) for the modern R1386M, Odense 914M, Næstved 305M, and 6C showing a preferential accumulation of Pb in the slow-forming secondary dentine and cementum (**top row**). Relative SXRF Pb enrichments and depletions are expressed in arbitrary units ("a.u."). A very light alternation pattern of Pb is visible in the primary dentine of R1386M. This is confirmed at high-resolution (**bottom row**), where the cellular cementum of R1386M2 scanned in SXRF reveals a well-defined Pb pattern. In Næstved 268M, the surface of the cellular cementum is enriched in Pb, with a decreasing gradient involving an alternation of enrichments and depletions within the sub-surface. This Pb content fades away within the cellular cementum. Note that SXRF is not sensitive enough to resolve the Pb variation in the cellular cementum of Næstved 211C, while LA-ICP-TOFMS can quantify these variations with a high level of detail. "CC" stands for "cellular cementum," "CDJ" for "cementodentine junction," and "PD" for "primary dentine." Graphic programs used: Adobe Photoshop CS6 and Adobe Illustrator CS6.

4. Discussion

4.1. Exploring Leprosy-Induced Mineral Imbalances in Dental Tissues

Studies conducted on blood samples of modern leprosy patients revealed depleted levels of Zn, Ca, Mg and Fe and elevated levels of Cu compared to healthy control groups [37,39,41,44,55]. These mineral imbalances appeared to be correlated with the severity and type of leprosy but returned to the normal values of the control groups during multidrug leprosy therapy [13]. Here, SXRF and LA-ICP-TOFMS elemental mapping was used to determine if mineral imbalances in leprosy sufferers are imprinted within dental hard tissues. Whether induced by the invading bacteria and/or by the defending

host [13,58,62], detected mineral imbalances in blood samples of leprosy sufferers may be associated with recurrent leprosy reactions since, in clinical studies, oral zinc therapy has been shown to reduce the frequency, duration, and severity of reactions [89]. Leprosy reactions may occur as type 1 (or reversal reactions) in borderline leprosy and type 2 (or erythema nodosum leprosum) in lepromatous leprosy, the latter of which may lead to "widespread and recurrent lesions which continue to appear for months or even years" [90]. Due to repeated leprosy reactions, therefore, periodicity and variation in strength of elemental depletions and enrichments may be expected in dental tissues.

Using SXRF, distributions of elements potentially affected by the disease (i.e., Cu, Fe, Zn and Ca) were mapped on the whole teeth, while high-resolution scans were also taken in areas of cementum (Figures 2 and 3, File S2). The observed Ca-enriched levels in enamel and homogenous Ca distributions in dentine were also reported as a normal pattern in human teeth by Cool et al. [91], Dean et al. [84], and Martin et al. [92,93]. Moreover, the alternating Ca enrichments and depletions seen in the higher resolution Ca maps of some teeth (e.g., Næstved 211M, Odense 533M and R1386M) have also been observed by Dean et al. [94] in the acellular cementum of a *Pongo* incisor and in the cellular cementum of a *Pan* incisor. Besides the normal physiological Ca distribution and the slight fluctuations within the tissues of the scanned teeth, no significant Ca variations were observed that could be related to the leprosy infection of these medieval and early 20th-century individuals. Alternating enriched and depleted concentrations are also present in the Zn maps (Figures 2–4). The dentine of Næstved 305M and Odense 896M and 914M, for example, shows some marked accentuated bands with strong and broad Zn depletions. A very clear banding pattern of Zn is also visible in the cementum of both medieval and early 20th-century leprosy sufferers (File S2).

Using synchrotron X-ray fluorescence and X-ray diffraction mapping, Stock et al. [95] investigated the Zn intensities in cementum annual growth bands of Beluga whale teeth and reported that Zn is a sensitive indicator of mineralization, with higher and lower levels corresponding, respectively, to the light and dark bands that are visible in TLM. Dean et al. [94] also reported an alignment between high Zn concentrations with light cementum bands, and vice versa, in great ape and fossil hominin teeth and suggested that cementum layers rich in Zn are either indicative of a proliferation in apposition and/or mineralization, or of a decrease in the mineralization rate, which could result in more Zn exchanging with calcium over time. Indeed, the presence of high zinc levels in areas with mineralization activity, such as peritubular dentine, suggests that zinc is involved in the mineralization process [96]. The role of Zn in mineralization was also suggested in relation to high Zn concentrations observed in outer enamel areas [85]. An accumulation of Zn is observed at the outer enamel surface as well as in the cementum and the secondary dentine of all scanned teeth (File S2). The Zn enrichment of the latter two tissues may result from their slow growth rate and prolonged direct contact with tissue fluid during formation [84,94]. Similar results were previously documented in modern and fossil primate teeth [84,92–94,97–99].

Overall, no distinctive pattern in elemental distributions can be clearly attributed to the leprosy infection. Although enamel and primary dentine develop during childhood, the slow and annual growth of cementum and secondary dentine during adulthood, when these individuals were not only infected by the mycobacterium but had also manifested the disease, could potentially capture the blood mineral imbalances experienced by the leprosy sufferers. However, no significant variation in Fe and Cu is seen in the medieval or 20th-century teeth that could be interpreted as resulting from leprosy. Although studies have reported Fe and Cu concentrations in human teeth (e.g., [97,99,100]), dental hard tissues may not imprint the Fe and Cu variations documented in blood due to the naturally low content of these two elements in teeth. The alternating pattern of Zn (and, to a lesser extent, Ca) enrichments and depletions observed in the cellular cementum is presumably natural and a physiological marker of tooth tissue incremental growth. Although, one cannot exclude that these patterns may also be related to recurrent leprosy reactions

and the associated mineral imbalances documented in blood serum. For example, the homeostatic control of Ca by vitamin D [101] may indicate that blood Ca levels would need to drop significantly for a depleted Ca concentration to be imprinted in dental tissues. However, it is noteworthy that in the cellular cementum of Næstved 211C, as well as in the cellular cementum and the secondary dentine of Odense 533M, Zn and Ca have a positive correlation (File S1), also with Mg (see File S1). These trends are in agreement with clinical studies on the blood serum elemental levels of modern leprosy sufferers (e.g., [37,39,41]). Nonetheless, the correlations in dental hard tissues between Cu and Fe with the other elements (Zn, Ca, Mg) do not show the expected strength, direction, or significance compared to blood (e.g., [37,44,55]).

Considering the different homeostatic and metabolic factors that may influence the absorption and distribution of different elements from blood to body tissues, such as intestinal absorption [102,103], age [104], and pregnancy [105], it becomes evident that a direct and proportional link between blood and dental tissue elemental levels may not be applicable.

4.2. Exploring Evidence of Leprosy Treatment by Heavy Metals in Dental Tissues

Being influenced by the Hippocratic theory of humourism, medieval physicians believed that good health depended on a humoural balance in the body of the four principal substances (i.e., black bile, yellow bile, phlegm, blood), and, thus, the different types of treatment employed to cure an individual aimed at restoring the lost humoral equilibrium [106]. For example, bloodletting, which enabled the removal of excessive humours from the body [107], occurred four times every year at the leprosy hospital of Salle-aux-Puelles in Normandy, France, and was accompanied by a period of rest and special provisions [108]. Diet was also considered important for maintaining and restoring the humoral balance in the body. In medieval England, for example, mild and moist foods, such as poultry, eggs, and fresh fish, were considered appropriate for restoring the balance of the digestive system of leprosy sufferers [22], while in Spain, a special diet of chicken, mutton, sugar, dried fruits, and nuts proceeded the consultation by a physician [109].

The few historical sources that provide information about the treatment of leprosy in medieval Denmark date to the 16th century and mention mainly the use of different plants and animals [110–112]. An exception was the following recipe, mentioned in Christian Pedersen's book En nøttelig legebog [110], specifically for wealthy individuals, which included gold as an ingredient. Nevertheless, medicinal preparations that included minerals were used in other areas (e.g., England) as a treatment for leprosy (as well as other diseases) towards the end of the medieval period when the Odense and Næstved leprosy hospitals were still in operation [22,113–116]. For instance, mercury and lead were mixed with animal products and plants and administered epidermically [114,117,118]. The use of minerals in medicinal preparations during that time is also attested to archaeologically, as mineral residues were discovered in an infirmary at the medieval priory and hospital of St Mary Spital in London [119]. Mineral preparations of mercury as well as arsenic were still used for the treatment of leprosy during the 19th and early 20th centuries; now administered also by fumigation, as well as orally and intravenously [20,21,120].

Previous work conducted by Rasmussen et al. [121] on bone samples of individuals from three medieval monastic sites in Denmark (Øm Kloster, Franciscan friaries in Odense and Svendborg) demonstrated a fourfold Hg increase in individuals with leprosy lesions (~200 ppb) compared to the control group (34 $\pm$ 15 ppb), suggesting that mercury-containing medicine was administered in 79% (11 out of 14) of the cases. Moreover, in medieval Danish rural populations, Rasmussen et al. [122] showed Hg background exposition levels at 80 and 300 ppb in cortical and trabecular bone, respectively. Regarding As concentrations, there are no published values measured in the bones or teeth of leprosy sufferers. Rasmussen [123] reports the range of the arsenic content in the enamel of individuals from medieval Denmark as being <0.001–0.239 ppm, while Hg ranges from 0.046–1.88 ppm. Moreover, Rasmussen et al. [124] interpret the 0.4–120 ppm As content

of bones from medieval and post-medieval individuals from Denmark as resulting from diagenesis, while the 7–78,730 ppb Hg concentration is interpreted as reflecting medicinal treatments. Here, neither the SXRF nor LA-ICP-TOFMS setups were sensitive enough to detect Hg concentrations, while the low As concentrations visualized by LA-ICP-TOFMS in the cellular cementum of Næstved 211C as well as in the secondary dentine and in the cellular and acellular cementum of Odense 533M is not considered a reliable biological signal. If any Hg and/or As intake, therefore, was intentionally occurring for medicinal purposes by our scanned individuals, this remains well below the detection limit of the two techniques used here.

Lead concentrations, on the other hand, are well detected, with SXRF overview maps showing an accumulation of Pb in the slow-forming secondary dentine and cementum and high-resolution maps (SXRF and LA-ICP-TOFMS) depicting a well-defined pattern of alternating enriched and depleted Pb concentrations (Figure 5). Exposure to lead (Pb) was common during the medieval period [125–128], also in relation to medical treatment [115,129,130]. In medieval rural populations from Denmark, Rasmussen et al. [122] measured a Pb background level of 5 and 7 ppm in cortical and trabecular bone, respectively. Nielsen et al. [131], however, document much higher Pb concentrations in bones from two early medieval Danish sites (means of 30 and 105 ppm). In another study, Rasmussen et al. [124] interpreted the Pb content in human bone (range: 0.8–426 ppm) as being related to the increased use in Denmark, from 1400–1700 CE, of Pb-glazed ceramics for the storage of food. The skeleton is known to accumulate Pb due to the low solubility of lead phosphate; teeth and bones contain 94% of the total Pb body burden [87,131]. Because Pb^{2+} has the same chemical affinities as Ca^{2+}, $Zn^{2+,}$ and Sr^{2+}, Pb is expected to substitute for Ca and P in the hydroxyapatite crystalline structure since it has a small enough ionic radius [132–134]. The storage and release of Pb involve the same molecular mechanisms and hormones as Ca metabolism [134].

Under constant exposure, Pb incorporation in permanent teeth increases with age until reaching a plateau [135,136]. There is substantial variation of Pb levels in modern urban human teeth (e.g., [97,137]), with the element being preferentially deposited in cementum [92,99], especially at the root apex, where the presence of cellular cementum and the larger surface area may favor Pb exchange from blood to tooth tissues [138]. Secondary dentine was also identified as the dental tissue storing most of the Pb [139,140] due to the proximity of blood in the pulp chamber [137,141]. This tissue, therefore, may provide direct insight into Pb exposure, Pb plasma levels, and Pb intake until the death of an individual or the cessation of tooth function [142,143]. This Pb enrichment may be favored by the slow growth or crystal size in secondary dentine [143].

Here, the overview SXRF maps show consistently higher Pb levels in both the secondary dentine and cementum of all scanned teeth. However, the greatest accumulation of Pb is seen in the modern Romanian teeth. According to the records of the "Francisc I. Rainer" Institute of Anthropology, individual R1386 was male and died in 1926 at 36 years of age at the Colentina Hospital (Bucharest, Romania). This individual was a blacksmith and, thus, experienced daily exposure to metals during his adult life (Pb is accumulated in cementum and secondary dentine) and probably as early as his adolescence (Pb increases from the mid-root of his M2; see Figure 5 and File S2). Pascu [144] reports that in the 1920s, industrial production was flourishing in Romania and was especially focused on exploiting Pb, among other metals. Although concentrations in Pb cannot be calculated from the SXRF data for R1386M, his Pb content is clearly higher than that of the other modern Romanian individual and well above that of all the Danish archaeological teeth.

Quantitative Pb concentrations were measured by LA-ICP-TOFMS for two medieval teeth (Næstved 211C and Odense 533M). The results found a moderate to strong correlation between Pb and Zn (as well as Ca and Mg) variations within tooth tissues formed during adult life (File S1). In Odense 533M, a single strong Pb enrichment occurs close to the CDJ (at ~10 years of age; estimation from root formation stage in [79]). This Pb peak is preceded by two long and strong Zn depletions (Figure 6), also seen in Ca, P, Sr, Mg, and

Na (File S3). These depletions in essential elements may have favored Pb incorporation and, thus, increased its toxicity. In Næstved 211C, a major Pb peak occurs at the CDJ at the time of formation of the first cellular cementum layers (~12 years of age; estimation from root formation stage in [79]) and is followed by two strong peaks registered a little later during adult life (~17 years and early 20s, rough estimation based on Zn map). These Pb enrichments seem to be systematically followed by Zn-depleted bands (Figure 6), which could result from a reduced Zn absorption due to the increased load and toxicity of Pb in the body.

Previous studies have also observed a positive correlation between Pb and Zn. This covariation has been suggested to represent a biological signal reflecting the bloodstream in the pulp cavity and the metabolism of dentine-forming cells [92,145,146]. Talpur et al. [147] showed that compared to well-nourished children, the blood and hair of malnourished children have Pb levels that are two times higher and levels of essentials elements (e.g., Ca, Fe, and Zn) that are one to twofold lower. When the diet is of insufficient quality, therefore, the correlation between Pb and Ca, Fe, or Zn becomes negative [147]. This may be explained by the increased urinary Zn excretion according to the duration and level of Pb exposure [148]. Bartón [149] also reported a strong negative correlation between hair Pb and Zn levels in preschool children. The incorporation of Zn and Pb in dental tissues may depend on formation rates and permeability [150]. Experiments found that Pb is incorporated almost instantaneously in forming dentine [151,152]. In modern humans, root formation (dentine) slows down towards completion [153]; this leaves a longer time period for incorporating Pb at the root apex, more specifically into the mineralizing matrix of the forming cementum [138].

The overall Pb background level measured in the cementum of the scanned medieval leprosy sufferers from Denmark may be related to daily Pb exposure through the consumption of contaminated water and food (lead-tiled roofs and glazed ceramics [124,154]). The few strong Pb enrichments, however, correspond to a marked exposure to the element. A possible explanation for the Pb peaks could potentially be the administration of Pb in the form of medication. Although no historical record survives that attests to the treatment of leprosy using Pb in medieval Denmark, this element was used in medicinal preparations during the later Middle Ages (cf., [22]). The administration of Pb-containing medicine would indicate that the mineral was used for medical purposes in Denmark already from the late 12th to mid-13th centuries, according to the radiocarbon dates of the two leprosy patients from Næstved (211) and Odense (533) (Table S2).

Nevertheless, during physiological events, such as pregnancy (e.g., [155,156]) or pathological events, such as severe illness [157], Pb (along with other major and trace elements) is mobilized from the bone matrix into the bloodstream due to disruptions in skeletal homeostasis. The elevated blood Pb levels are then incorporated into the mineralizing dental tissues and are recorded as Pb-enriched bands [157]. Consequently, the Pb enrichments imprinted in the dental tissues of the leprosy sufferers could indicate a period of intense physiological stress, possibly a period of exacerbated leprosy reactions. This could also be true for the cementum root surface Pb enrichment of Næstved 211C and Odense 533M, which is surprising by its intensity and duration, and which lasted until the death of both leprosy sufferers. Although it would be tempting to interpret this high Pb intoxication as being related to the occurrence of death, more research needs to be done to confirm this hypothesis. Nonetheless, the maximum Pb concentration that is found at the root surface of Odense 533M is ~100 ppm. Several public health studies report a positive correlation between Pb content in blood and teeth and further document a Pb blood concentration of 6 µg/dL for a Pb content in teeth of ~100 ppm [149,158,159]. The incorporation of Pb from the blood into dental tissues is a complex matter, yet one may speculate that following these clinical data, the degree of impairment induced by this Pb intoxication could have reached a level affecting development and health [160,161].

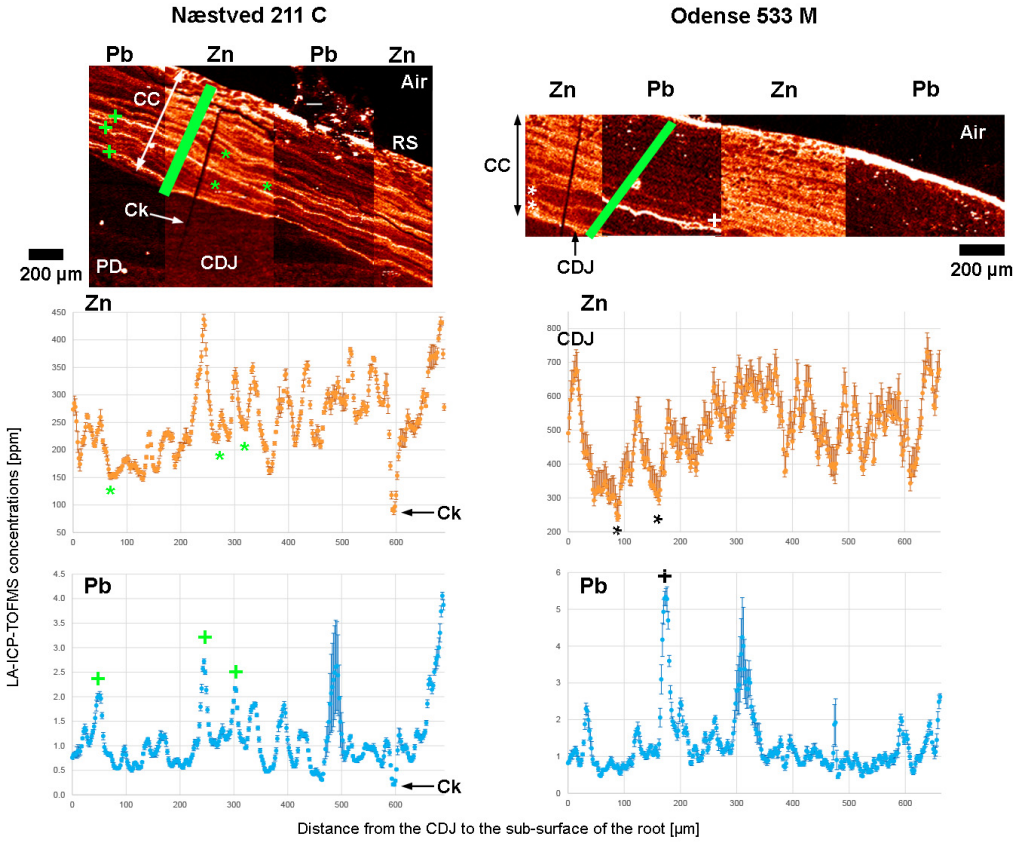

Figure 6. Covariation of Pb and Zn in the cellular cementum of Næstved 211C (**left**) and Odense 533M (**right**) (LA-ICP-TOFMS data used for the correlation tests, File S1). Note that two Zn depletions (black star on the graph, white star on the map) are followed by a Pb enrichment (black cross on the graph, white cross on the map) in Odense 533M, while three Pb enrichments (green cross) are followed by Zn depletions (green star) in Næstved 211C. The range of the *y*-axes has been adapted to best present the fluctuations of Zn and Pb in the two teeth. The root surface is enriched in Pb over the first ~30µm, which were avoided here to best represent the elemental covariations. Error bars represent 1 SD on either side. "CC" stands for "cellular cementum," "CDJ" for "cementodentine junction," "PD" for "primary dentine," "RS" for "root surface," "Ck" for "crack" in the cellular cementum of Næstved 211C. Graphic programs used: Adobe Photoshop CS6 and Adobe Illustrator CS6.

5. Conclusions

This study investigated markers of elemental blood fluctuations in the archaeological teeth of leprosy sufferers. The moderate to strong positive correlation between Zn, Ca, and Mg distributions seen in the dental tissues of Næstved 211C and Odense 533M corresponds to the results of clinical studies on blood samples of modern individuals suffering from leprosy. However, no distinctive pattern is observed in the concentration distributions of the elements that could be directly linked to the leprosy infection. Future studies on teeth and blood samples of modern leprosy sufferers with a recorded medical history could elucidate whether elemental blood imbalances related to leprosy are imprinted in dental tissues or if the elemental concentration and correlation patterns seen here indicate natural and physiological markers of tooth tissue incremental growth.

This is the first study using laser ablation to perform continuous mapping without having to extrapolate data from line scans, thus providing a true and reliable elemental mapping of the dental tissues. LA-ICP-TOFMS results reveal a constant exposure to Pb, which most likely reflects the ingestion of contaminated water and food. Although the administration of Pb in the form of medication cannot be excluded, the few strong Pb enrichments may be related to periods of intense physiological stress and to the enrichment of blood with Pb from bone stores. This is perhaps supported by the Pb enrichment seen

in the last deposited cementum growth layers of Næstved 211C and Odense 533M. The positive correlation that is observed between Pb and Zn concentrations, as well as the patterns that emerge when there is relatively high incorporation of Pb in the dental tissues, may indicate underlying pathophysiological conditions that promote or are induced by an increased Pb incorporation. A similar study on a larger sample size as well as on a non-leprosy control group from the same geographical regions and time period, however, is needed in order to ascertain these interpretations.

This study is the first to investigate mineral element distributions in dental tissues of leprosy sufferers, demonstrating the potential of SXRF and LA-ICP-TOFMS for paleopathological investigations. By targeting all dental tissues and by employing a methodology that allows different degrees of resolution, we have explored elemental distributions spanning the entire life of the individuals under study.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/biology12020184/s1, Table S1: List of individuals and teeth included in the study from the two medieval Danish leprosy sites (Odense and Næstved); Table S2: Age and sex determination and 14C dates of the individuals of interest for SXRF and LA-ICP-TOFMS scanning (14C dates reported by Brozou et al. 2021, American Journal of Physical Anthropology); Table S3: Limits of detection (LOD) and of quantitation (LOQ) of the calibrated LA-ICP-TOFMS data; Table S4: LA-ICP-TOFMS concentrations (in ppm) along a transect (in μm; See page 5 of File S1) in the cellular cementum of the Næstved 211 C; Table S5: LA-ICP-TOFMS concentrations (in ppm) along a transect (in μm; See page 55 of File S1) in the cellular cementum of the Odense 533 M1; Table S6: LA-ICP-TOFMS concentrations (in ppm) along a transect (in μm; See page 30 of File S1) in the acellular cementum of the Odense 533 M1; Table S7: LA-ICP-TOFMS concentrations (in ppm) along a transect (in μm; See page 77 of File S1) in the secondary dentine of the Odense 533 M1). File S1. Methods and Statistical results. File S2. Synchrotron Fluorescence (SXRF) results. File S3. Laser Ablation (LA-ICP-TOFMS) results.

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Informed Consent Statement: Patient consent was waived due to the archaeological/historical age of the specimens.

Data Availability Statement: The data used in this study are contained within the Supplementary Material or referenced within the text.

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Conflicts of Interest: The authors declare no conflict of interest.

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File S1

Methods and Statistical results

Using SXRF and LA-ICP-TOFMS to explore evidence of treatment and physiological responses to leprosy in medieval Denmark

Biology

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Content

1. Methods

Tooth thin section preparation

To optimise the chances of visualising an area of cementum not affected by taphonomic damages (e.g., cracks, remineralisation, fungi), and avoid restricting the field of view to acellular cementum where increments are tightly packed, the tooth root was sectioned longitudinally through the root apices. Single-rooted teeth (i.e., canines) were sectioned labio-lingually. For lower molars, a mesio-distal section enables to involve both root apices, while for three-rooted maxillary molars, the plane of section passed through the apices of the lingual root and the mesio-buccal root. Note that for molars, the plane of section was oriented to pass through the cusp tips as much as possible, in order to access the earliest information recorded during tooth growth.

Prior to sectioning, the teeth were embedded in epoxy resin for a minimum of 12 hours. A Buehler Linear Precision Saw Isomet 5000 was used in the cementochronology laboratory at *PACEA* (University of Bordeaux, France) to slice the tooth a bit off the desired plane of section. Subsequently, the tooth surface of the thicker half was first briefly polished using an abrasive disk P240 (NAC, Presi) with 58 µm particles size and resin disks (Imax-R, Presi) with 54 µm or 18 µm diamond particles embedded, and then glued on a glass slide (30 x 45 mm or 45 x 60 mm based on the size of each tooth) using epoxy resin at 65°C, under pressure for one hour. A further sectioning followed to produce tooth slices of ~300-400 µm, which were ground and lapped down to between 80-100 µm, first as described above and then using a fine diamond abrasive suspension at 9 µm, 3 µm and 1 µm (LDP polycrystalline diamond suspension, Presi) deposited on polishing clothes (PAD MAG, Presi).

SXRF data acquisition and processing

Experiments were performed on the P06 Beamline (Boesenberg et al., 2016; Schroer et al., 2010), Petra III, at DESY (Deutsches Elektronen-Synchrotron, Hamburg, Germany). The storage ring was operated in 480-bunch mode using top-up filling mode with a current of 120 mA ± 0.5 mA, and an undulator gap of 11.07 mm. The primary X-ray beam was monochromatised to 16.6 keV using a double crystal Si111 monochromator and focused using a Kirkpatrick-Baez (KB) mirror system (JTEC, Japan) to 500×500 nm^2. The experimental configuration consisted of two Vortex EM silicon drift detectors, Hitachi High-Tech Science America, Inc., the second of which was collimated. Both detectors were positioned symmetrically at scattering angles of 135 degrees at a distance of 9 mm from the focal point. The use of dual-detector "backscatter" geometry enables maximising the solid angle during analysis of thin polished samples (~100 µm-thick in this study), and imaging large area SXRF with micrometric resolution using millisecond dwell times (Falkenberg et al., 2017). This setup allowed capturing the Kα emission lines from Si to Sr and the Lα emission lines of Hg and Pb. The Mg signal, however, is drastically lowered by absorption through the sample itself and the air path. Furthermore, the Mg Kα emission line is at 1.254 keV, which is not well-suited for the primary energy (16.6 keV). To note that some interferences within the spectrum may affect the sensitivity for detecting elements, such as Pb or Hg.

Spectral peak deconvolution and integration was performed using the core of PyMca 5.5.0 (Solé et al., 2007), whilst calibration was performed by an in-house script. Image analysis was performed in HDIP v-1.3.3.1073 (Teledyne CETAC Technologies, Bozeman, MT, USA). The X-ray yield calculations were performed assuming a hydroxyapatite matrix ($Ca_{10}(PO_4)_6(OH)_2$) with density of 2.85 g.cm^{-3} for the enamel phase and of 1.6 g.cm^{-3} for the dentine phase (Djomehri et al., 2015). Elemental mass fractions were determined by calculating an areal density sensitivity from measurements of standard Ti, Fe, and Cu foils with areal density of 59.0, 55.0, and 47.9 µg.cm^{-2}, respectively (Micromatter Technologies Inc. Canada), and measured thickness of the samples. Tooth section thickness was measured throughout the whole surface of the specimen in five positions for canines and eight positions for molars. The average tooth section thickness was also taken into account in the x-ray mass attenuation coefficients of the hydroxyapatite phase during attenuation correction

(Szczerbowska-Boruchowska, 2012). Glass slides substrates were included in the overall sample model as appropriate (i.e., background subtraction). Normalisation to the incoming X-ray flux was applied. In the calibrated data, SXRF concentrations are reported by mass fraction ($\mu g.g^{-1}$, i.e., ppm), and/or areal density ($g.cm^{-3}$). Pb images contain no quantitative data (i.e., relative Pb content is expressed in arbitrary units 'a.u.'), as L-lines were not modelled.

LA-ICP-TOFMS imaging of Odense 533M and Næstved 211C

LA-ICP-TOFMS imaging was performed at the Department of Chemistry, Ghent University (Belgium) with a setup consisting of an Iridia 193 nm ArF* excimer-based laser ablation system (Teledyne Photon Machines, Bozeman, MT, U.S.A.) coupled to an icpTOF 2R (TOFWERK AG, Thun, Switzerland) TOF-based ICP-MS instrument. The laser ablation system was equipped with the Cobalt Long-Pulse ablation cell and the aerosol rapid introduction system (ARIS), which introduced an Ar make-up gas flow (~1.05 $L.min^{-1}$) into an optimised He carrier gas flow of 0.60 $L.min^{-1}$ before entering the plasma. The LA-ICP-MS system was optimised via ablation of NIST SRM612 (National Institute for Standards and Technology, Gaithersburg, MD, U.S.A.), with tuning for the highest intensities for $^{24}Mg^{+}$, $^{115}In^{+}$ and $^{238}U^{+}$, whilst maintaining low oxide formation (<1% $^{238}U^{16}O^{+}/^{238}U^{+}$) and a ratio of $^{238}U^{+}/^{232}Th^{+}$ ratio ~1. Imaging was performed in fixed dosage mode 1 and with an energy density of 3 $J.cm^{-2}$, at a repetition rate of 250 Hz, using a circular spot size of 4 or 2 µm, with a vertical interspacing between the lines between 20 and 2 µm. The images were recorded using bracketing with NIST SRM612. The icpTOF 2R ICP-TOFMS was operated in standard operation mode with a mass coverage range of 14-254 m/q. The read-out frames of 3.8 ms were synchronised with the laser ablation repetition rate, with a transfer delay of 53.7 ms. The iCAP Q was equipped with the LA injector of 2.5 mm inner diameter and nickel sample and skimmer cones with a skimmer cone insert of 2.8 mm in diameter. The RF power was set to 1500 W, and an auxiliary Ar gas flow rate of ~0.90 $L.min^{-1}$ and a plasma Ar gas flow rate of 15 $L.min^{-1}$ were used.

Statistical analysis

The classical correlation tests involving Pearson's r and Spearman ρ (rho), (with α=0.05) were computed in RStudio using the function cor.test(), and adjusting the method to "pearson" or "spearman". However, the Pearson correlation is sensitive to outliers, which may weaken the strength and the significance of the results. A more robust correlation test involving the Minimum Covariance Determinant (MCD) was calculated using the corr.plot() function. The MCD is a highly robust estimator of multivariate location and scatter (Hubert et al., 2018; Rousseeuw and Driessen, 1999; Santos, 2020). This procedure runs the correlation test on a user-defined percentage of the data (here quan= 0.8, meaning 80% of the data are kept) representing the "good part" of the data, thus removing values detected as outliers. Some elements such as Fe, Mn or Pb showed a substantial root surface enrichment, which may considerably disturb the computation of the tests. However, the MCD procedure may not remove all of the datapoints related to the root surface, but also exclude hotspots or high concentrations occurring within the cementum thickness, which could be related to a biological signal and, thus, be meaningful. Therefore, the classical and robust tests were also run by excluding the datapoints of the root surface and sub-surface defined by a peak in Pb, Mn or Fe, to assess if the significance of the correlation tests would be affected and change. All detailed results are reported below, and the classical Pearson results are plotted in blue while the MCD correlation is plotted in red. Correlation coefficient matrices were computed using the Spearman method, and plotted using 'corr.plot', which enables displaying the rho values following a colour code, and crossing out rho values when p-values are not significant.

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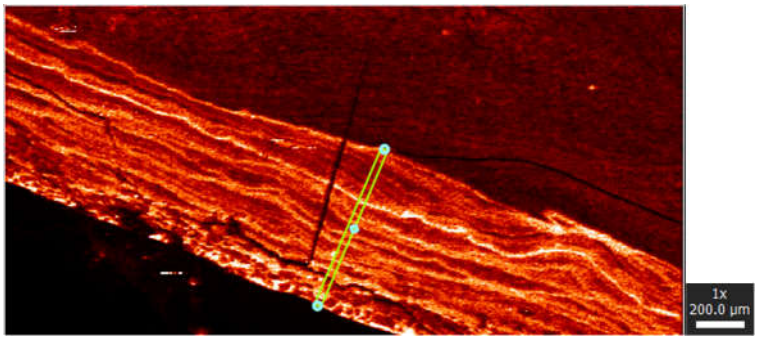
2. Results

Statistical analysis

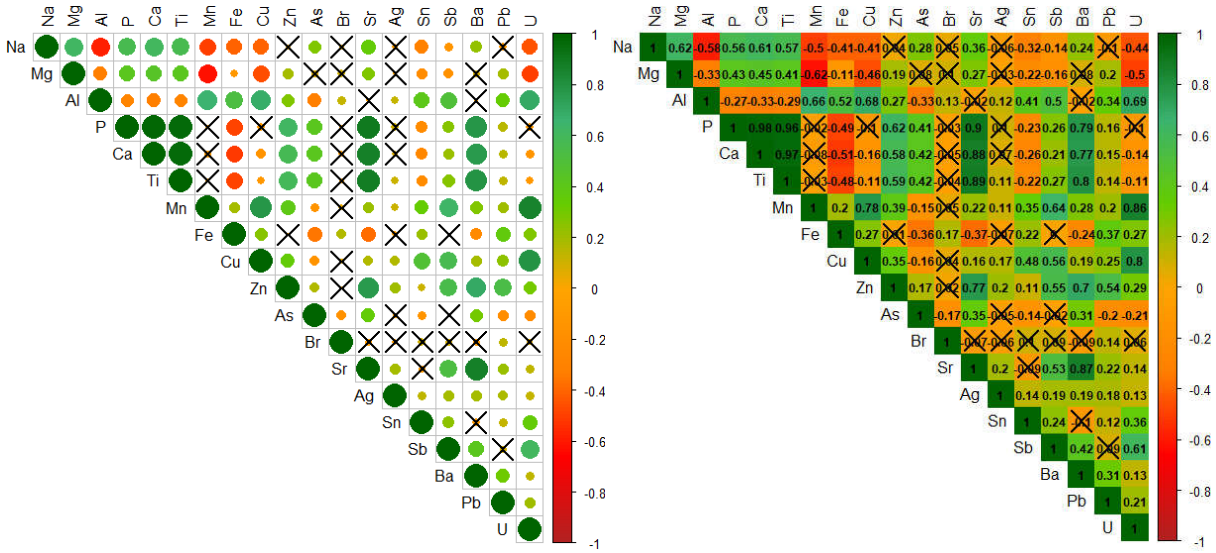
Næstved 211C – Cellular Cementum (total thickness=721 µm)

Correlations between pairs of elements

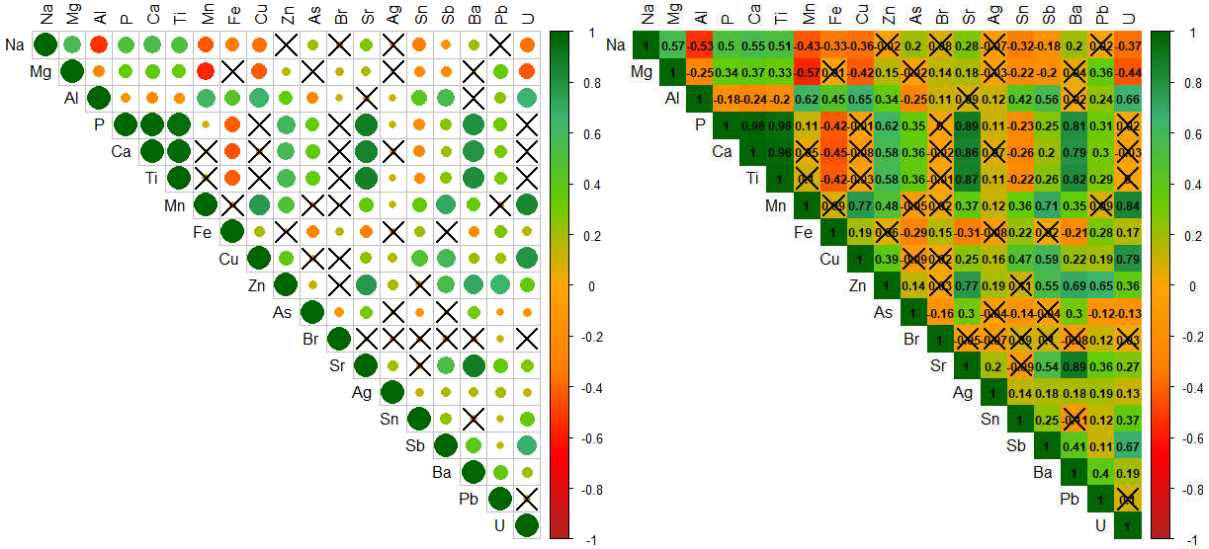


Zn map (yellow path indicates where the measurements are taken)

Summary: whole cementum thickness, Spearman correlations.



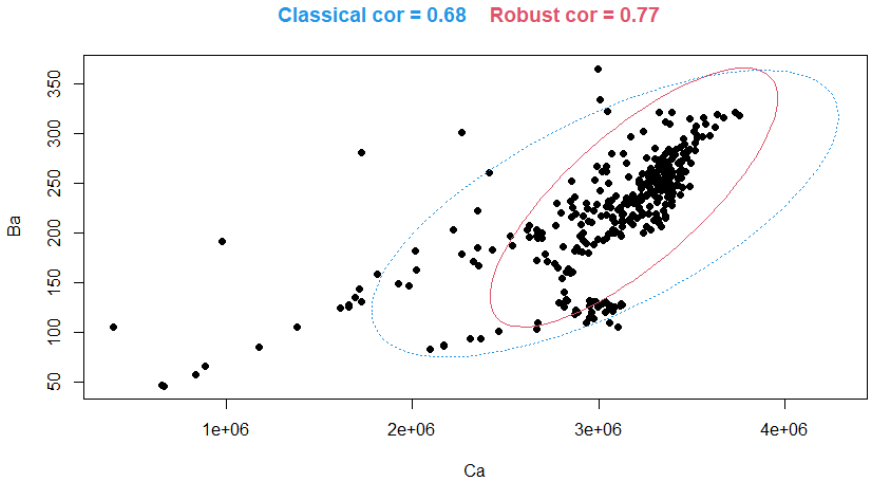
Summary: removing the first 30 µm of root surface, Spearman correlations.



wRS: without Root surface [Pb = ~27 µm; Fe = ~15µm; Mn = ~200µm; Al = ~17 µm]

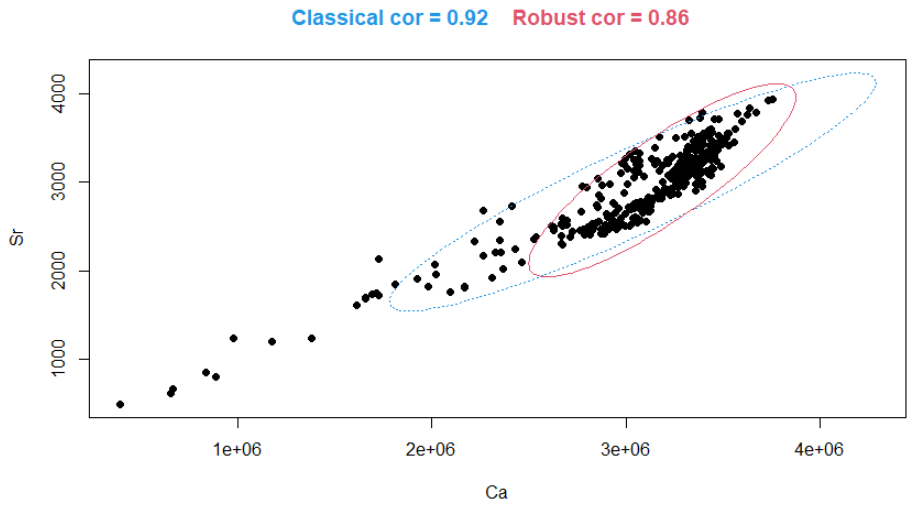
- **Ca vs Ba**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ca and Aa211C_CC$Ba t = 16.927, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.6153113 0.7310395 sample estimates: **cor** **0.6773442**	Spearman's rank correlation rho data: Aa211C_CC$Ca and Aa211C_CC$Ba S = 1527564, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.7668058**
MCD (α=0.05; quant=0.8)	$cor.rob **0.7691947**	



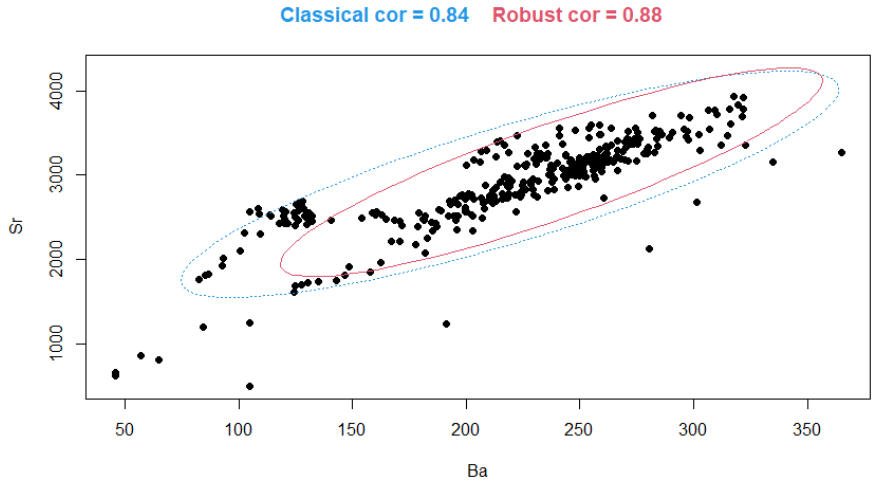
- **Ca vs Sr**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ca and Aa211C_CC$Sr t = 43.337, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.9026035 0.9353623 sample estimates: **cor** **0.9205867**	Spearman's rank correlation rho data: Aa211C_CC$Ca and Aa211C_CC$Sr S = 815088, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.8755707**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8612135**	



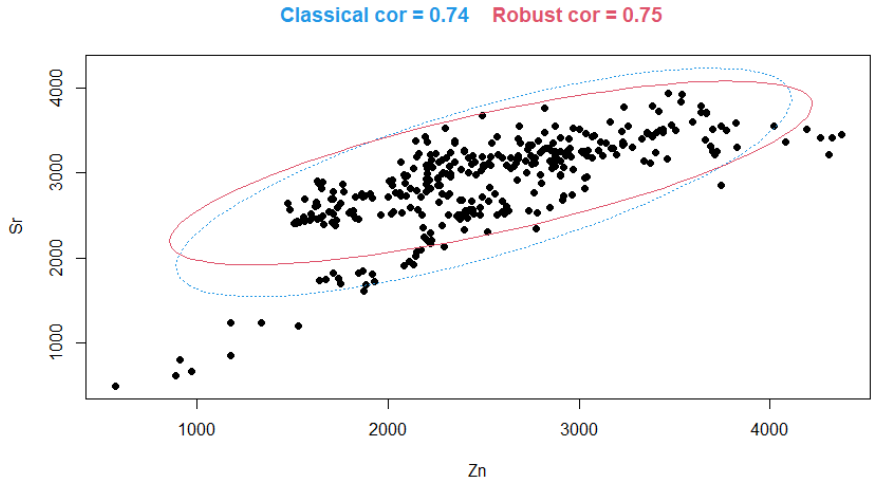
- **Ba vs Sr**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ba and Aa211C_CC$Sr t = 29, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.8110749 0.8725568 sample estimates: **cor** **0.8445774**	Spearman's rank correlation rho data: Aa211C_CC$Ba and Aa211C_CC$Sr S = 844406, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.8710951**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8781067**	



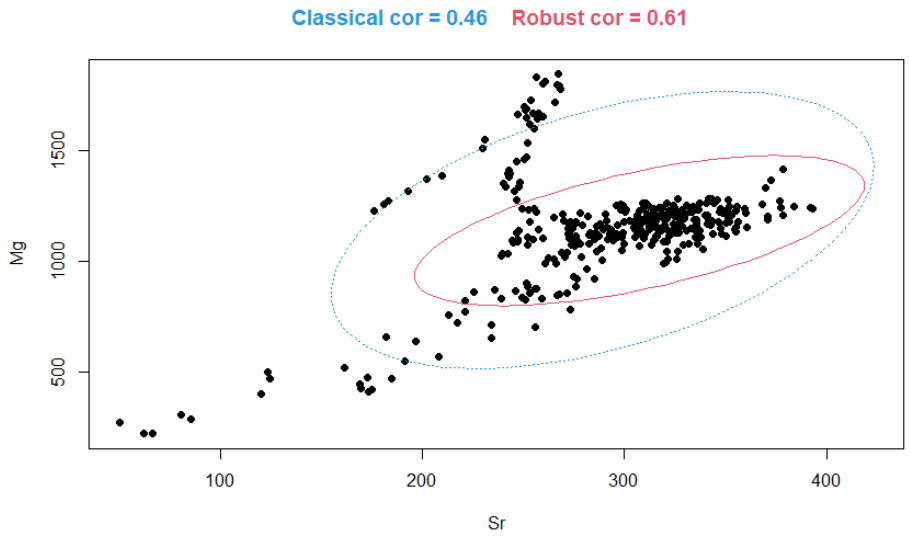
- **Zn vs Sr**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Sr t = 20.166, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.6865859 0.7837428 sample estimates: **cor** **0.7389826**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Sr S = 1506568, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.770011**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7459763**	



- **Mg vs Sr**

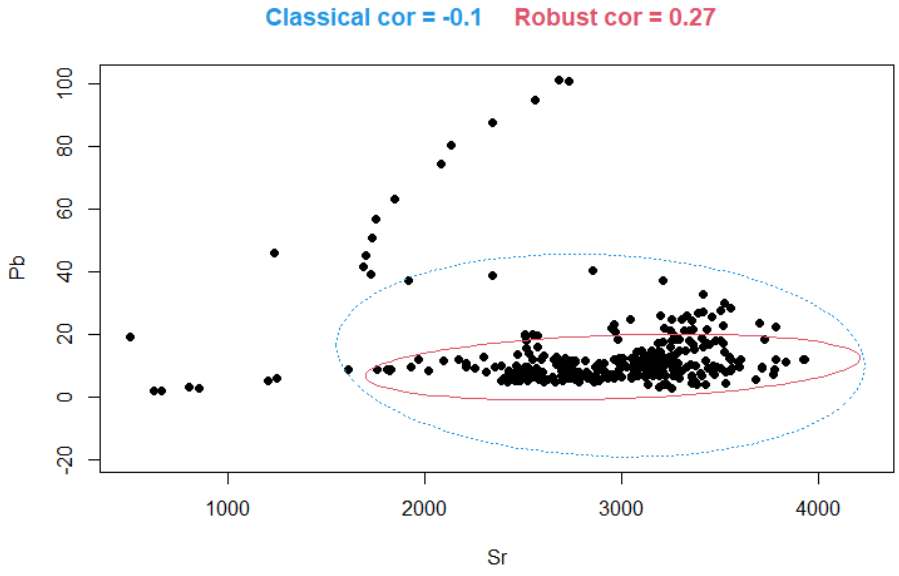
Classical test	Pearson's product-moment correlation data: Aa211C_CC$Mg and Aa211C_CC$Sr t = 9.5244, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.3718262 0.5399413 sample estimates: **cor** **0.4599964**	Spearman's rank correlation rho data: Aa211C_CC$Mg and Aa211C_CC$Sr S = 4795796, **p-value = 5.916e-07** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2678856**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.607433**	



- **Pb vs Sr**

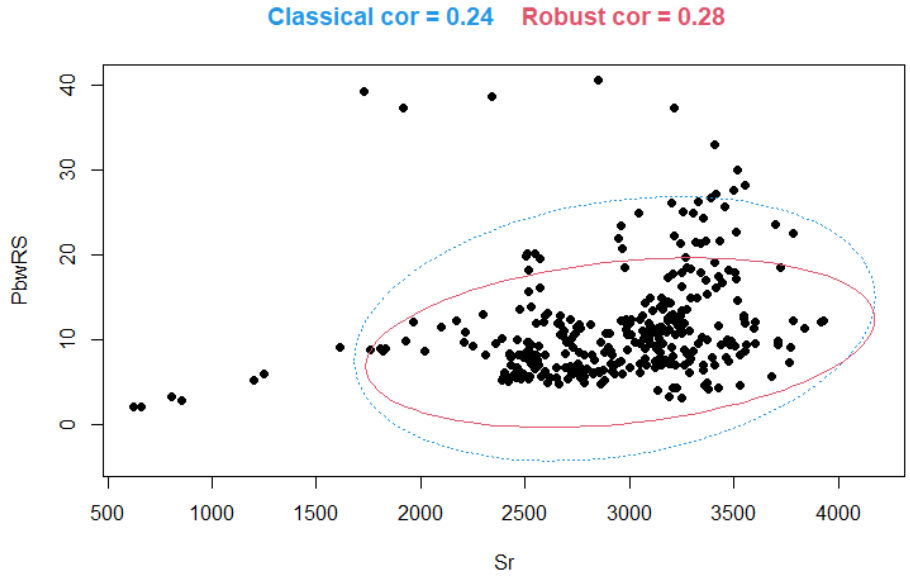
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Sr and Aa211C_CC$Pb t = -1.9403, df = 338, **p-value = 0.05318** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.20898408 0.00142329 sample estimates: **cor** **-0.1049548**	Spearman's rank correlation rho data: Aa211C_CC$Sr and Aa211C_CC$Pb S = 5138998, **p-value = 6.42e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2154932**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.2704948**	



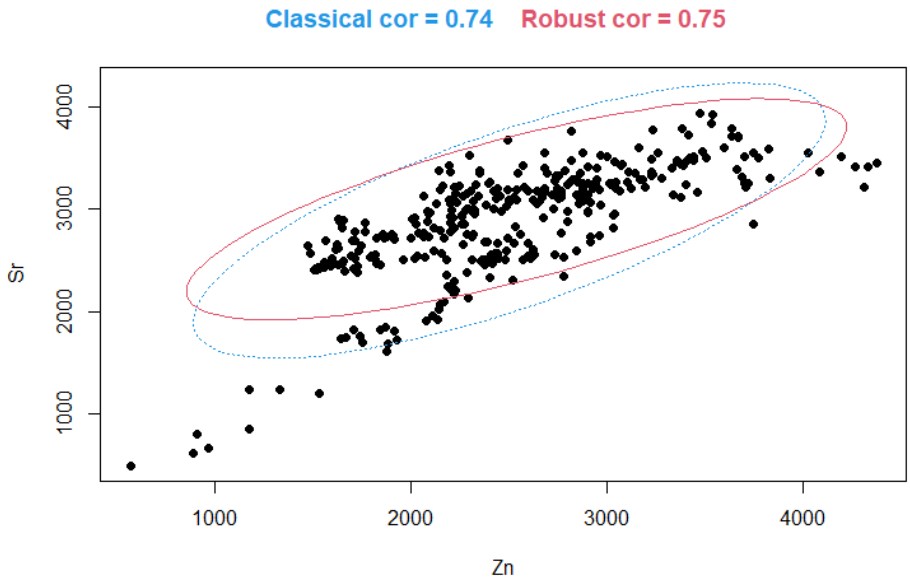
Removing 27 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Aa211C_CC_wRS$Sr and Aa211C_CC_wRS$Pb t = 4.4666, df = 325, **p-value = 1.098e-05** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1355669 0.3400778 sample estimates: **cor** **0.2404895**	Spearman's rank correlation rho data: Aa211C_CC_wRS$Zn and Aa211C_CC_wRS$Pb S = 2159708, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6293986**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.2800147**	



- **Sr vs Zn**

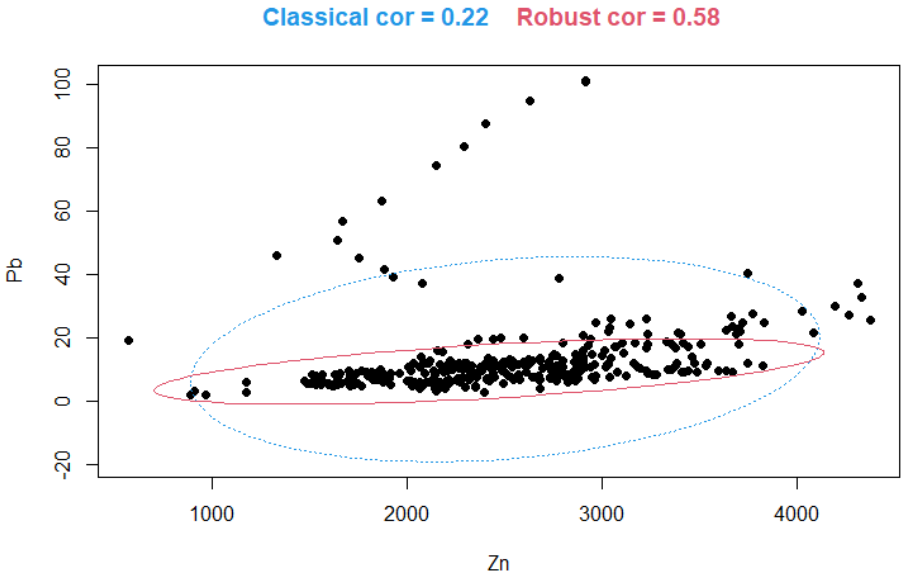
Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Sr t = 20.166, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.6865859 0.7837428 sample estimates: **cor** **0.7389826**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Sr S = 1506568, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.770011**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7459763**	



- **Pb vs Zn**

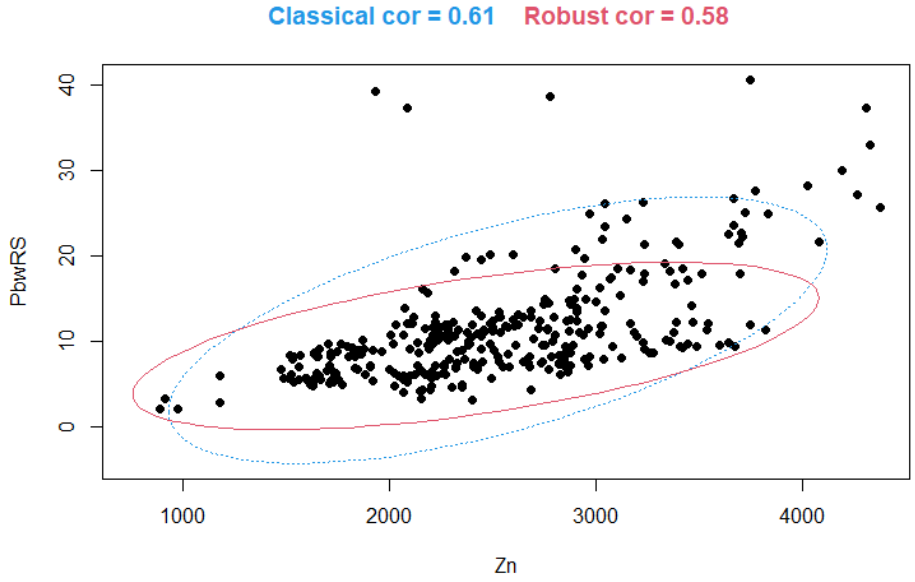
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Pb t = 4.2406, df = 338, **p-value = 2.88e-05** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1212964 0.3233902 sample estimates: **cor** **0.2247589**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Pb S = 3010790, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5403802**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.5789923**	



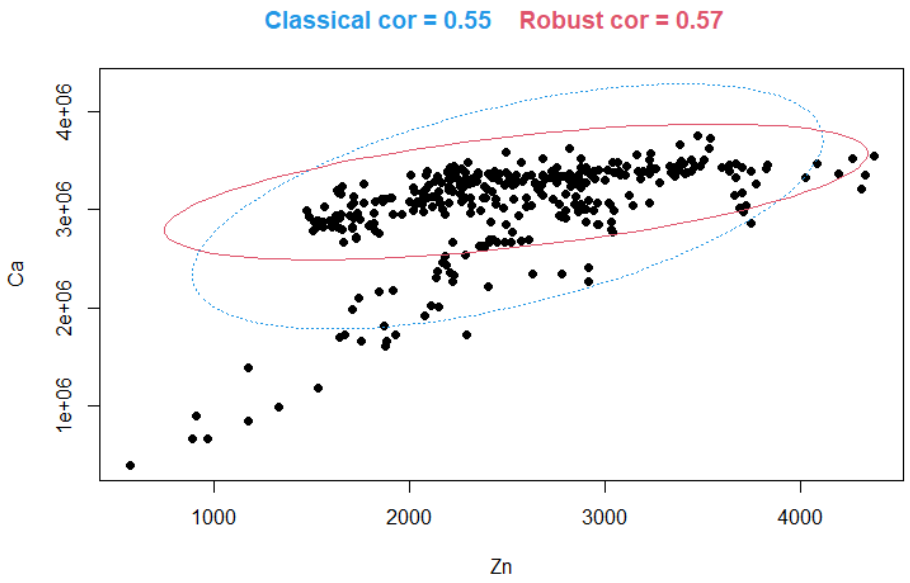
Removing 27 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Aa211C_CC_wRS$Zn and Aa211C_CC_wRS$Pb t = 13.887, df = 325, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.5373619 0.6740960 sample estimates: **cor** **0.610254**	Spearman's rank correlation rho data: Aa211C_CC_wRS$Zn and Aa211C_CC_wRS$Pb S = 2159708, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6293986**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.5752824**	



- **Zn vs Ca**

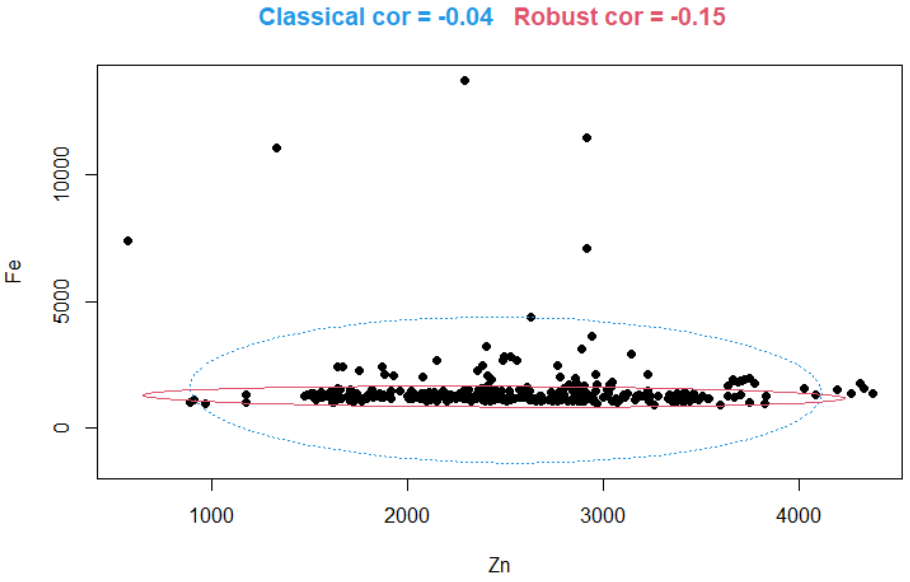
Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Ca t = 12.248, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.4761334 0.6239848 sample estimates: **cor** **0.5544184**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Ca S = 2718964, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5849296**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.5666424**	



- **Zn vs Fe**

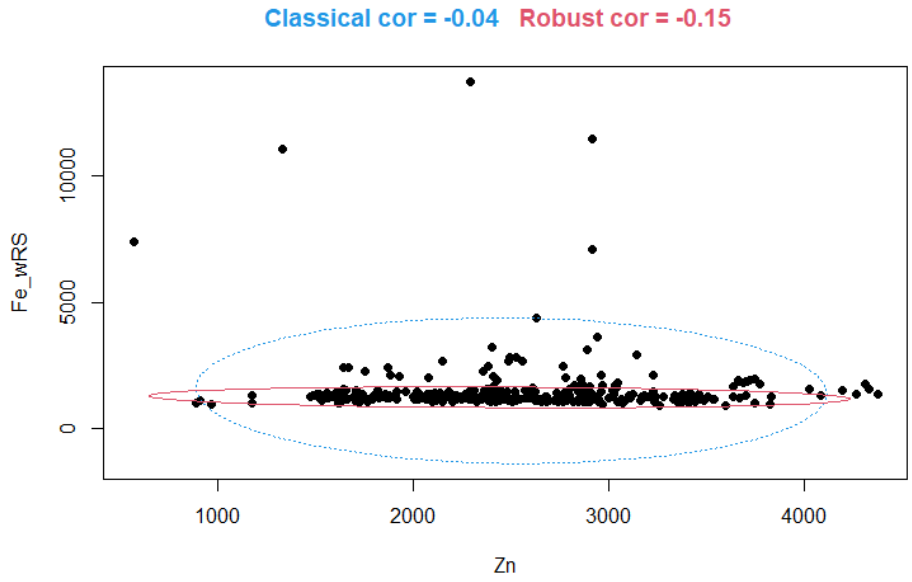
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Fe t = -0.79887, df = 338, **p-value = 0.4249** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.14908558 0.06324246 sample estimates: **cor** **-0.04341176**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Fe S = 6501830, **p-value = 0.8911** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.007446635**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.1496604**	



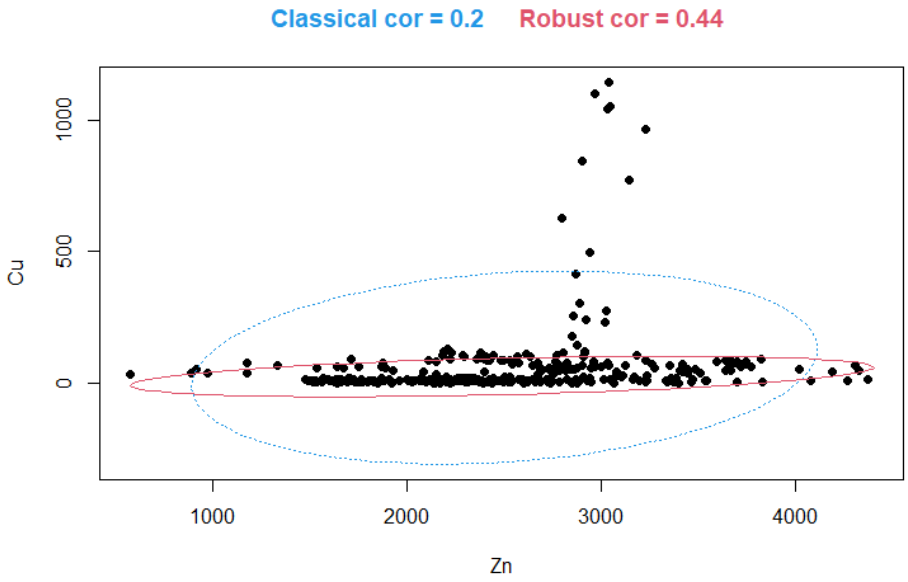
Removing 15 µm of Fe-enriched root surface:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Fe t = -0.79887, df = 338, **p-value = 0.4249** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.14908558 0.06324246 sample estimates: **cor** **-0.04341176**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Fe S = 6501830, **p-value = 0.8911** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.007446635**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.1496604**	



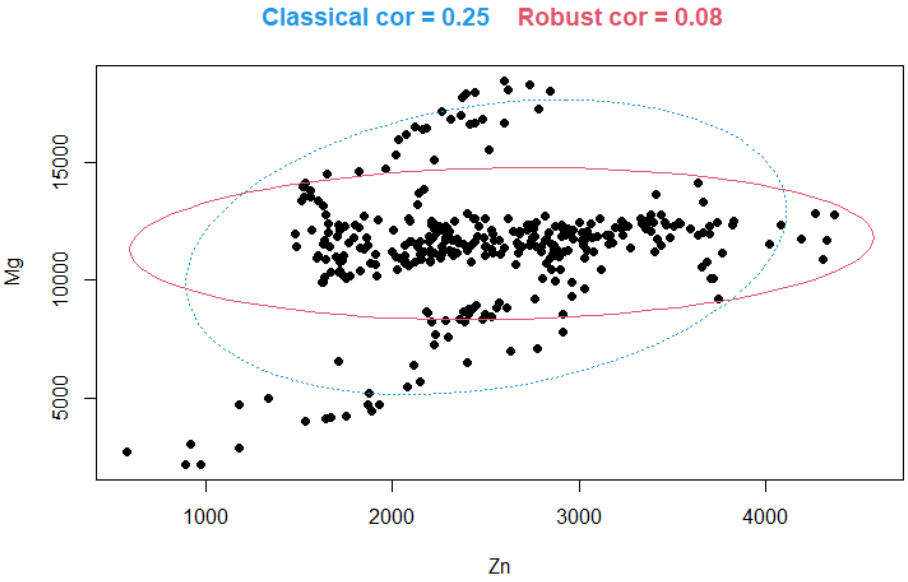
- **Zn vs Cu**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Cu t = 3.6814, df = 338, **p-value = 0.0002699** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.09190018 0.29651317 sample estimates: **cor** **0.1963432**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Cu S = 4278960, **p-value = 6.446e-11** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.3467845**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4401857**	



- **Zn vs Mg**

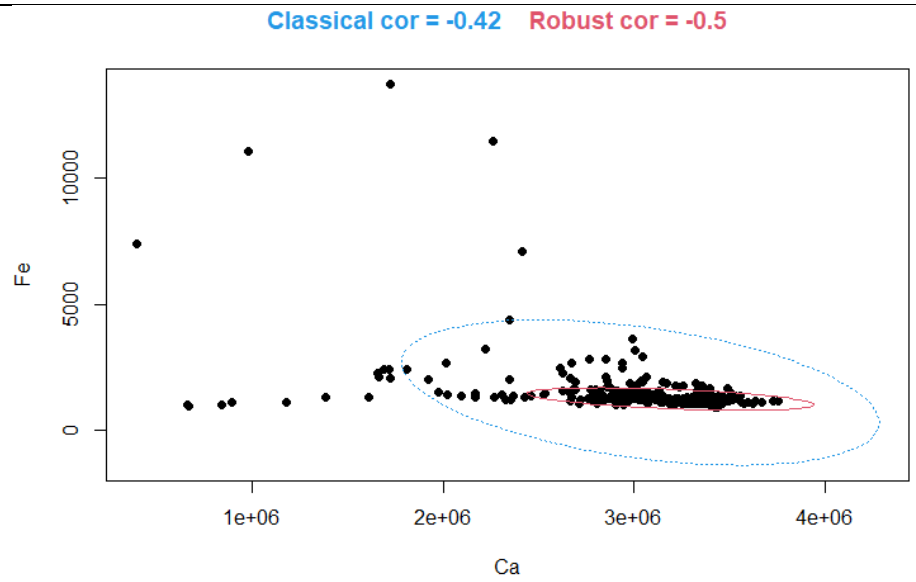
Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Mg t = 4.7487, df = 338, **p-value = 3.03e-06** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1476523 0.3472134 sample estimates: **cor** **0.250087**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Mg S = 5277330, **p-value = 0.0003195** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1943758**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.08211205**	



- **Ca vs Fe**

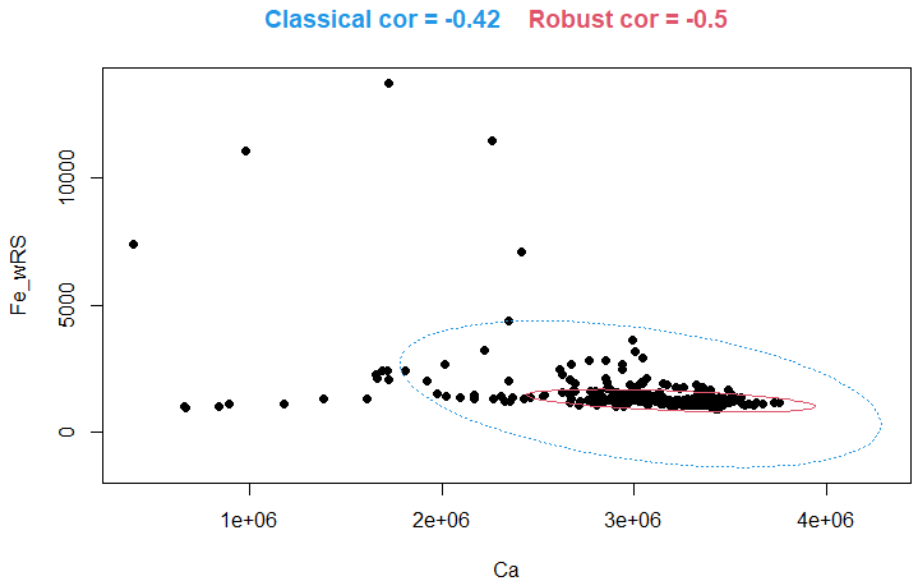
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ca and Aa211C_CC$Fe t = -8.4272, df = 338, **p-value = 1.033e-15** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.5008532 -0.3247181 sample estimates: **cor** **-0.4166888**	Spearman's rank correlation rho data: Aa211C_CC$Ca and Aa211C_CC$Fe S = 9906092, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.5122396**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.4999543**	



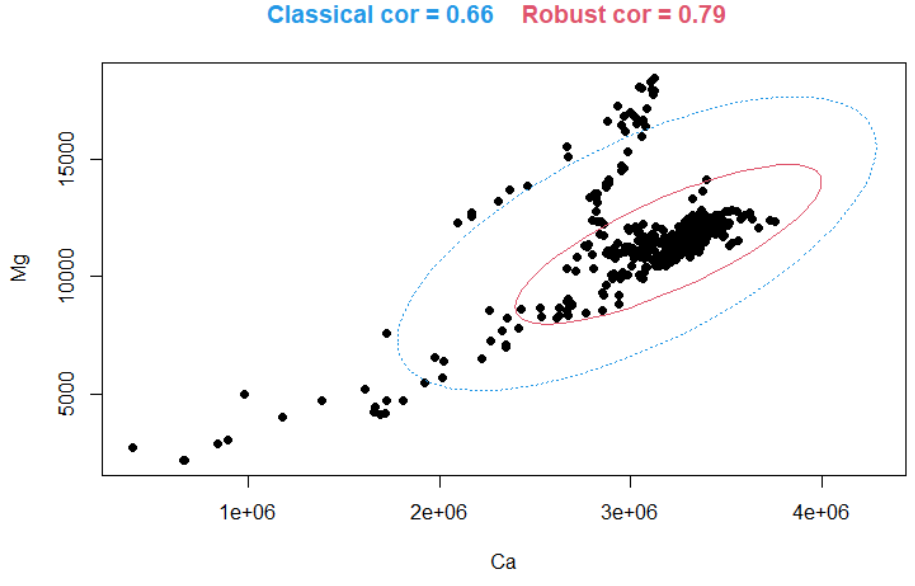
Removing 15 µm of Fe-enriched root surface:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ca and Aa211C_CC$Fe t = -8.4272, df = 338, **p-value = 1.033e-15** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.5008532 -0.3247181 sample estimates: **cor** **-0.4166888**	Spearman's rank correlation rho data: Aa211C_CC$Ca and Aa211C_CC$Fe S = 9906092, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.5122396**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.4999543**	



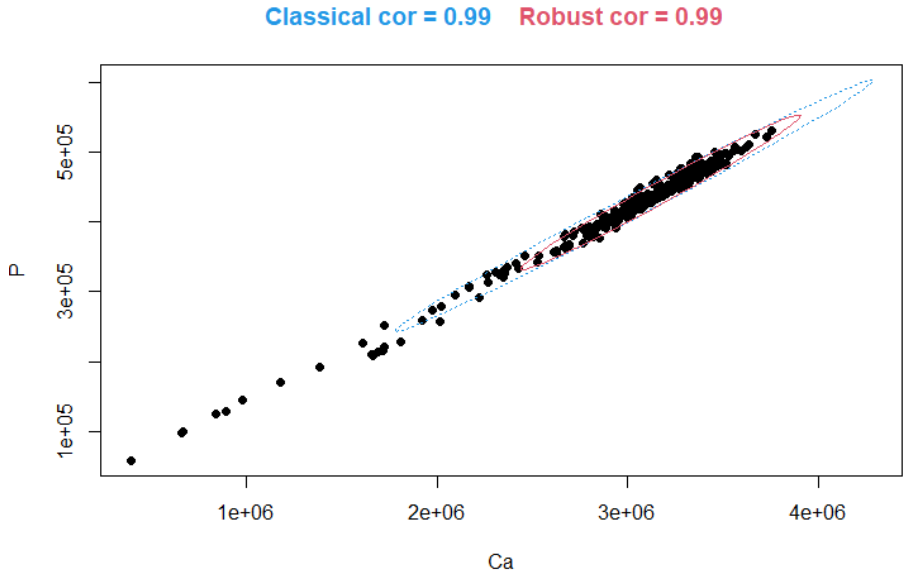
- **Ca vs Mg**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ca and Aa211C_CC$Mg t = 16.104, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.5941831 0.7151465 sample estimates: **cor** **0.6589035**	Spearman's rank correlation rho data: Aa211C_CC$Ca and Aa211C_CC$Mg S = 3592892, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.451518**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7879131**	



- **Ca vs P**

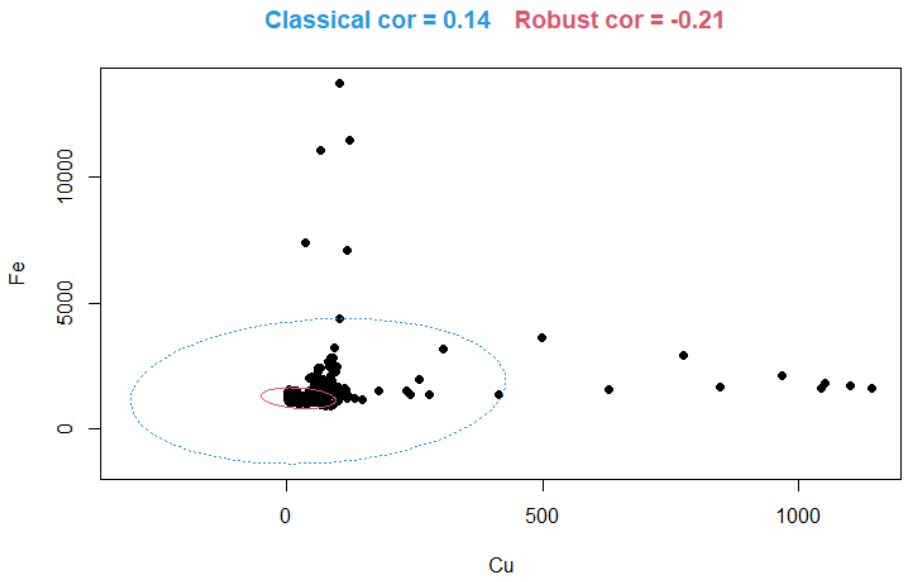
Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ca and Aa211C_CC$P t = 175.03, df = 338, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.9932310 0.9955785 sample estimates: **cor** **0.9945289**	Spearman's rank correlation rho data: Aa211C_CC$Ca and Aa211C_CC$P S = 112302, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.9828563**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.9880191**	



- **Cu vs Fe**

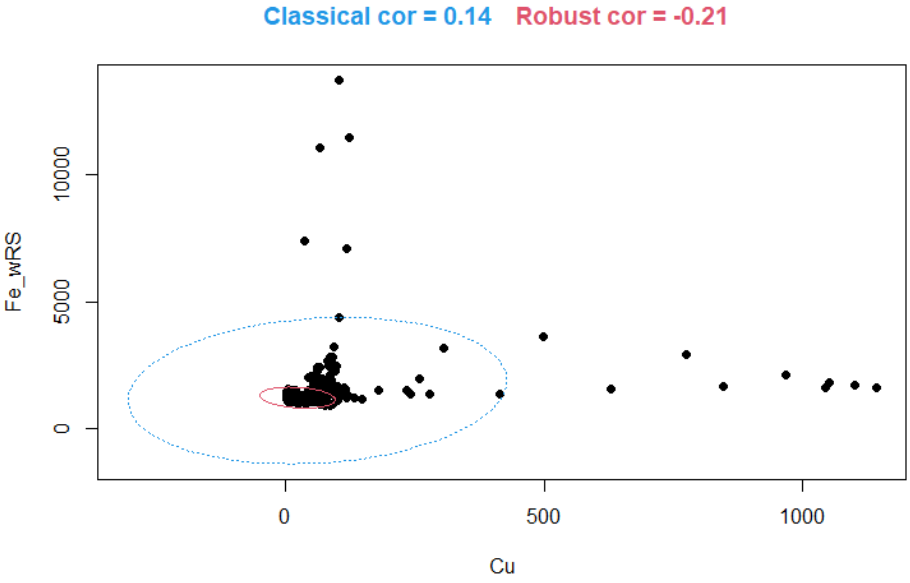
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Cu and Aa211C_CC$Fe t = 2.5683, df = 338, **p-value = 0.01065** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.03246759 0.24116538 sample estimates: **cor** **0.138352**	Spearman's rank correlation rho data: Aa211C_CC$Cu and Aa211C_CC$Fe S = 4806092, **p-value = 6.913e-07** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2663138**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.2079025**	



Removing 15 µm of Fe-enriched root surface:

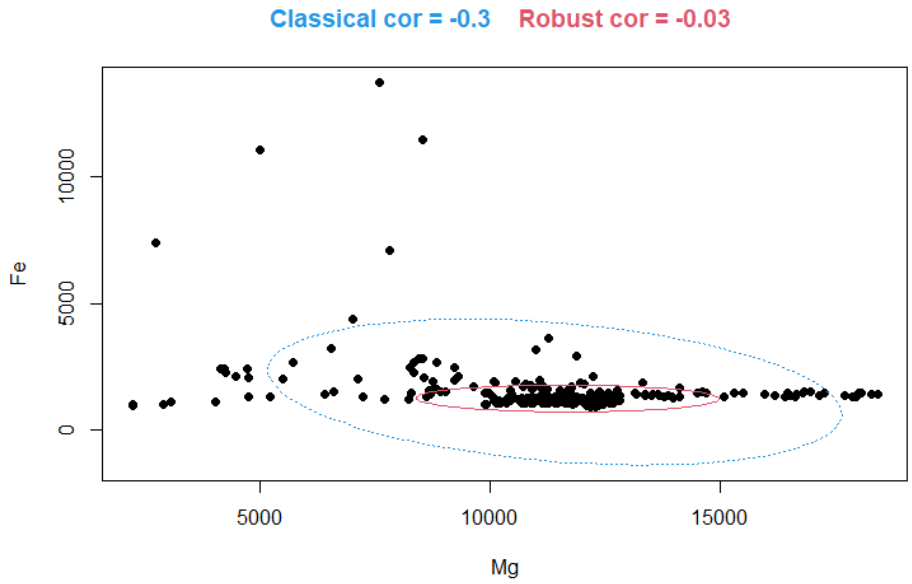
Classical test	Pearson's product-moment correlation data: Aa211C_CC$Cu and Aa211C_CC$Fe t = 2.5683, df = 338, **p-value = 0.01065** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.03246759 0.24116538 sample estimates: **cor** **0.138352**	Spearman's rank correlation rho data: Aa211C_CC$Cu and Aa211C_CC$Fe S = 4806092, **p-value = 6.913e-07** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2663138**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.2079025**	



- **Mg vs Fe**

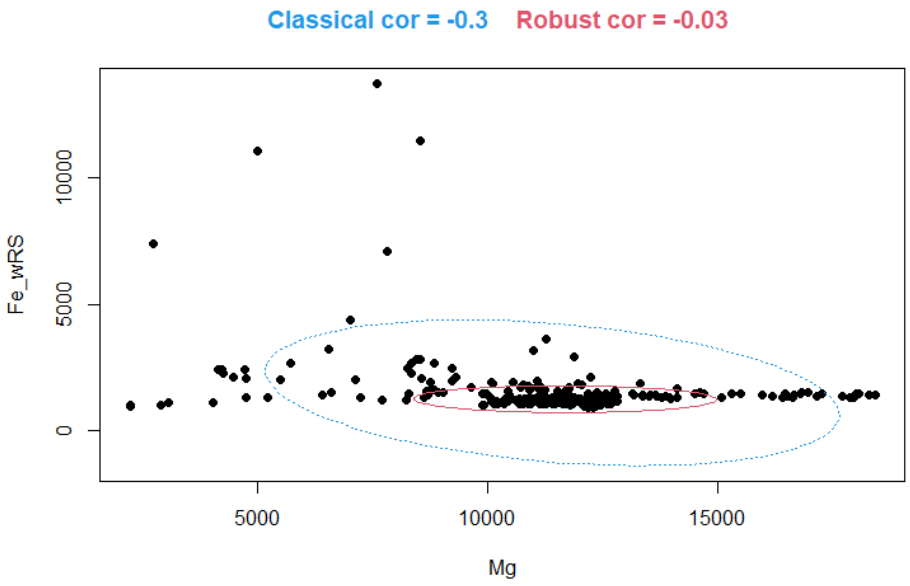
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Mg and Aa211C_CC$Fe t = -5.8506, df = 338, **p-value = 1.157e-08** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3968103 -0.2034466 sample estimates: **cor** **-0.3032469**	Spearman's rank correlation rho data: Aa211C_CC$Mg and Aa211C_CC$Fe S = 7273132, **p-value = 0.04214** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.1102984**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.02840057**	



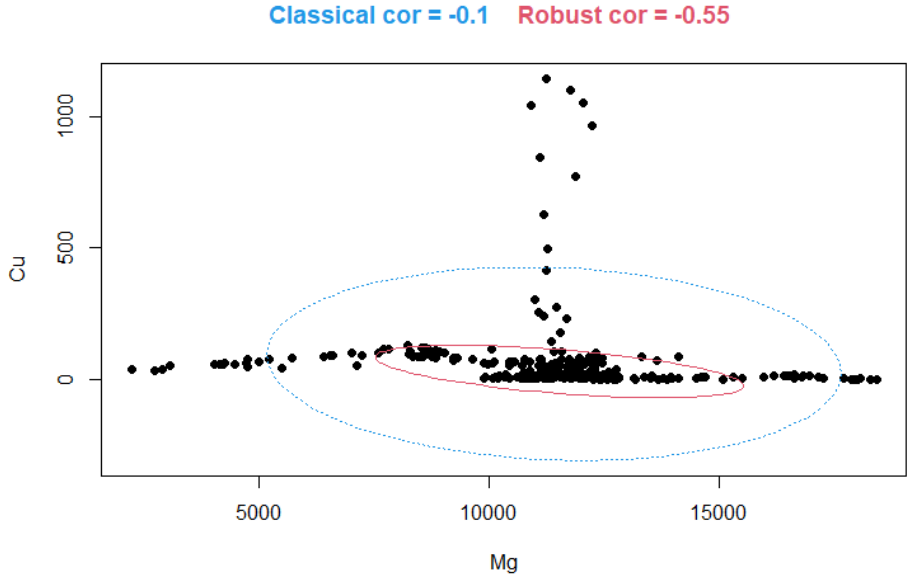
Removing 15 µm of Fe-enriched root surface:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Mg and Aa211C_CC$Fe t = -5.8506, df = 338, **p-value = 1.157e-08** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3968103 -0.2034466 sample estimates: **cor** **-0.3032469**	Spearman's rank correlation rho data: Aa211C_CC$Mg and Aa211C_CC$Fe S = 7273132, **p-value = 0.04214** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.1102984**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.02840057**	



- **Cu vs Mg**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Mg and Aa211C_CC$Cu t = -1.8016, df = 338, **p-value = 0.0725** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.201796969 0.008926746 sample estimates: **cor** **-0.09752806**	Spearman's rank correlation rho data: Aa211C_CC$Mg and Aa211C_CC$Cu S = 9576908, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.4619872**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.5469069**	

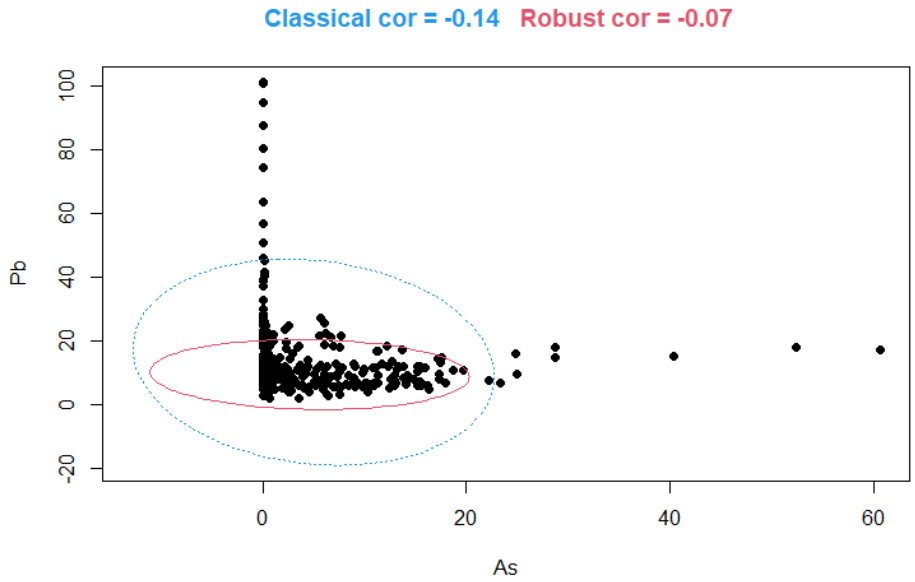


- **As vs Hg, Pb vs Hg (no Hg at all). => Not Applicable.**

- **Pb vs As**

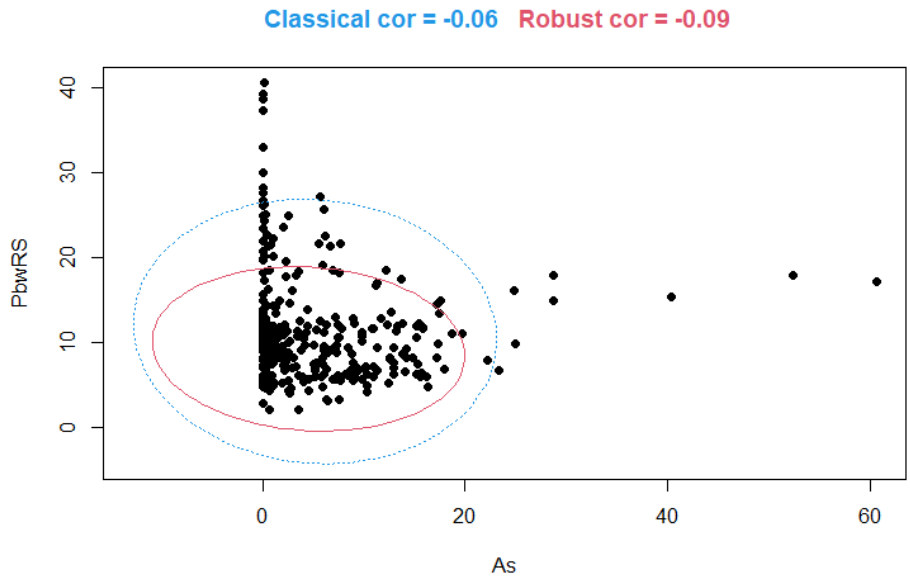
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$As and Aa211C_CC$Pb t = -2.565, df = 338, **p-value = 0.01075** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.24099712 -0.03228913 sample estimates: **cor** **-0.1381768**	Spearman's rank correlation rho data: Aa211C_CC$As and Aa211C_CC$Pb S = 7893065, **p-value = 0.0001416** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.2049359** *Impossible to calculate the exact p-value with ex-aequos*
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.07379289**	



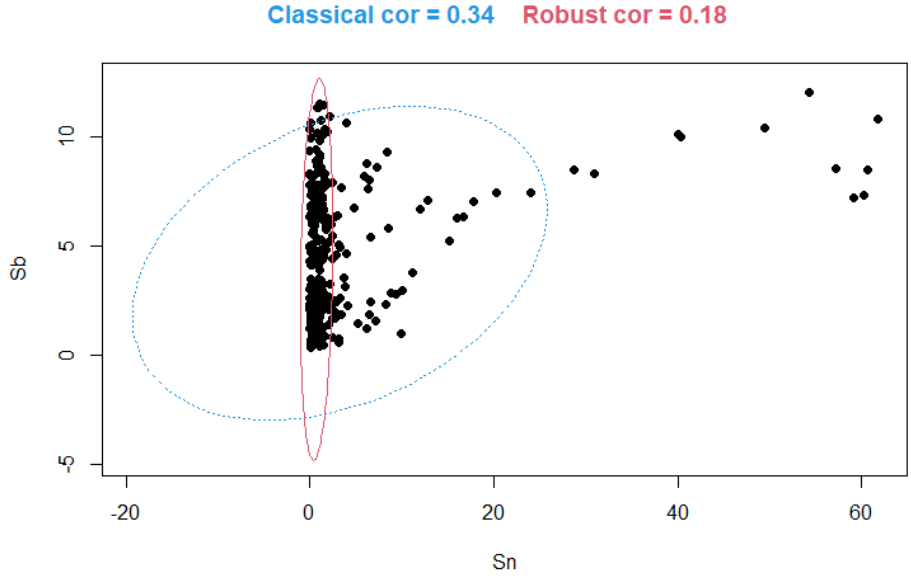
Removing 27 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Aa211C_CC_wRS$As and Aa211C_CC_wRS$Pb t = -1.1211, df = 325, **p-value = 0.2631** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.16938326 0.04670812 sample estimates: **cor** **-0.06206488**	Spearman's rank correlation rho data: Aa211C_CC_wRS$As and Aa211C_CC_wRS$Pb S = 6591902, **p-value = 0.01765** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.1311567** *Impossible to calculate the exact p-value with ex-aequos*
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.08793329**	



- **Sb vs Sn**

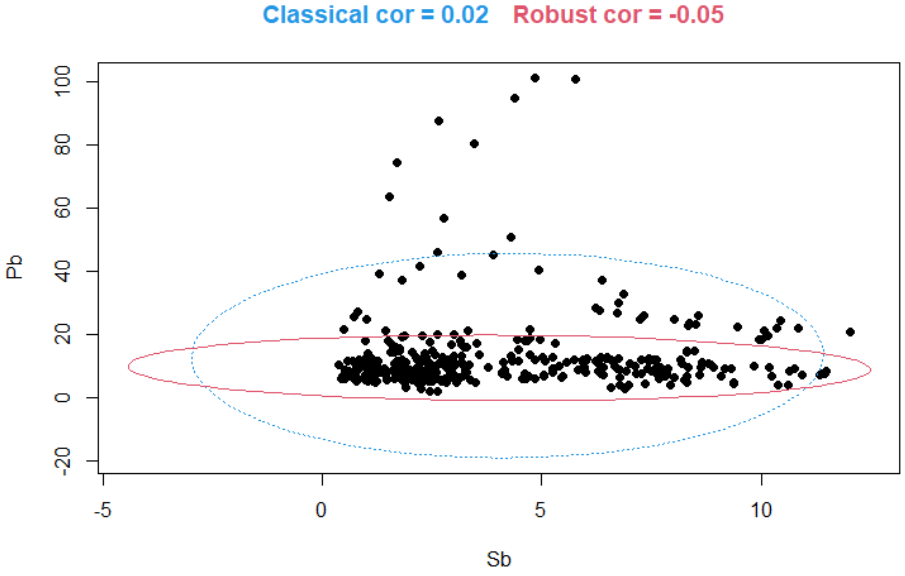
Classical test	Pearson's product-moment correlation data: Aa211C_CC$Sn and Aa211C_CC$Sb t = 6.6484, df = 338, **p-value = 1.191e-10** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.2424784 0.4308482 sample estimates: **cor** **0.34007**	Spearman's rank correlation rho data: Aa211C_CC$Sn and Aa211C_CC$Sb S = 4952632, **p-value = 5.724e-06** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2439434**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1804737**	



- **Pb vs Sb**

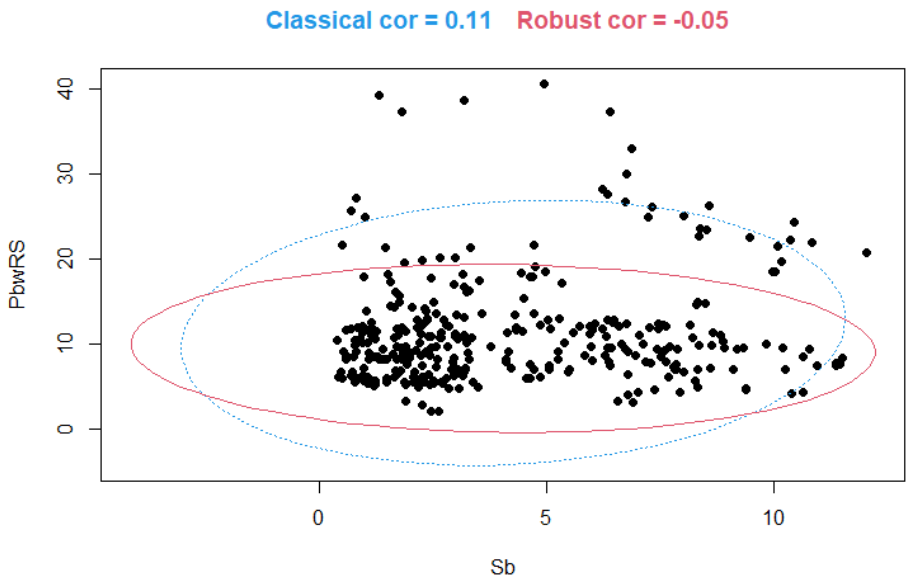
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Sb and Aa211C_CC$Pb t = 0.31289, df = 338, **p-value = 0.7546** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.08950772 0.12315580 sample estimates: **cor** **0.01701649**	Spearman's rank correlation rho data: Aa211C_CC$Sb and Aa211C_CC$Pb S = 5975776, **p-value = 0.1062** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.08775274**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.05452402**	



Removing 27 µm of Pb-enriched root surface:

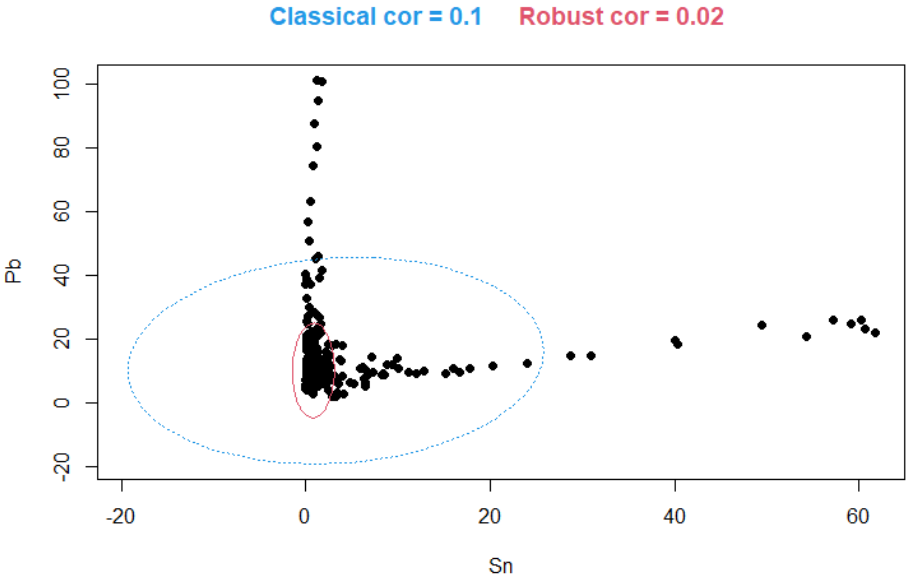
Classical test	Pearson's product-moment correlation data: Aa211C_CC_wRS$Sb and Aa211C_CC_wRS$Pb t = 2.0427, df = 325, **p-value = 0.04189** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.004181806 0.218381198 sample estimates: **cor** **0.1125893**	Spearman's rank correlation rho data: Aa211C_CC_wRS$Sb and Aa211C_CC_wRS$Pb S = 5227674, **p-value = 0.063** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1029419**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.04749927**	



- **Pb vs Sn**

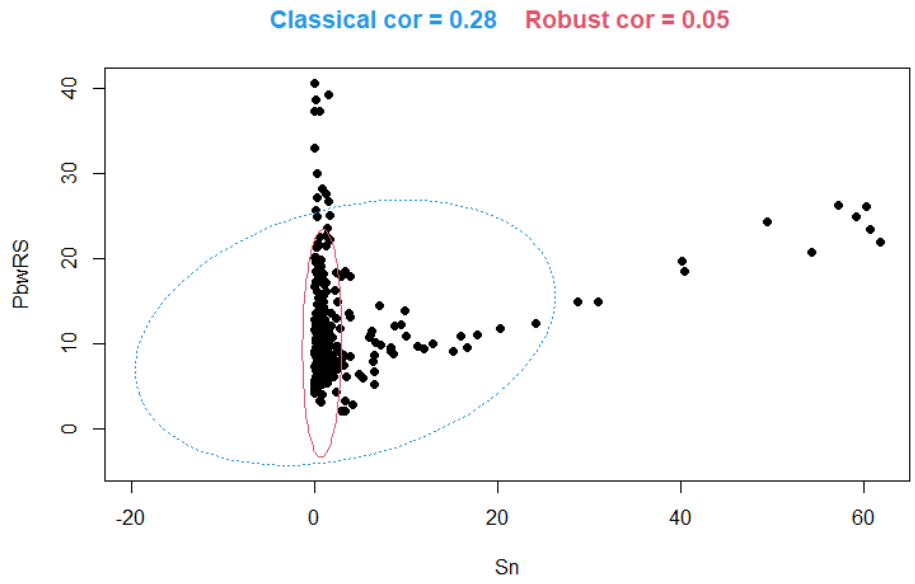
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Sn and Aa211C_CC$Pb t = 1.7675, df = 338, **p-value = 0.07805** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.01077634 0.20002186 sample estimates: **cor** **0.09569555**	Spearman's rank correlation rho data: Aa211C_CC$Sn and Aa211C_CC$Pb S = 5741980, **p-value = 0.02287** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1234435**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.02039293**	



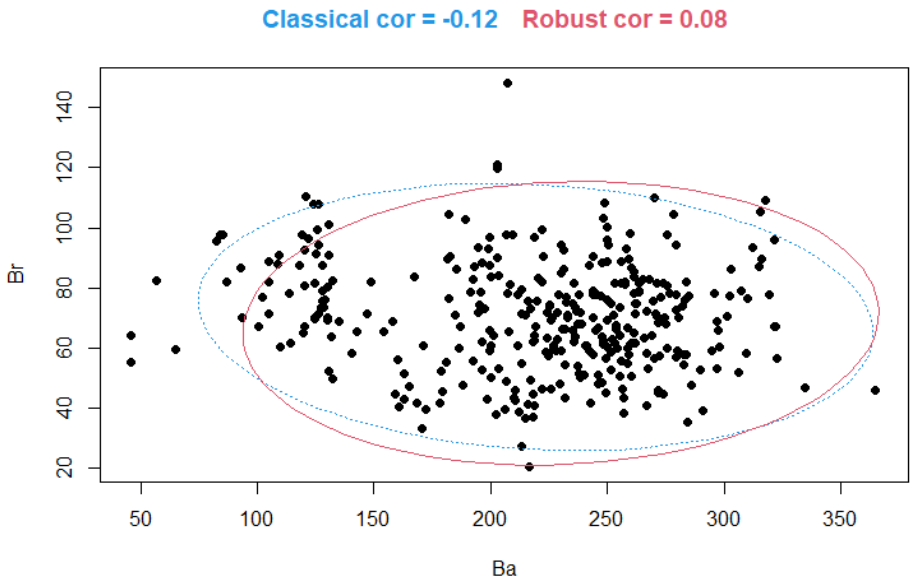
Removing 27 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Aa211C_CC_wRS$Sn and Aa211C_CC_wRS$Pb t = 5.3054, df = 325, **p-value = 2.084e-07** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1793539 0.3791690 sample estimates: **cor** **0.2823206**	Spearman's rank correlation rho data: Aa211C_CC_wRS$Sn and Aa211C_CC_wRS$Pb S = 5124926, **p-value = 0.02931** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1205733**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.05272294**	



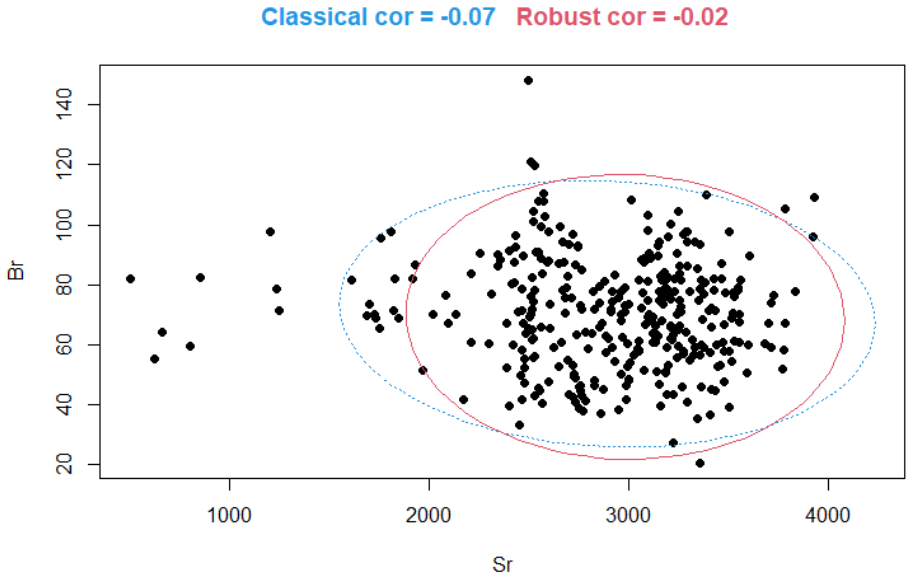
- **Br vs Ba**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ba and Aa211C_CC$Br t = -2.2626, df = 338, **p-value = 0.0243** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.22557786 -0.01599186 sample estimates: **cor** **-0.1221463**	Spearman's rank correlation rho data: Aa211C_CC$Ba and Aa211C_CC$Br S = 7161164, **p-value = 0.08615** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.09320567**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.0757424**	



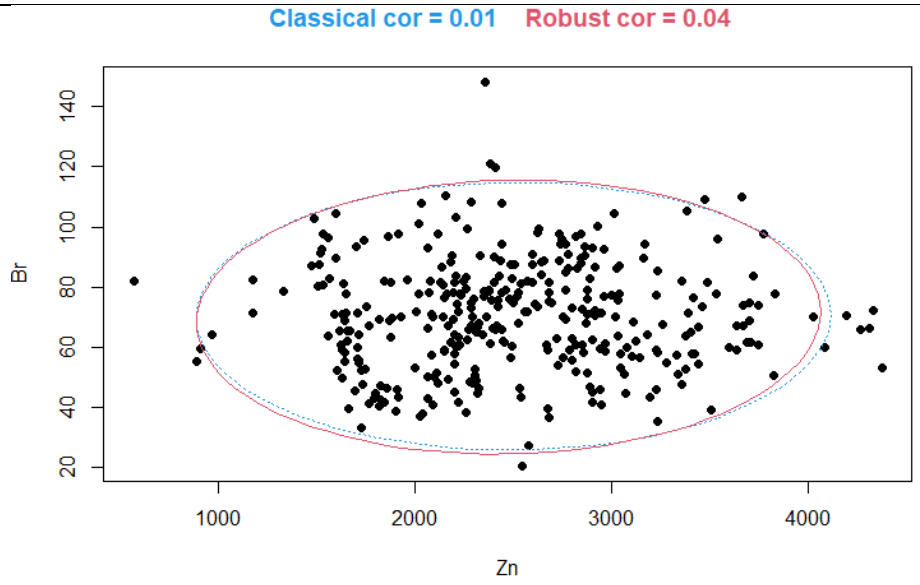
- **Br vs Sr**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Sr and Aa211C_CC$Br t = -1.3668, df = 338, **p-value = 0.1726** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.17908762 0.03248073 sample estimates: **cor** **-0.0741376**	Spearman's rank correlation rho data: Aa211C_CC$Sr and Aa211C_CC$Br S = 7018806, **p-value = 0.1885** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.07147365**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.02307787**	



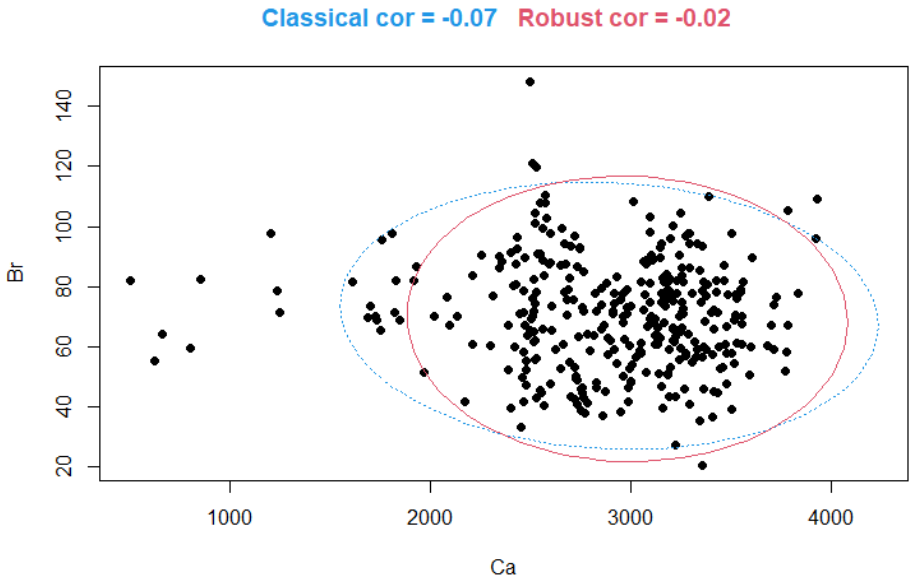
- **Br vs Zn**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Zn and Aa211C_CC$Br t = 0.19553, df = 338, **p-value = 0.8451** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.09583573 0.11686490 sample estimates: **cor** **0.01063488**	Spearman's rank correlation rho data: Aa211C_CC$Zn and Aa211C_CC$Br S = 6435608, **p-value = 0.7469** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.01755592**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.03940319**	



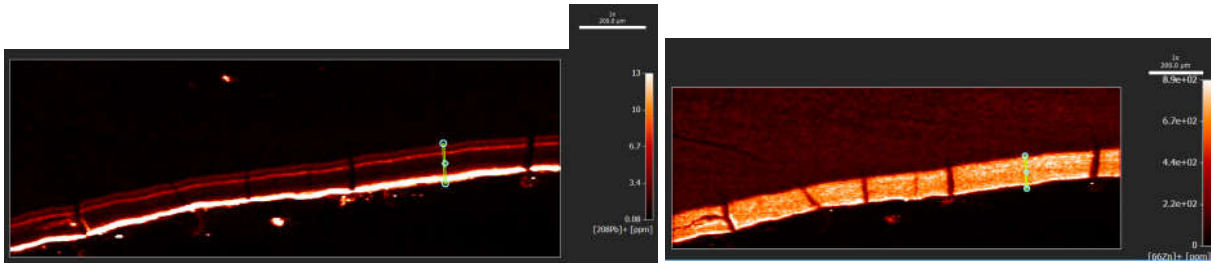
- **Br vs Ca**

Classical test	Pearson's product-moment correlation data: Aa211C_CC$Ca and Aa211C_CC$Br t = -1.3833, df = 338, **p-value = 0.1675** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.17995719 0.03158313 sample estimates: **cor** **-0.07503112**	Spearman's rank correlation rho data: Aa211C_CC$Ca and Aa211C_CC$Br S = 6896554, **p-value = 0.3314** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.05281096**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.02307787**	


Classical cor = -0.07
Robust cor = -0.02
Br
Ca
20
40
60
80
100
120
140
1000
2000
3000
4000

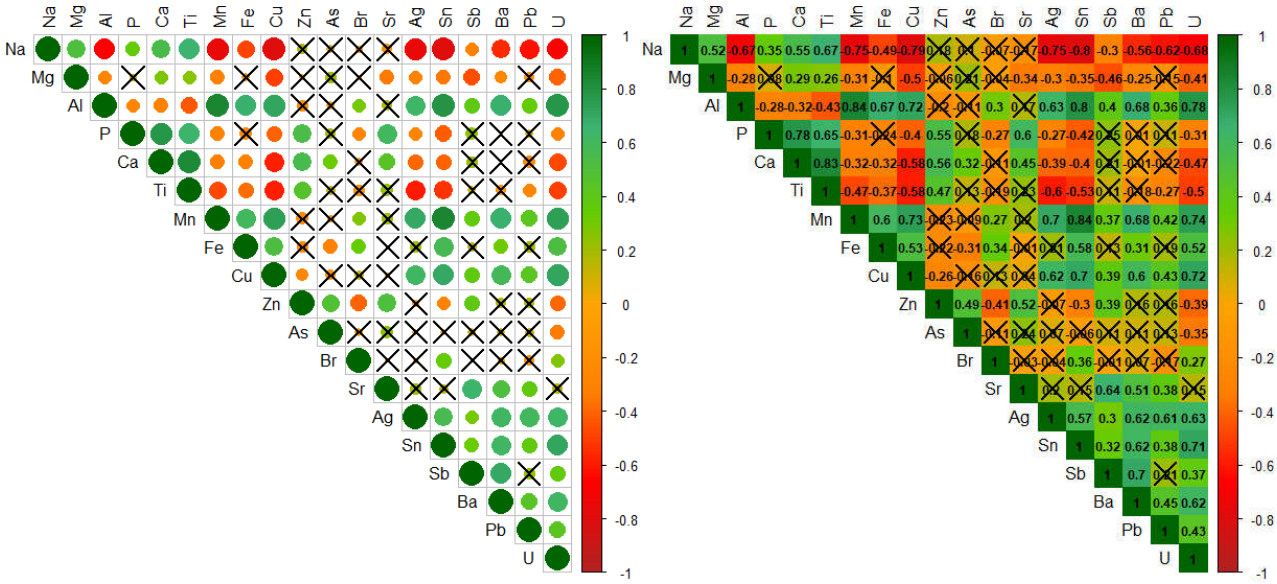
Odense 533M1 – Acellular Cementum (total thickness=122 µm)

Correlations between pairs of elements

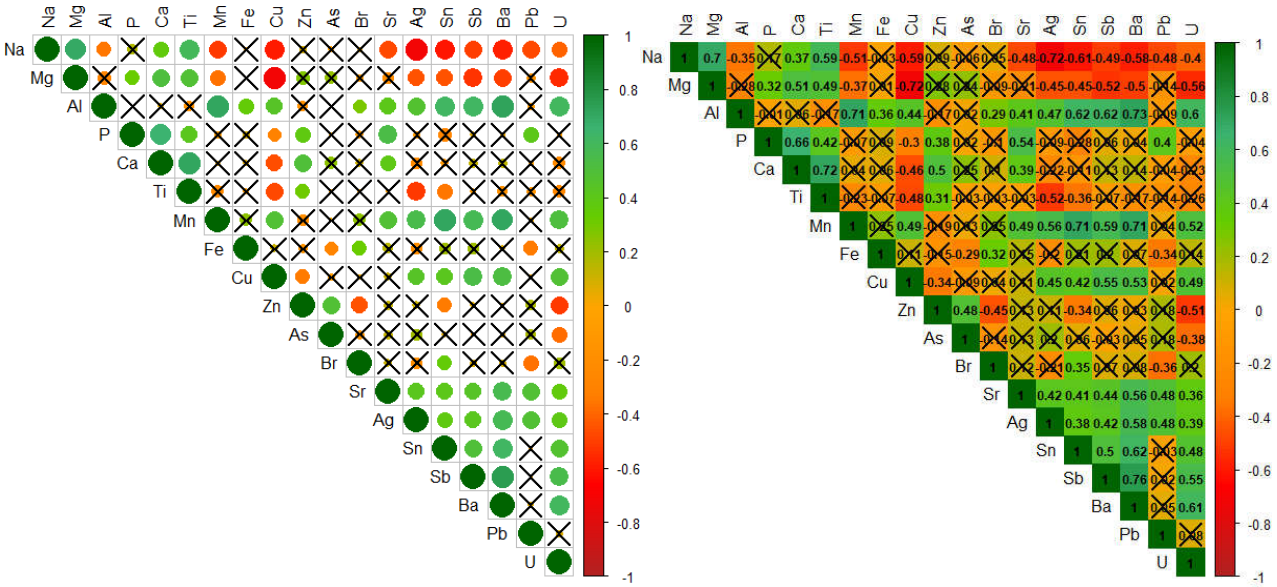


Pb (left) and Zn (right) maps (green path indicates where the measurements are taken)

Summary: whole cementum thickness, Spearman correlations.



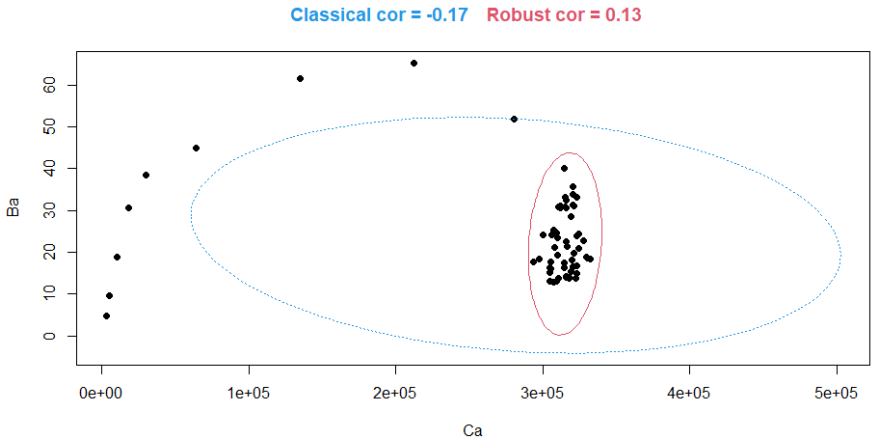
Summary: removing the first 25 µm of root surface, Spearman correlations.



wRS: without Root surface [Pb = ~25 µm; Fe = ~20 µm; Mn = ~25 µm; Al = ~18 µm]

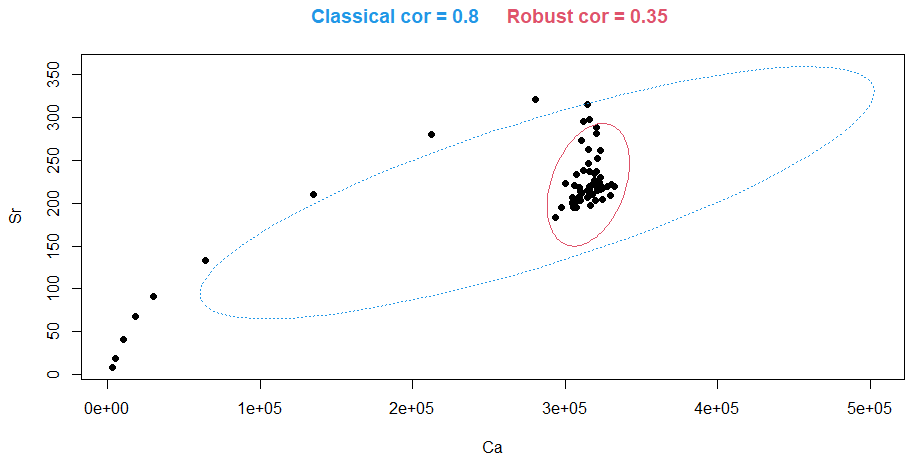
- **Ca vs Ba**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ca and Od533M_AC$Ba t = -1.3231, df = 60, **p-value = 0.1908** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.40126689 0.08496775 sample estimates: **cor** **-0.1683737**	Spearman's rank correlation rho data: Od533M_AC$Ca and Od533M_AC$Ba S = 40122, **p-value = 0.9363** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.01034978**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1322351**	



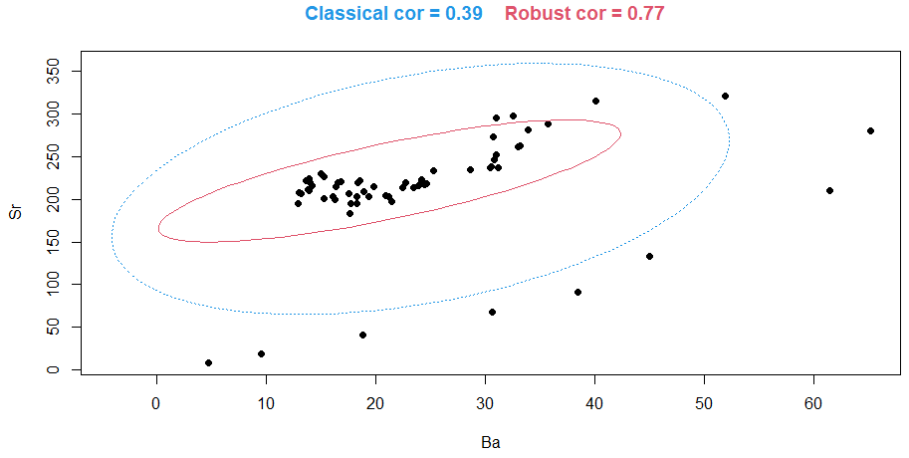
- **Ca vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ca and Od533M_AC$Sr t = 10.43, df = 60, **p-value = 4.231e-15** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.6917803 0.8767852 sample estimates: **cor** **0.8028315**	Spearman's rank correlation rho data: Od533M_AC$Ca and Od533M_AC$Sr S = 21722, **p-value = 0.0002536** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.4529979**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.3525441**	



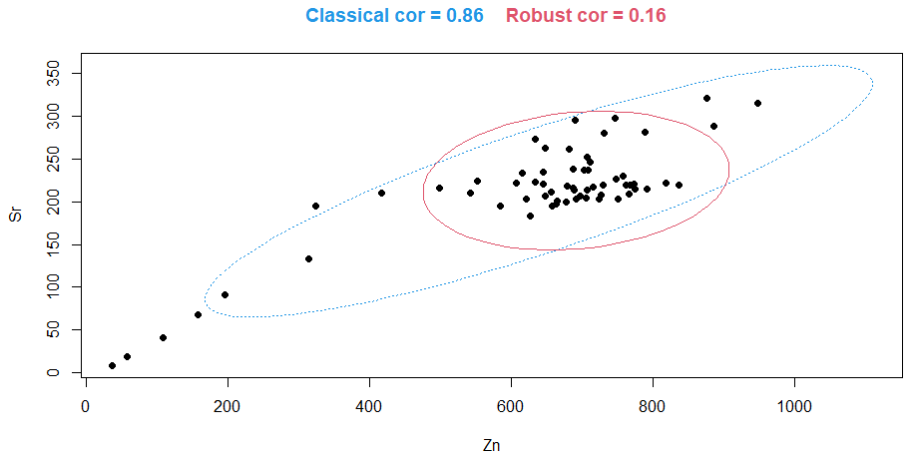
- **Ba vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ba and Od533M_AC$Sr t = 3.2487, df = 60, **p-value = 0.001901** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1516530 0.5804646 sample estimates: **cor** **0.3867711**	Spearman's rank correlation rho data: Od533M_AC$Ba and Od533M_AC$Sr S = 19484, **p-value = 3.066e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5093551**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.773796**	



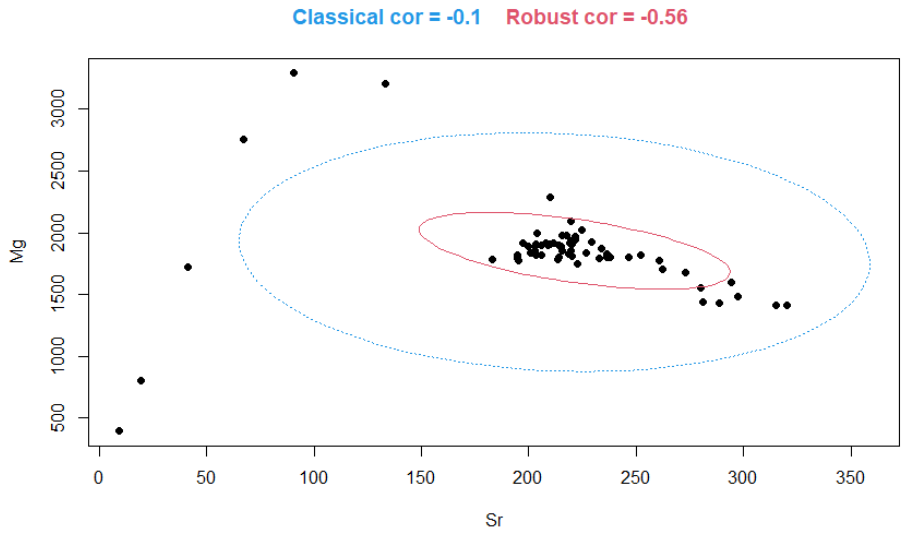
- **Zn vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Zn and Od533M_AC$Sr t = 12.962, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.7747542 0.9125301 sample estimates: **cor** **0.858412**	Spearman's rank correlation rho data: Od533M_AC$Zn and Od533M_AC$Sr S = 19190, **p-value = 2.263e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5167586**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1622059**	



- **Mg vs Sr**

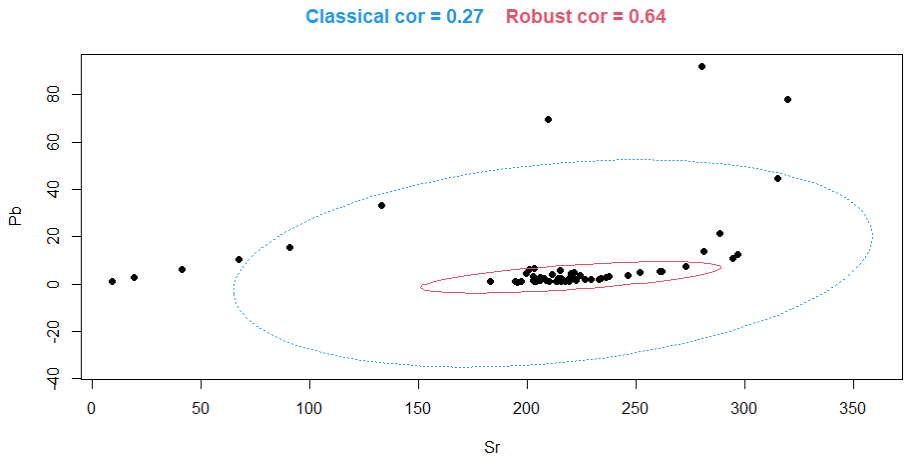
Classical test	Pearson's product-moment correlation data: Od533M_AC$Sr and Od533M_AC$Mg t = -0.74167, df = 60, **p-value = 0.4612** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3370577 0.1582213 sample estimates: **cor** **-0.09531356**	Spearman's rank correlation rho data: Od533M_AC$Sr and Od533M_AC$Mg S = 53034, **p-value = 0.00795** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.5588916**	



- **Pb vs Sr**

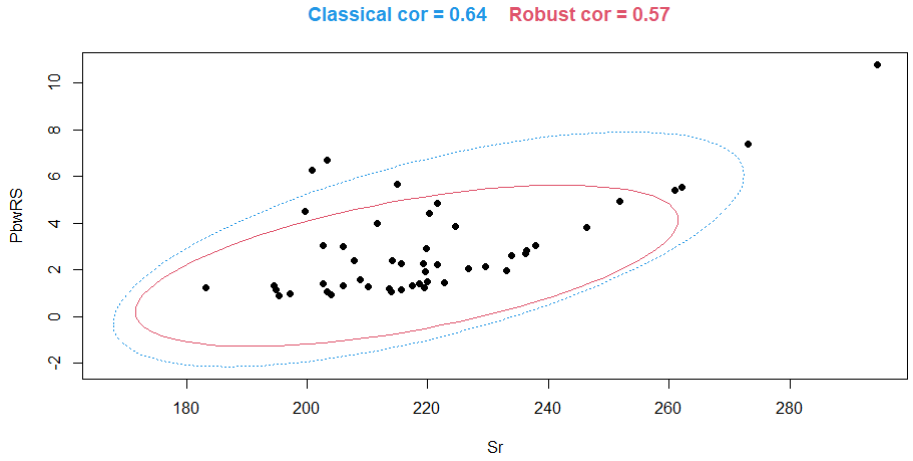
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Sr and Od533M_AC$Pb t = 2.1467, df = 60, **p-value = 0.03587** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.0185453 0.4845234 sample estimates: **cor** **0.2670764**	Spearman's rank correlation rho data: Od533M_AC$Sr and Od533M_AC$Pb S = 24506, **p-value = 0.002278** alternative hypothesis: true rho is not equal to 0 sample estimates: rho 0.3828914
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.6354589**	



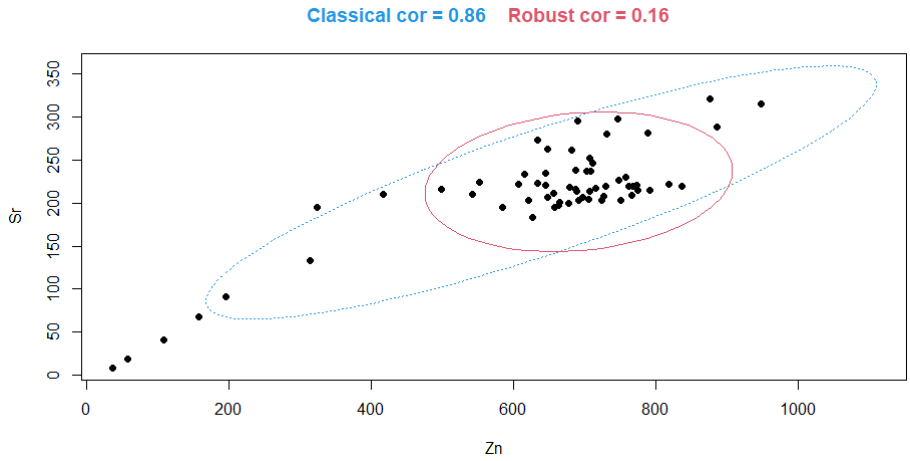
Removing 25 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_AC_wRS$Sr and Od533M_AC_wRS$Pb t = 5.6421, df = 47, **p-value = 9.329e-07** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.4313376 0.7776908 sample estimates: **cor** **0.6354589**	Spearman's rank correlation rho data: Od533M_AC_wRS$Zn and Od533M_AC_wRS$Pb S = 16154, **p-value = 0.2262** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1758163**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.5718473**	



- **Sr vs Zn**

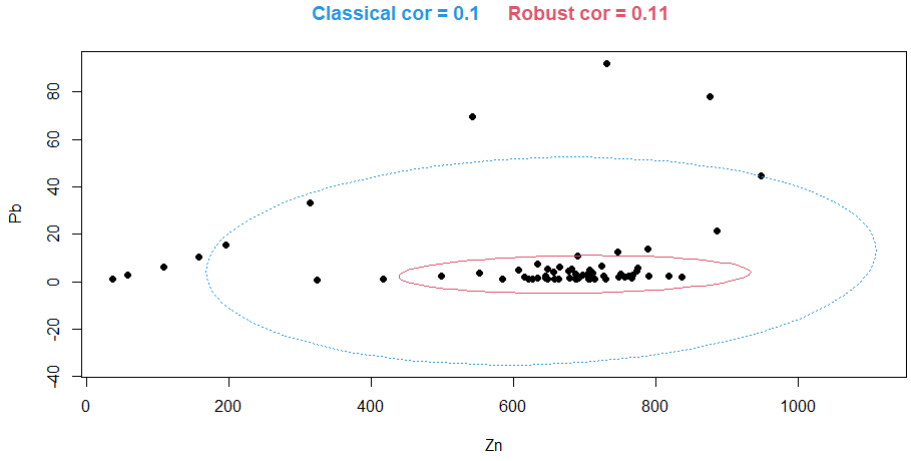
Classical test	Pearson's product-moment correlation data: Od533M_AC$Zn and Od533M_AC$Sr t = 12.962, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.7747542 0.9125301 sample estimates: **cor** **0.858412**	Spearman's rank correlation rho data: Od533M_AC$Zn and Od533M_AC$Sr S = 19190, **p-value = 2.263e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5167586**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1622059**	



- **Pb vs Zn**

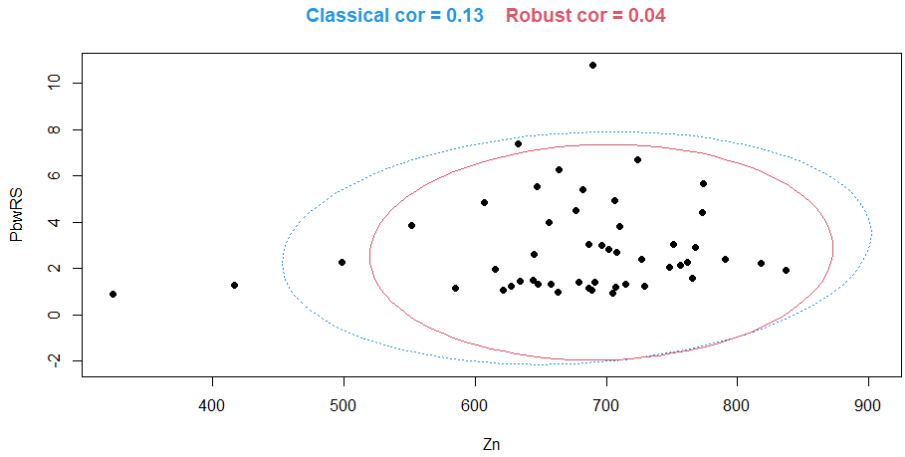
Whole cementum thickness:

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_AC$Zn and Od533M_AC$Pb t = 0.78748, df = 60, **p-value = 0.4341** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.1524783 0.3422638 sample estimates: **cor** **0.1011418**	data: Od533M_AC$Zn and Od533M_AC$Pb S = 33264, **p-value = 0.2069** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.162348**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1101698**	



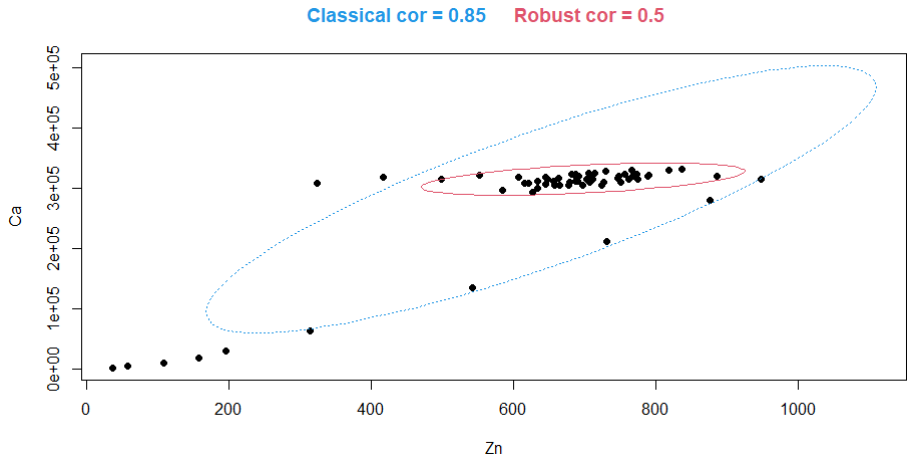
Removing 25 µm of Pb-enriched root surface:

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_AC_wRS$Zn and Od533M_AC_wRS$Pb t = 0.8646, df = 47, **p-value = 0.3916** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.1617640 0.3925105 sample estimates: **cor** **0.1251242**	data: Od533M_AC_wRS$Zn and Od533M_AC_wRS$Pb S = 16154, **p-value = 0.2262** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1758163**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.03672209**	



- **Zn vs Ca**

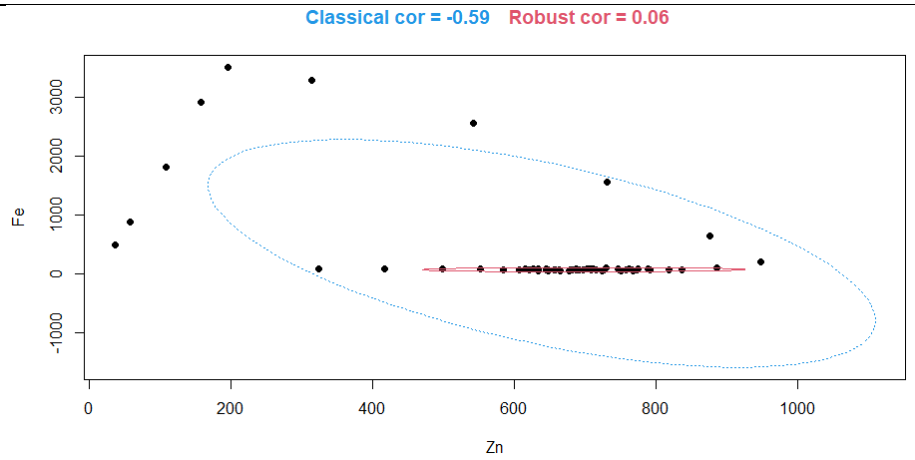
	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_AC$Zn and Od533M_AC$Ca t = 12.292, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.7560046 0.9046328 sample estimates: **cor** **0.846022**	data: Od533M_AC$Zn and Od533M_AC$Ca S = 17394, **p-value = 3.074e-06** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5619853**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.495149**	



- **Zn vs Fe**

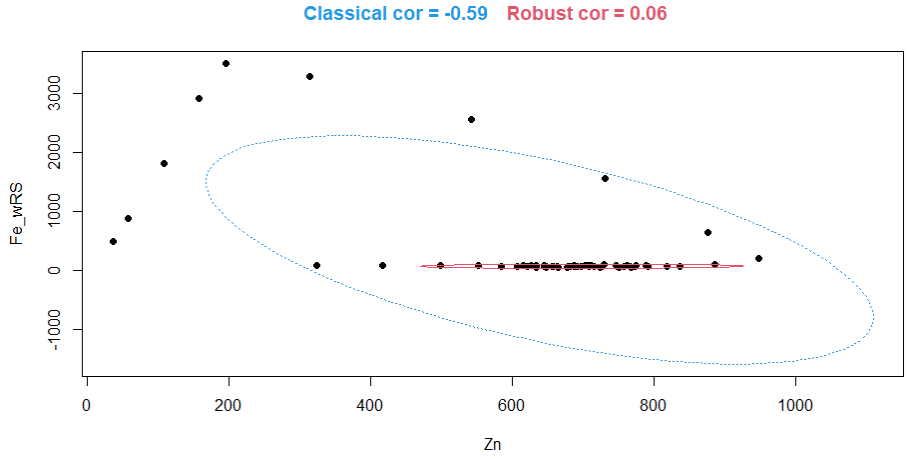
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Zn and Od533M_AC$Fe t = -5.7009, df = 60, **p-value = 3.858e-07** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.7338670 -0.4025811 sample estimates: **cor** **-0.5927474**	Spearman's rank correlation rho data: Od533M_AC$Zn and Od533M_AC$Fe S = 48500, **p-value = 0.08392** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.2213241**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.05539145**	



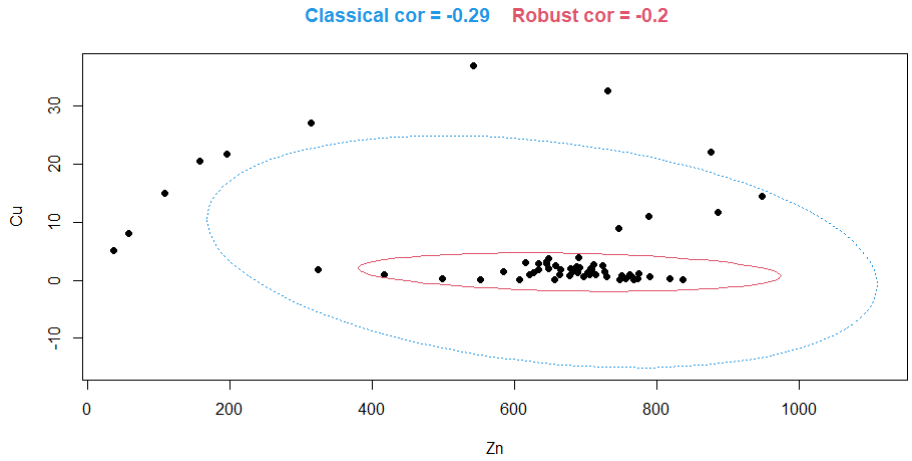
Removing 20 µm of Fe-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Zn and Od533M_AC$Fe t = -5.7009, df = 60, **p-value = 3.858e-07** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.7338670 -0.4025811 sample estimates: **cor** **-0.5927474**	Spearman's rank correlation rho data: Od533M_AC$Zn and Od533M_AC$Fe S = 48500, **p-value = 0.08392** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.2213241**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.05539145**	



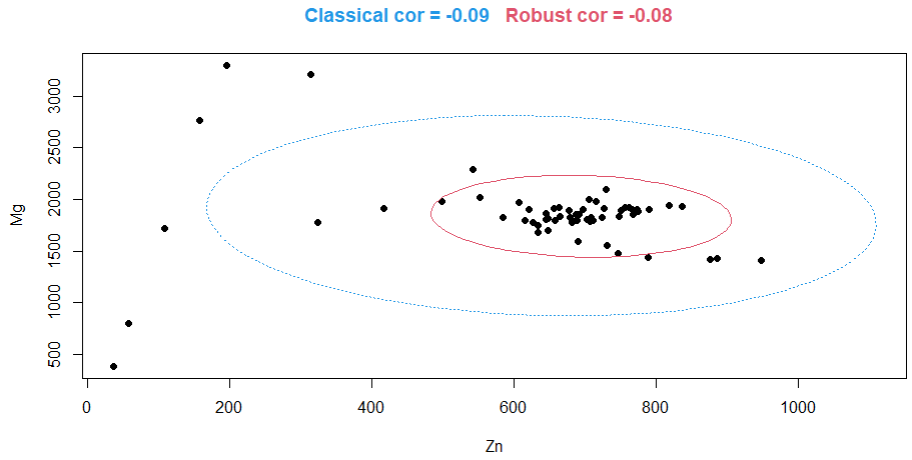
- **Zn vs Cu**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Zn and Od533M_AC$Cu t = -2.3242, df = 60, **p-value = 0.02352** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.5011898 -0.0405404 sample estimates: **cor** **-0.2873985**	Spearman's rank correlation rho data: Od533M_AC$Zn and Od533M_AC$Cu S = 50118, **p-value = 0.03992** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.2620684**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.199509**	



- **Zn vs Mg**

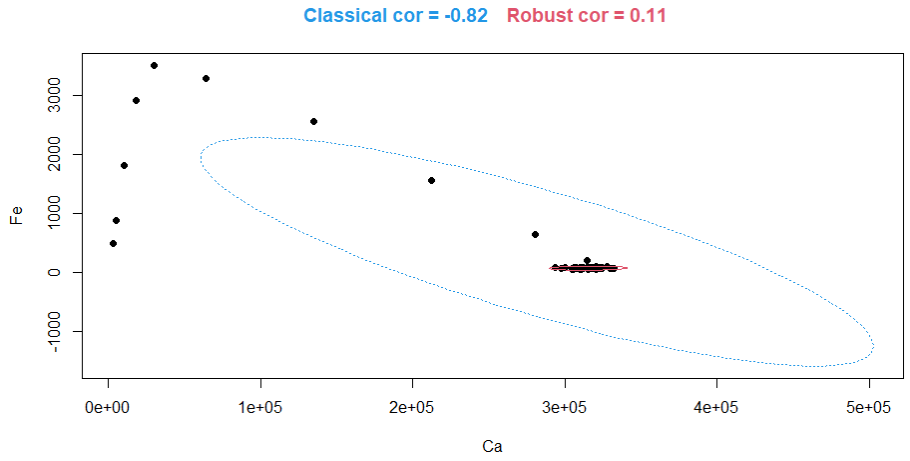
Classical test	Pearson's product-moment correlation data: Od533M_AC$Zn and Od533M_AC$Mg t = -0.67332, df = 60, **p-value = 0.5033** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3292453 0.1667769 sample estimates: **cor** **-0.08659857**	Spearman's rank correlation rho data: Od533M_AC$Zn and Od533M_AC$Mg S = 42232, **p-value = 0.6232** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.06348367**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.08098037**	



- **Ca vs Fe**

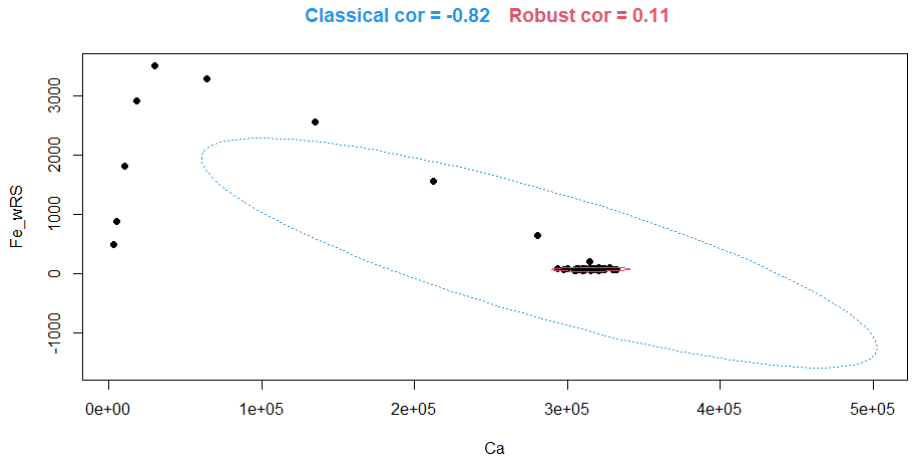
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ca and Od533M_AC$Fe t = -11.254, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.8903300 -0.7226572 sample estimates: **cor** **-0.8237425**	Spearman's rank correlation rho data: Od533M_AC$Ca and Od533M_AC$Fe S = 52262, **p-value = 0.01264** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.3160585**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1122484**	



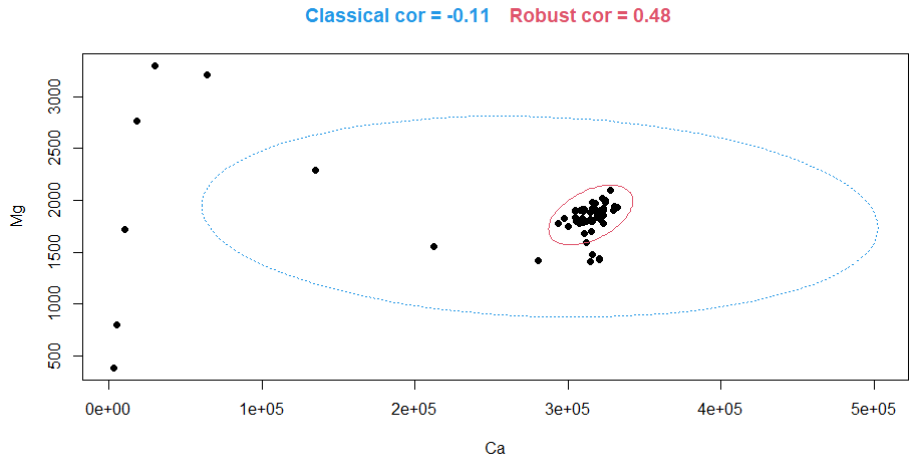
Removing 20 µm of Fe-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ca and Od533M_AC$Fe t = -11.254, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.8903300 -0.7226572 sample estimates: **cor** **-0.8237425**	Spearman's rank correlation rho data: Od533M_AC$Ca and Od533M_AC$Fe S = 52262**, p-value = 0.01264** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.3160585**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1122484**	



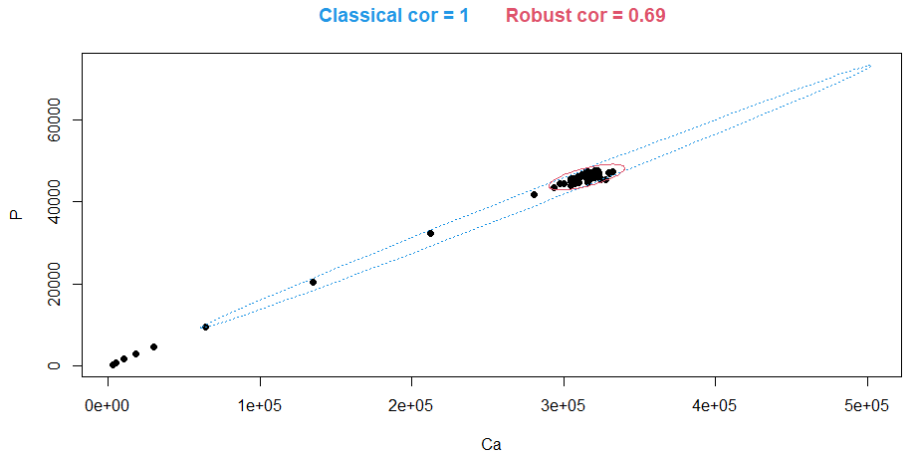
- **Ca vs Mg**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ca and Od533M_AC$Mg t = -0.84899, df = 60, **p-value = 0.3993** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3492168 0.1447556 sample estimates: **cor** **-0.1089518**	Spearman's rank correlation rho data: Od533M_AC$Ca and Od533M_AC$Mg S = 28360**, p-value = 0.02465** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2858402**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4769753**	



- **Ca vs P**

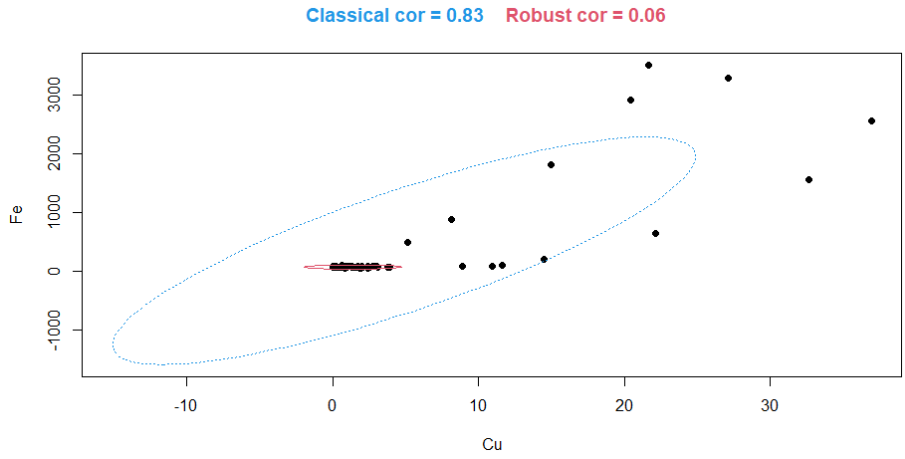
Classical test	Pearson's product-moment correlation data: Od533M_AC$Ca and Od533M_AC$P t = 119.66, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.9965231 0.9987457 sample estimates: **cor** **0.9979114**	Spearman's rank correlation rho data: Od533M_AC$Ca and Od533M_AC$P S = 8874, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: rho **0.7765355**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.6936723**	



- **Cu vs Fe**

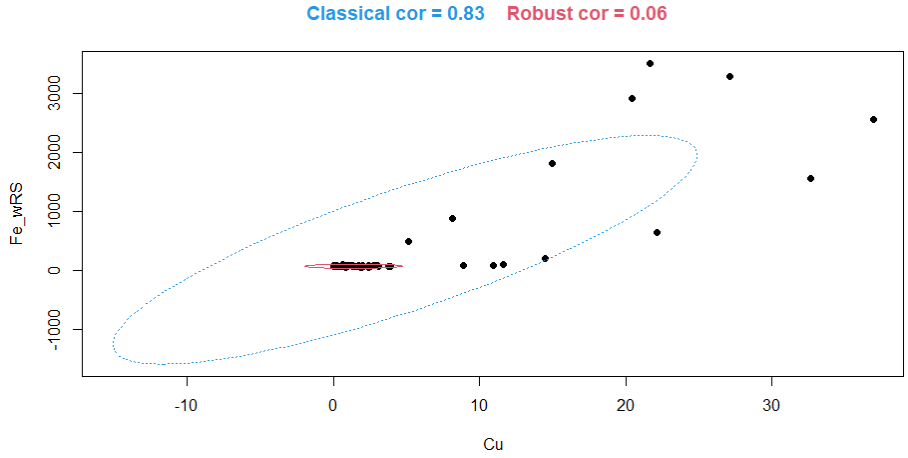
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Cu and Od533M_AC$Fe t = 11.496, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.7309596 0.8939221 sample estimates: **cor** **0.8293187**	Spearman's rank correlation rho data: Od533M_AC$Cu and Od533M_AC$Fe S = 18542, **p-value = 1.133e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5330765**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.05517098**	



Removing 15 µm of Fe-enriched root surface:

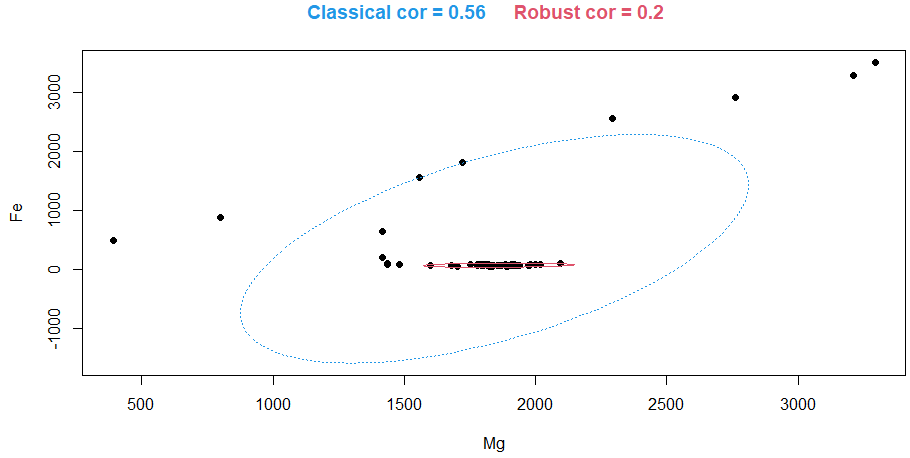
Classical test	Pearson's product-moment correlation data: Od533M_AC$Cu and Od533M_AC$Fe t = 11.496, df = 60, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.7309596 0.8939221 sample estimates: **cor** **0.8293187**	Spearman's rank correlation rho data: Od533M_AC$Cu and Od533M_AC$Fe S = 18542, **p-value = 1.133e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5330765**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.05517098**	



- **Mg vs Fe**

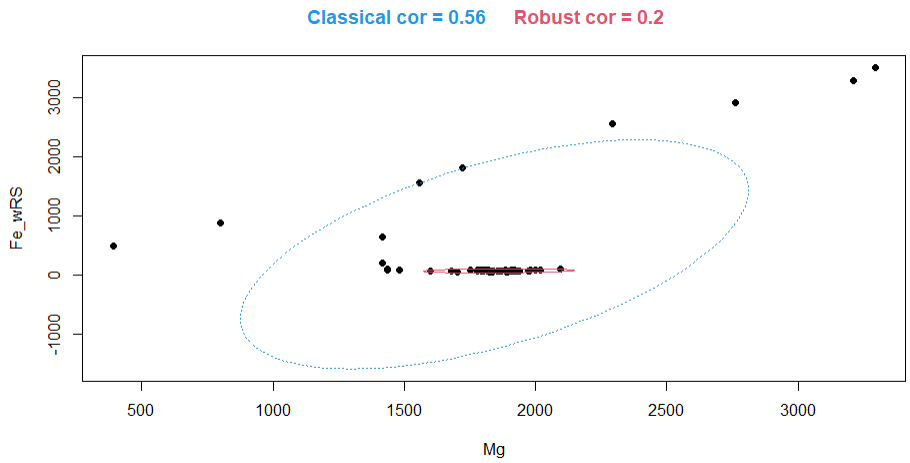
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Mg and Od533M_AC$Fe t = 5.2596, df = 60, **p-value = 2.03e-06** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.3628988 0.7116660 sample estimates: **cor** **0.5617497**	Spearman's rank correlation rho data: Od533M_AC$Mg and Od533M_AC$Fe S = 43784, **p-value = 0.4266** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.102566**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1951158**	



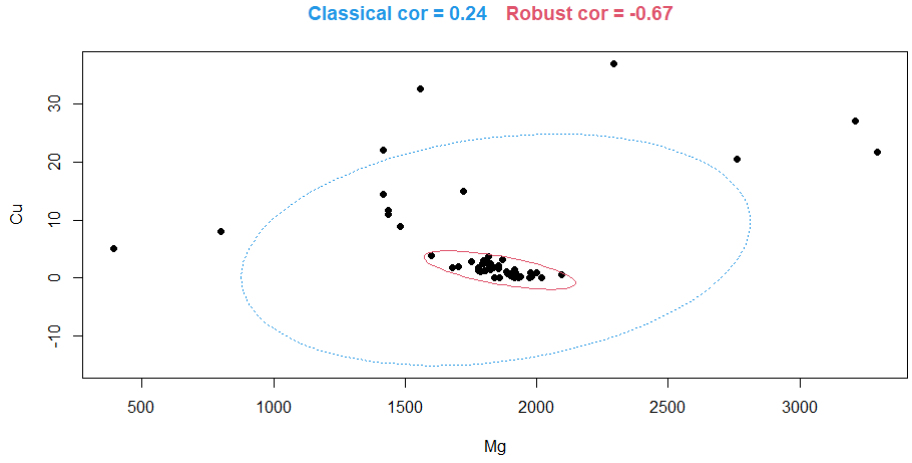
Removing 20 µm of Fe-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Mg and Od533M_AC$Fe t = 5.2596, df = 60, **p-value = 2.03e-06** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.3628988 0.7116660 sample estimates: **cor** **0.5617497**	Spearman's rank correlation rho data: Od533M_AC$Mg and Od533M_AC$Fe S = 43784, **p-value = 0.4266** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.102566**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1951158**	



- **Cu vs Mg**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Mg and Od533M_AC$Cu t = 1.8879, df = 60, **p-value = 0.06388** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.01379117 0.45939099 sample estimates: **cor** **0.2367927**	Spearman's rank correlation rho data: Od533M_AC$Mg and Od533M_AC$Cu S = 59714, **p-value = 3.847e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.5037143**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.6742311**	

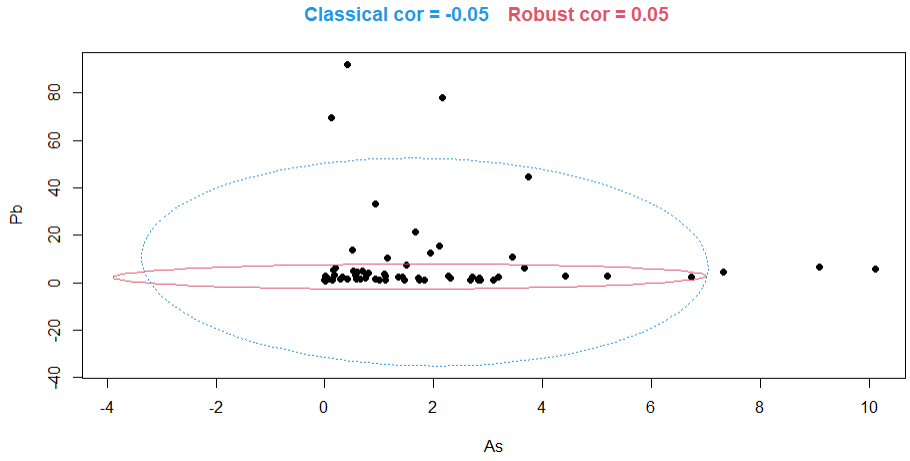


- **As vs Hg, Pb vs Hg (no Hg at all). => Not Applicable.**

- **Pb vs As**

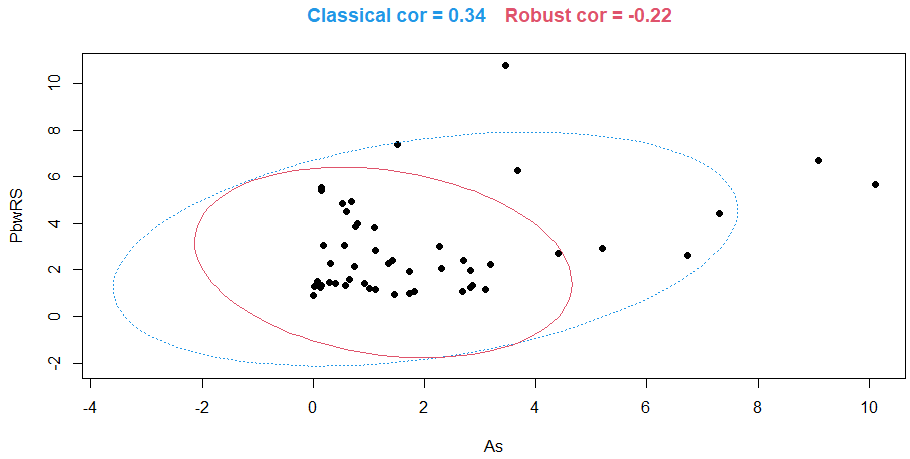
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$As and Od533M_AC$Pb t = -0.36151, df = 60, **p-value = 0.719** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.2929768 0.2055414 sample estimates: **cor** **-0.04662013**	Spearman's rank correlation rho data: Od533M_AC$As and Od533M_AC$Pb S = 34662, **p-value = 0.3239** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1271436**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.05151116**	



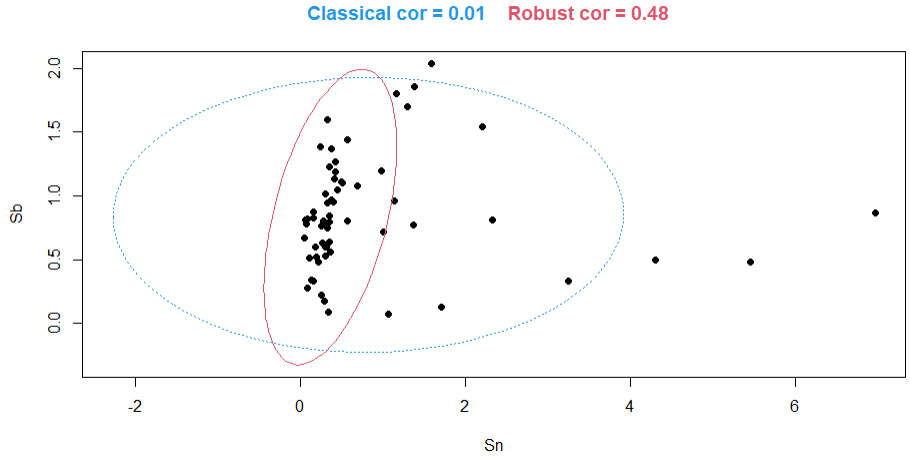
Removing 25 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_AC_wRS$As and Od533M_AC_wRS$Pb t = 2.4433, df = 47, **p-value = 0.01836** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.06020137 0.56369734 sample estimates: **cor** **0.3357148**	Spearman's rank correlation rho data: Od533M_AC_wRS$As and Od533M_AC_wRS$Pb S = 15974, **p-value = 0.2025** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.185**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.2204023**	



- **Sb vs Sn**

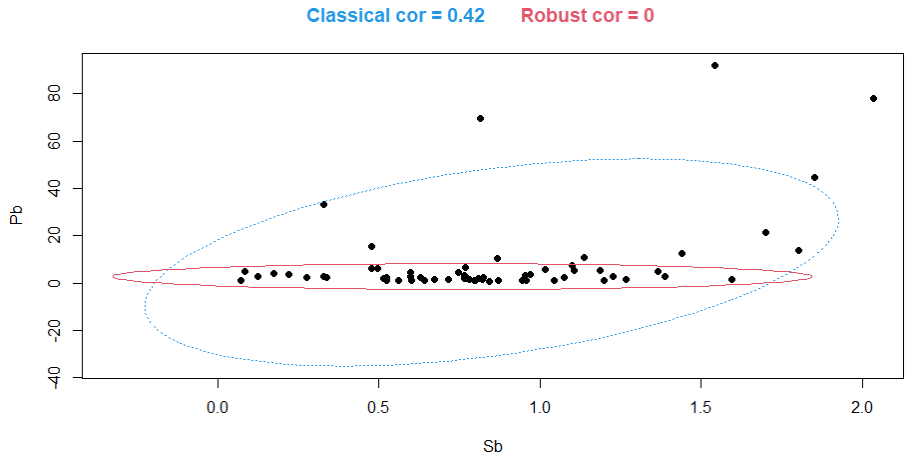
Classical test	Pearson's product-moment correlation data: Od533M_AC$Sn and Od533M_AC$Sb t = 0.082198, df = 60, **p-value = 0.9348** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.2397926 0.2596911 sample estimates: **cor** **0.01061118**	Spearman's rank correlation rho data: Od533M_AC$Sn and Od533M_AC$Sb S = 26930, **p-value = 0.01104** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.3218504**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4795098**	



- **Pb vs Sb**

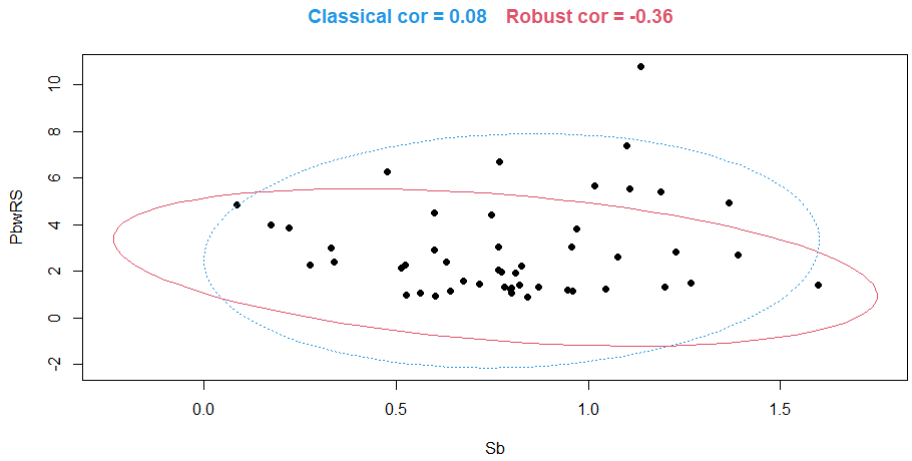
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Sb and Od533M_AC$Pb t = 3.6301, df = 60, **p-value = 0.0005873** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1952898 0.6095230 sample estimates: **cor** **0.424359**	Spearman's rank correlation rho data: Od533M_AC$Sb and Od533M_AC$Pb S = 31236, **p-value = 0.09582** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2134169**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.002296206**	



Removing 25 µm of Pb-enriched root surface:

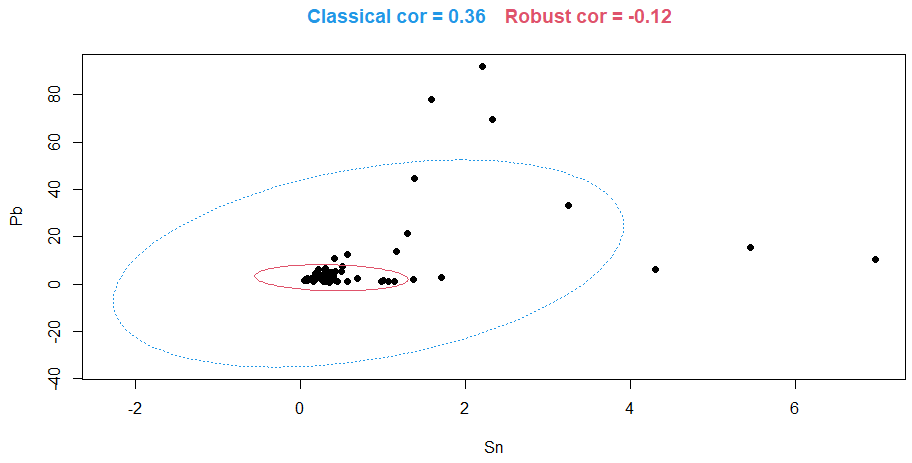
Classical test	Pearson's product-moment correlation data: Od533M_AC_wRS$Sb and Od533M_AC_wRS$Pb t = 0.5351, df = 47, **p-value = 0.5951** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.2079310 0.3513245 sample estimates: **cor** **0.07781542**	Spearman's rank correlation rho data: Od533M_AC_wRS$Sb and Od533M_AC_wRS$Pb S = 19266, **p-value = 0.9074** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.01704082**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.3605865**	



- **Pb vs Sn**

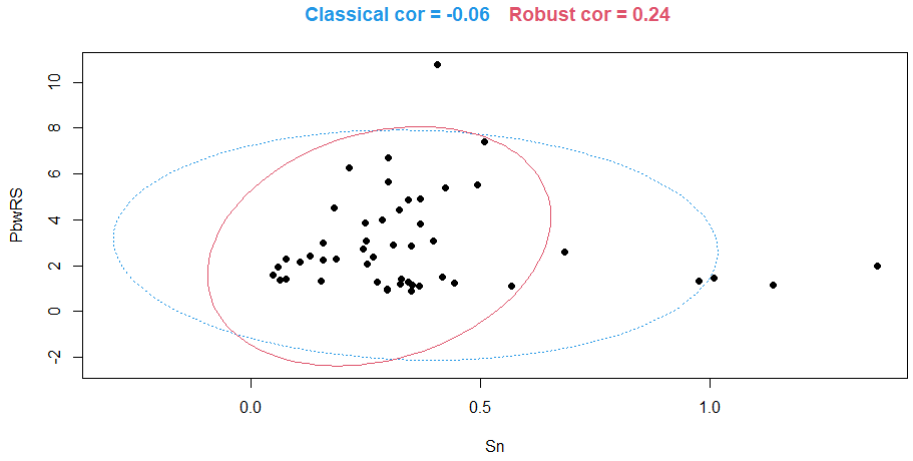
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_AC$Sn and Od533M_AC$Pb t = 3.0305, df = 60, **p-value = 0.0036** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1260418 0.5628855 sample estimates: **cor** **0.3643402**	Spearman's rank correlation rho data: Od533M_AC$Sn and Od533M_AC$Pb S = 24746, **p-value = 0.002698** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.3768477**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.1243023**	



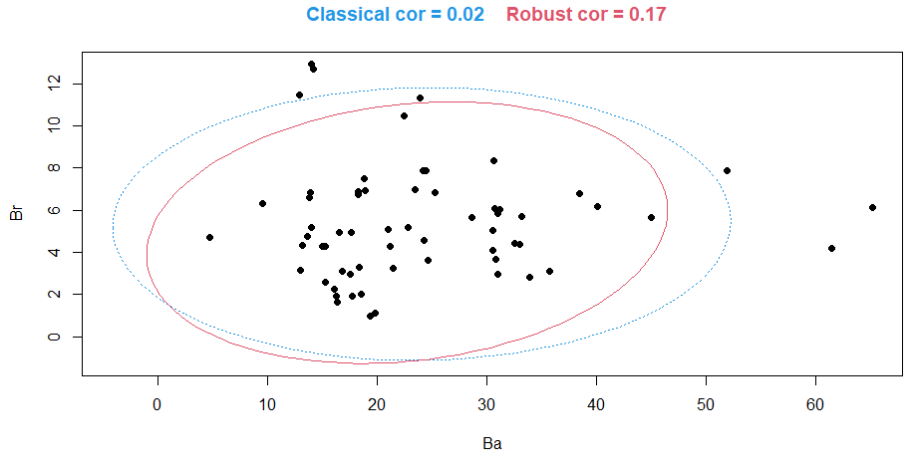
Removing 25 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_AC_wRS$Sn and Od533M_AC_wRS$Pb t = -0.3783, df = 47, **p-value = 0.7069** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3311624 0.2296582 sample estimates: **cor** **-0.05509644**	Spearman's rank correlation rho data: Od533M_AC_wRS$Sn and Od533M_AC_wRS$Pb S = 20154, **p-value = 0.8468** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.02826531**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.2403129**	



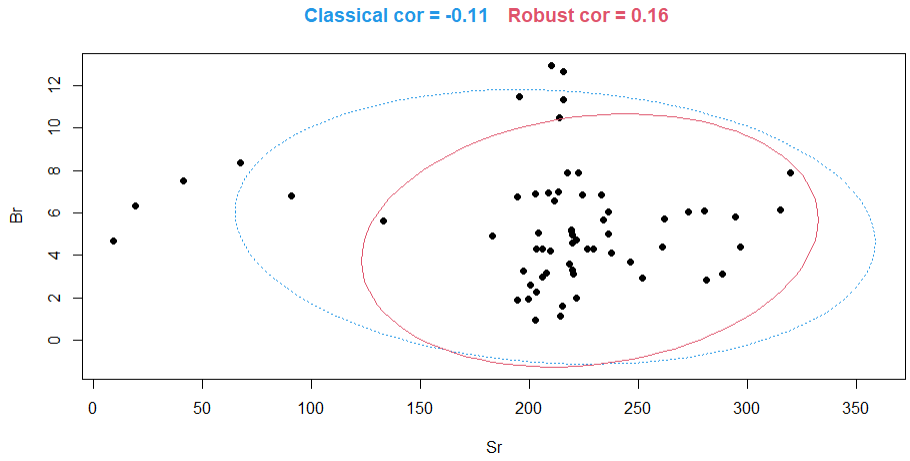
- **Br vs Ba**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ba and Od533M_AC$Br t = 0.18099, df = 60, **p-value = 0.857** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.2277374 0.2715435 sample estimates: **cor** **0.02335957**	Spearman's rank correlation rho data: Od533M_AC$Ba and Od533M_AC$Br S = 36878, **p-value = 0.5807** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.07134043**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1710217**	



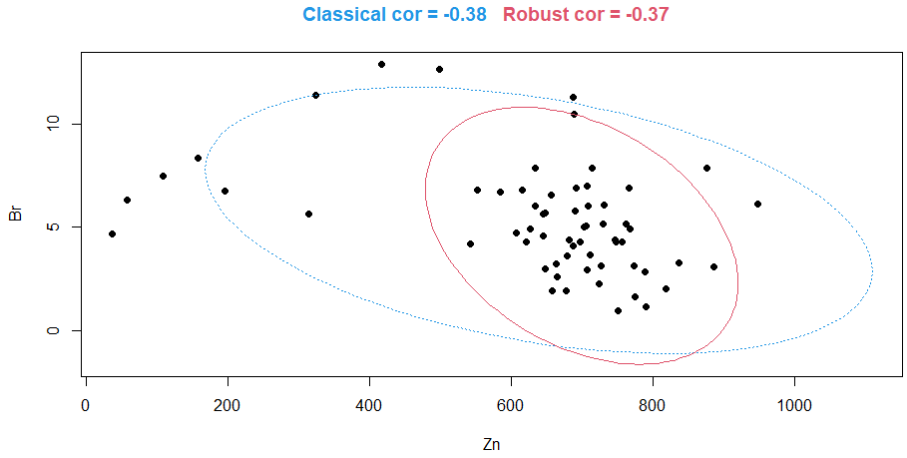
- **Br vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Sr and Od533M_AC$Br t = -0.85807, df = 60, **p-value = 0.3943** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3502397 0.1436145 sample estimates: **cor** **-0.1101032**	Spearman's rank correlation rho data: Od533M_AC$Sr and Od533M_AC$Br S = 41026, **p-value = 0.7979** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.03311425**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1626547**	



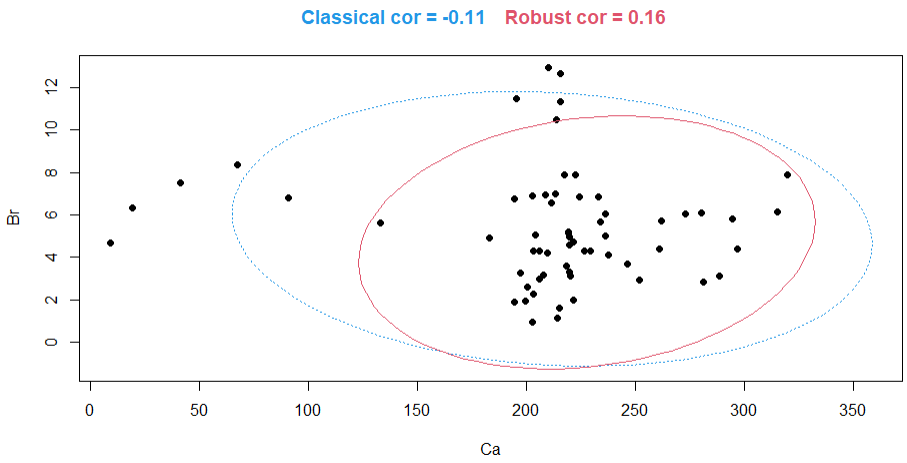
- **Br vs Zn**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Zn and Od533M_AC$Br t = -3.1715, df = 60, **p-value = 0.00239** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.5743247 -0.1426418 sample estimates: **cor** **-0.3789104**	Spearman's rank correlation rho data: Od533M_AC$Zn and Od533M_AC$Br S = 55904, **p-value = 0.001099** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.4077711**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.3694156**	



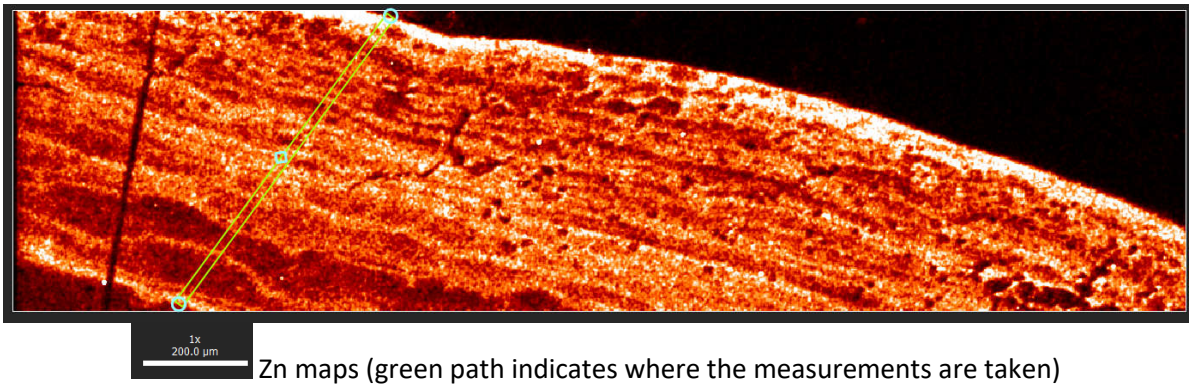
- **Br vs Ca**

Classical test	Pearson's product-moment correlation data: Od533M_AC$Ca and Od533M_AC$Br t = -1.1183, df = 60, **p-value = 0.2679** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3791260 0.1108354 sample estimates: **cor** **-0.1428884**	Spearman's rank correlation rho data: Od533M_AC$Ca and Od533M_AC$Br S = 44066, **p-value = 0.3952** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.1096673**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1626547**	


Classical cor = -0.11
Robust cor = 0.16
Br
Ca
0
2
4
6
8
10
12
0
50
100
150
200
250
300
350

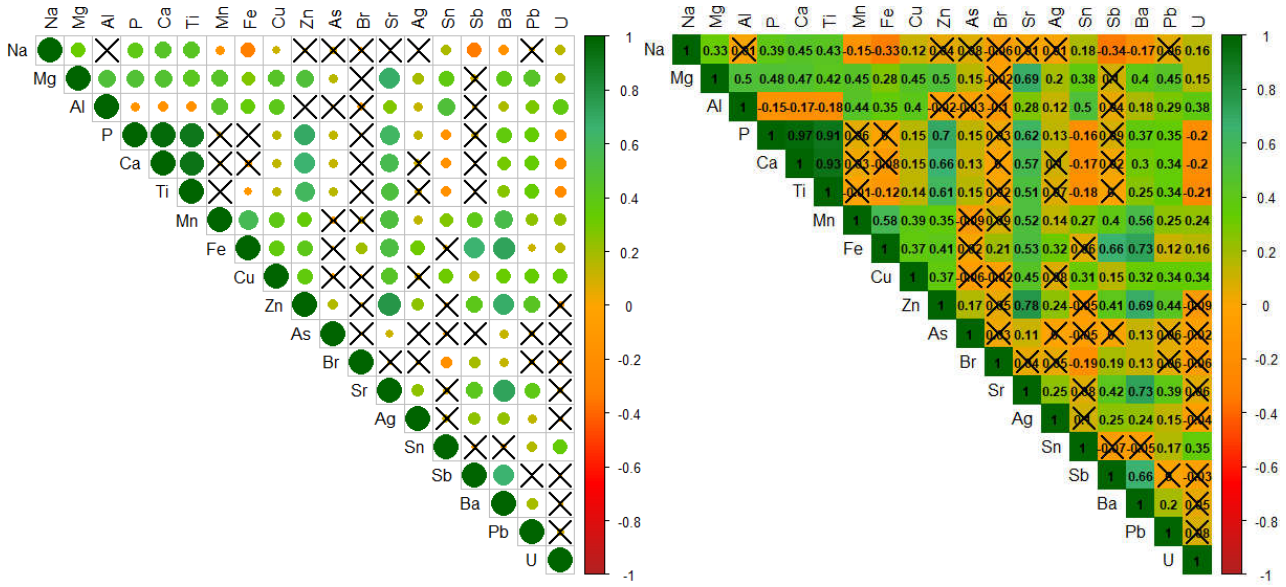
Odense 533M1 – Cellular Cementum (total thickness=694 µm)

Correlations between pairs of elements

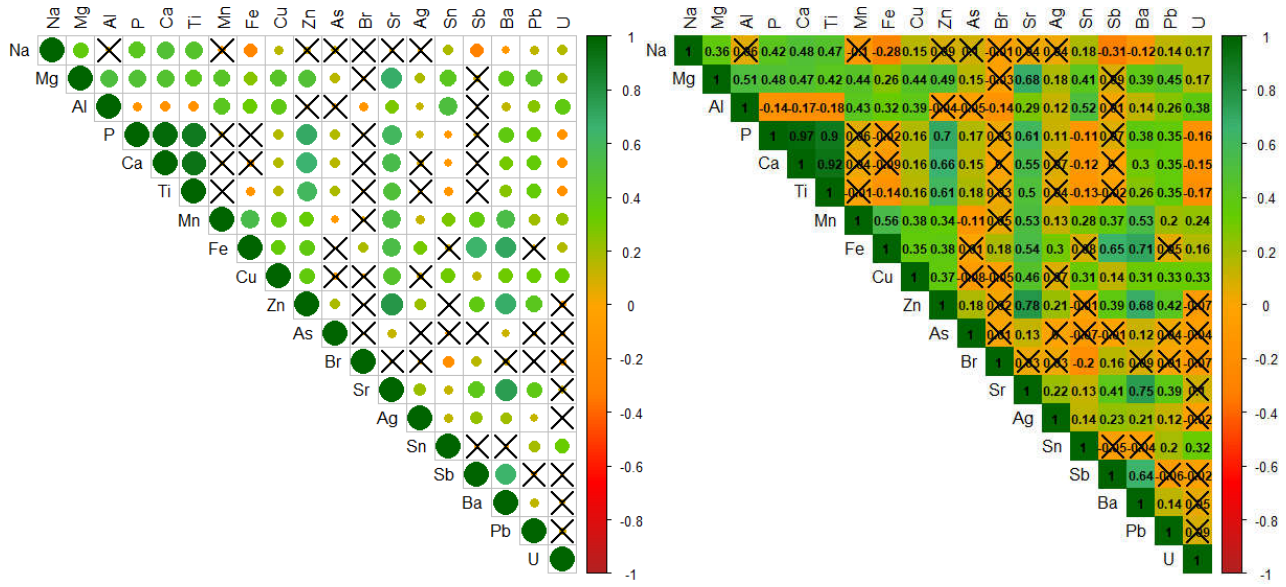


Zn maps (green path indicates where the measurements are taken)

Summary : <u>whole cementum</u> thickness, Spearman correlations.



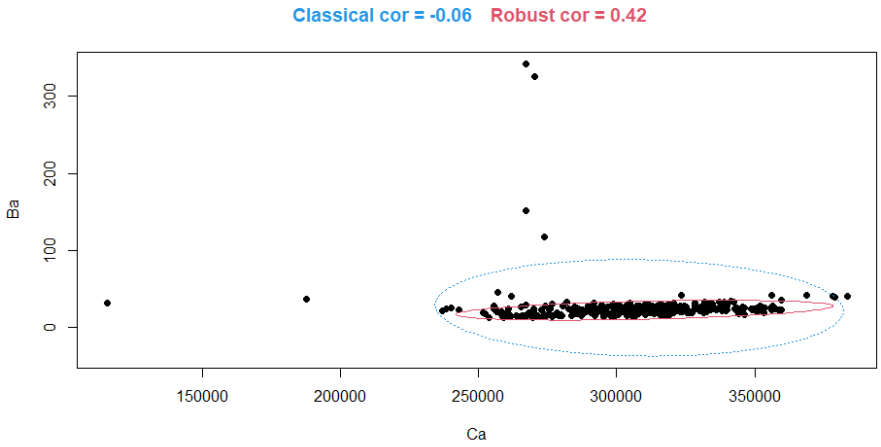
Summary : removing the first 15 µm of root surface, Spearman correlations.



wRS: without Root surface [Pb = ~15 µm; Fe, Mn, Al not included in the path]

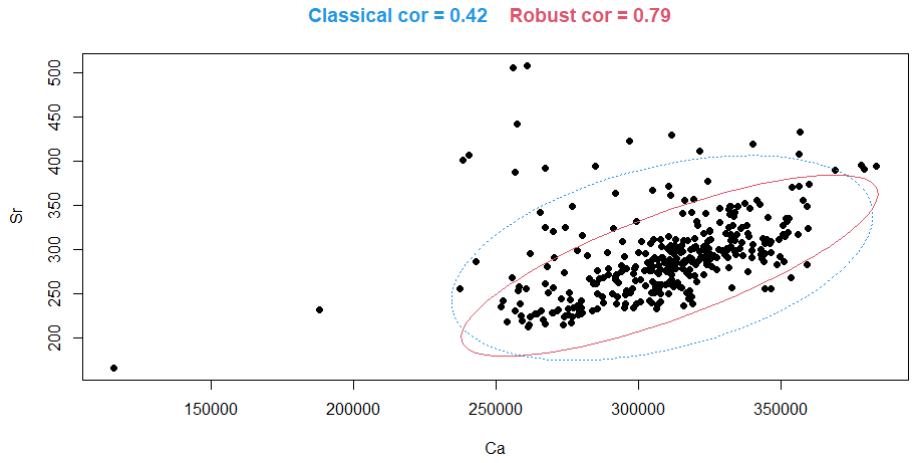
- **Ca vs Ba**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ca and Od533M_CC$Ba t = -1.192, df = 346, **p-value = 0.2341** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.16795239 0.04145918 sample estimates: **cor** **-0.06395056**	Spearman's rank correlation rho data: Od533M_CC$Ca and Od533M_CC$Ba S = 4937240, **p-value = 1.881e-08** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2970874**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4222214**	



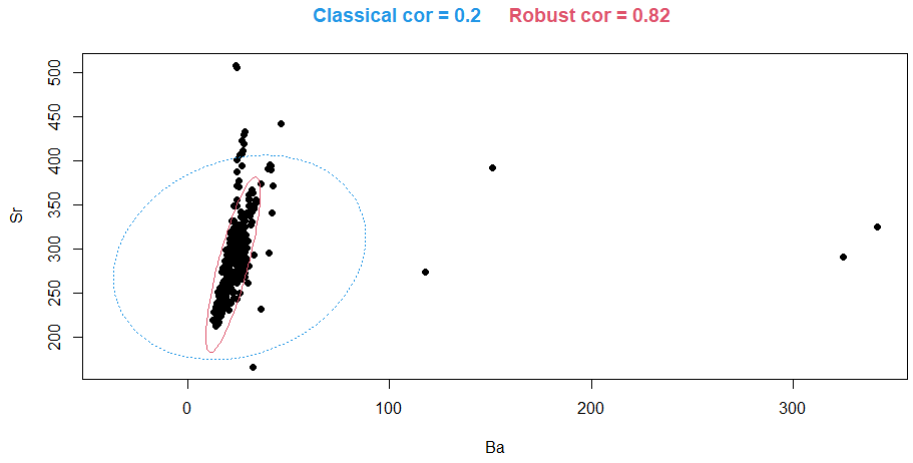
- **Ca vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ca and Od533M_CC$Sr t = 8.5503, df = 346, **p-value = 4.012e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.3268786 0.5007984 sample estimates: **cor** **0.4176568**	Spearman's rank correlation rho data: Od533M_CC$Ca and Od533M_CC$Sr S = 3051902, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5655021**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7877556**	



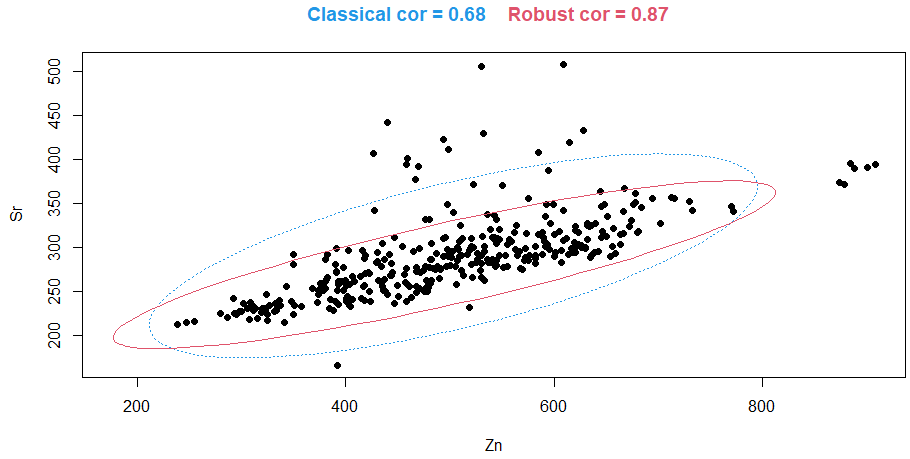
- **Ba vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ba and Od533M_CC$Sr t = 3.768, df = 346, **p-value = 0.0001934** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.09539602 0.29745827 sample estimates: **cor** **0.1985359**	Spearman's rank correlation rho data: Od533M_CC$Ba and Od533M_CC$Sr S = 1899564, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.7295599**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8230075**	



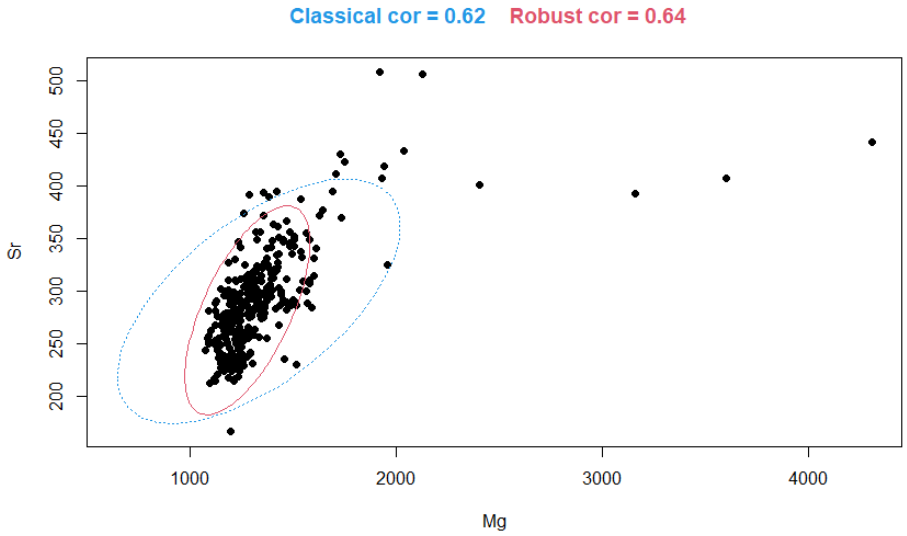
- **Zn vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Sr t = 17.291, df = 346, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.6201049 0.7334794 sample estimates: **cor** **0.6808497**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Sr S = 1538210, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.7810057**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8659534**	



- **Mg vs Sr**

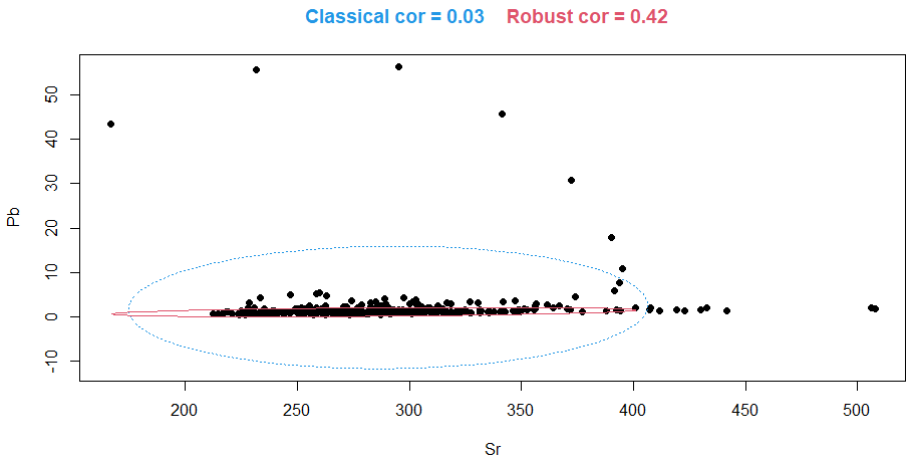
Classical test	Pearson's product-moment correlation data: Od533M_CC$Mg and Od533M_CC$Sr t = 14.517, df = 346, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.5453866 0.6766088 sample estimates: **cor** **0.6152415**	Spearman's rank correlation rho data: Od533M_CC$Mg and Od533M_CC$Sr S = 2212532, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6850028**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.6402011**	



- **Pb vs Sr**

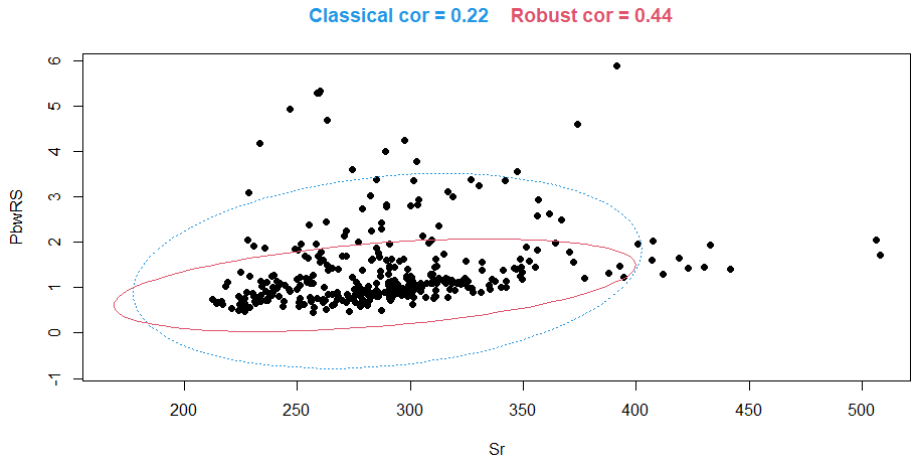
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_CC$Sr and Od533M_CC$Pb t = 0.55828, df = 346, **p-value = 0.577** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.07536916 0.13470571 sample estimates: **cor** **0.02999955**	Spearman's rank correlation rho data: Od533M_CC$Sr and Od533M_CC$Pb S = 4282912, **p-value = 4.798e-14** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.3902438**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4150683**	



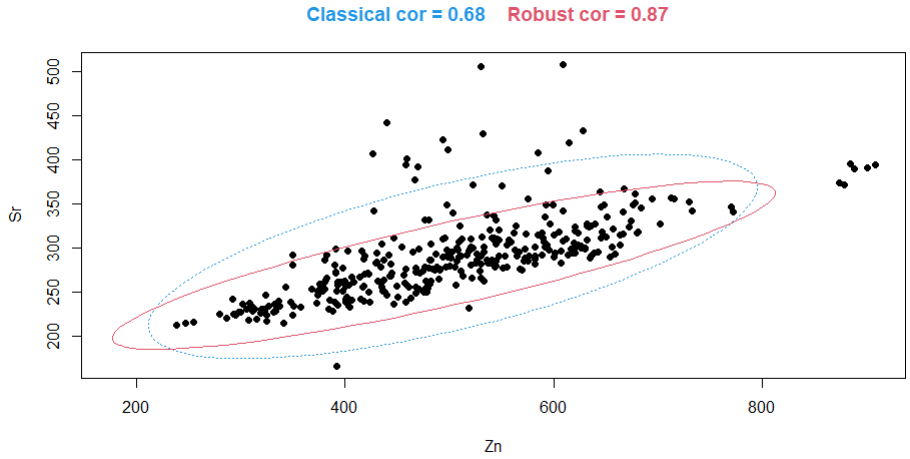
Removing 15 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_CC_wRS$Sr and Od533M_CC_wRS$Pb t = 4.1906, df = 338, **p-value = 3.556e-05** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1186810 0.3210121 sample estimates: **cor** **0.2222379**	Spearman's rank correlation rho data: Od533M_CC_wRS$Zn and Od533M_CC_wRS$Pb S = 3812334, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.4180185**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.435669**	



- **Sr vs Zn**

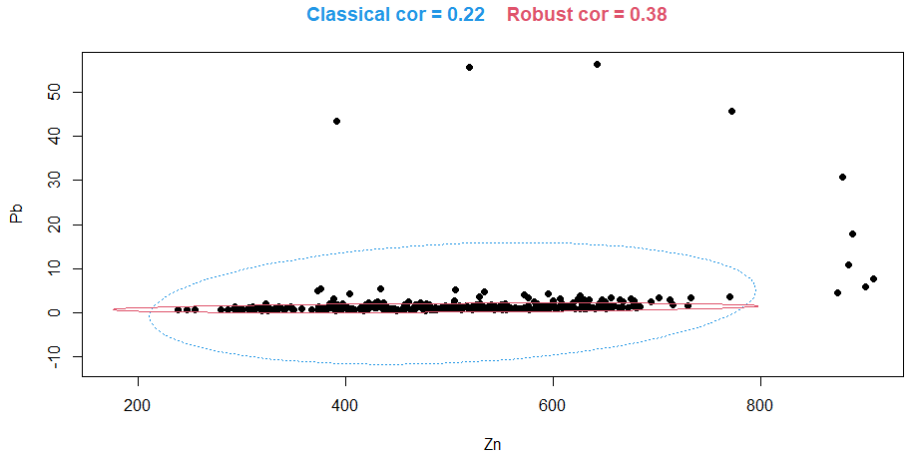
Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Sr t = 17.291, df = 346, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.6201049 0.7334794 sample estimates: **cor** **0.6808497**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Sr S = 1538210, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.7810057**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8659534**	



- **Pb vs Zn**

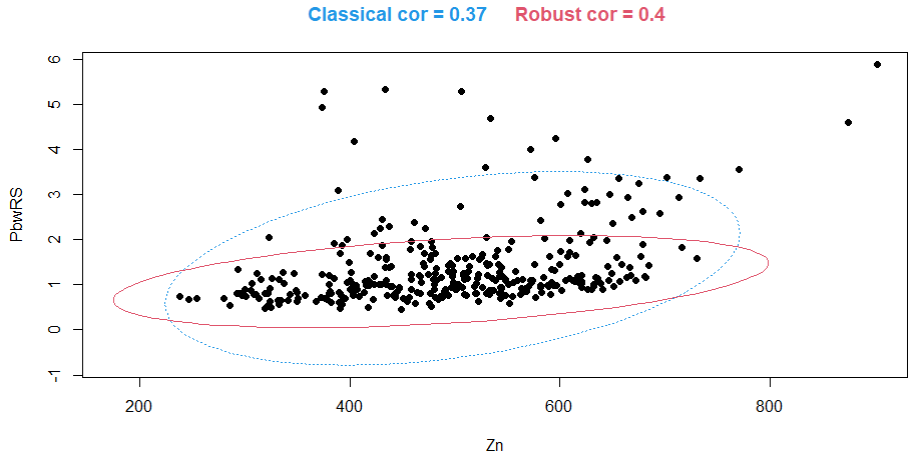
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Pb t = 4.2036, df = 346, **p-value = 3.348e-05** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1180325 0.3181857 sample estimates: **cor** **0.2204283**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Pb S = 3949120, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.4377656**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.3801596**	



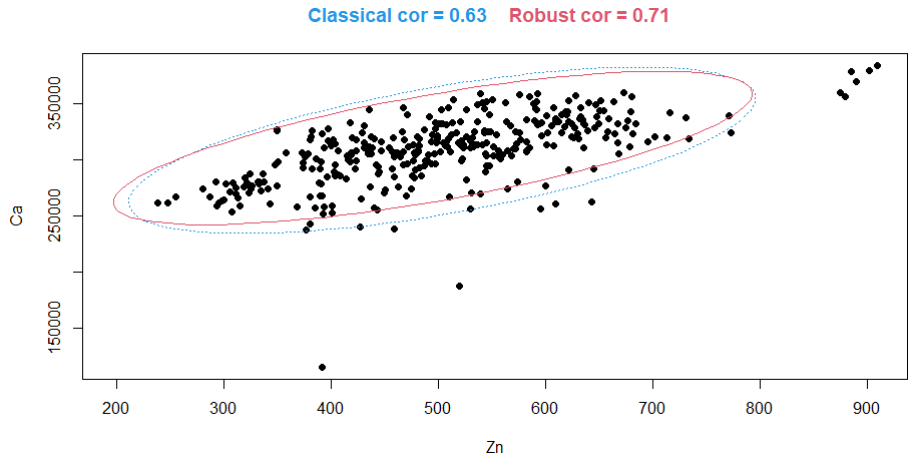
Removing 15 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_CC_wRS$Zn and Od533M_CC_wRS$Pb t = 7.2751, df = 338, **p-value = 2.435e-12** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.2722422 0.4564486 sample estimates: **cor** **0.3679499**	Spearman's rank correlation rho data: Od533M_CC_wRS$Zn and Od533M_CC_wRS$Pb S = 3812334, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.4180185**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4035045**	



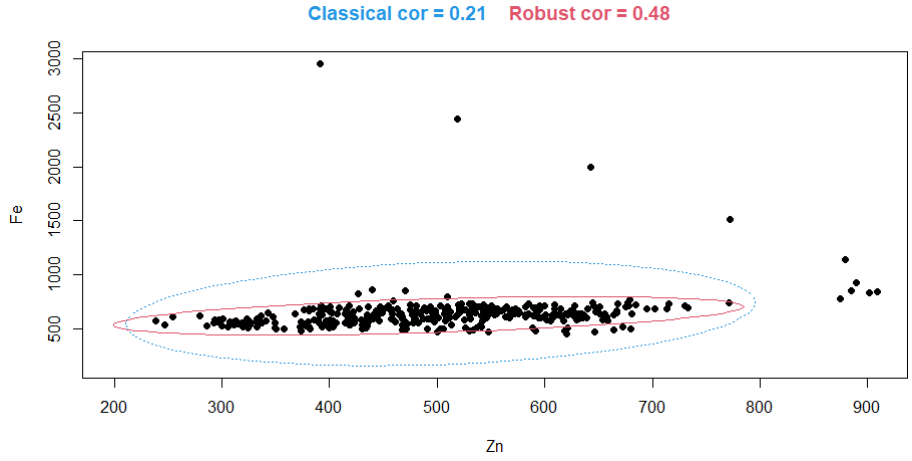
- **Zn vs Ca**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Ca t = 15.055, df = 346, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.5611166 0.6887129 sample estimates: **cor** **0.6291345**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Ca S = 2381548, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6609401**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.710546**	



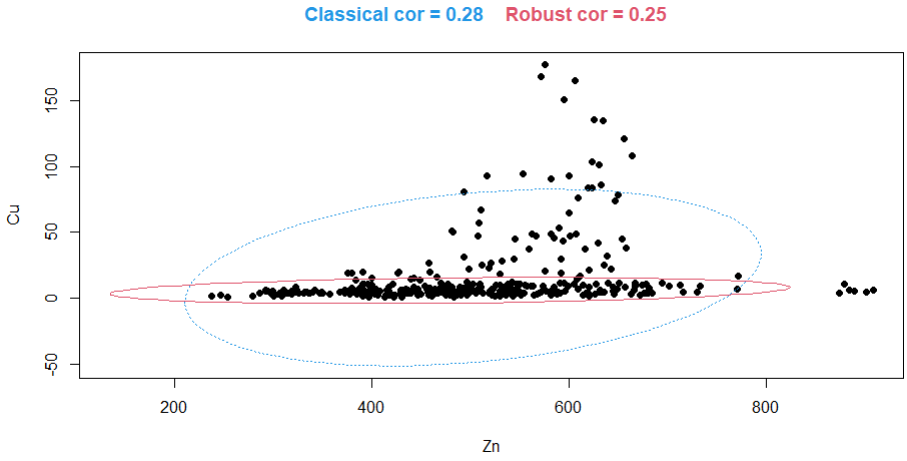
- **Zn vs Fe**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Fe t = 4.0683, df = 346, **p-value = 5.869e-05** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1110267 0.3117911 sample estimates: **cor** **0.2136638**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Fe S = 4179194, **p-value = 1.234e-15** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.40501**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4823483**	



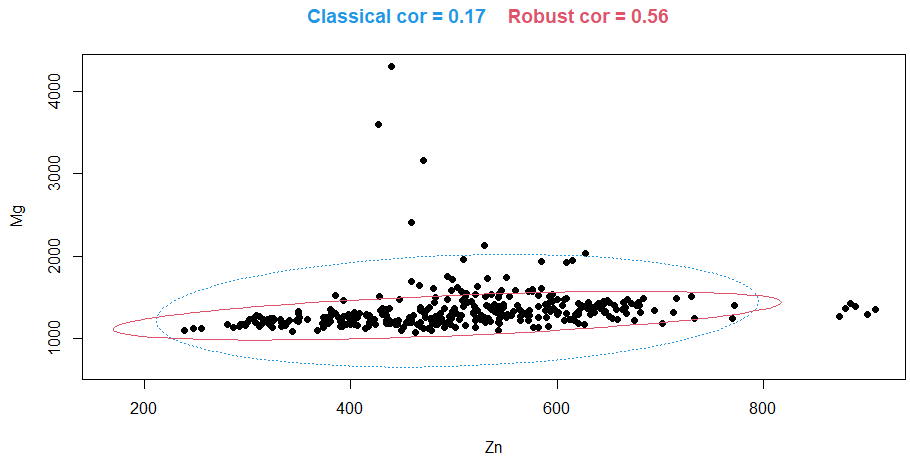
- **Zn vs Cu**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Cu t = 5.3372, df = 346, **p-value = 1.712e-07** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.1757652 0.3701970 sample estimates: **cor** **0.2757999**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Cu S = 4437736, **p-value = 1.792e-12** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.3682015**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.2541785**	



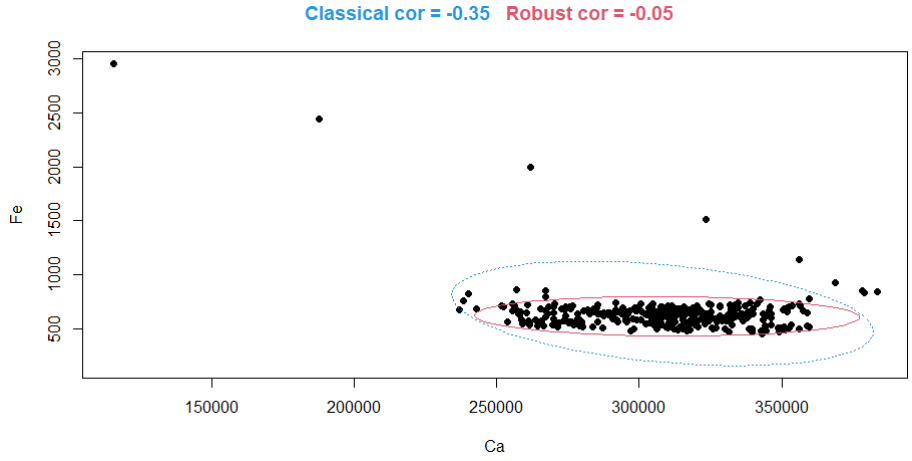
- **Zn vs Mg**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Mg t = 3.2595, df = 346, **p-value = 0.001227** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.06871983 0.27278489 sample estimates: **cor** **0.1726038**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Mg S = 3506054, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5008447**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.5550434**	



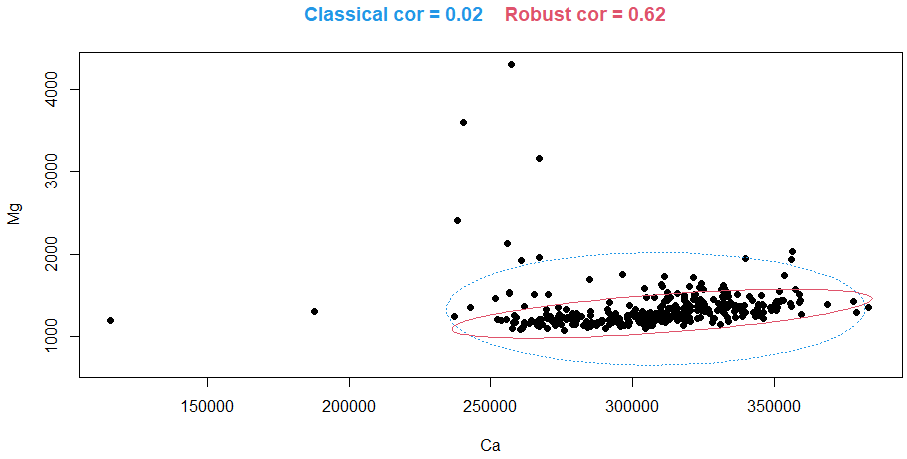
- **Ca vs Fe**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ca and Od533M_CC$Fe t = -6.9981, df = 346, **p-value = 1.352e-11** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.4409332 -0.2564893 sample estimates: **cor** **-0.3521252**	Spearman's rank correlation rho data: Od533M_CC$Ca and Od533M_CC$Fe S = 7553372, **p-value = 0.1606** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.07537015**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.04928535**	



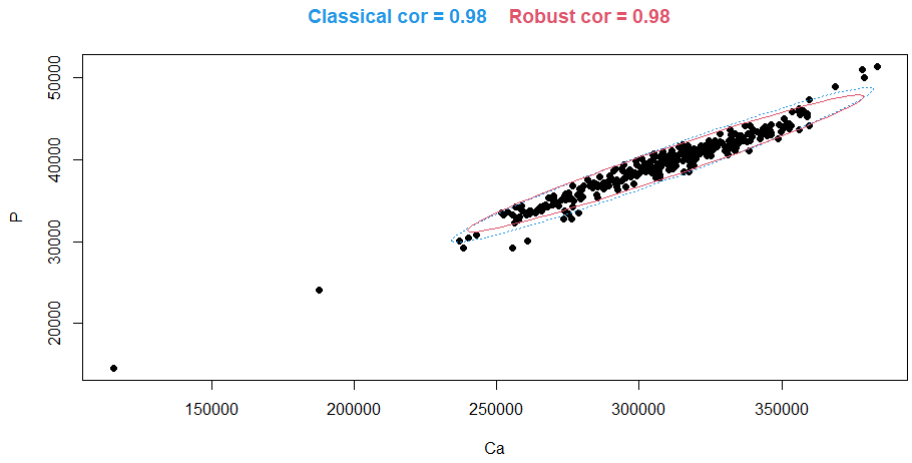
- **Ca vs Mg**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ca and Od533M_CC$Mg t = 0.28031, df = 346, **p-value = 0.7794** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.09020595 0.12000885 sample estimates: **cor** **0.01506795**	Spearman's rank correlation rho data: Od533M_CC$Ca and Od533M_CC$Mg S = 3704688, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.4725652**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.6241344**	



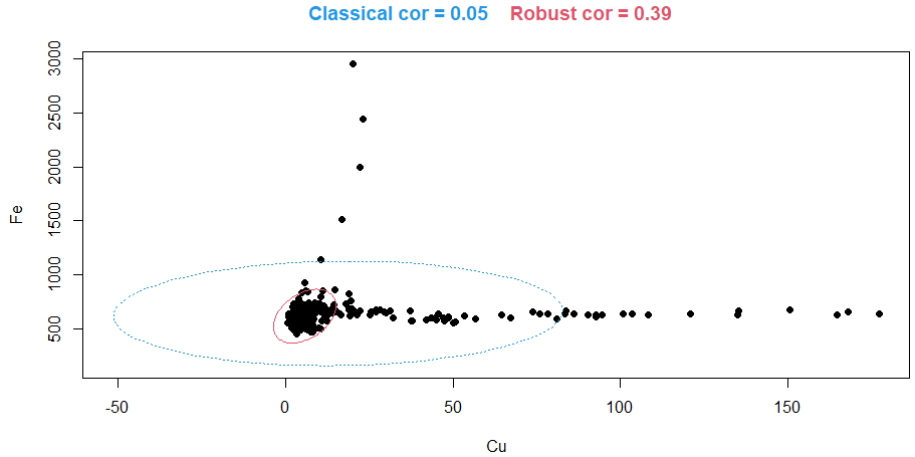
- **Ca vs P**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ca and Od533M_CC$P t = 83.901, df = 346, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.9708054 0.9807610 sample estimates: **cor** **0.9762941**	Spearman's rank correlation rho data: Od533M_CC$Ca and Od533M_CC$P S = 200644, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.9714344**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.9763796**	



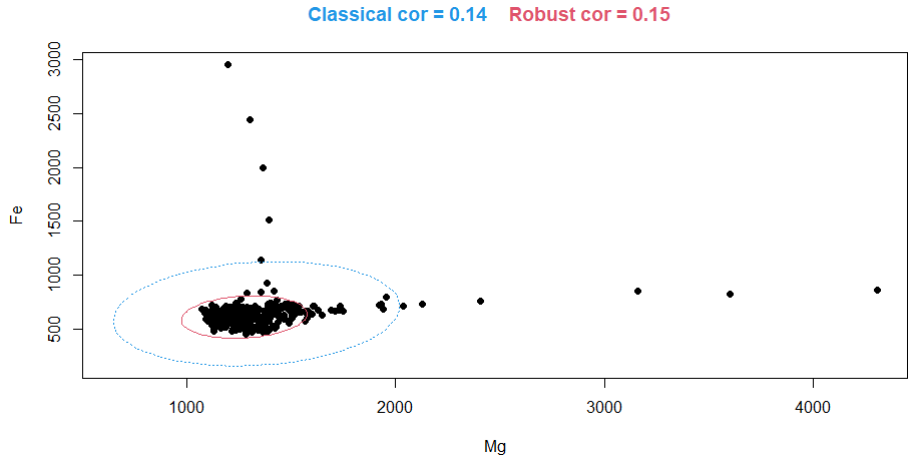
- **Cu vs Fe**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Cu and Od533M_CC$Fe t = 0.9357, df = 346, **p-value = 0.3501** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.05518252 0.15455463 sample estimates: **cor** **0.05023995**	Spearman's rank correlation rho data: Od533M_CC$Cu and Od533M_CC$Fe S = 4457044, **p-value = 2.702e-12** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.3654527**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.3913524**	



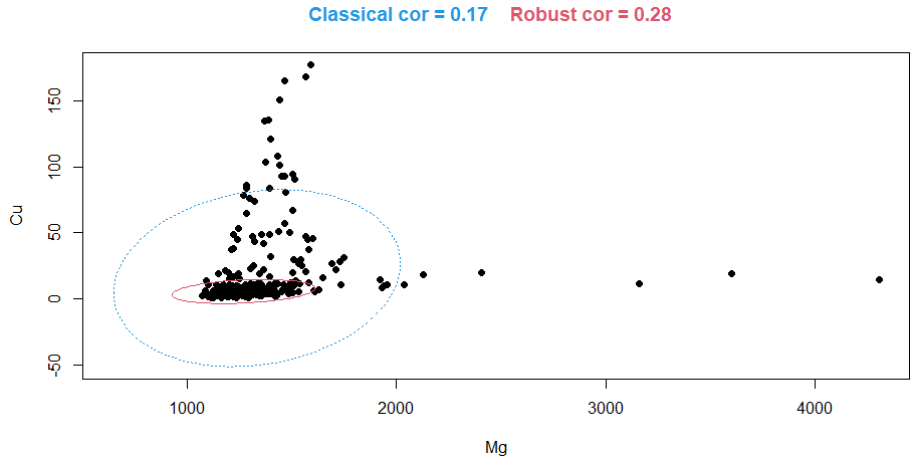
- **Mg vs Fe**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Mg and Od533M_CC$Fe t = 2.6355, df = 346, **p-value = 0.00878** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.03567788 0.24184694 sample estimates: **cor** **0.1402827**	Spearman's rank correlation rho data: Od533M_CC$Mg and Od533M_CC$Fe S = 5072070, **p-value = 1.543e-07** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2778917**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1465132**	



- **Cu vs Mg**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Mg and Od533M_CC$Cu t = 3.1556, df = 346, **p-value = 0.001742** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.06323774 0.26768091 sample estimates: **cor** **0.1672568**	Spearman's rank correlation rho data: Od533M_CC$Mg and Od533M_CC$Cu S = 3894676, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.4455167**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.2762911**	

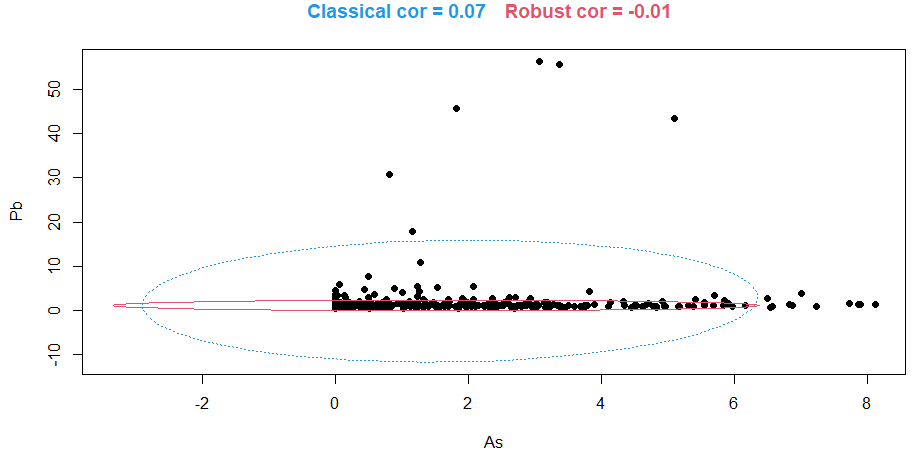


- **As vs Hg, Pb vs Hg (no Hg at all). => Not Applicable.**

- **Pb vs As**

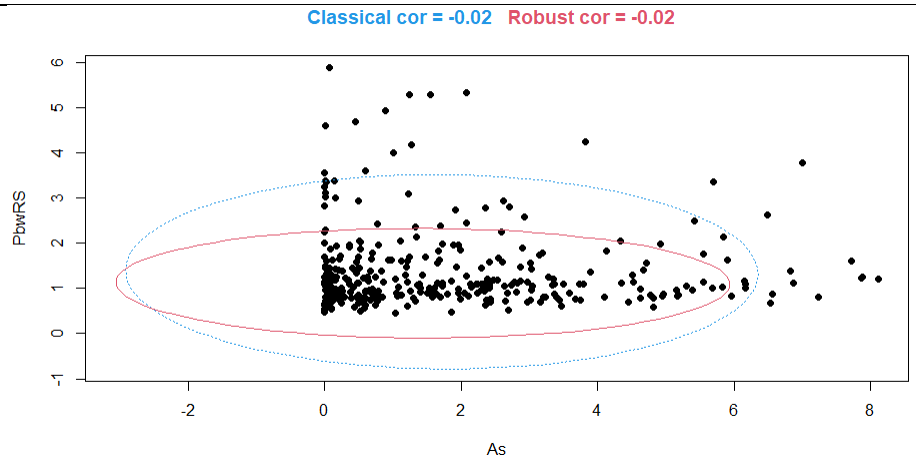
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_CC$As and Od533M_CC$Pb t = 1.2663, df = 346, **p-value = 0.2063** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.03747891 0.17182381 sample estimates: **cor** **0.06791971**	Spearman's rank correlation rho data: Od533M_CC$As and Od533M_CC$Pb S = 6636242, **p-value = 0.3045** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.05520125** *Impossible to calculate the exact p-value with ex-aequos*
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.01183972**	



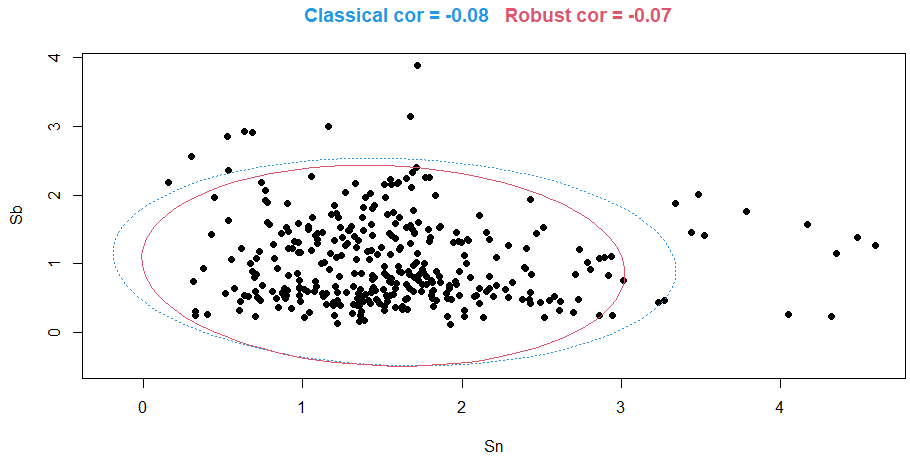
Removing 15 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_CC_wRS$As and Od533M_CC_wRS$Pb t = -0.33905, df = 338, **p-value = 0.7348** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.12455677 0.08809614 sample estimates: **cor** **-0.01843885**	Spearman's rank correlation rho data: Od533M_CC_wRS$As and Od533M_CC_wRS$Pb S = 6300312, **p-value = 0.4825** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.03820989** *Impossible to calculate the exact p-value with ex-aequos*
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.01645062**	



- **Sb vs Sn**

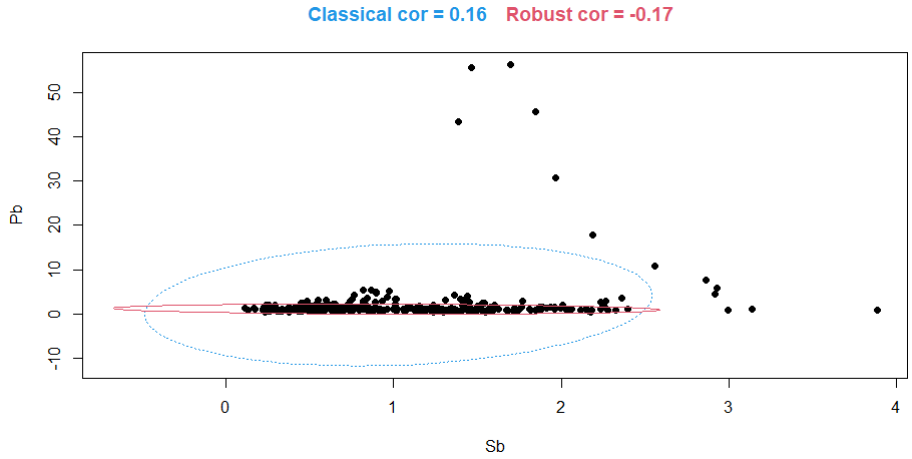
Classical test	Pearson's product-moment correlation data: Od533M_CC$Sn and Od533M_CC$Sb t = -1.5008, df = 346, **p-value = 0.1343** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.18399834 0.02491866 sample estimates: **cor** **-0.08042303**	Spearman's rank correlation rho data: Od533M_CC$Sn and Od533M_CC$Sb S = 7514274, **p-value = 0.1938** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.06980379**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.07359742**	



- **Pb vs Sb**

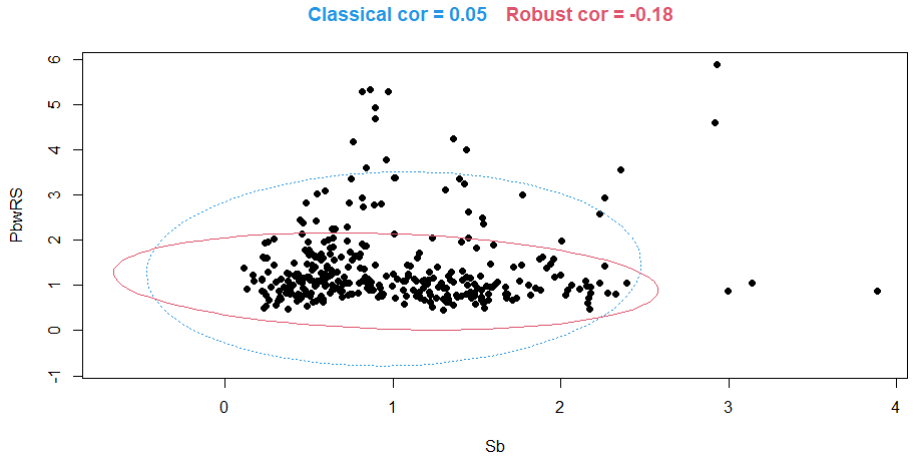
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_CC$Sb and Od533M_CC$Pb t = 3.0237, df = 346, **p-value = 0.002684** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.05626567 0.26117312 sample estimates: **cor** **0.1604476**	Spearman's rank correlation rho data: Od533M_CC$Sb and Od533M_CC$Pb S = 7033012, **p-value = 0.9809** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.001286736**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.1667674**	



Removing 15 µm of Pb-enriched root surface:

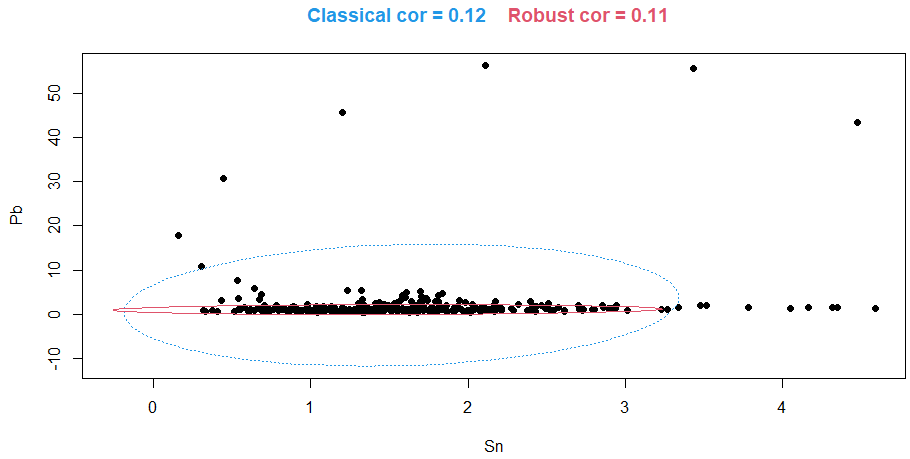
Classical test	Pearson's product-moment correlation data: Od533M_CC_wRS$Sb and Od533M_CC_wRS$Pb t = 0.99995, df = 338, **p-value = 0.3181** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.05235506 0.15974899 sample estimates: **cor** **0.05430957**	Spearman's rank correlation rho data: Od533M_CC_wRS$Sb and Od533M_CC_wRS$Pb S = 6929224, **p-value = 0.2878** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.05779828**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.1805594**	



- **Pb vs Sn**

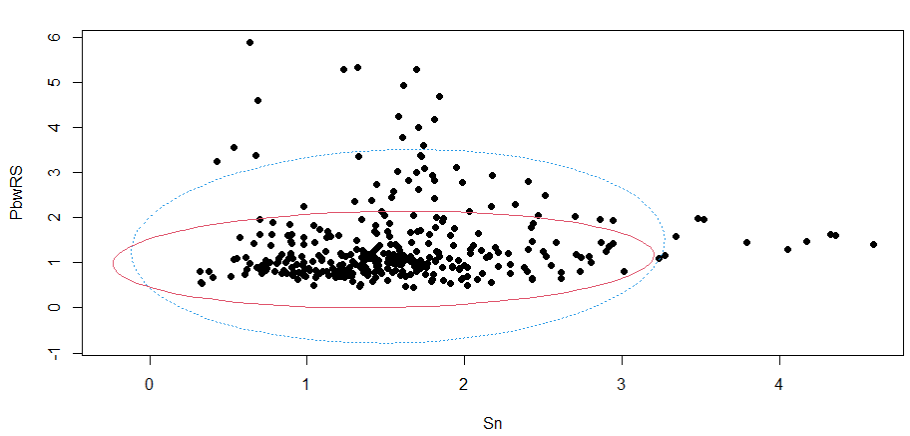
Whole cementum thickness:

Classical test	Pearson's product-moment correlation data: Od533M_CC$Sn and Od533M_CC$Pb t = 2.3224, df = 346, **p-value = 0.02079** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.01900917 0.22607892 sample estimates: **cor** **0.1238926**	Spearman's rank correlation rho data: Od533M_CC$Sn and Od533M_CC$Pb S = 5821180, **p-value = 0.001362** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1712412**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1078794**	



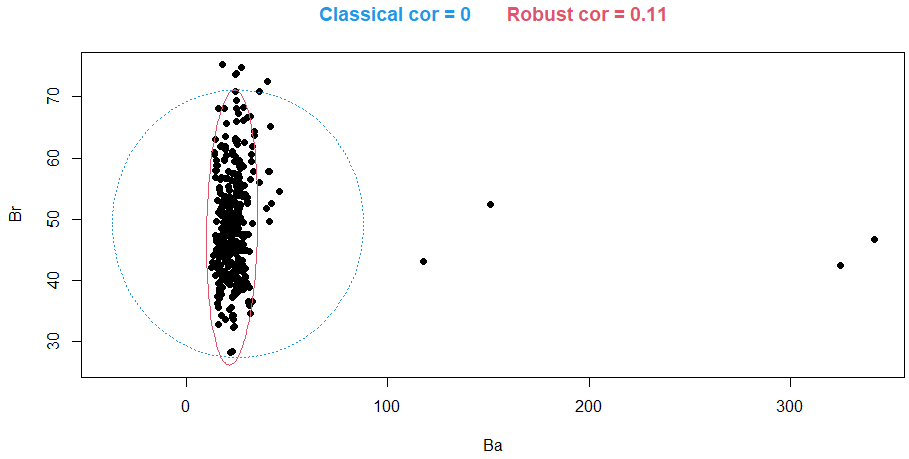
Removing 15 µm of Pb-enriched root surface:

Classical test	Pearson's product-moment correlation data: Od533M_CC_wRS$Sn and Od533M_CC_wRS$Pb t = 1.2308, df = 338, **p-value = 0.2192** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.03984622 0.17193969 sample estimates: **cor** **0.0667991**	Spearman's rank correlation rho data: Od533M_CC_wRS$Sn and Od533M_CC_wRS$Pb S = 5262186, **p-value = 0.0002701** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1966876**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.08510237**	



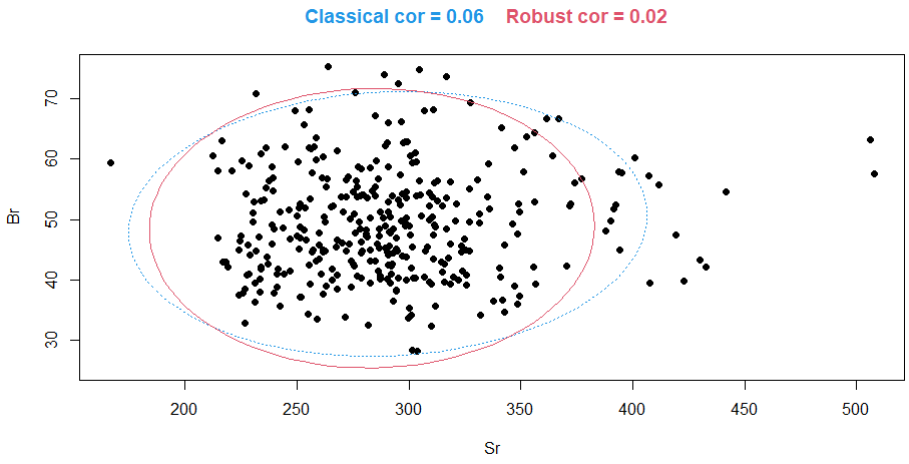
- **Br vs Ba**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ba and Od533M_CC$Br t = -0.030879, df = 346, **p-value = 0.9754** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.1067725 0.1034890 sample estimates: **cor** **-0.001660083**	Spearman's rank correlation rho data: Od533M_CC$Ba and Od533M_CC$Br S = 6124820, **p-value = 0.01693** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1280121**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.107534**	



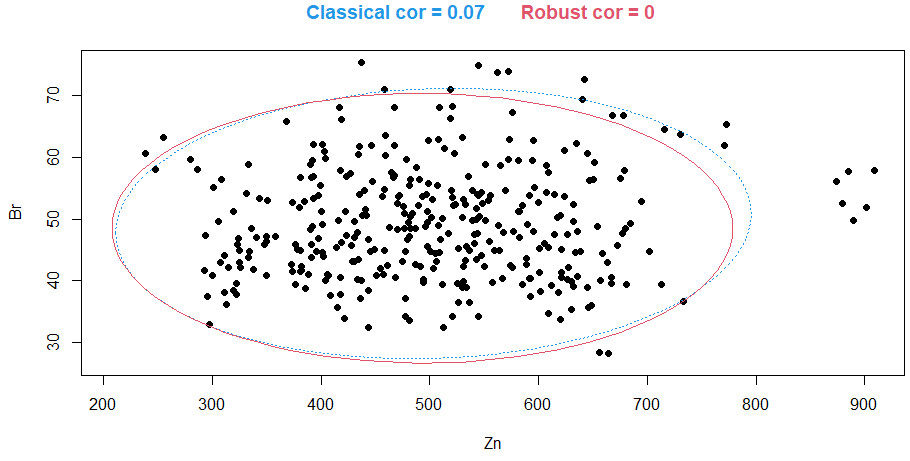
- **Br vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Sr and Od533M_CC$Br t = 1.1968, df = 346, **p-value = 0.2322** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.04120406 0.16820073 sample estimates: **cor** **0.06420507**	Spearman's rank correlation rho data: Od533M_CC$Sr and Od533M_CC$Br S = 6739054, **p-value = 0.4505** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.04056393**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.01599081**	



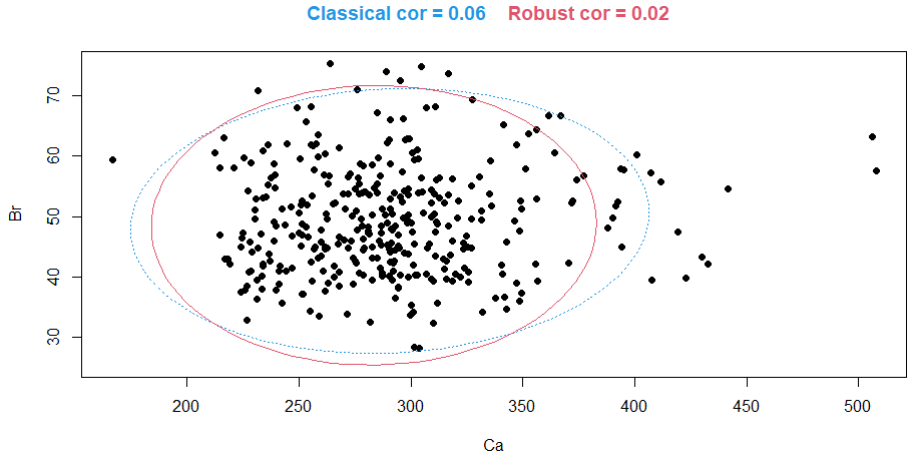
- **Br vs Zn**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Zn and Od533M_CC$Br t = 1.2881, df = 346, **p-value = 0.1986** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.03631413 0.17295552 sample estimates: **cor** **0.06908061**	Spearman's rank correlation rho data: Od533M_CC$Zn and Od533M_CC$Br S = 6704876, **p-value = 0.398** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.04542984**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.001427677**	



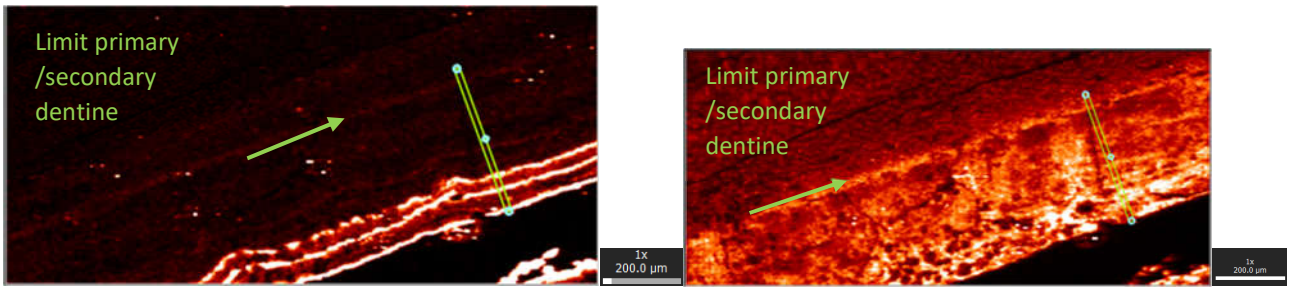
- **Br vs Ca**

Classical test	Pearson's product-moment correlation data: Od533M_CC$Ca and Od533M_CC$Br t = -0.45575, df = 346, **p-value = 0.6489** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.12929178 0.08084547 sample estimates: **cor** **-0.02449371**	Spearman's rank correlation rho data: Od533M_CC$Ca and Od533M_CC$Br S = 7026418, **p-value = 0.9948** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.0003479512**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.01599081**	



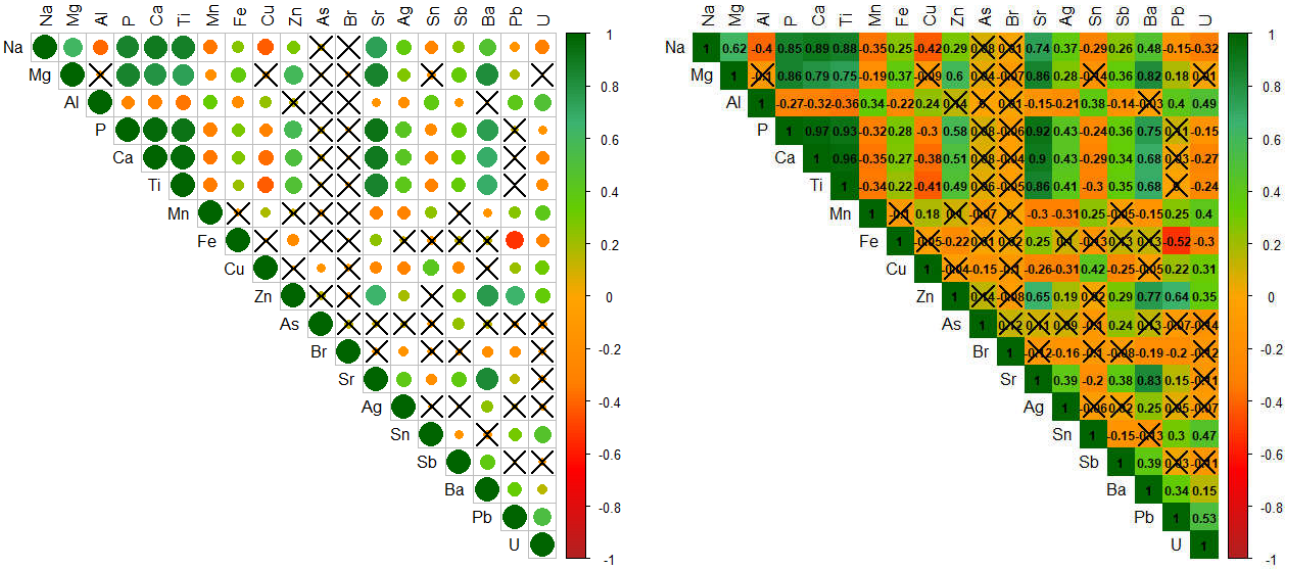
Odense 533M1 – Secondary Dentine (total thickness=396 µm)

Correlations between pairs of elements

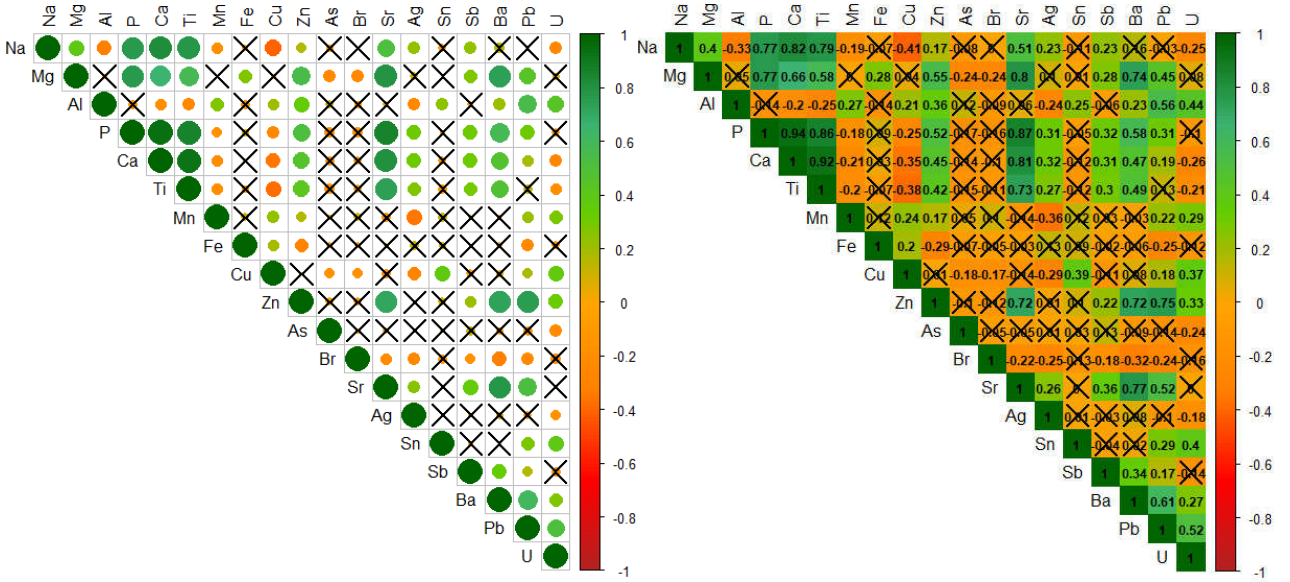


Pb (left) and Zn (right) maps (green path indicates where the measurements are taken)

Summary: whole secondary dentinee thickness, Spearman correlations.



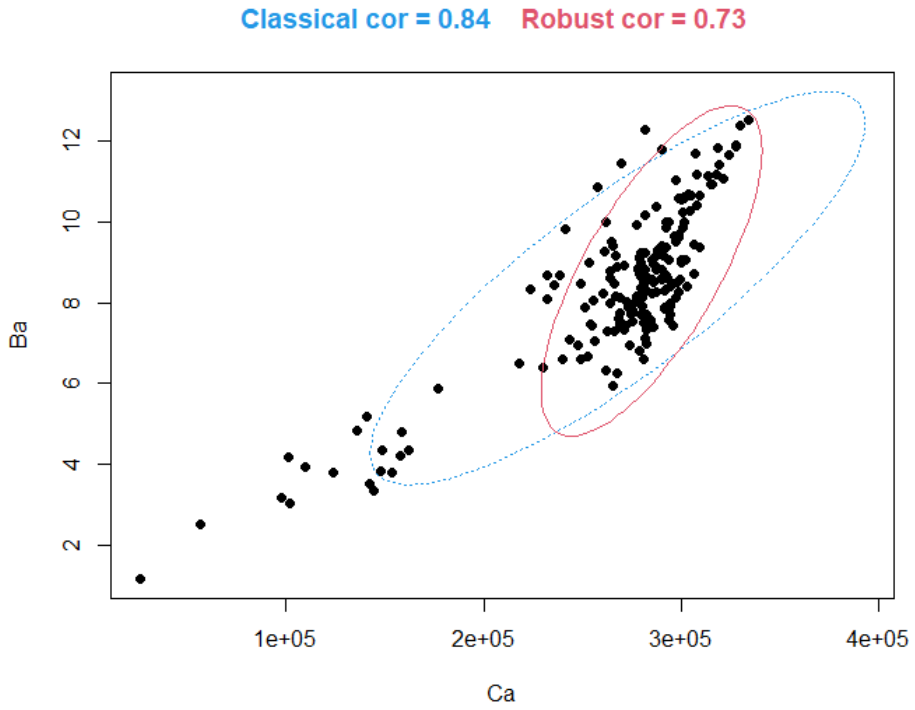
Summary: removing the first 110 µm of secondary dentinee surface, Spearman correlations.



wSDS: without Secondary Dentinee surface [Pb = ~109 µm containing 3 strong (biological) accentuated lines; no significant surface enrichment for Fe, Mn, Cu, Al]

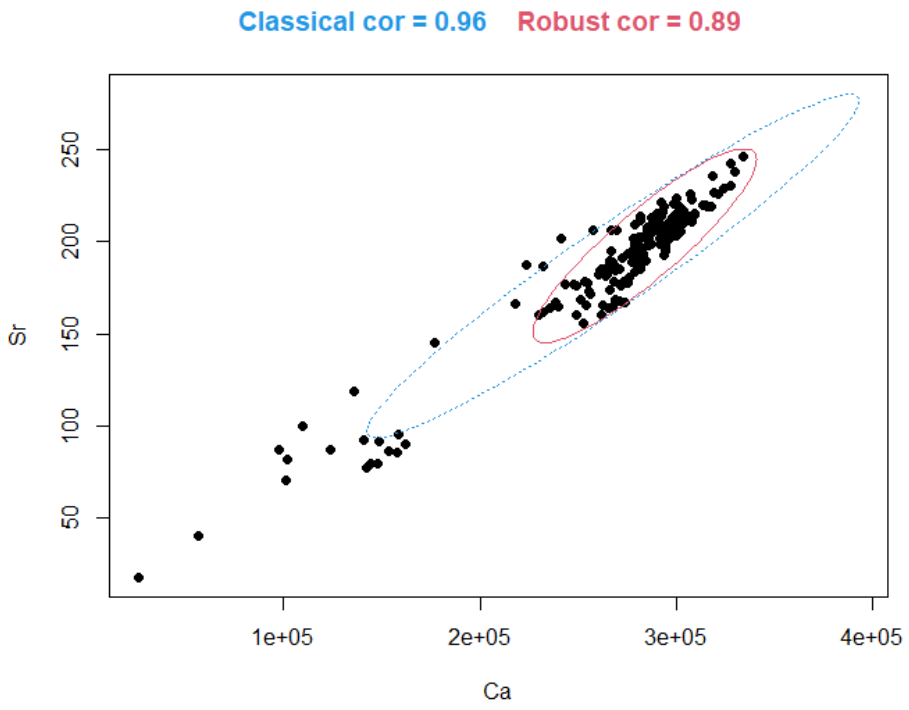
- **Ca vs Ba**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Ca and Od533M_SD$Ba t = 21.276, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.7931194 0.8778780 sample estimates: **cor** **0.8405697**	Spearman's rank correlation rho data: Od533M_SD$Ca and Od533M_SD$Ba S = 361716, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6835754**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7271962**	



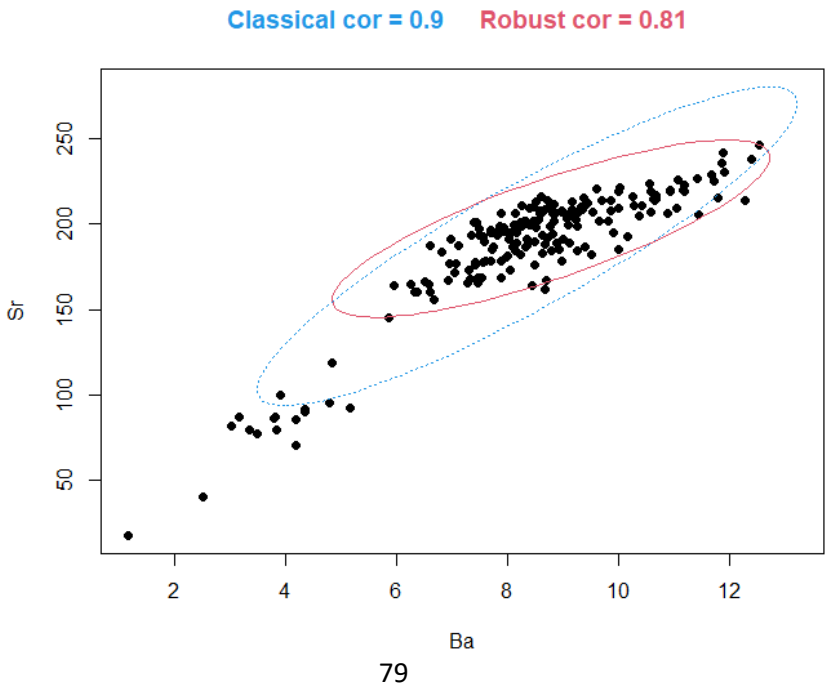
- **Ca vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Ca and Od533M_SD$Sr t = 47.692, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.9484792 0.9706298 sample estimates: **cor** **0.9610697**	Spearman's rank correlation rho data: Od533M_SD$Ca and Od533M_SD$Sr S = 111092, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.9028181**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8939784**	



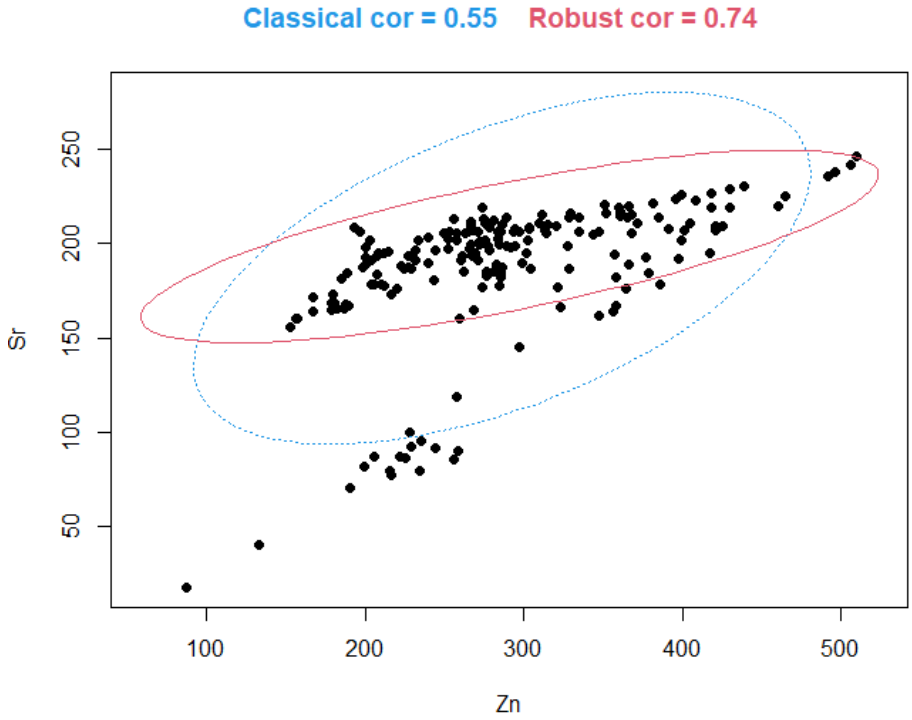
- **Ba vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Ba and Od533M_SD$Sr t = 28.16, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.8678047 0.9232742 sample estimates: **cor** **0.8990891**	Spearman's rank correlation rho data: Od533M_SD$Ba and Od533M_SD$Sr S = 197406, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.8273117**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8067172**	



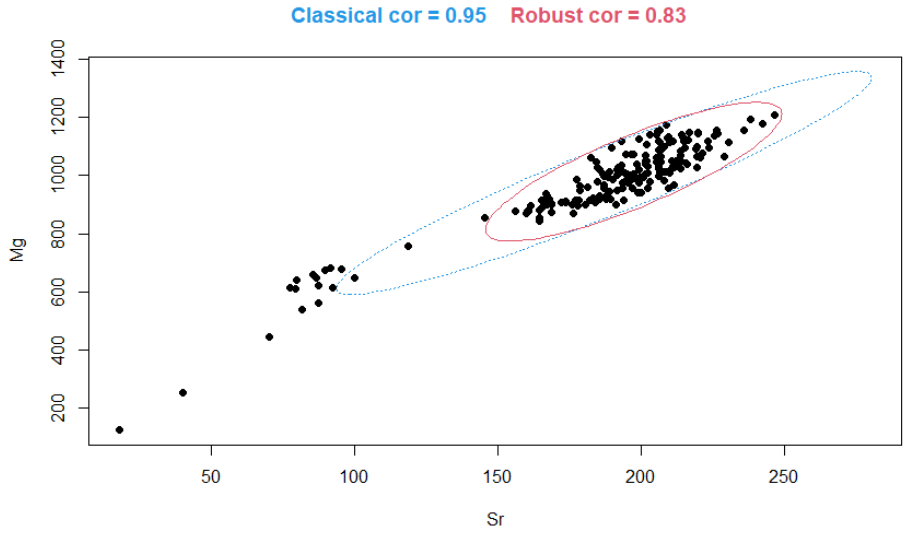
- **Zn vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Sr t = 9.0389, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.4427294 0.6424145 sample estimates: **cor** **0.5503947**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Sr S = 405396, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6453647**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7399384**	



- **Mg vs Sr**

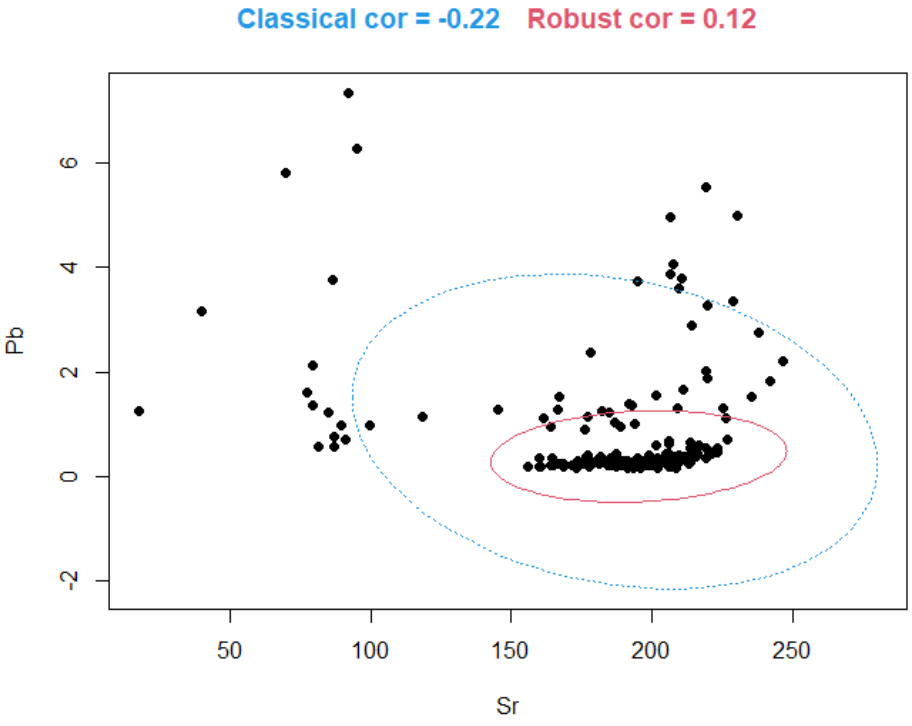
Classical test	Pearson's product-moment correlation data: Od533M_SD$Mg and Od533M_SD$Sr t = 39.904, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.9283560 0.9589761 sample estimates: **cor** **0.9457272**	Spearman's rank correlation rho data: Od533M_SD$Mg and Od533M_SD$Sr S = 160422, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.8596649**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.8330961**	



- **Pb vs Sr**

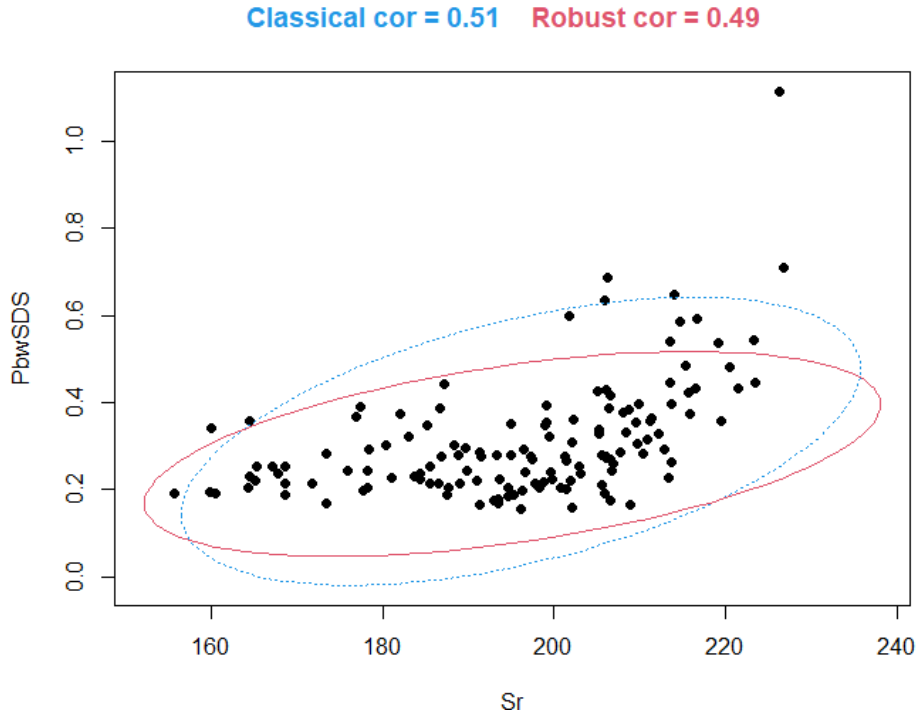
Whole secondary dentinee thickness:

Classical test	Pearson's product-moment correlation data: Od533M_SD$Sr and Od533M_SD$Pb t = -3.0443, df = 188, **p-value = 0.002666** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.34835595 -0.07676657 sample estimates: **cor** **-0.2167512**	Spearman's rank correlation rho data: Od533M_SD$Sr and Od533M_SD$Pb S = 967754, **p-value = 0.03466** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.1534211**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.1233295**	



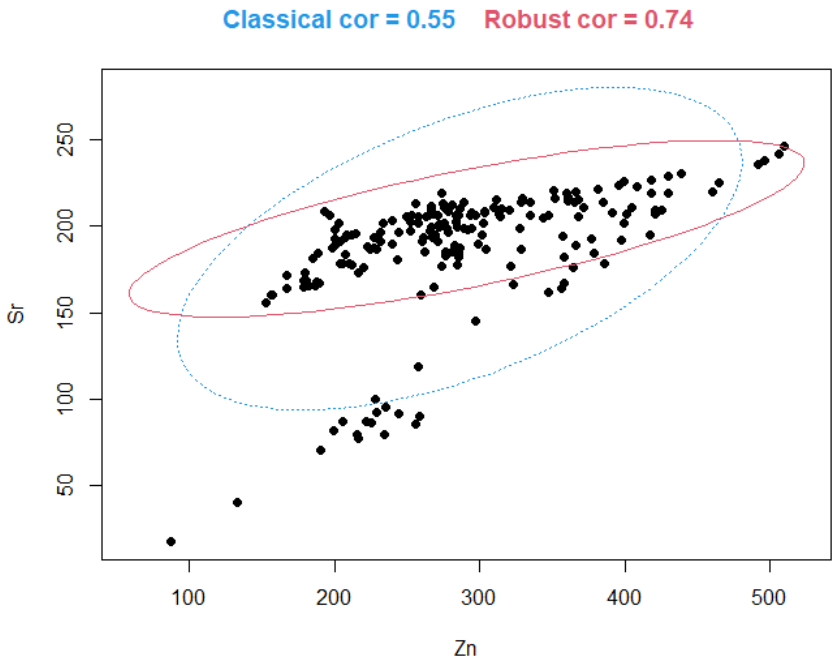
Removing 110 µm of Pb-enriched secondary dentinee surface:

Classical test	Pearson's product-moment correlation data: Od533M_SD_wSDS$Sr and Od533M_SD_wSDS$Pb t = 6.8029, df = 135, **p-value = 3.039e-10** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.3688022 0.6204068 sample estimates: **cor** **0.5052651**	Spearman's rank correlation rho data: Od533M_SD_wSDS$Zn and Od533M_SD_wSDS$Pb S = 106274, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.7520068**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.4864732**	



- **Sr vs Zn**

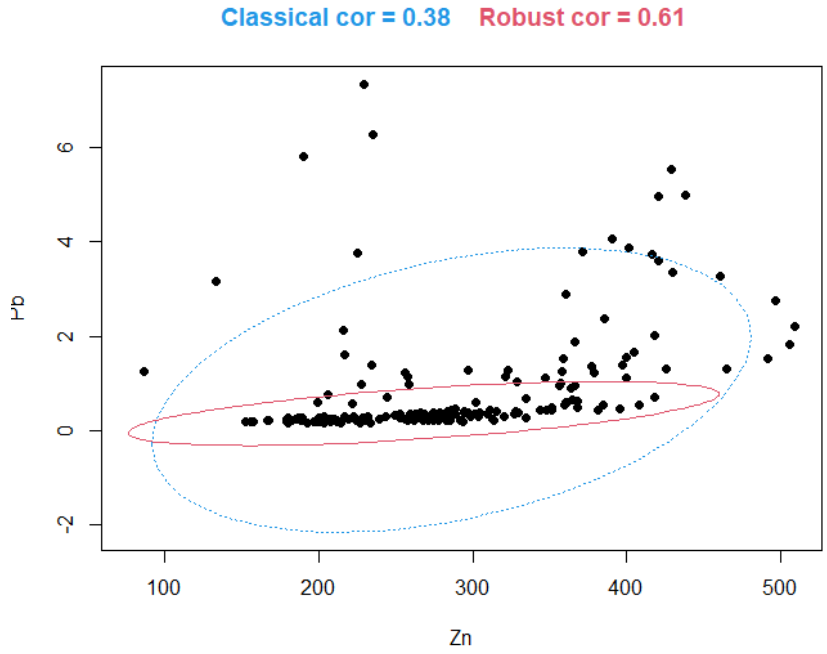
Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Sr t = 9.0389, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.4427294 0.6424145 sample estimates: **cor** **0.5503947**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Sr S = 405396, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6453647**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7399384**	



- **Pb vs Zn**

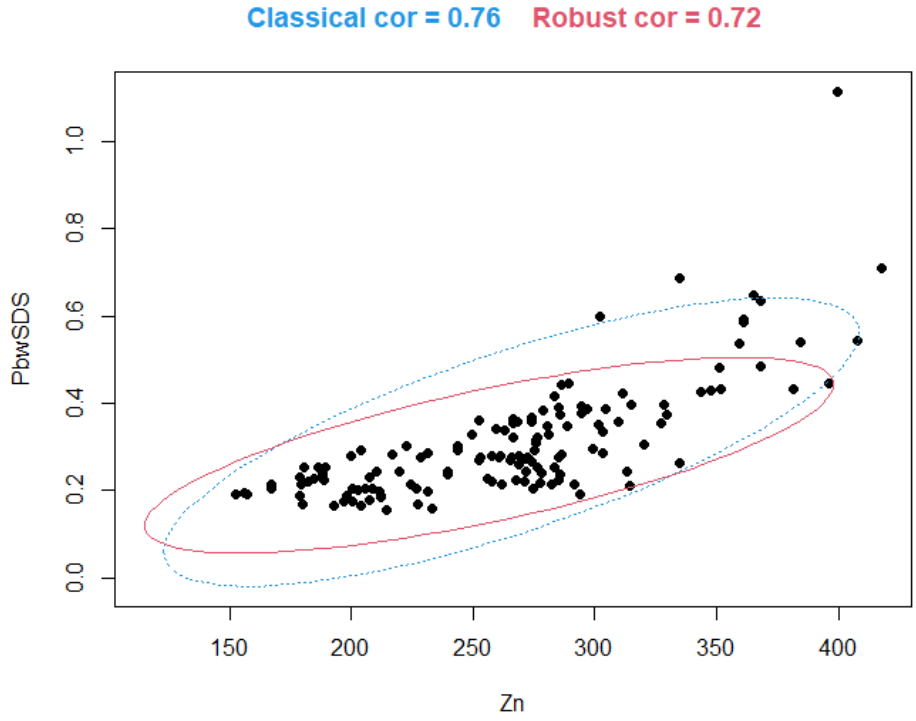
Whole secondary dentinee thickness:

Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Pb t = 5.5906, df = 188, **p-value = 7.874e-08** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.2485614 0.4933909 sample estimates: **cor** **0.3775555**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Pb S = 411004, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.6404589**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.6087622**	



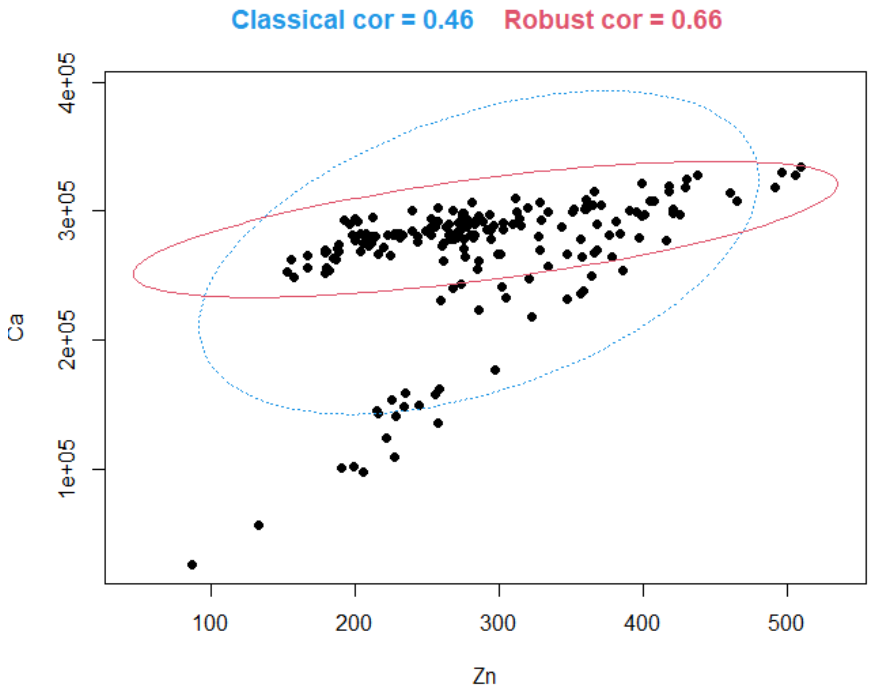
Removing 110 µm of Pb-enriched secondary dentinee surface:

Classical test	Pearson's product-moment correlation data: Od533M_SD_wSDS$Zn and Od533M_SD_wSDS$Pb t = 13.47, df = 135, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.6752670 0.8207112 sample estimates: **cor** **0.7572247**	Spearman's rank correlation rho data: Od533M_SD_wSDS$Zn and Od533M_SD_wSDS$Pb S = 106274, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.7520068**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7244165**	



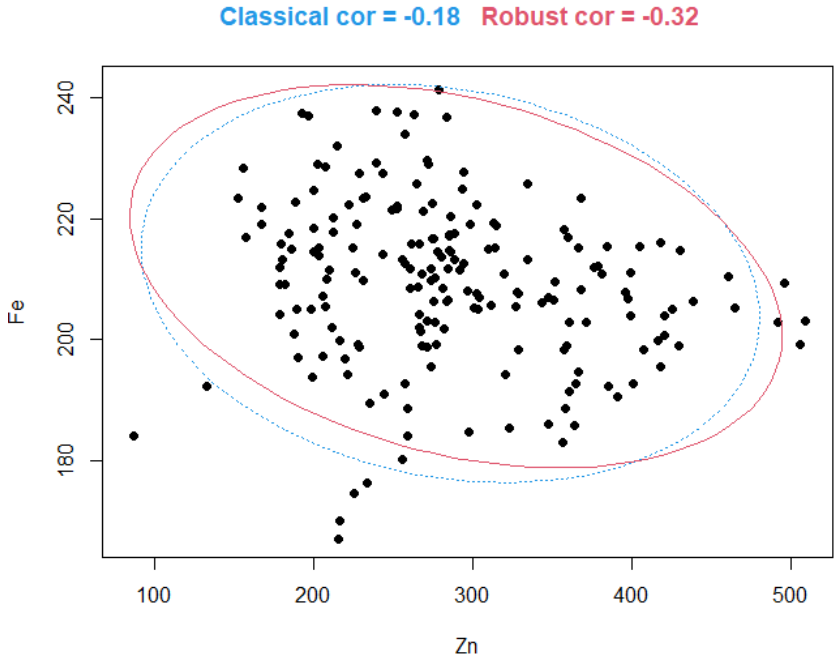
- **Zn vs Ca**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Ca t = 7.0081, df = 188, **p-value = 4.196e-11** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.3344273 0.5611145 sample estimates: **cor** **0.4551141**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Ca S = 560218, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5099284**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.6601464**	



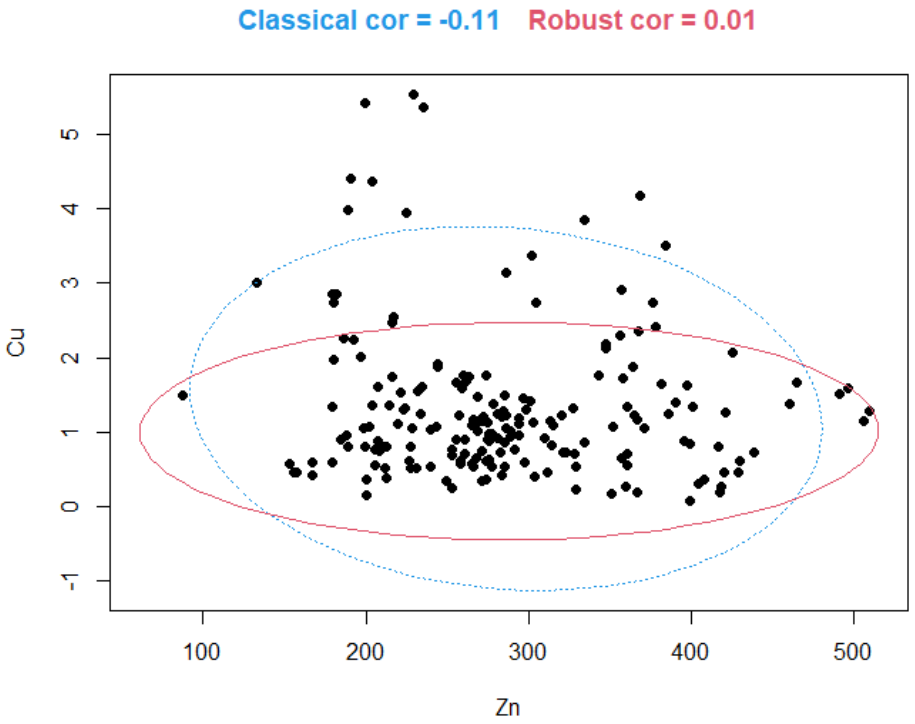
- **Zn vs Fe**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Fe t = -2.455, df = 188, **p-value = 0.015** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.31080458 -0.03476824 sample estimates: **cor** **-0.1762492**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Fe S = 1399172, **p-value = 0.001936** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.2239779**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.3170197**	



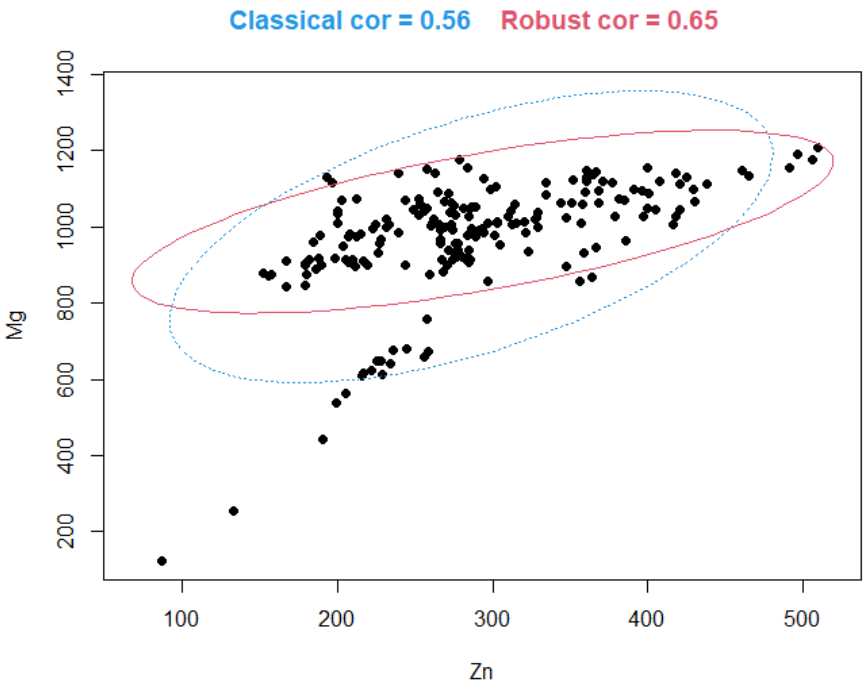
- **Zn vs Cu**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Cu t = -1.4594, df = 188, **p-value = 0.1461** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.24450631 0.03707514 sample estimates: **cor** **-0.1058368**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Cu S = 1193286, **p-value = 0.5475** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.04387146**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.009811241**	



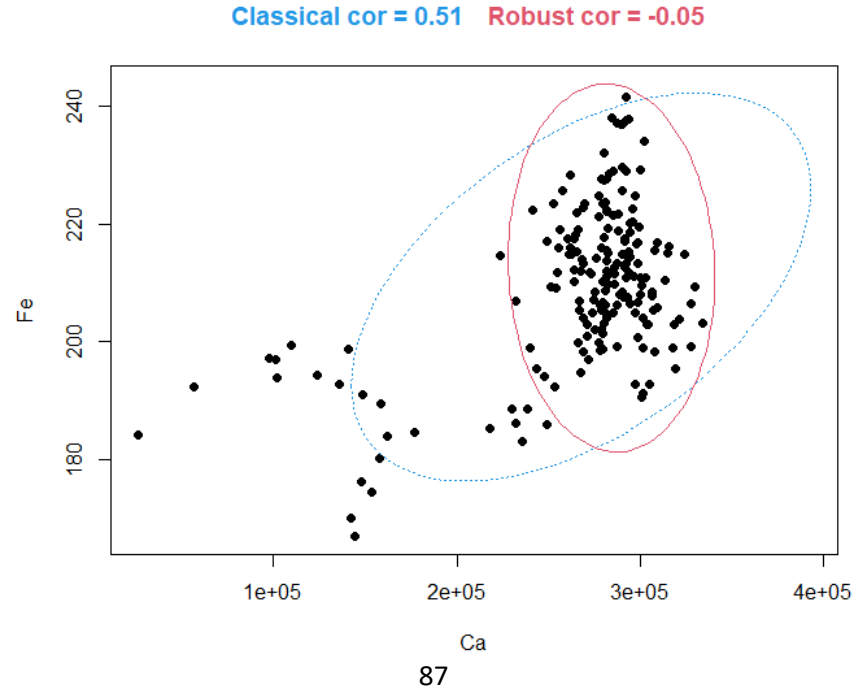
- **Zn vs Mg**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Mg t = 9.3848, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.4594057 0.6545460 sample estimates: **cor** **0.5648209**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Mg S = 457680, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.5996273**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.6538013**	



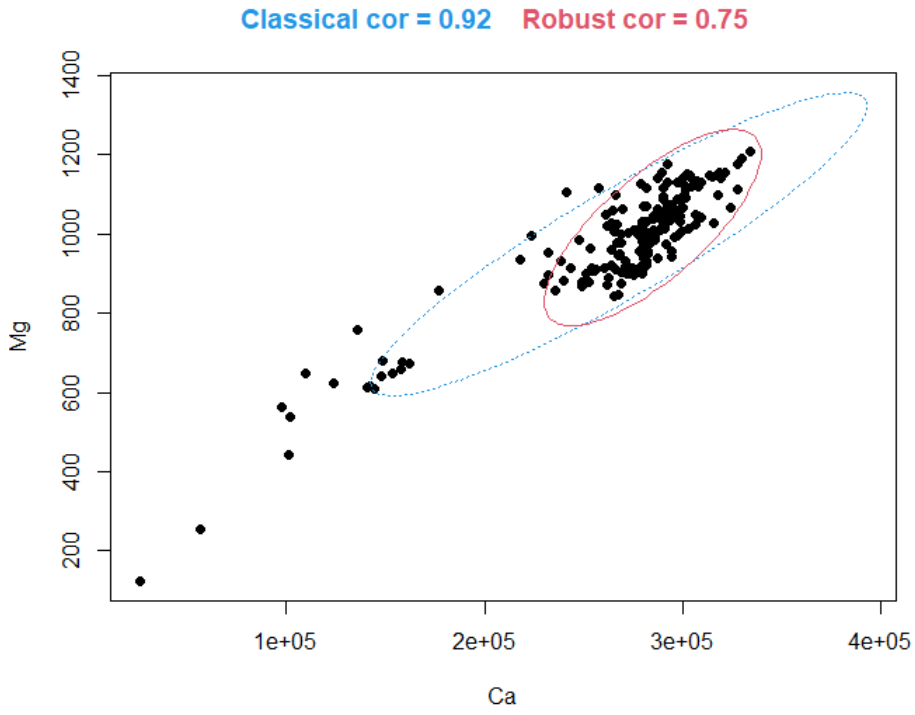
- **Ca vs Fe**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Ca and Od533M_SD$Fe t = 8.0258, df = 188, **p-value = 1.063e-13** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.3909232 0.6040775 sample estimates: **cor** **0.5051645**	Spearman's rank correlation rho data: Od533M_SD$Ca and Od533M_SD$Fe S = 832466, **p-value = 0.0001572** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2717693**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.05379779**	



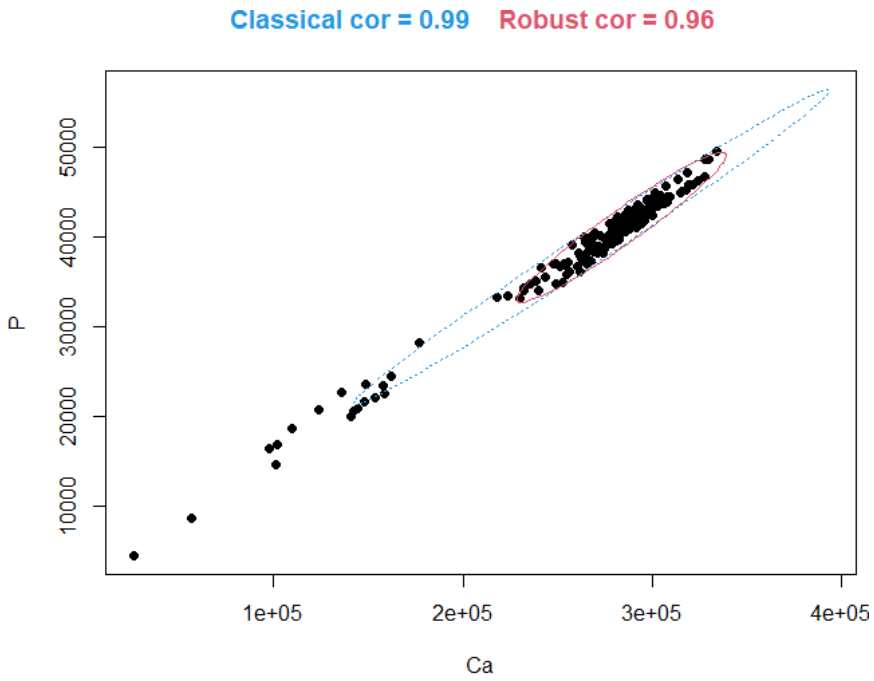
- **Ca vs Mg**

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_SD$Ca and Od533M_SD$Mg t = 31.118, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.8884944 0.9355818 sample estimates: **cor** **0.9151051**	data: Od533M_SD$Ca and Od533M_SD$Mg S = 236192, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.7933822**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.7510065**	



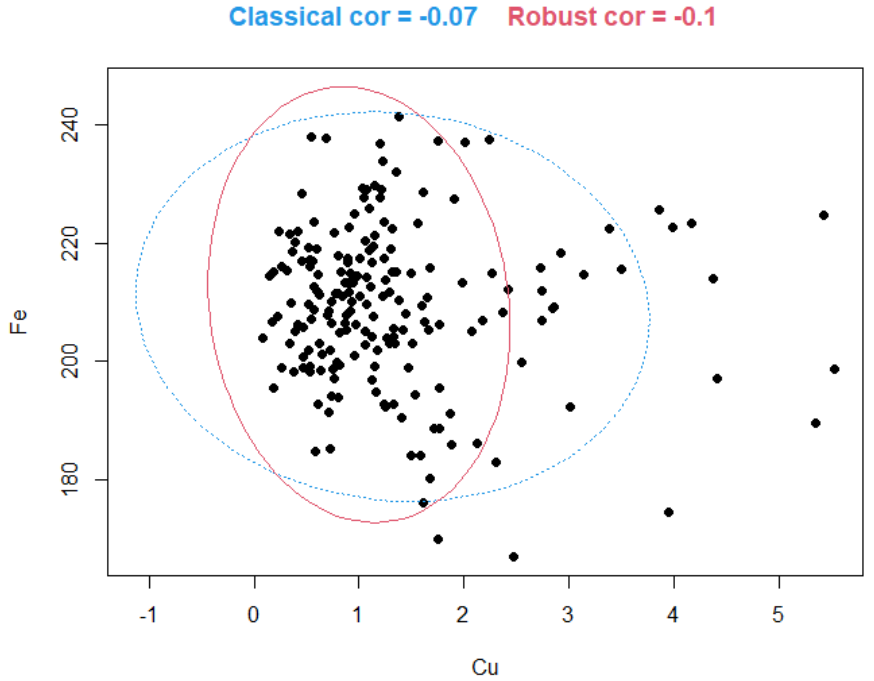
- **Ca vs P**

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_SD$Ca and Od533M_SD$P t = 113.46, df = 188, **p-value < 2.2e-16** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.9903906 0.9945722 sample estimates: **cor** **0.9927769**	data: Od533M_SD$Ca and Od533M_SD$P S = 36556, **p-value < 2.2e-16** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.9680213**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.9609519**	



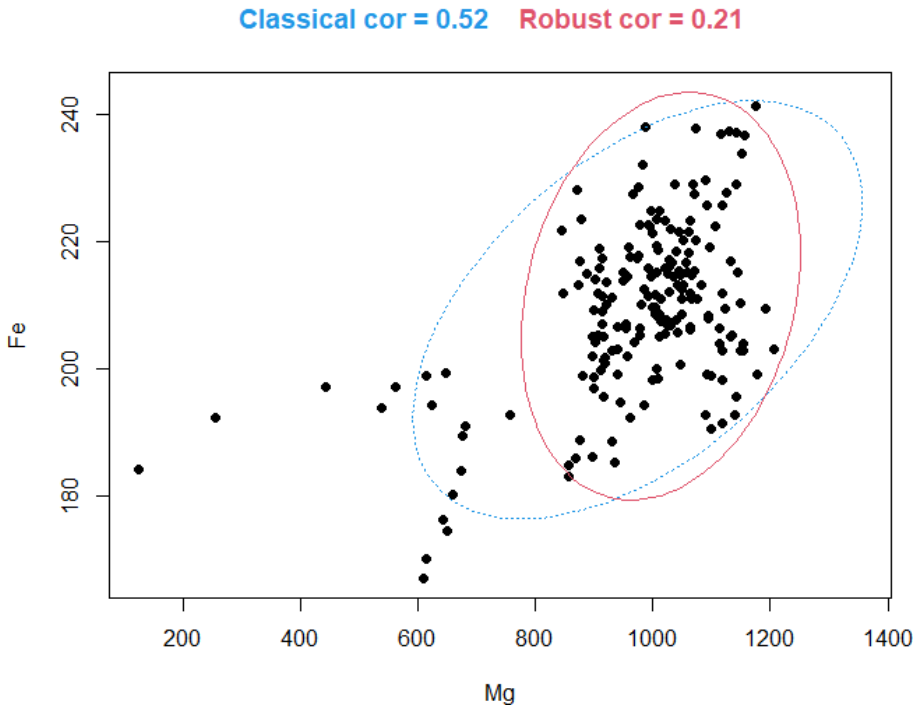
- **Cu vs Fe**

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_SD$Cu and Od533M_SD$Fe t = -0.99885, df = 188, **p-value = 0.3192** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.21280835 0.07042566 sample estimates: **cor** **-0.07265607**	data: Od533M_SD$Cu and Od533M_SD$Fe S = 1199798, **p-value = 0.4967** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.04956807**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.1037514**	



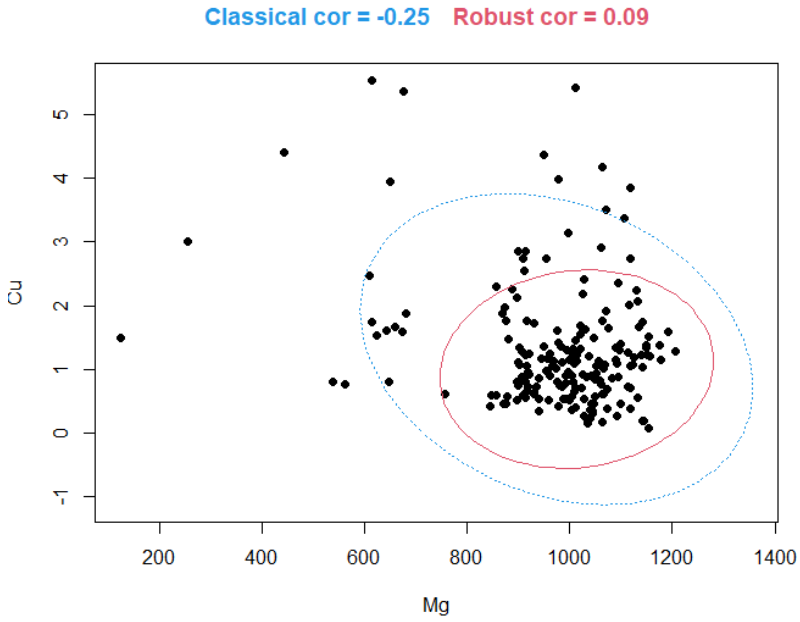
- **Mg vs Fe**

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_SD$Mg and Od533M_SD$Fe t = 8.243, df = 188, **p-value = 2.823e-14** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.4024041 0.6126594 sample estimates: **cor** **0.5152425**	data: Od533M_SD$Mg and Od533M_SD$Fe S = 717378, **p-value = 1.513e-07** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.3724468**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.2092387**	



- **Cu vs Mg**

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_SD$Mg and Od533M_SD$Cu t = -3.5432, df = 188, **p-value = 0.0004986** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3790493 -0.1118258 sample estimates: **cor** **-0.2501963**	data: Od533M_SD$Mg and Od533M_SD$Cu S = 1249146, **p-value = 0.203** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.09273708**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.08609909**	

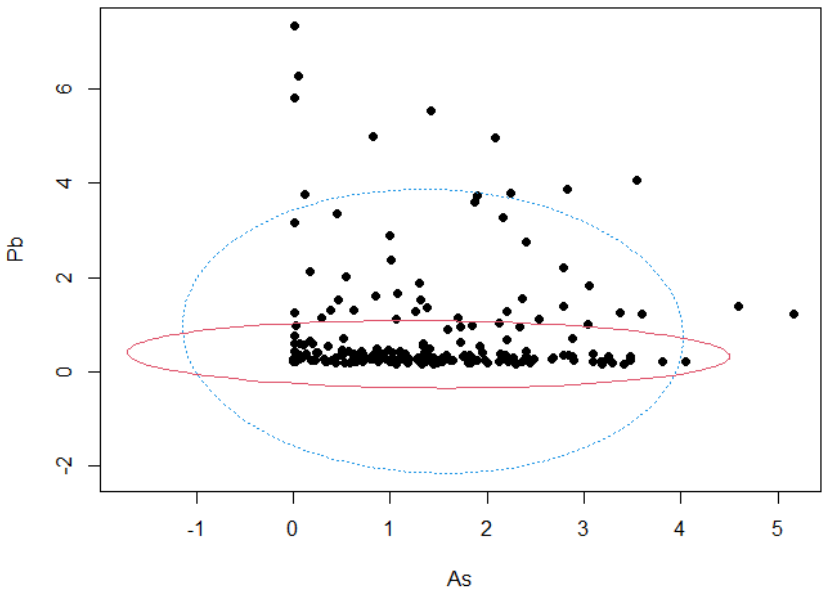


- **As vs Hg, Pb vs Hg (no Hg at all). => Not Applicable.**

- **Pb vs As**

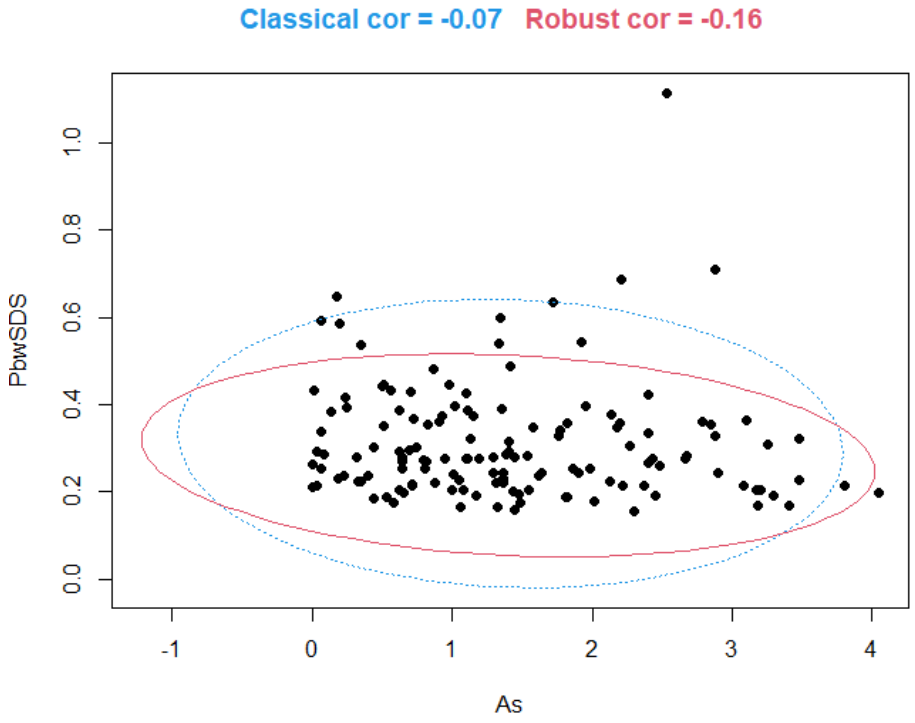
Whole secondary dentinee thickness:

	Pearson's product-moment correlation	Spearman's rank correlation rho
Classical test	data: Od533M_SD$As and Od533M_SD$Pb t = -0.57847, df = 188, **p-value = 0.5636** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.1834048 0.1008063 sample estimates: **cor** **-0.04215196**	data: Od533M_SD$As and Od533M_SD$Pb S = 1228634, **p-value = 0.3048** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.07479344**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.05585069**	



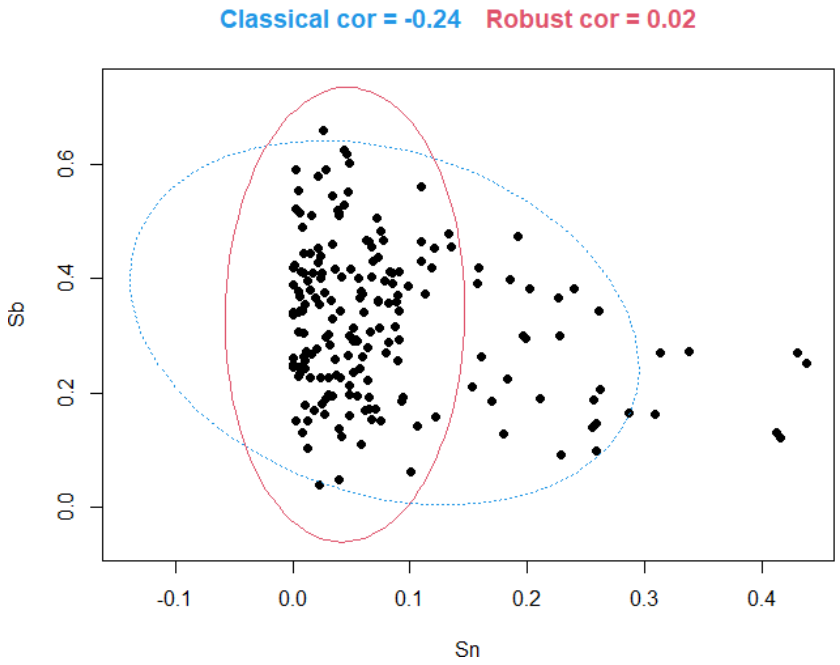
Removing 110 µm of Pb-enriched secondary dentinee surface:

Classical test	Pearson's product-moment correlation data: Od533M_SD_wSDS$As and Od533M_SD_wSDS$Pb t = -0.79052, df = 135, **p-value = 0.4306** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.2329440 0.1009847 sample estimates: **cor** **-0.0678805**	Spearman's rank correlation rho data: Od533M_SD_wSDS$As and Od533M_SD_wSDS$Pb S = 490286, **p-value = 0.09296** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.1440952**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.1582813**	



- **Sb vs Sn**

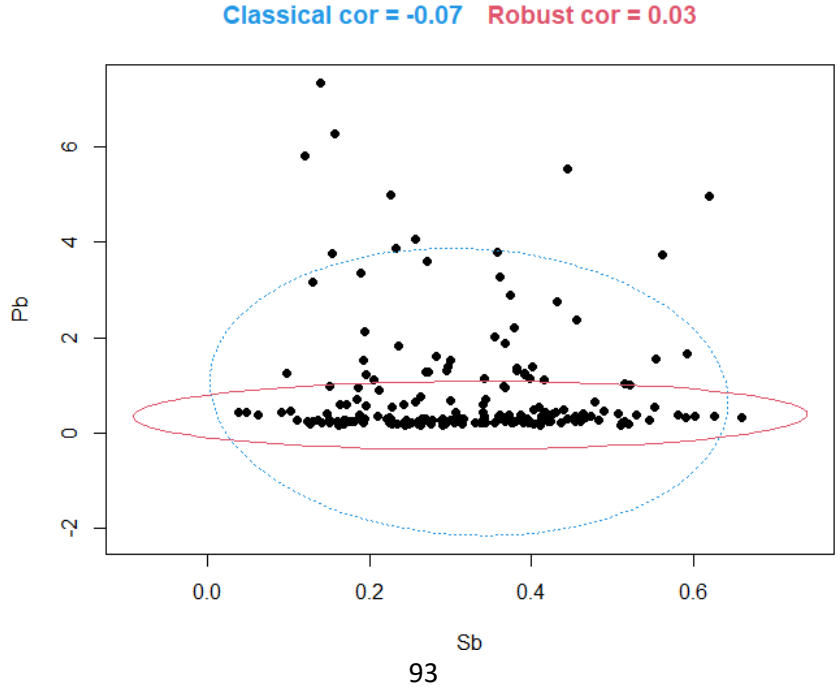
Classical test	Pearson's product-moment correlation data: Od533M_SD$Sn and Od533M_SD$Sb t = -3.4518, df = 188, **p-value = 0.0006878** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.3735037 -0.1054417 sample estimates: **cor** **-0.2441307**	Spearman's rank correlation rho data: Od533M_SD$Sn and Od533M_SD$Sb S = 1315916, **p-value = 0.03746** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.1511466**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.023168**	



- **Pb vs Sb**

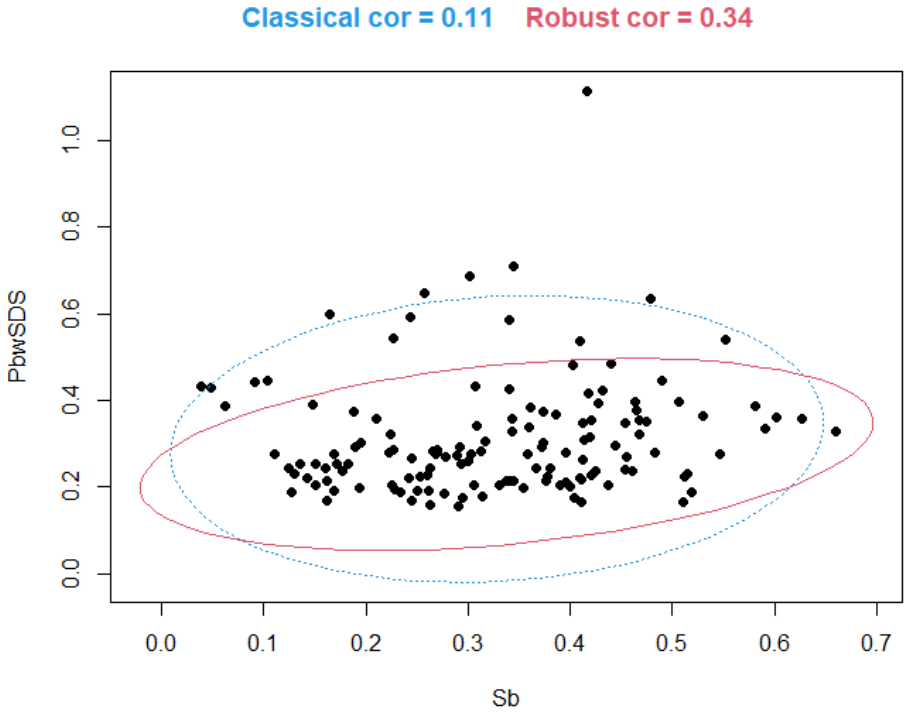
Whole secondary dentinee thickness:

Classical test	Pearson's product-moment correlation data: Od533M_SD$Sb and Od533M_SD$Pb t = -0.93918, df = 188, **p-value = 0.3488** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.20866014 0.07474378 sample estimates: **cor** **-0.06833665**	Spearman's rank correlation rho data: Od533M_SD$Sb and Od533M_SD$Pb S = 1110492, **p-value = 0.6955** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.02855568**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.03371059**	



Removing 110 µm of Pb-enriched secondary dentinee surface:

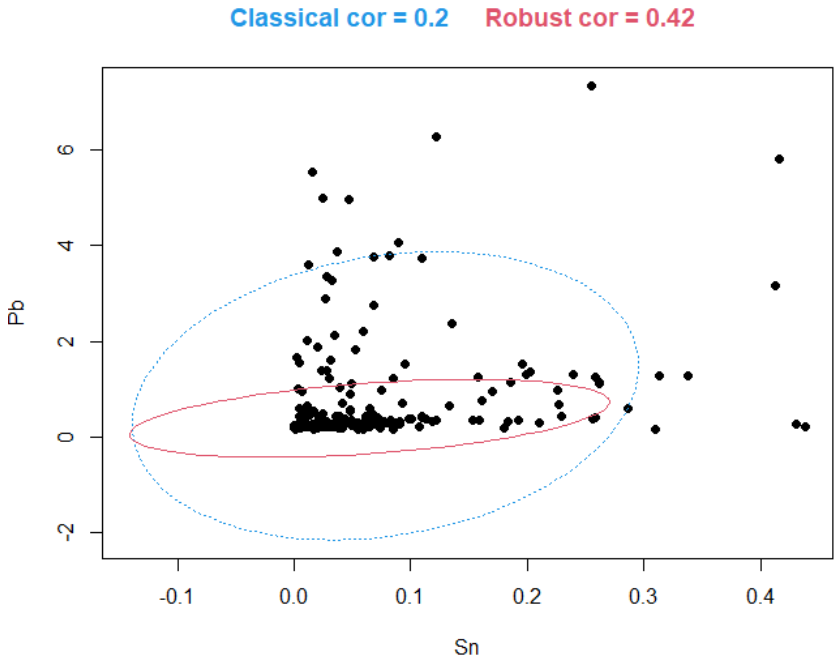
Classical test	Pearson's product-moment correlation data: Od533M_SD_wSDS$Sb and Od533M_SD_wSDS$Pb t = 1.284, df = 135, **p-value = 0.2013** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.05896091 0.27253560 sample estimates: **cor** **0.1098408**	Spearman's rank correlation rho data: Od533M_SD_wSDS$Sb and Od533M_SD_wSDS$Pb S = 356020, **p-value = 0.04817** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.169218**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.340878**	



- **Pb vs Sn**

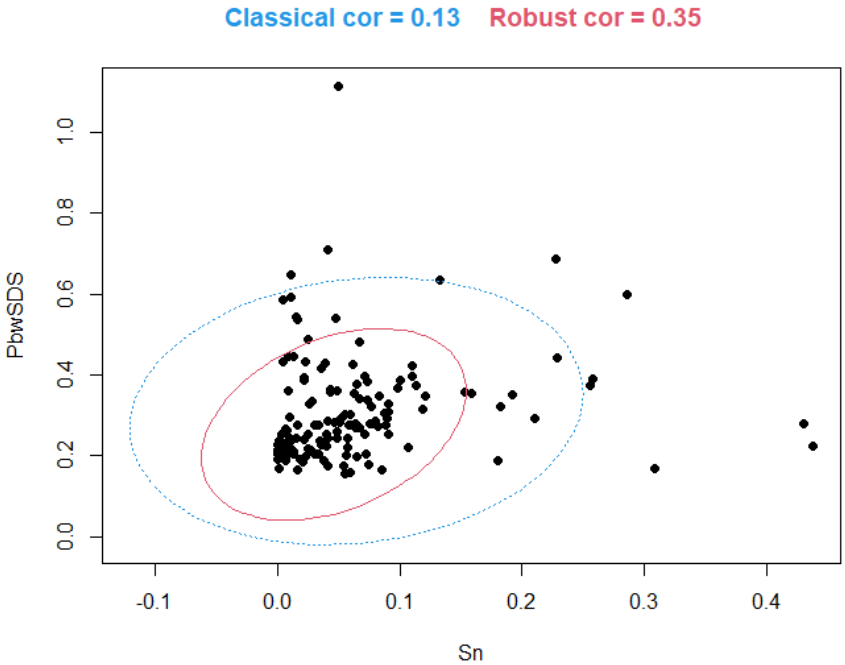
Whole secondary dentinee thickness:

Classical test	Pearson's product-moment correlation data: Od533M_SD$Sn and Od533M_SD$Pb t = 2.8353, df = 188, **p-value = 0.005079** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: 0.06193476 0.33519342 sample estimates: **cor** **0.2025027**	Spearman's rank correlation rho data: Od533M_SD$Sn and Od533M_SD$Pb S = 805144, **p-value = 3.737e-05** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2956702**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.424453**	



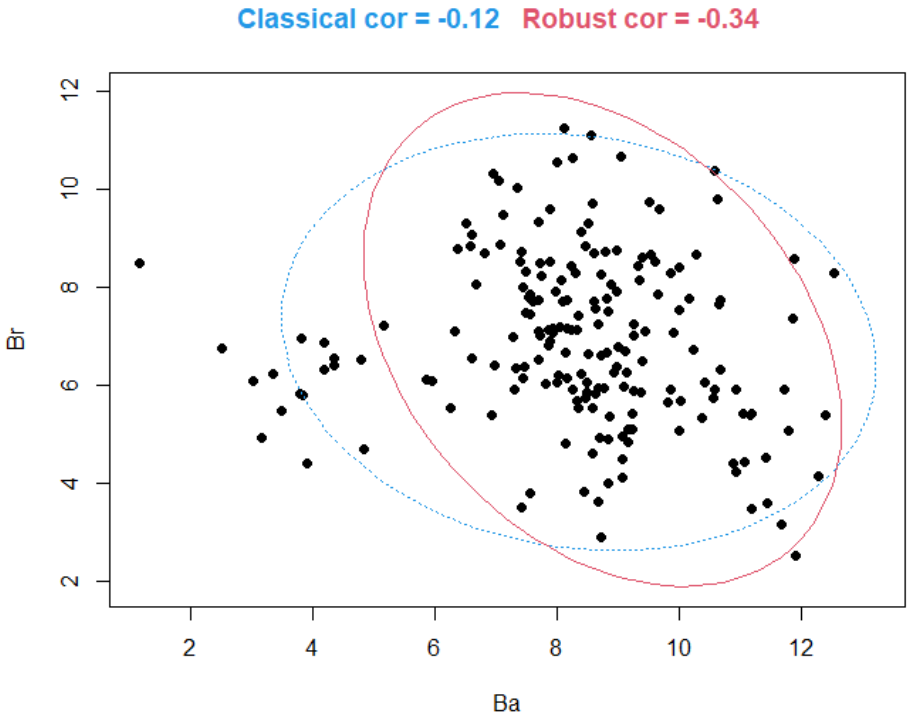
Removing 110 µm of Pb-enriched secondary dentinee surface:

Classical test	Pearson's product-moment correlation data: Od533M_SD_wSDS$Sn and Od533M_SD_wSDS$Pb t = 1.5529, df = 135, **p-value = 0.1228** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.0360418 0.2936653 sample estimates: **cor** **0.1324745**	Spearman's rank correlation rho data: Od533M_SD_wSDS$Sn and Od533M_SD_wSDS$Pb S = 304920, **p-value = 0.0006611** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **0.2884612**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **0.3515933**	



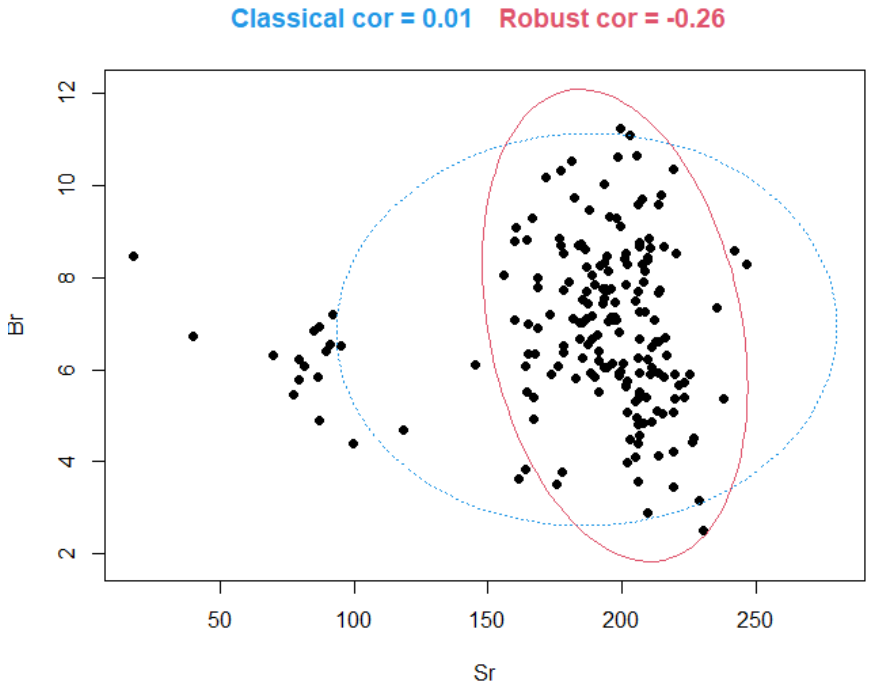
- **Br vs Ba**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Ba and Od533M_SD$Br t = -1.6732, df = 188, **p-value = 0.09595** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.2590202 0.0215923 sample estimates: **cor** **-0.1211334**	Spearman's rank correlation rho data: Od533M_SD$Ba and Od533M_SD$Br S = 1364608, **p-value = 0.007479** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.1937418**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.3389472**	



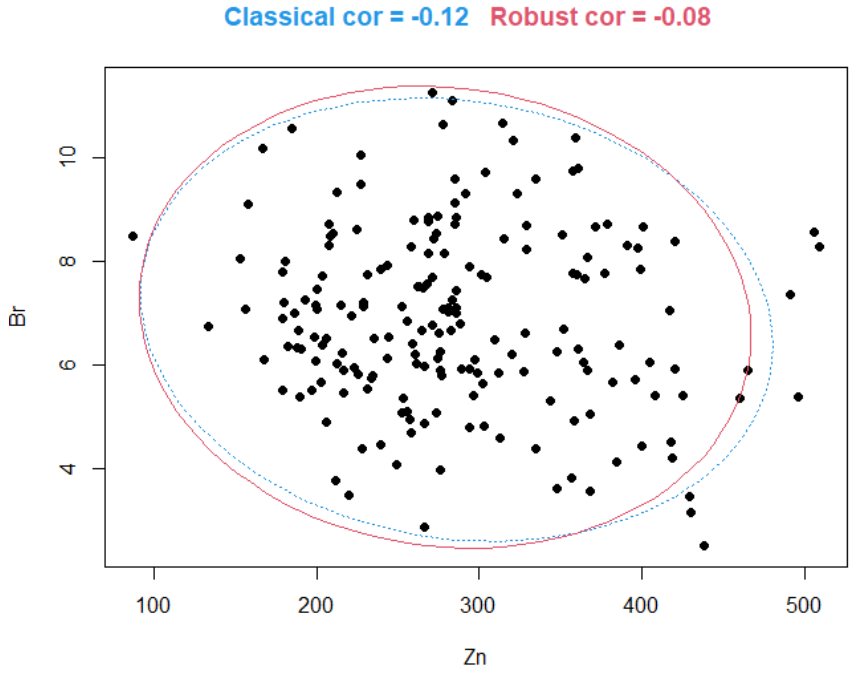
- **Br vs Sr**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Sr and Od533M_SD$Br t = 0.19459, df = 188, **p-value = 0.8459** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.1284221 0.1562284 sample estimates: **cor** **0.01419062**	Spearman's rank correlation rho data: Od533M_SD$Sr and Od533M_SD$Br S = 1275574, **p-value = 0.1114** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.115856**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.2620026**	



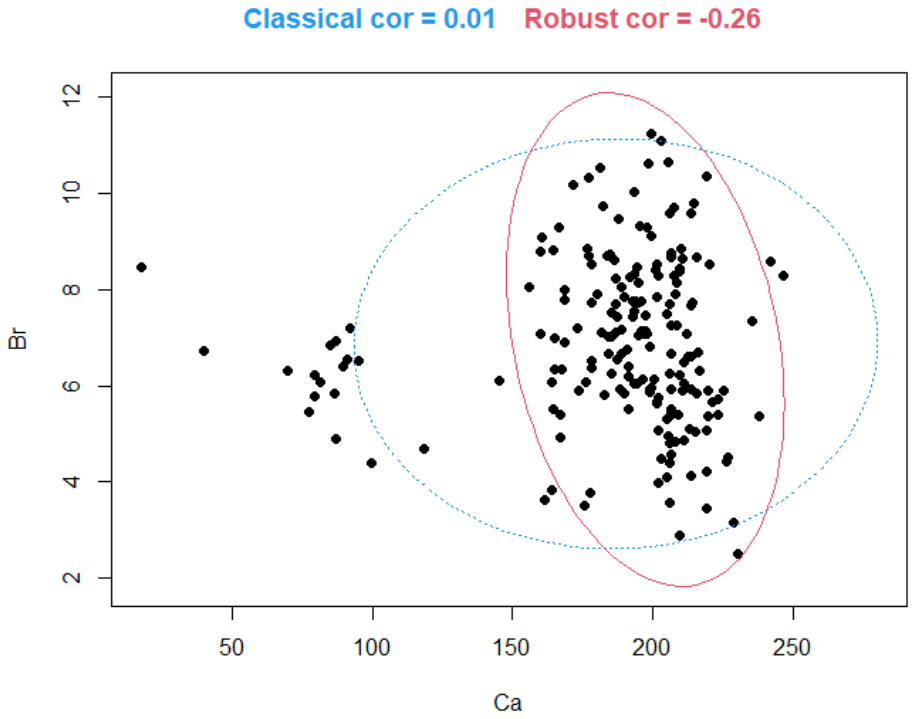
- **Br vs Zn**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Zn and Od533M_SD$Br t = -1.6138, df = 188, **p-value = 0.1083** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.25499849 0.02589603 sample estimates: **cor** **-0.1168882**	Spearman's rank correlation rho data: Od533M_SD$Zn and Od533M_SD$Br S = 1232840, **p-value = 0.2816** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.0784728**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.08039107**	



- **Br vs Ca**

Classical test	Pearson's product-moment correlation data: Od533M_SD$Ca and Od533M_SD$Br t = 0.59652, df = 188, **p-value = 0.5515** alternative hypothesis: true correlation is not equal to 0 95 percent confidence interval: -0.09950427 0.18467540 sample estimates: **cor** **0.04346472**	Spearman's rank correlation rho data: Od533M_SD$Ca and Od533M_SD$Br S = 1193966, **p-value = 0.5421** alternative hypothesis: true rho is not equal to 0 sample estimates: **rho** **-0.04446631**
MCD (α=0.05; quant=0.8)	$cor.rob [1] **-0.2620026**	



File S2

Synchrotron Fluorescence (SXRF) results

Using SXRF and LA-ICP-TOFMS to explore evidence of treatment and physiological responses to leprosy in medieval Denmark

Biology

Anastasia Brozou, Marcello A. Mannino, Stijn J.M. Van Malderen, Jan Garrevoet, Eric Pubert, Benjamin T. Fuller, M. Christopher Dean, Thomas Colard, Frédéric Santos, Niels Lynnerup, Jesper L. Boldsen, Marie Louise Jørkov, Andrei Dorian Soficaru, Laszlo Vincze, Adeline Le Cabec

Corresponding author:

Adeline Le Cabec
E-mail: adeline.le-cabec@u-bordeaux.fr

Data reconstruction

- Raw data were fitted and calibrated.
- The calculation takes into account the **average thickness of the tooth section** measured by subtracting the thickness of the glass slide from {tooth section + epoxy bond ~negligible thickness + glass slide}.
- The **background noise has been subtracted** from the sample for each element.

In the next slides:
- *"Scanning"*: actual areas scanned.
- Images reported in this ppt are "Mass diffraction", in $mg.kg^{-1}$ (ppm).
- It is also possible to report "areal density", in $g.cm^{-3}$
- To save space, the elemental maps of some teeth may have been rotated by 90°.
- Maps are displayed using the "Gistheat" colormap.
- To enhance the banding/stress pattern while reducing overall noise, a 2D Gaussian filter was applied to the datasets. The kernel size (=strength of the filter) used is indicated for x and y. This will induce a slight smoothing of any curve generated from a transect. The curve may be saved from the same transect on the unfiltered dataset.
- To improve the visibility of distribution patterns, the contrast is adjusted on the maps, thus not displaying the full range of concentrations recorded in the scan. Numbers cited in the text have been directly measured on the scans, with the full range of concentrations.

K emission lines.

- For elements which Kα < 17 keV, the detectors capture the K emission lines within the remitted fluorescent light: Ca, Zn, Sr, Cu, Fe, Mn.
- Data are fitted and calibrated, and were processed (open .nxs, colormap, 2D Gauss filter) in HDIP.

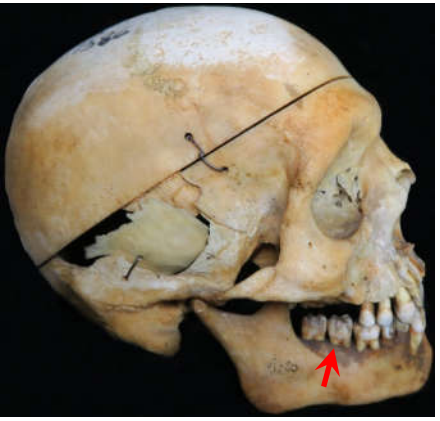
L emission lines.

- For elements which Kα > 17 keV, the detectors only capture the L emission lines within the remitted fluorescent light: Pb and Ba.
- For these elements, data were NOT calibrated.
- For each element, the 32 bit images from Detector 0 and Detector 2 were added in Image J (Process> Image Calculator), and then filtered using a Gaussian blur (Process> Filters> Gaussian blur) with a kernel size of 0.7-0.9.

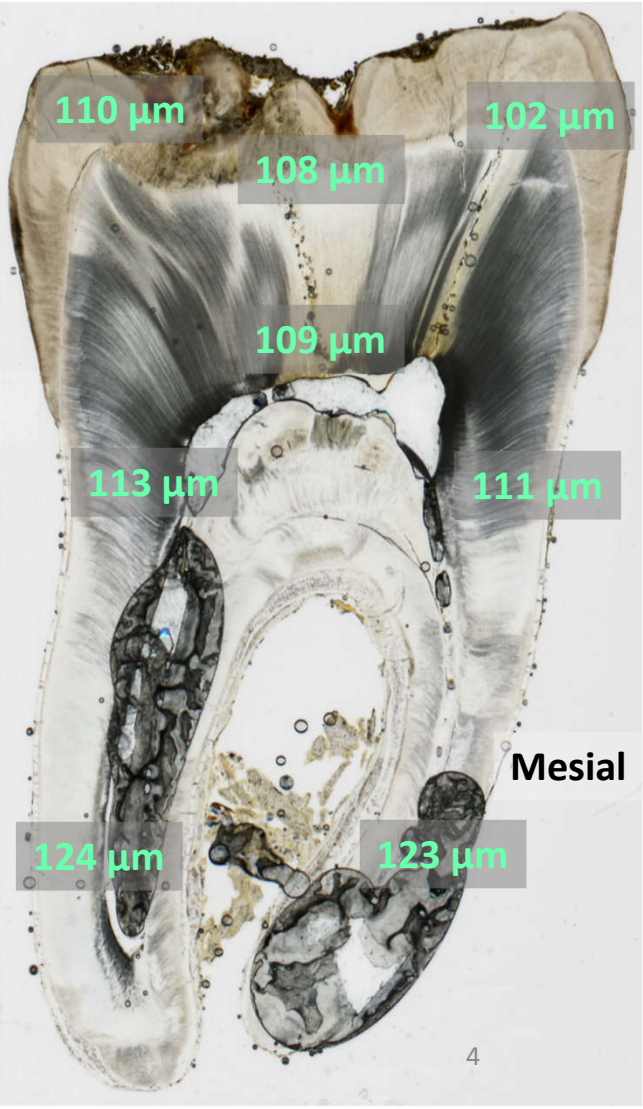
Romania – R1386 LRM2

♂ 36 yrs. 1890 – 1926 CE

Blacksmith deceased in Colentina Hospital (Bucharest)



Average tooth section thickness (µm): 112.5



R1386 LRM2

Scanning

Overview at 10 µm

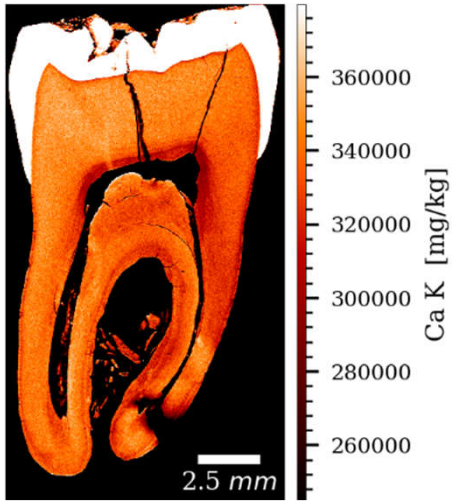
High resolution at 1.5 µm in cellular cementum

R1386 LRM2

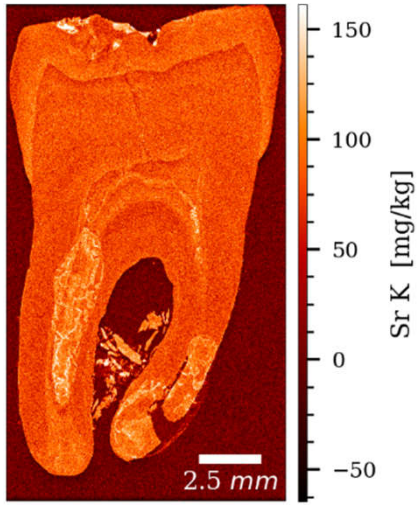
Overview at 10 µm

Gauss (1x1)

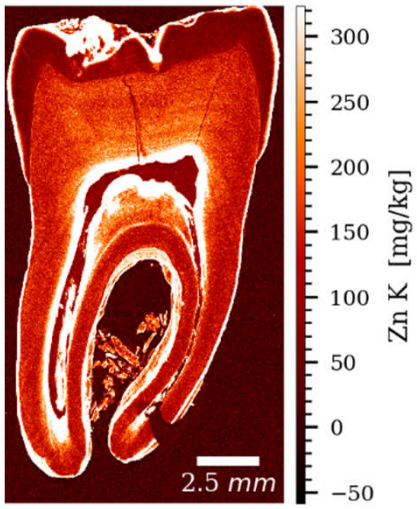
Ca K (Optimised for dentine)



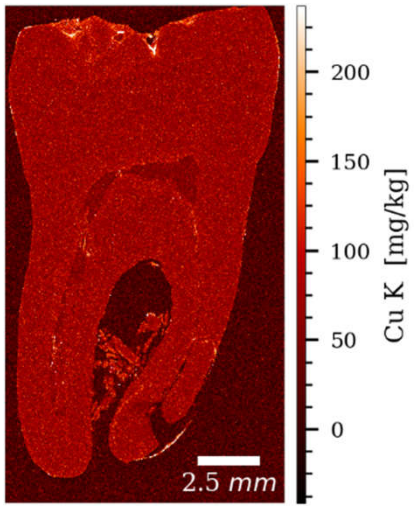
Sr K



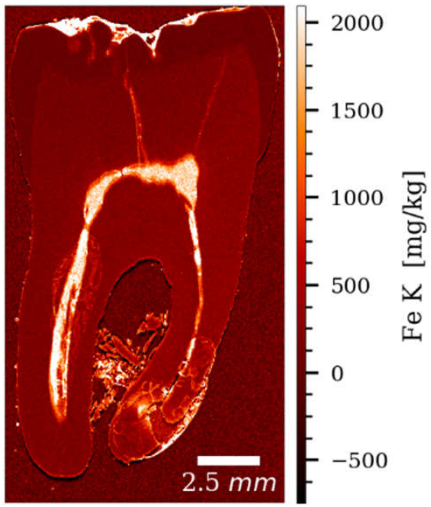
Zn K



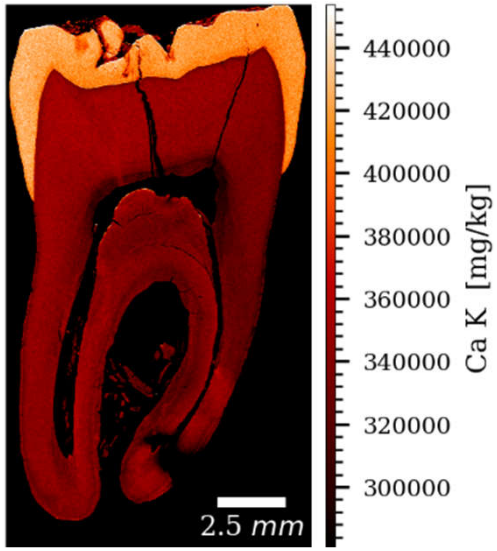
Cu K



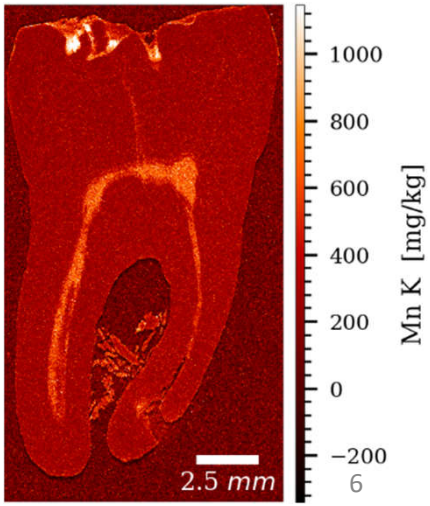
Fe K



Ca K (Optimised for enamel)



Mn K

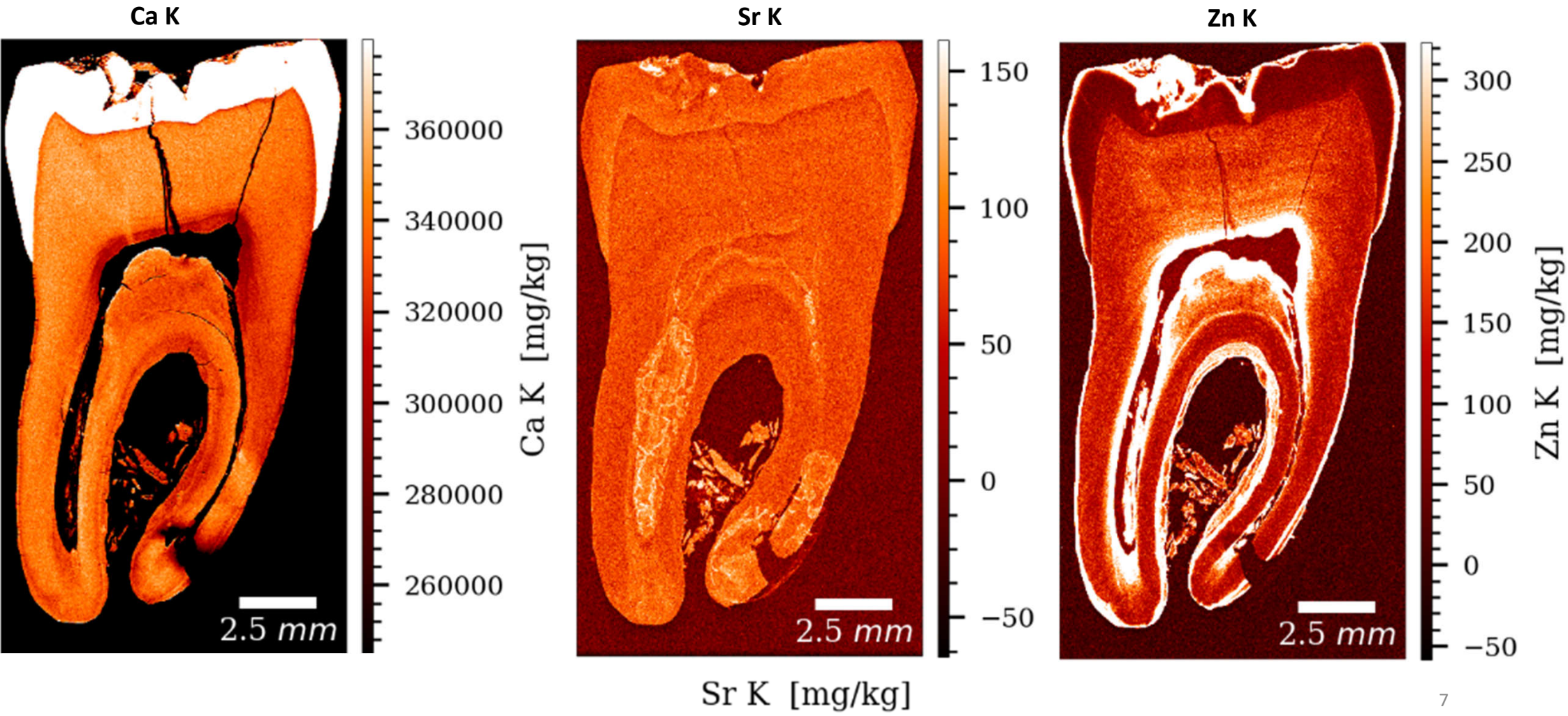


R1386 LRM2

Overview at 10 µm

Gauss (1x1)

Close-ups for elemental variations in the dentine

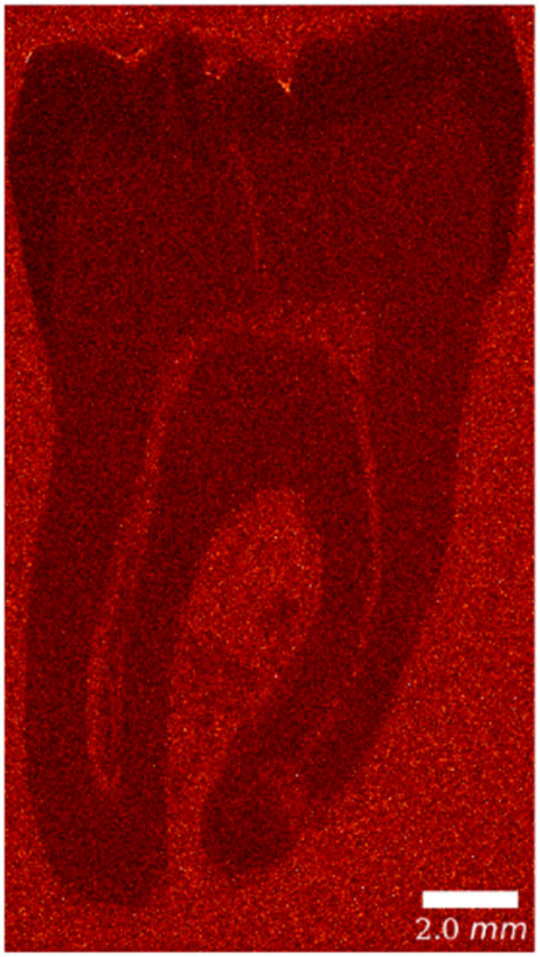


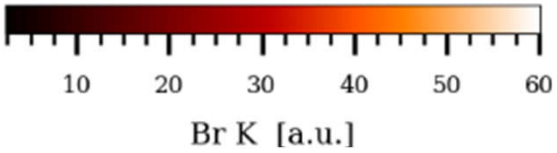
R1386 LRM2

Overview at 10 µm

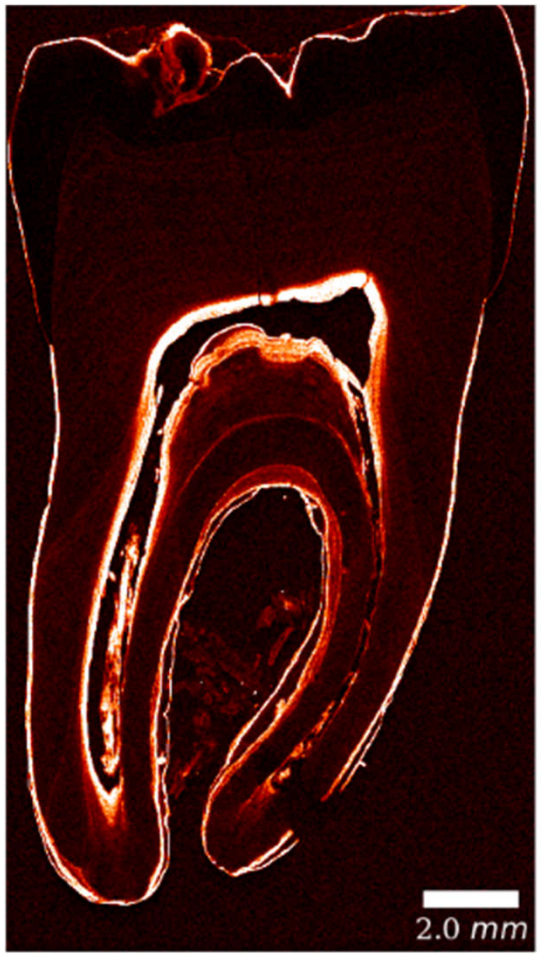
Uncalibrated data (arbitrary units) **Gauss (1x1)**

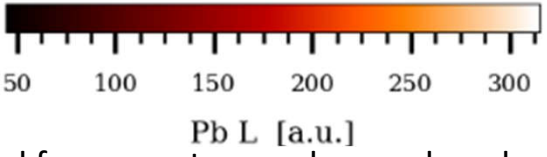
Br K

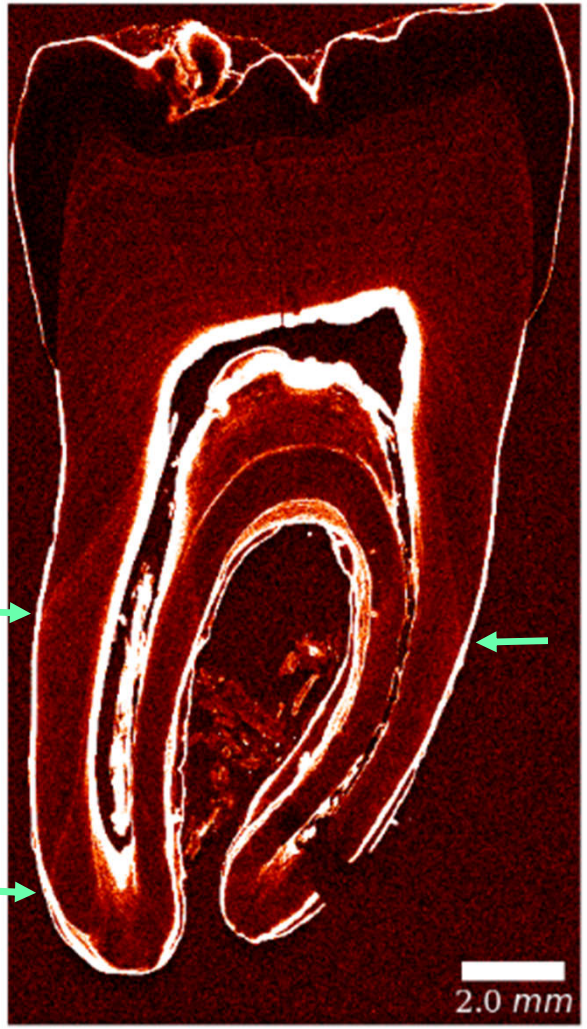


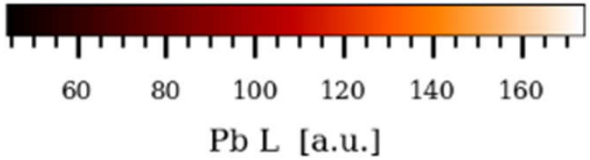


Pb L









- Optimised for primary dentine
- Significant increase in Pb at mid-root (~adolescence)

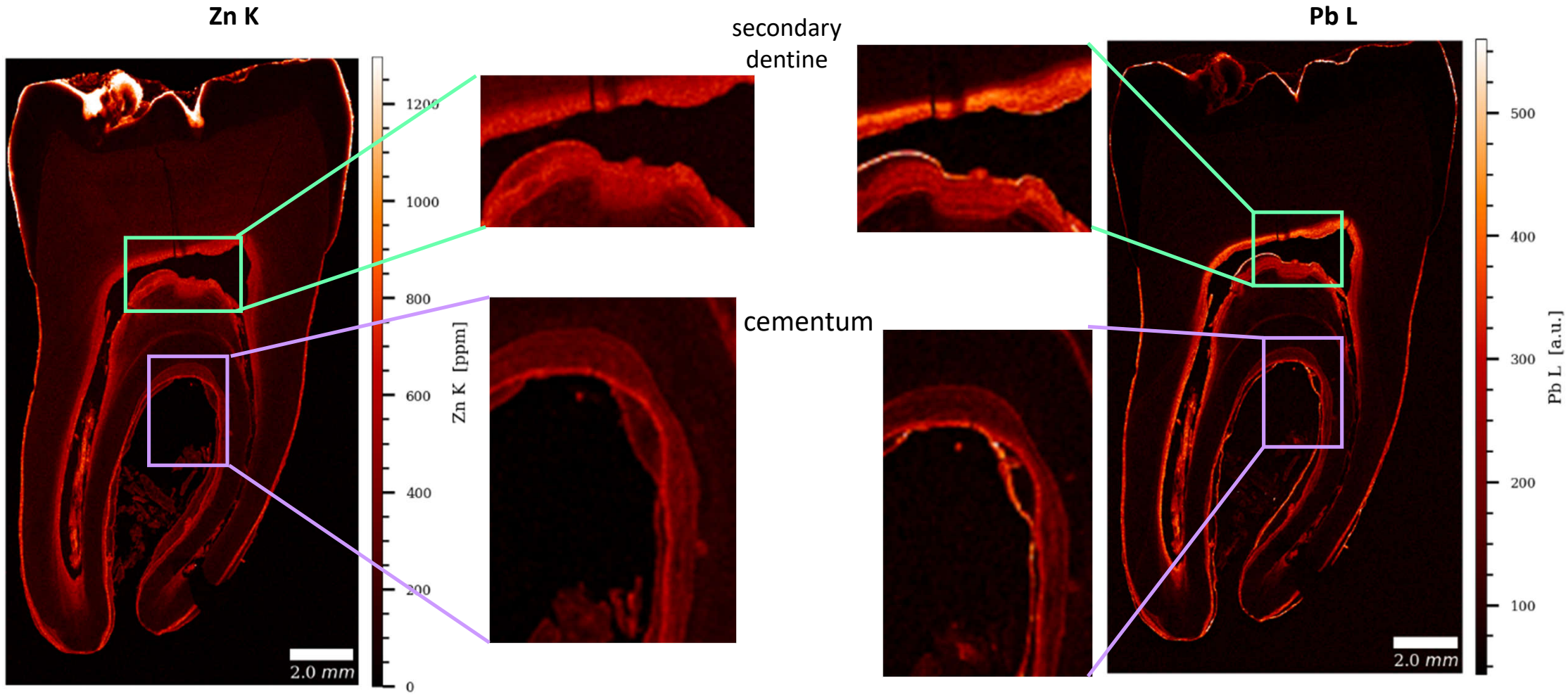
Optimised for cementum and secondary dentine

R1386 LRM2

Overview at 10 µm

Gauss (1x1)

Close-ups for elemental variations in the cementum and secondary dentine

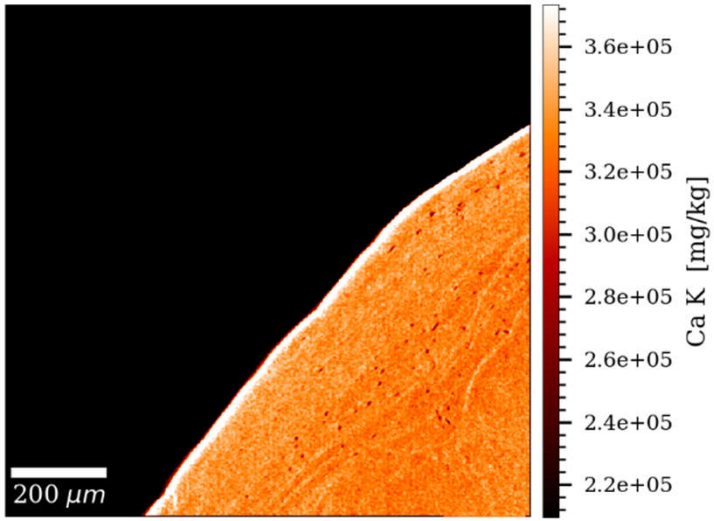


R1386 LRM2

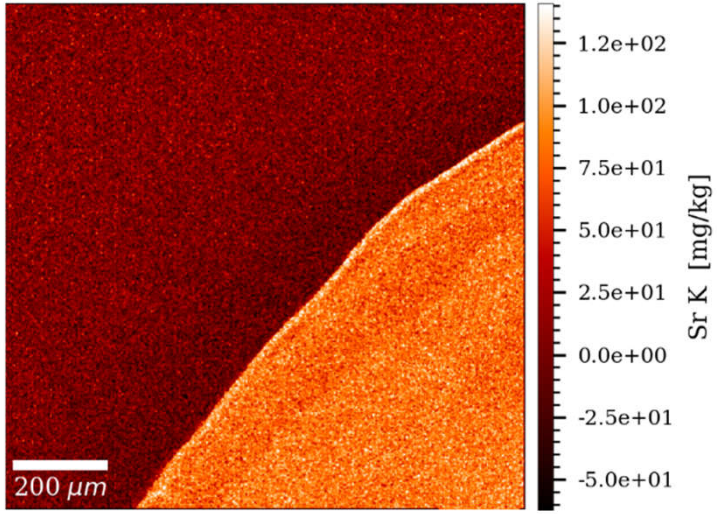
High resolution at 1.5 µm

Gauss (0.8x0.8)

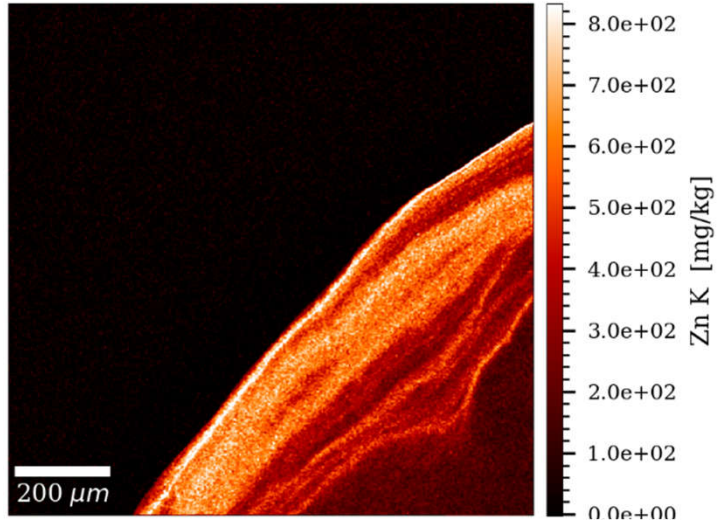
Ca K



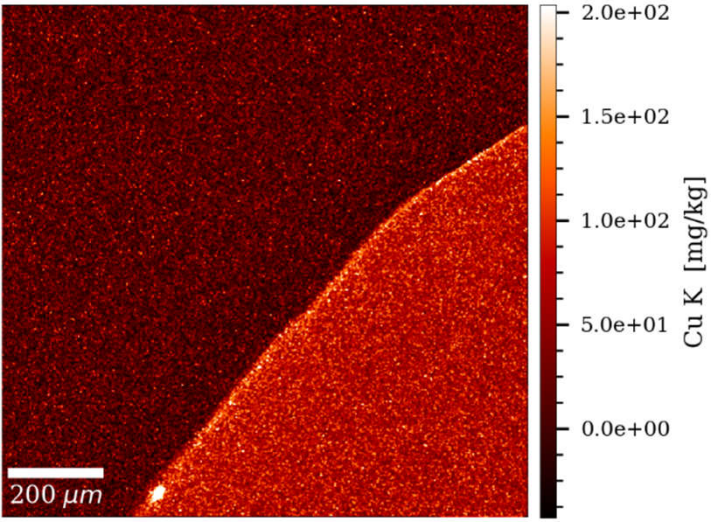
Sr K



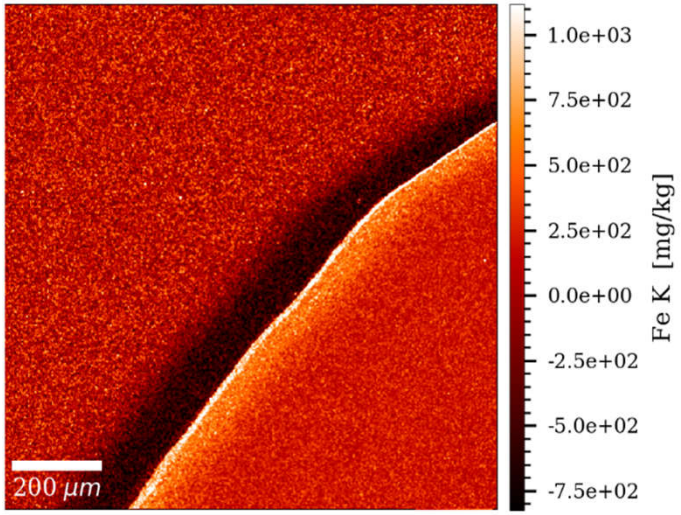
Zn K



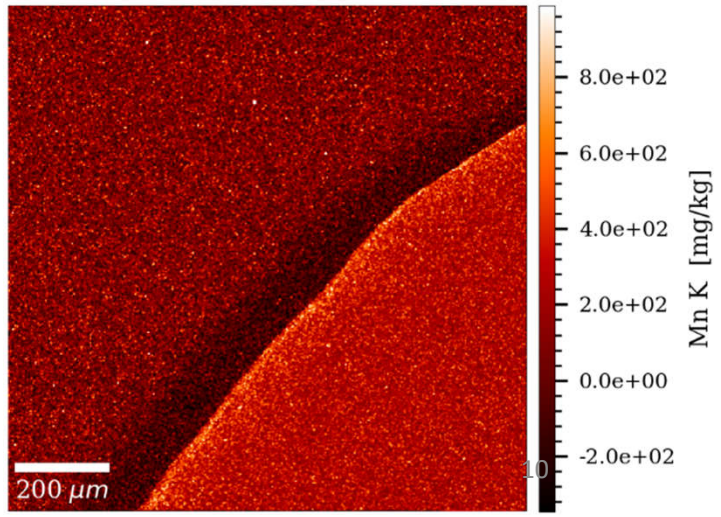
Cu K



Fe K



Mn K

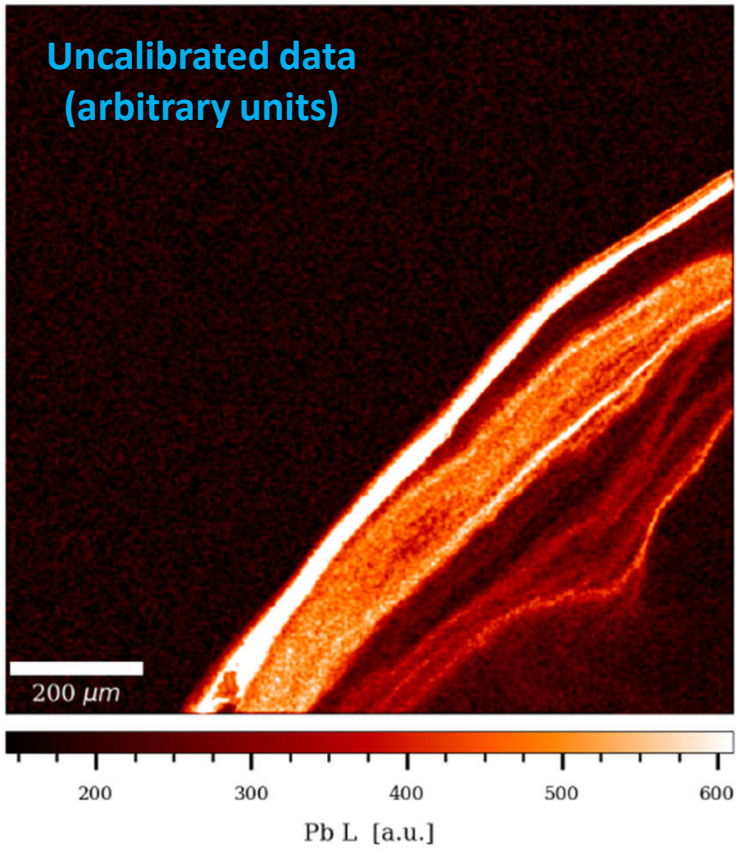


R1386 LRM2

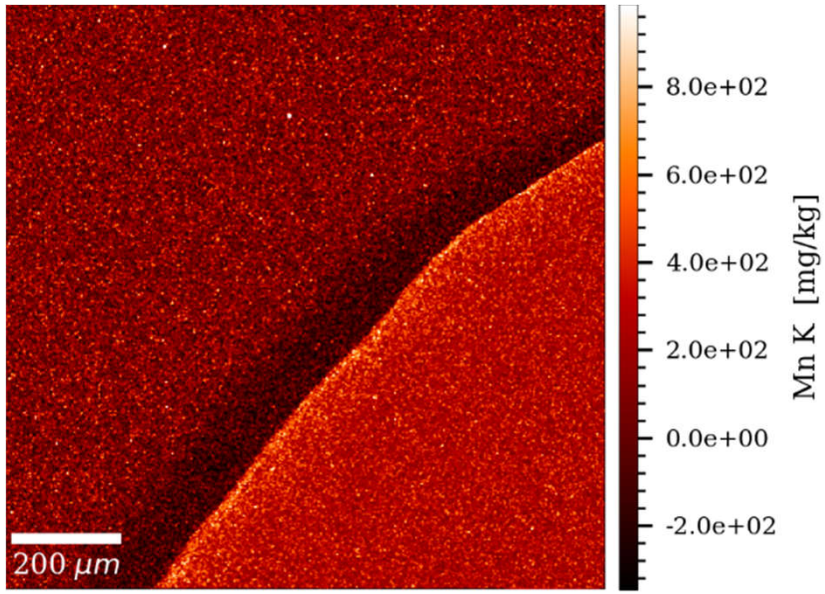
High resolution at 1.5 µm

Gauss (0.8x0.8)

Pb L



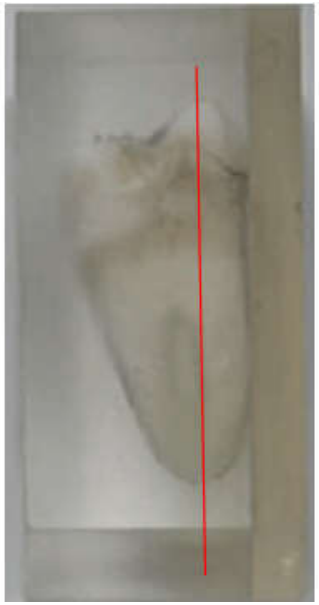
Mn K

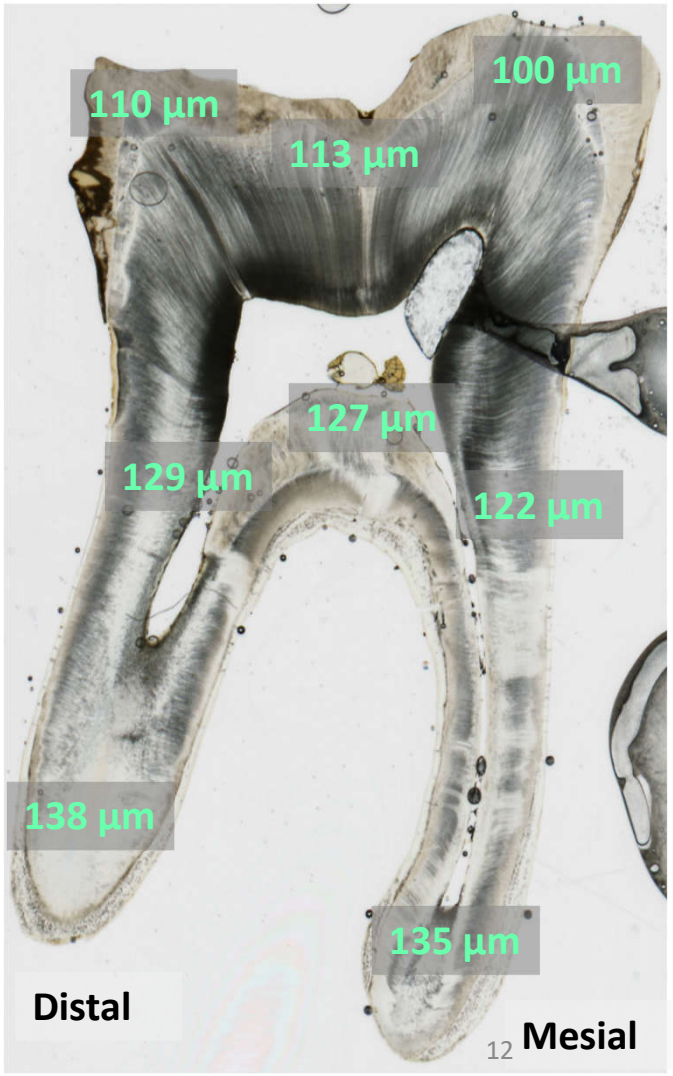


Romania – A1651 LRM1

♂ Beginning of 20th c.

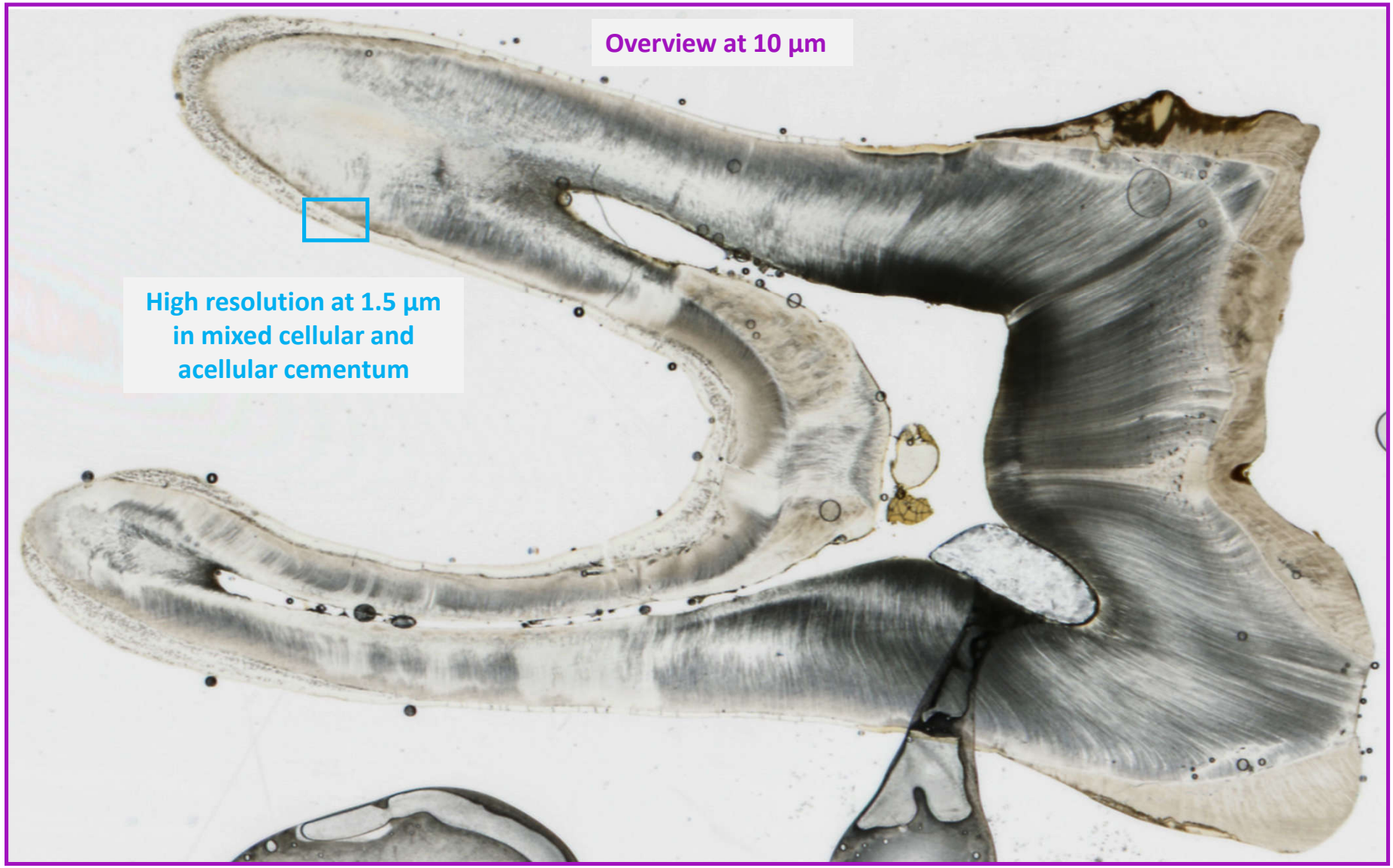
Average tooth section thickness (µm): 121.75





A1651 LRM1

Scanning

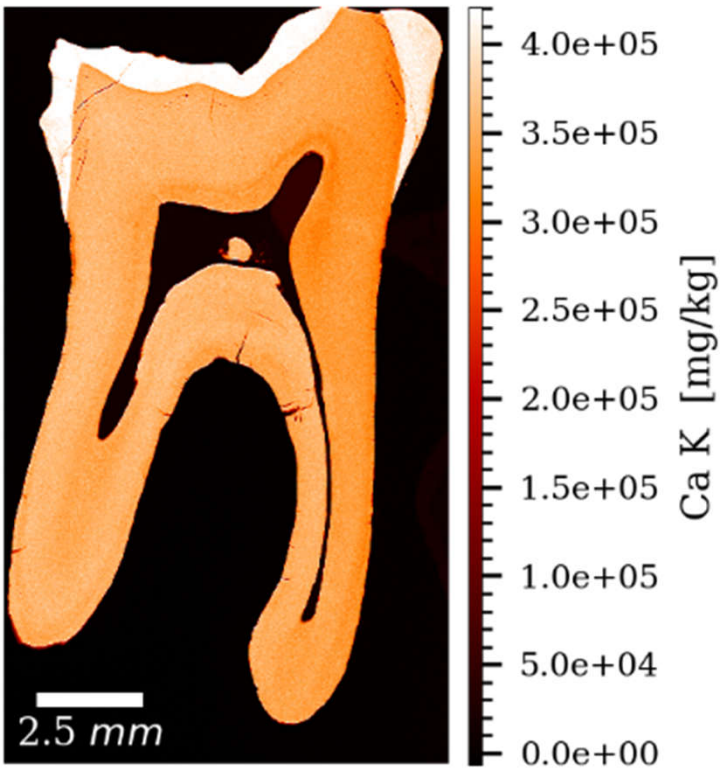


A1651 LRM1

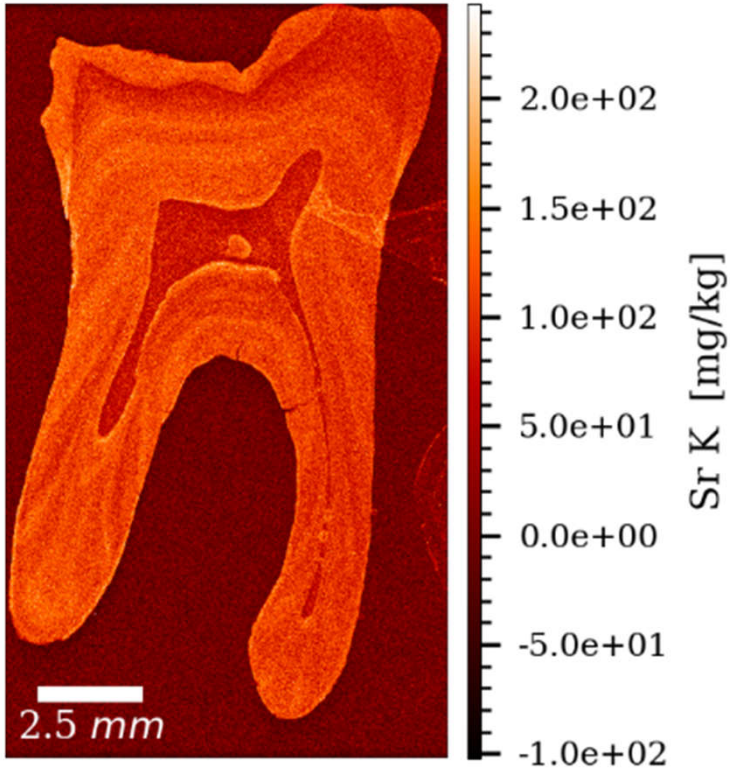
Overview at 10 µm

Gauss (0.7x0.7)

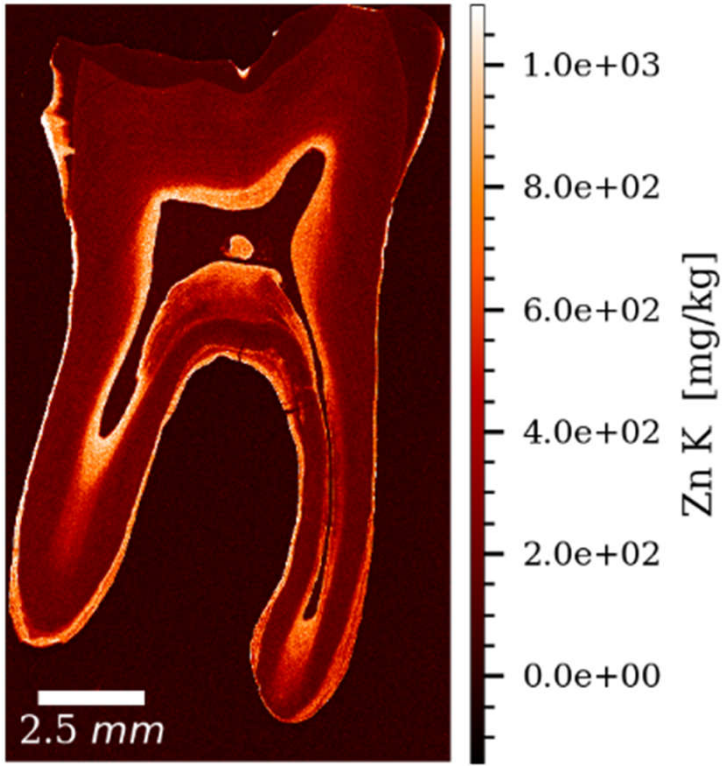
Ca K



Sr K



Zn K

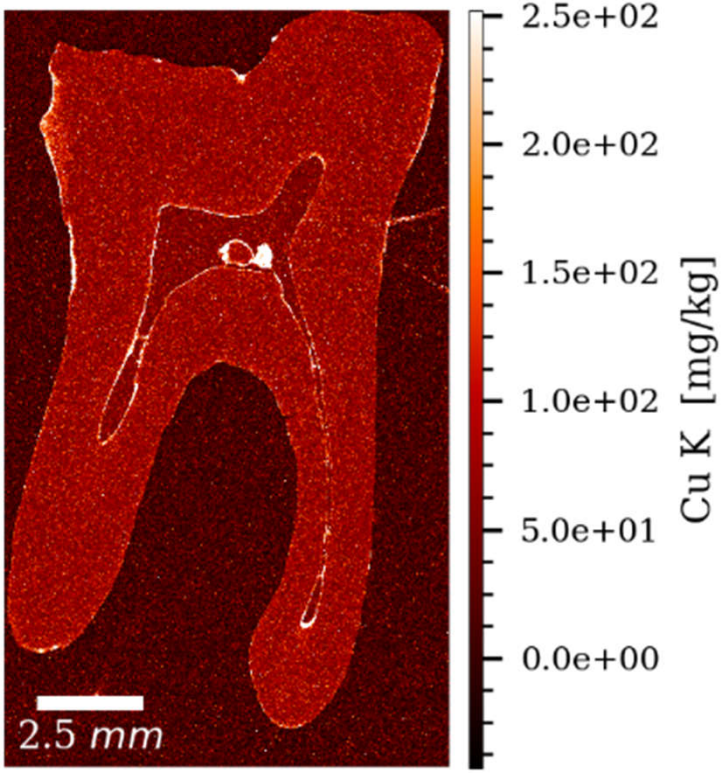


A1651 LRM1

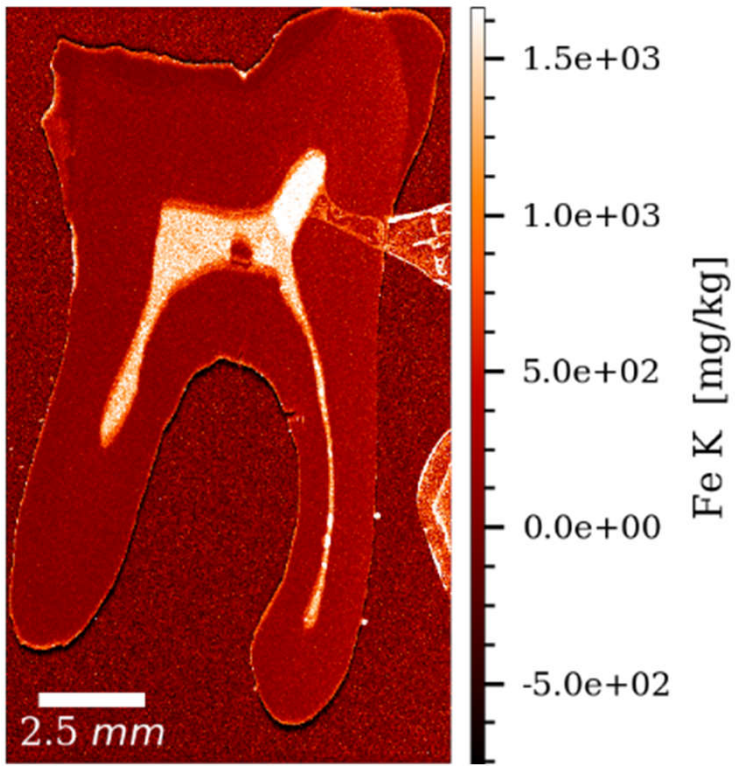
Overview at 10 µm

Gauss (0.7x0.7)

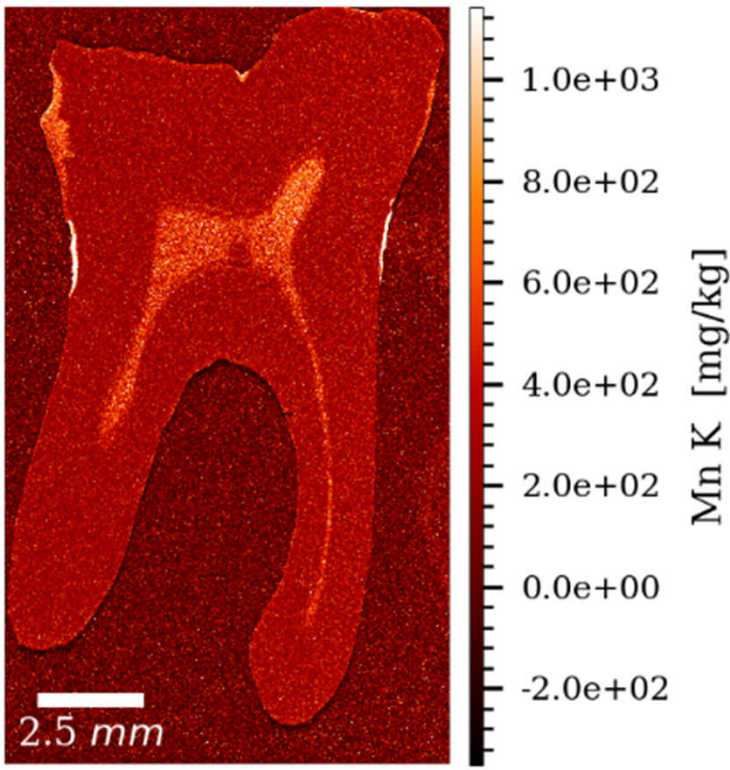
Cu K



Fe K



Mn K



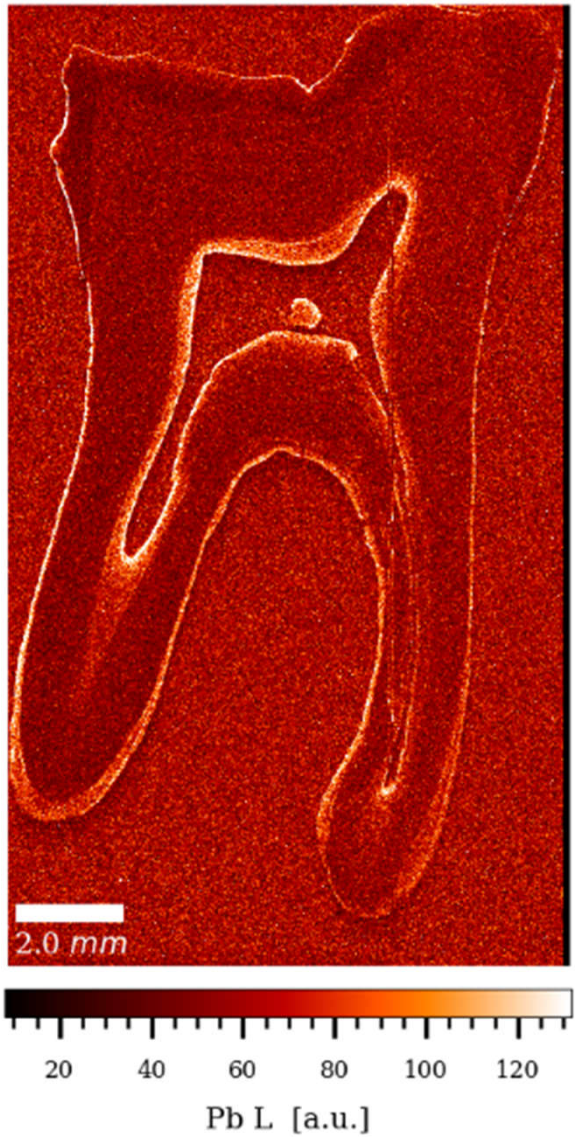
A1651 LRM1

Overview at 10 µm

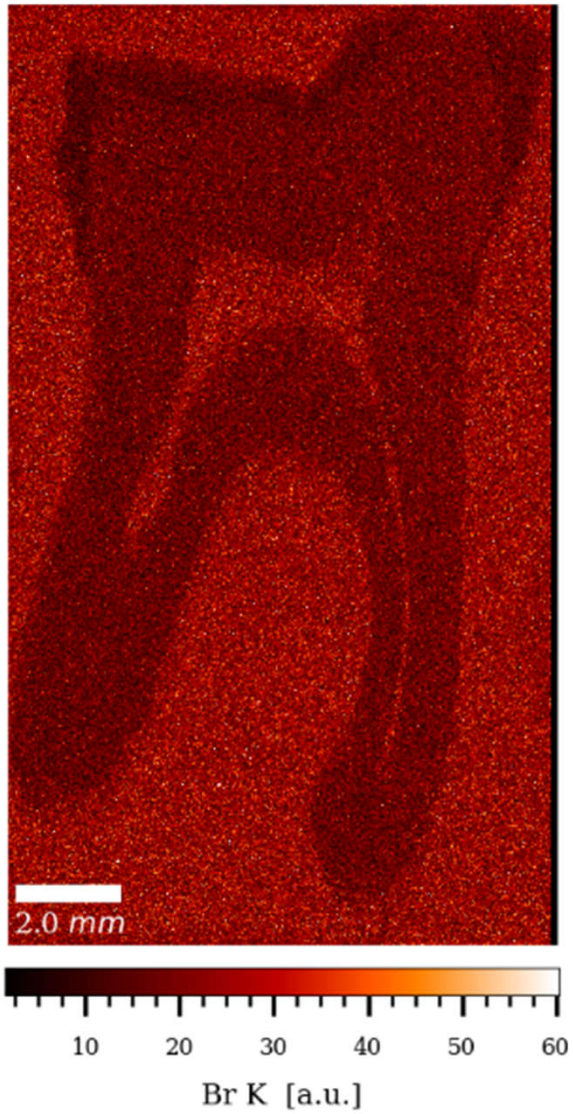
Uncalibrated data
(arbitrary units)

Gauss (0.7x0.7)

Pb L



Br K

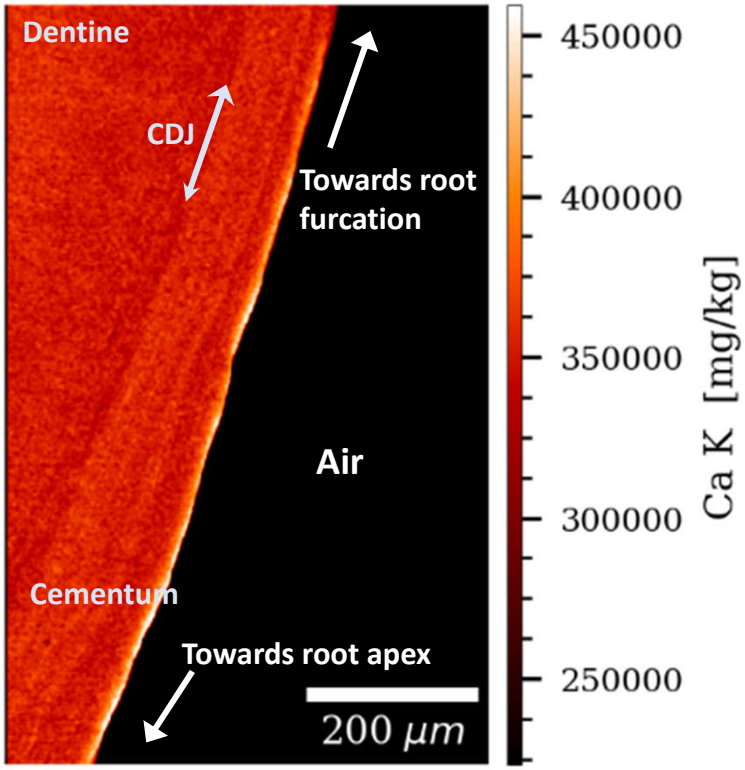


A1651 LRM1

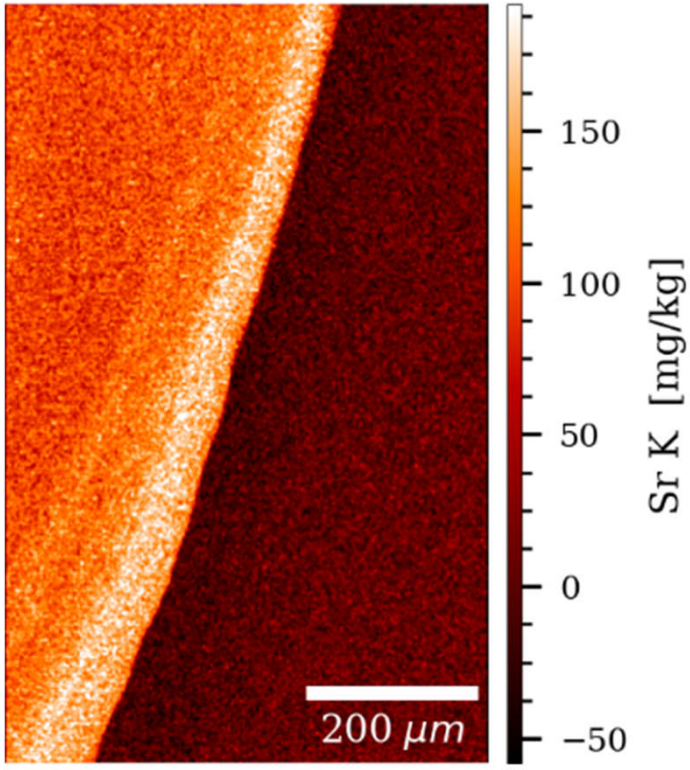
High resolution at 1.5 µm

Gauss (0.85 x0.85)

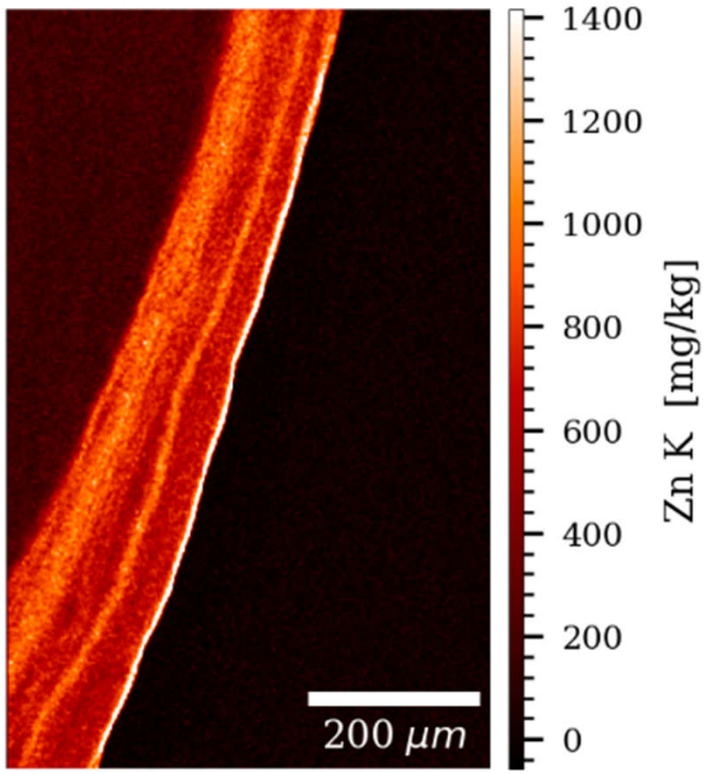
Ca K



Sr K



Zn K

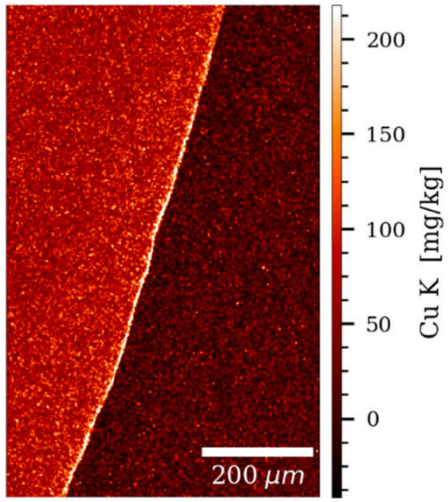


A1651 LRM1

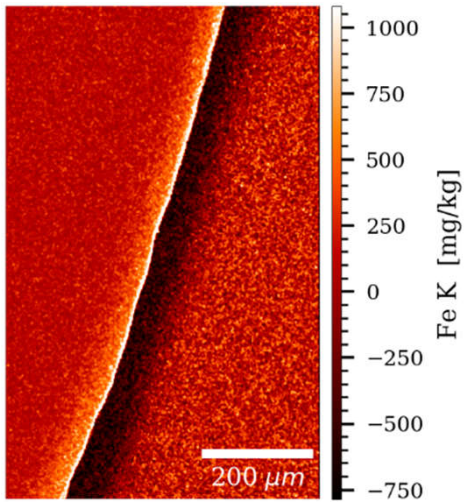
High resolution at 1.5 µm

Gauss (0.85 x0.85)

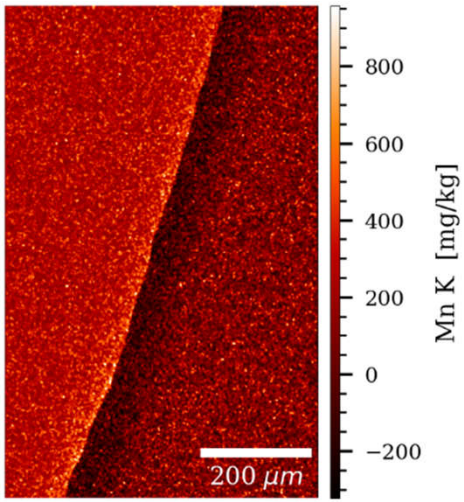
Cu K



Fe K



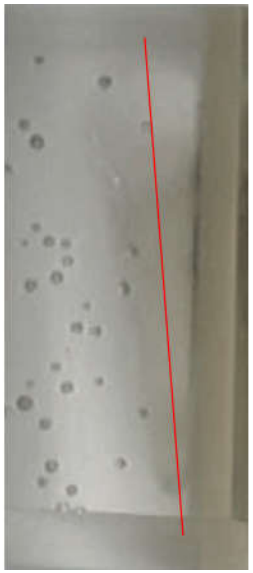
Mn K

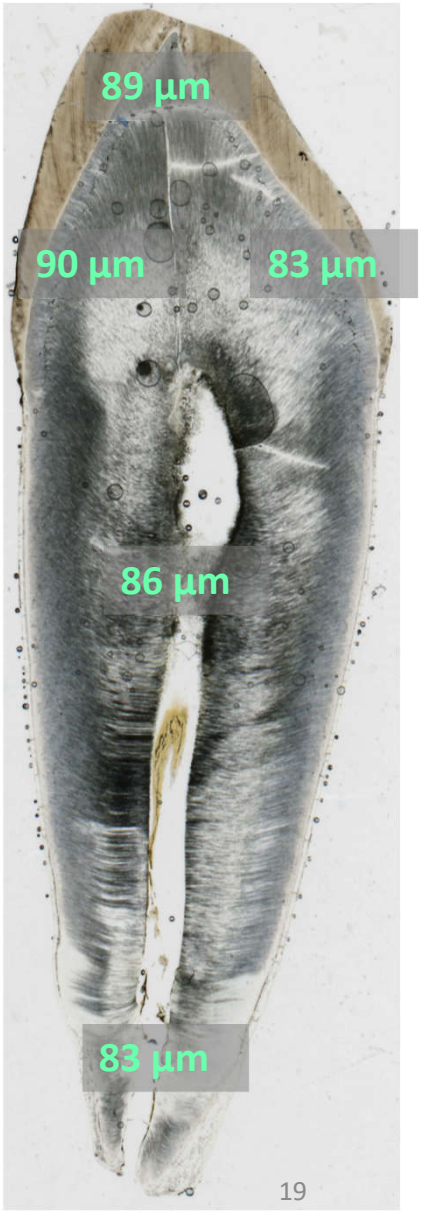


Romania – A1651 URC

♂ **Beginning of 20th c.**

Average tooth section thickness (µm): 86.2



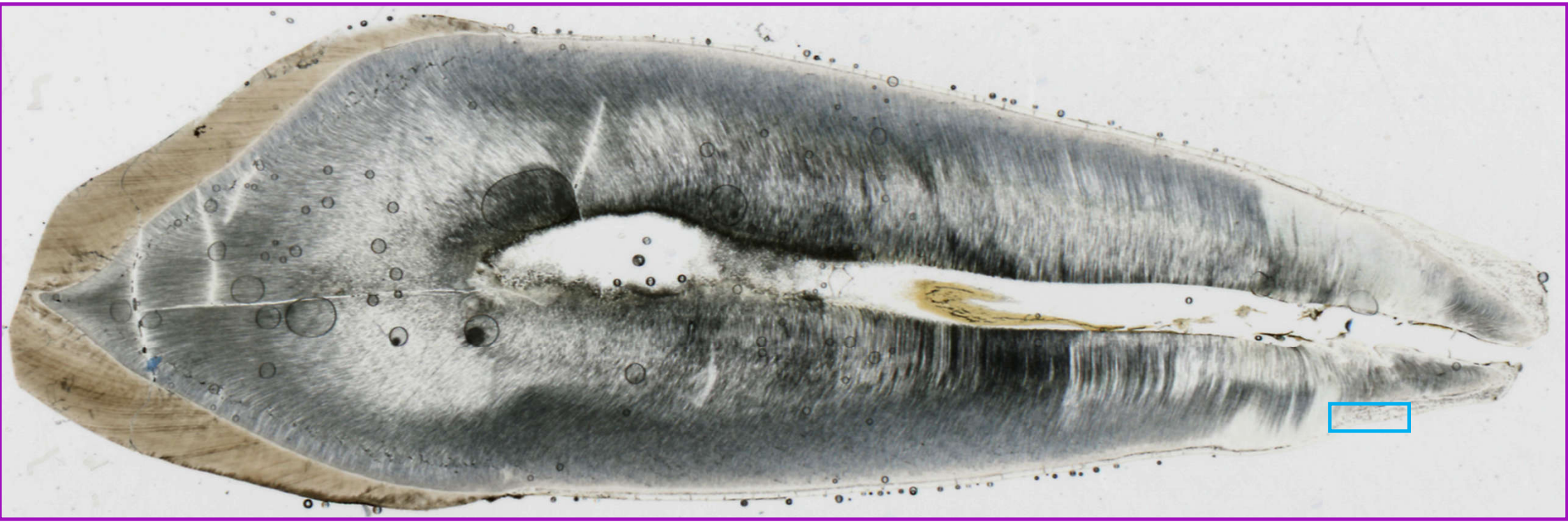


A1651 URC

Scanning

Overview at 10 µm

High resolution at 1 µm in cellular cementum

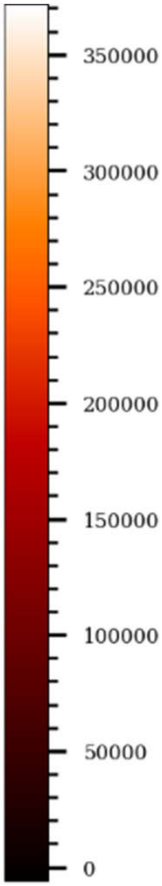


A1651 URC

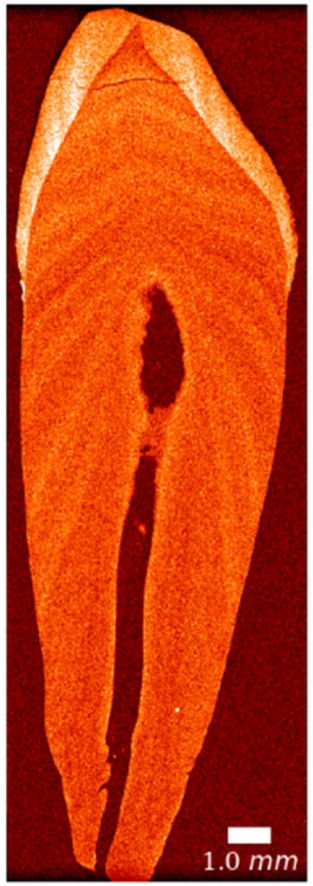
Overview at 10 µm

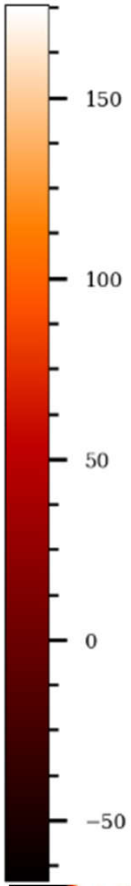
Gauss (0.9x0.9)

Ca K

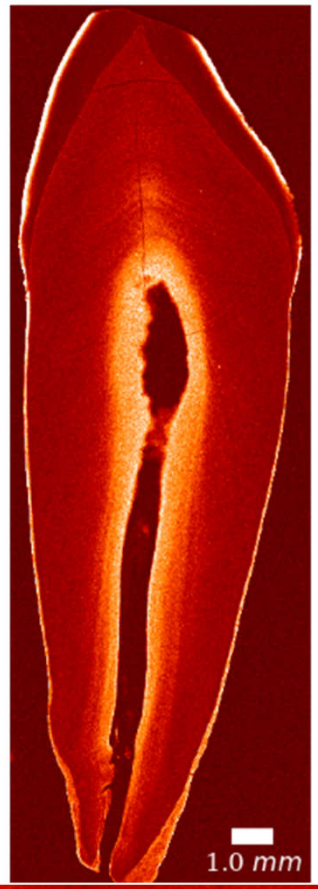


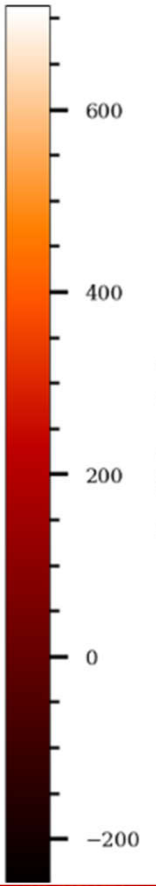
Sr K



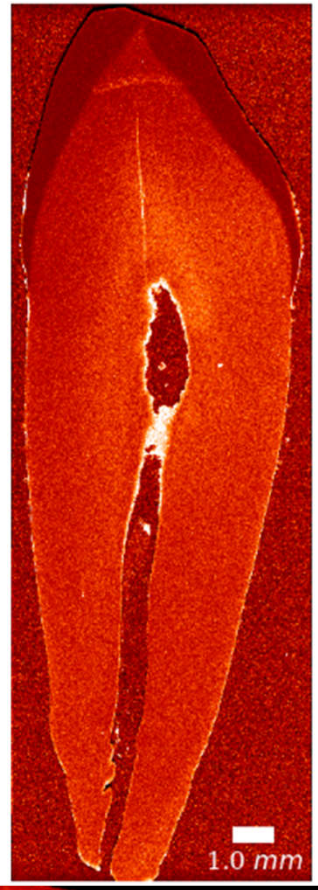


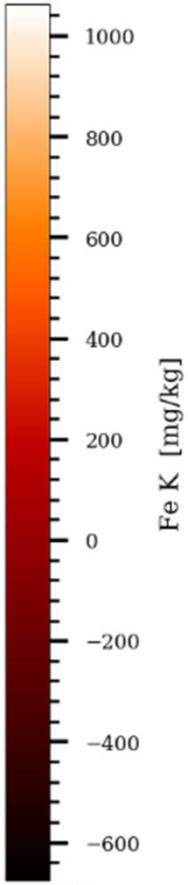
Zn K

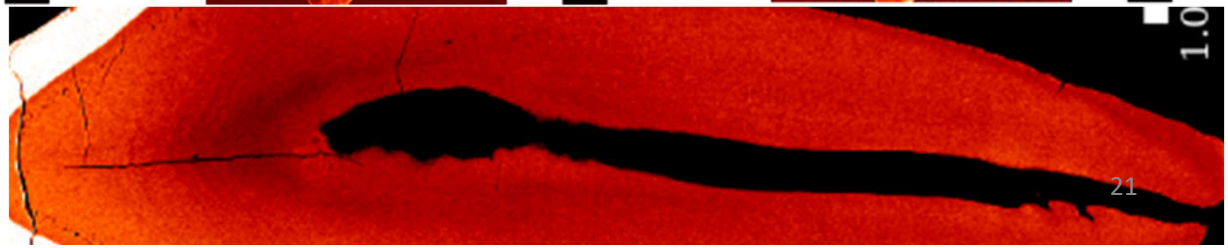




Fe K







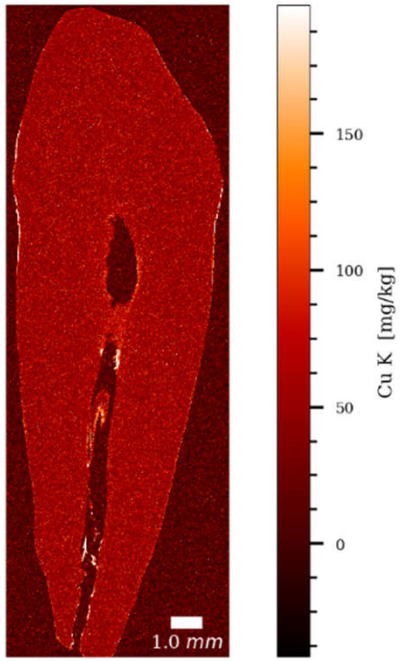
Ca K (optimised for dentine for elemental variations)

A1651 URC

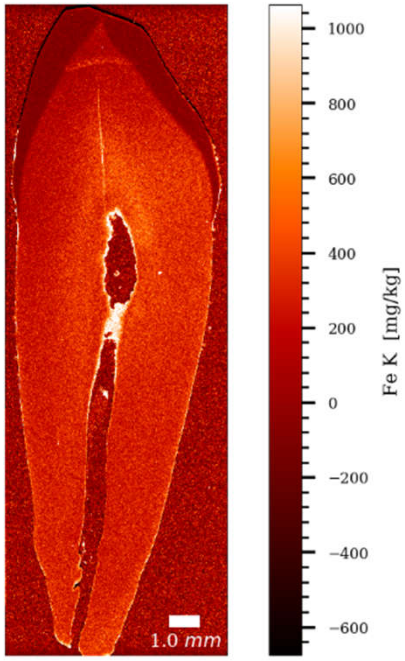
Overview at 10 µm

Gauss (0.9x0.9)

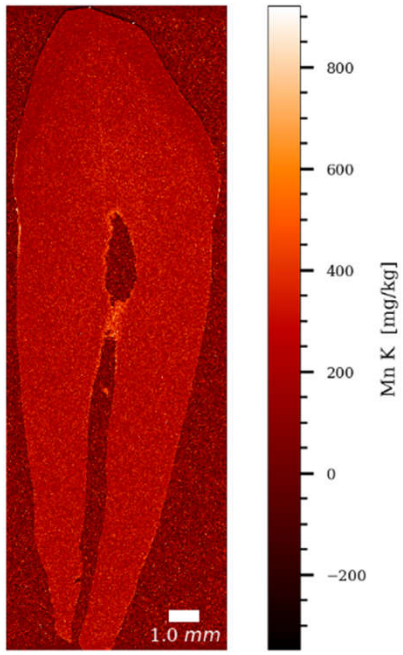
Cu K



Fe K



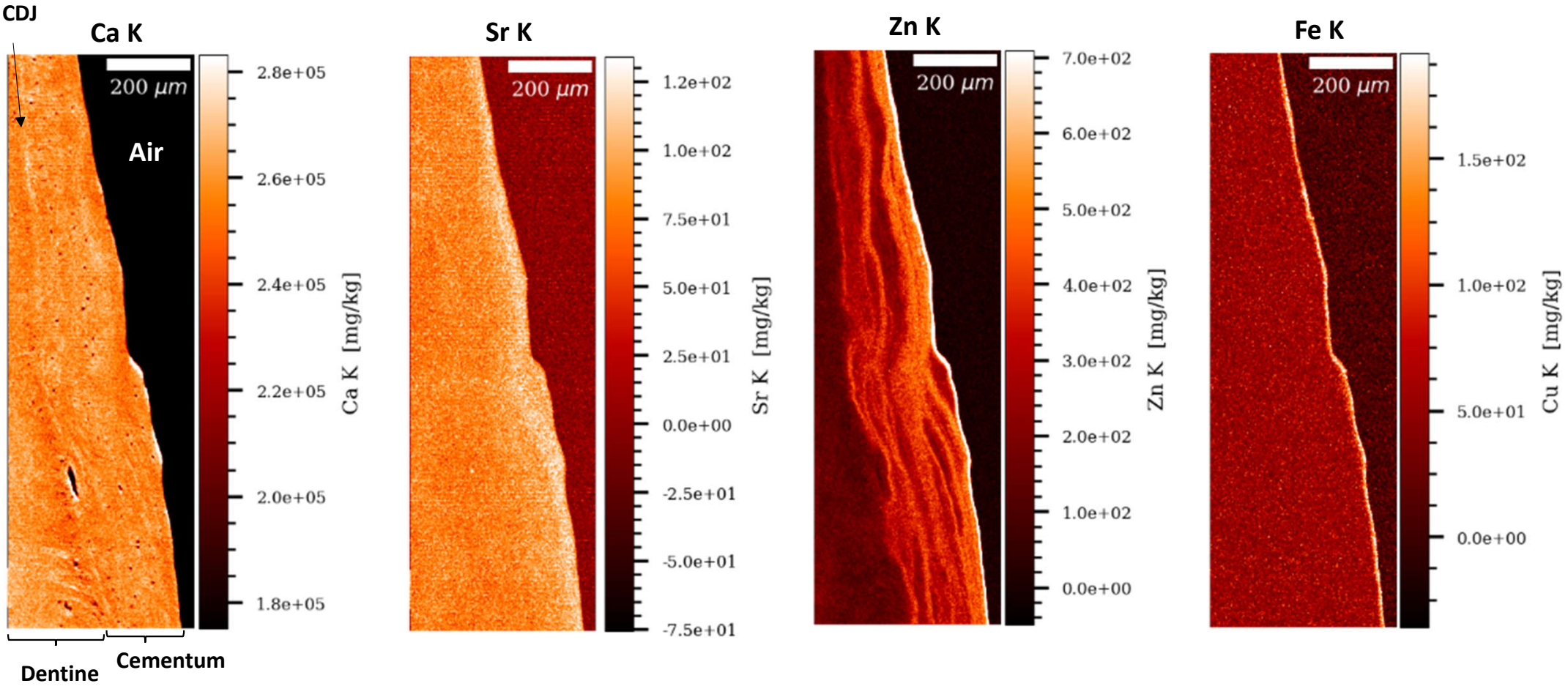
Mn K



A1651 URC

High resolution at 1 µm

Gauss (1x1)

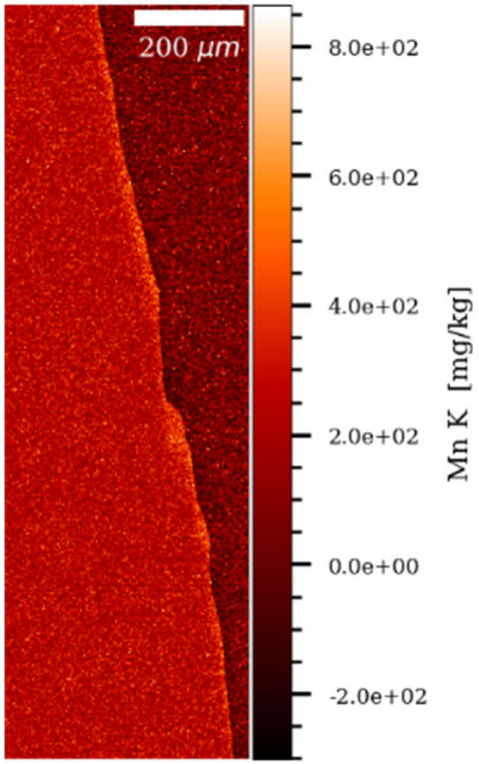


A1651 URC

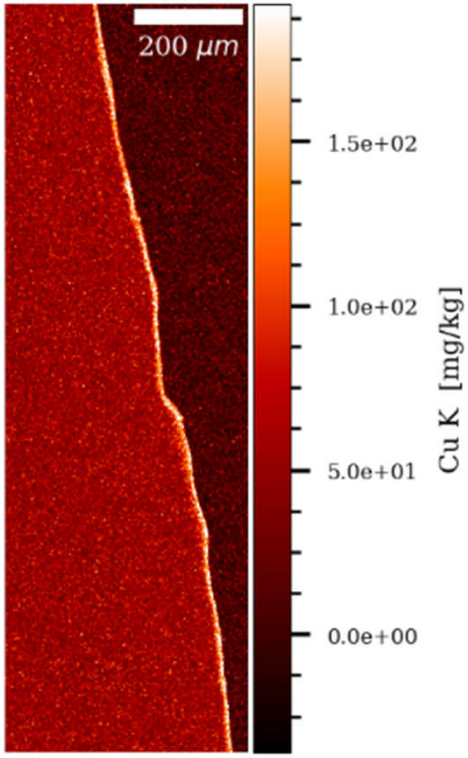
High resolution at 1 µm

Gauss (1x1)

Mn K



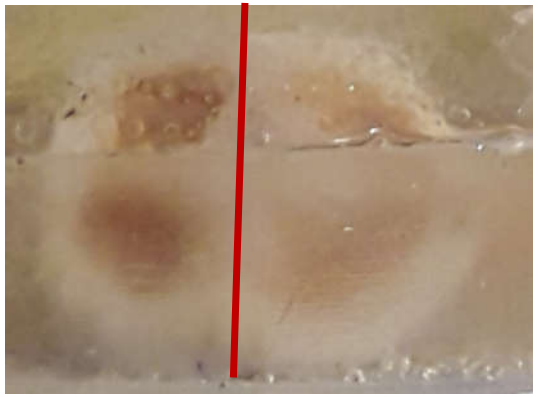
Cu K



Odense – 533 LLM1

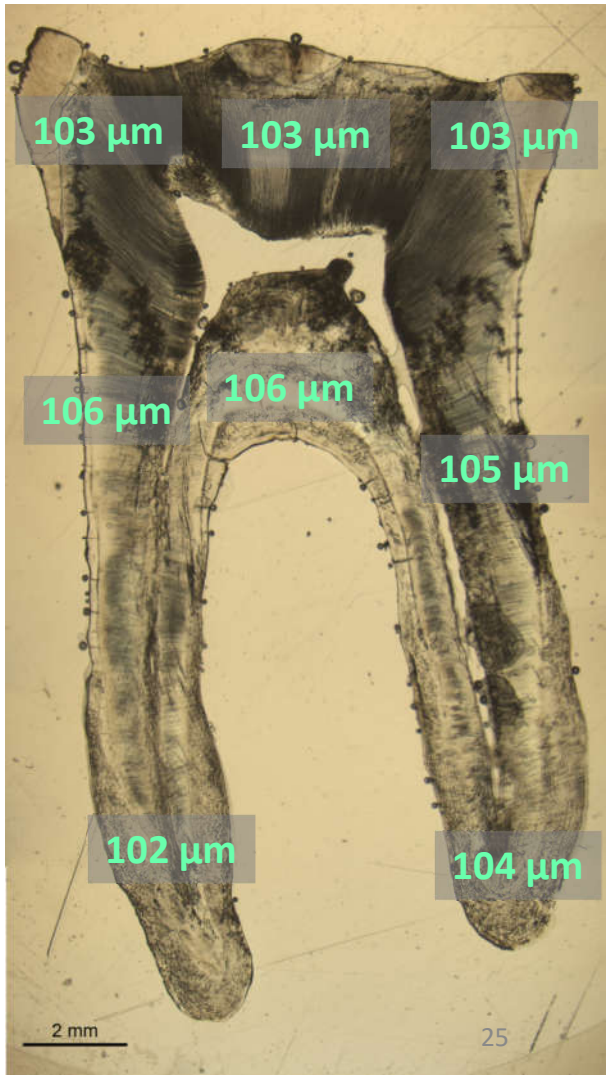
♀ 25-35 yrs. 1191 – 1269 cal. CE

mesial



distal

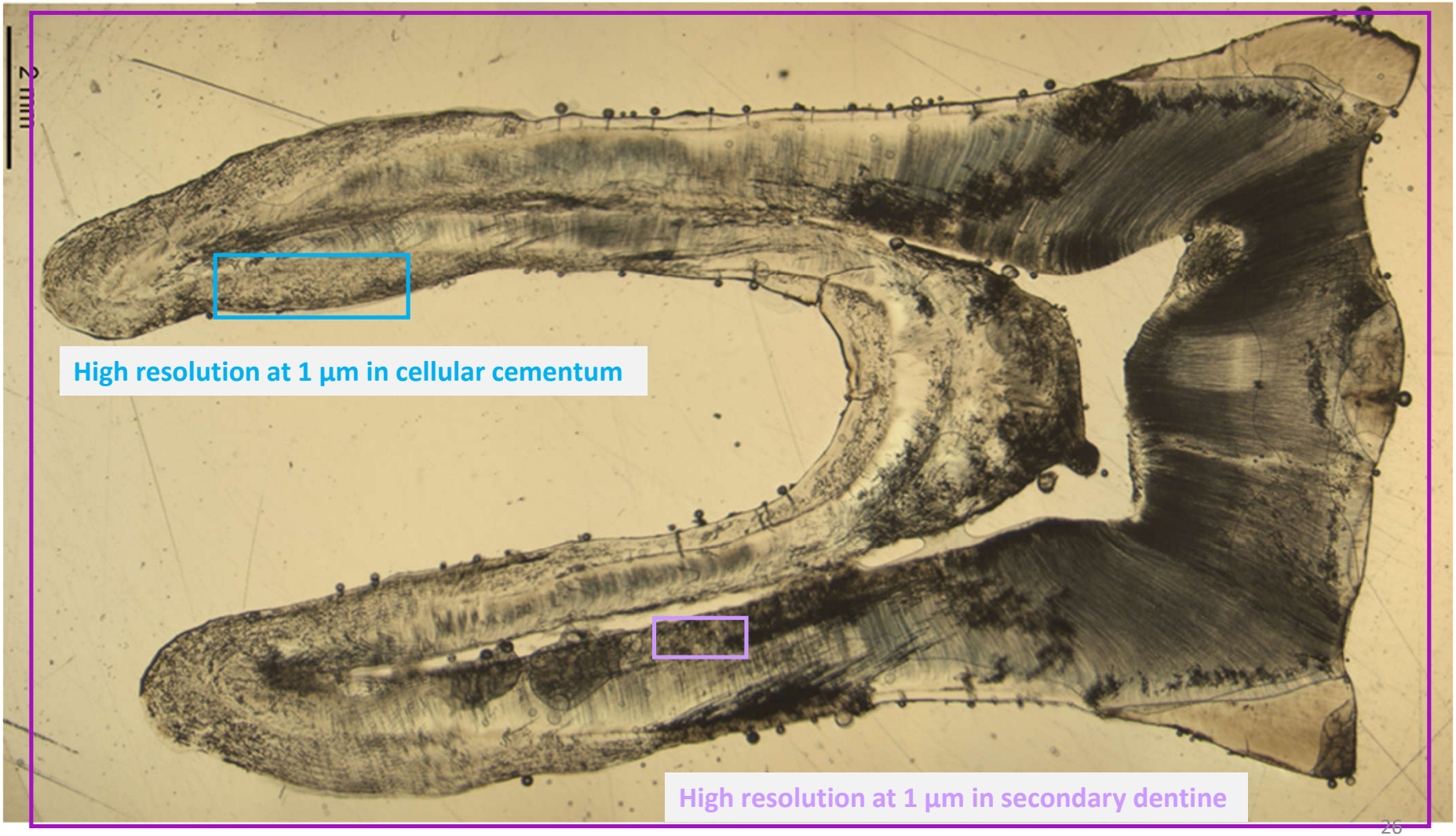
Average tooth section thickness (µm): 104.0



Odense 533 LLM1

Scanning

Overview at 10 µm



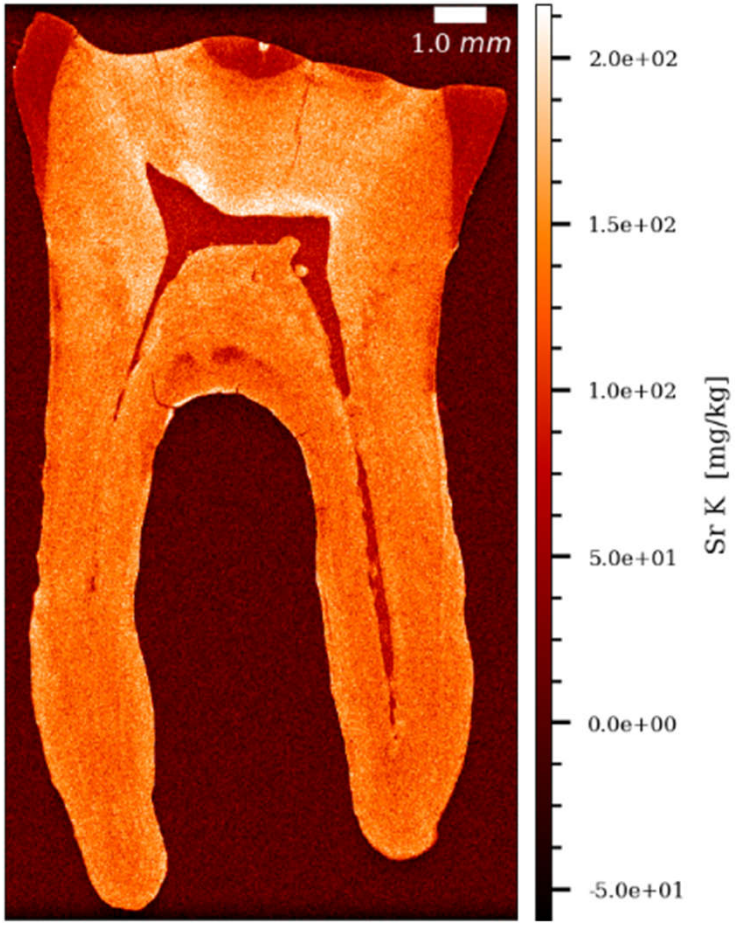
Odense 533 LLM1

Overview at 10 µm

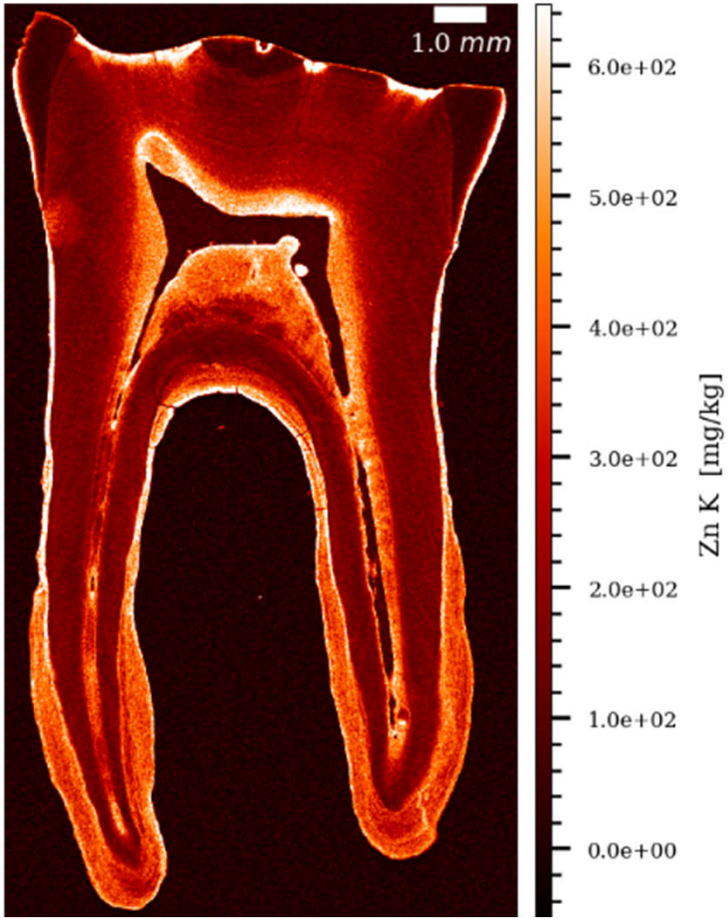
Gauss (0.9x0.9)

Ca K

Sr K



Zn K

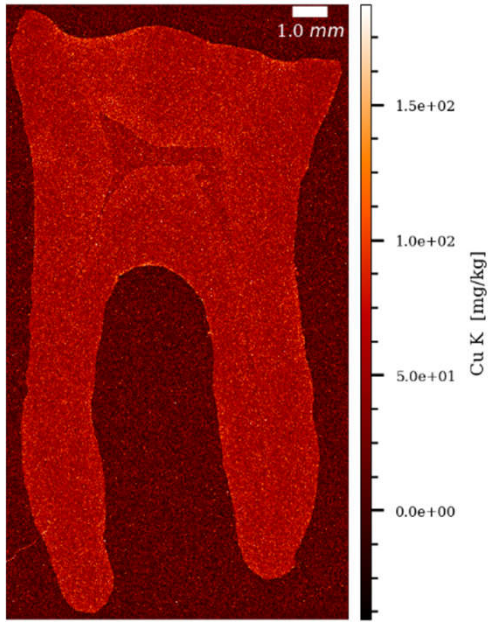


Odense 533 LLM1

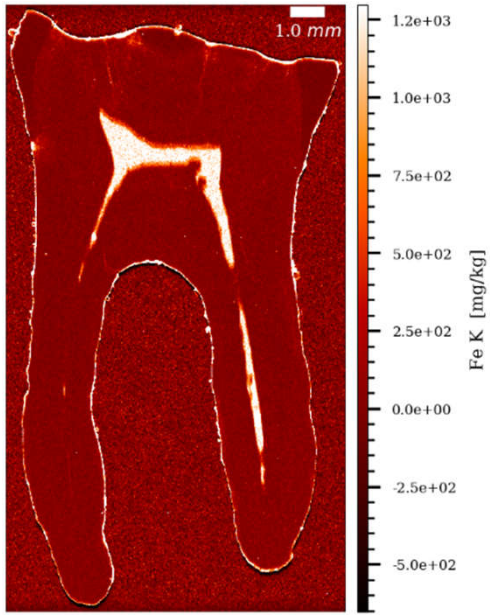
Overview at 10 µm

Gauss (0.9x0.9)

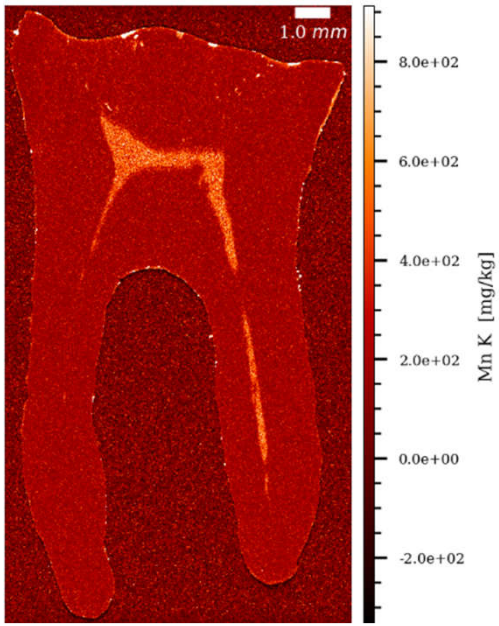
Cu K



Fe K



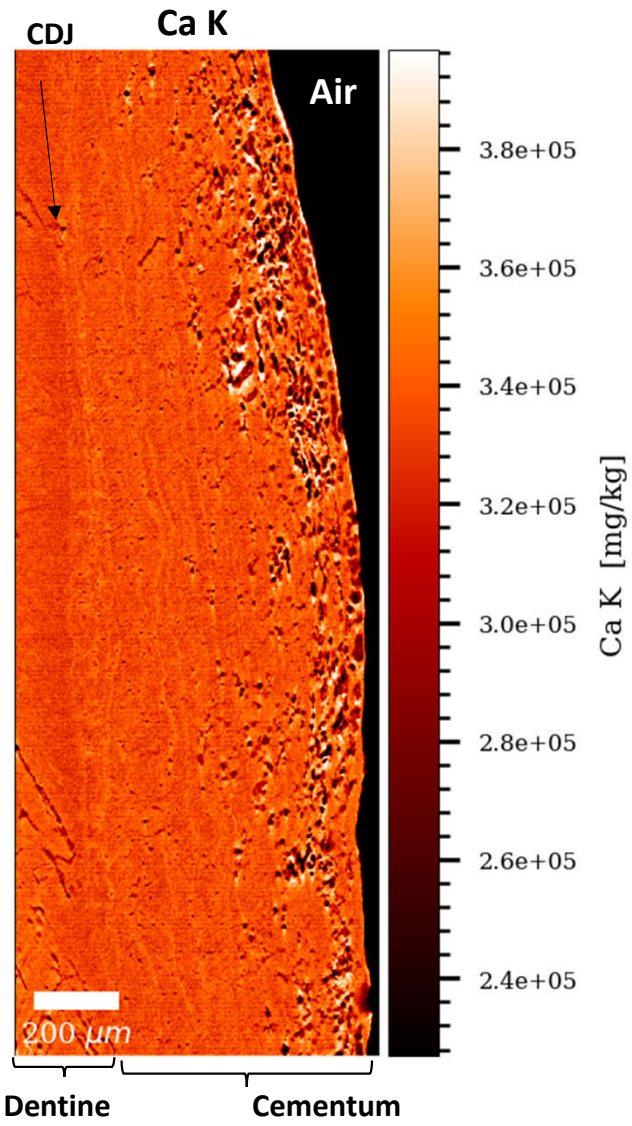
Mn K

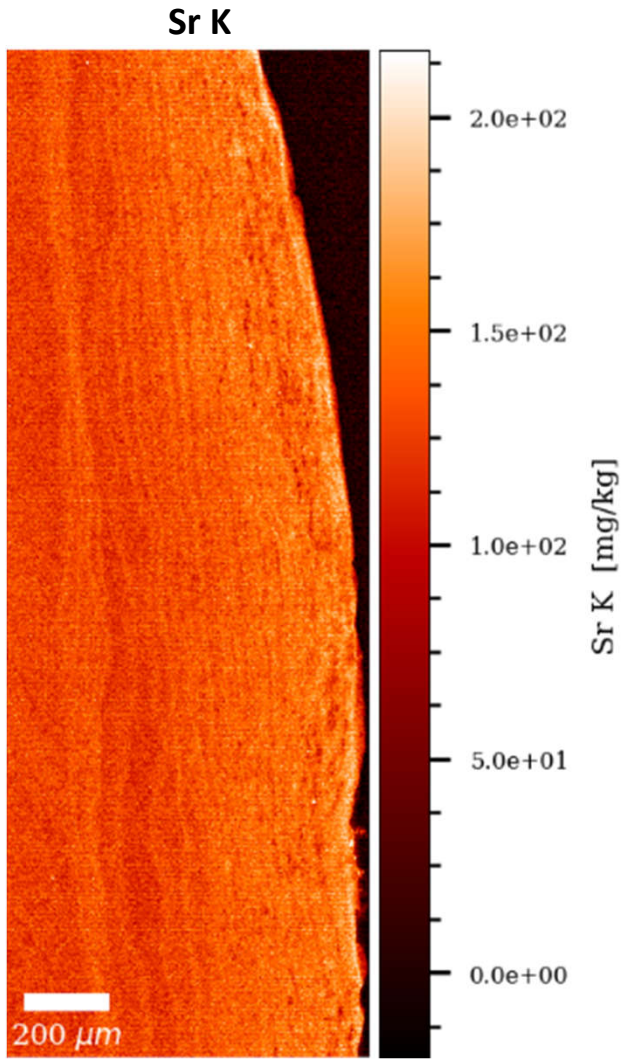


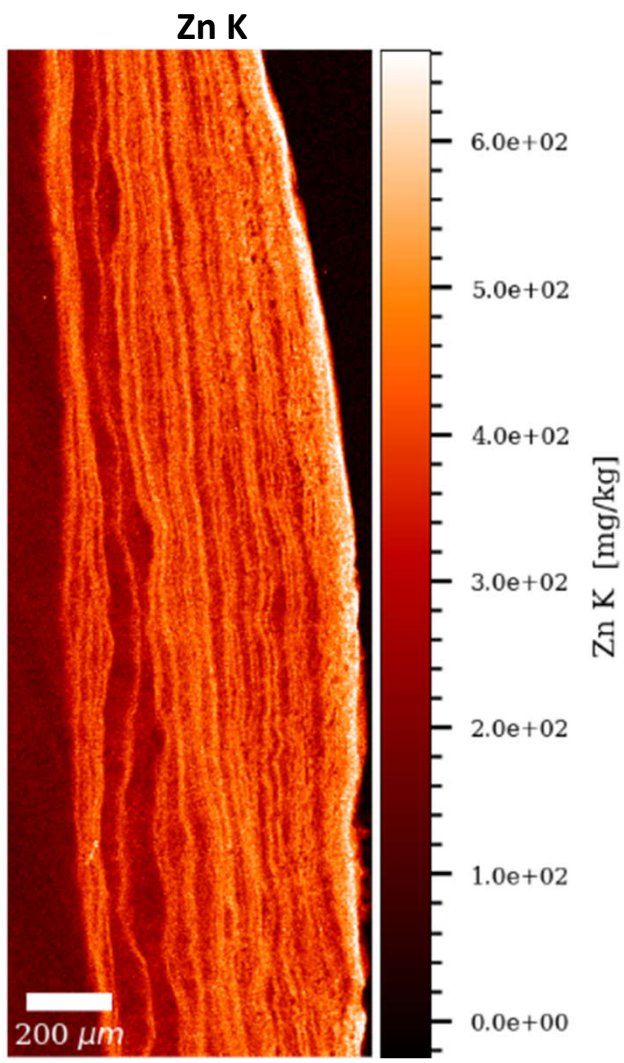
Odense 533 LLM1

High resolution at 1 µm in cellular cementum

Gauss (1x1)





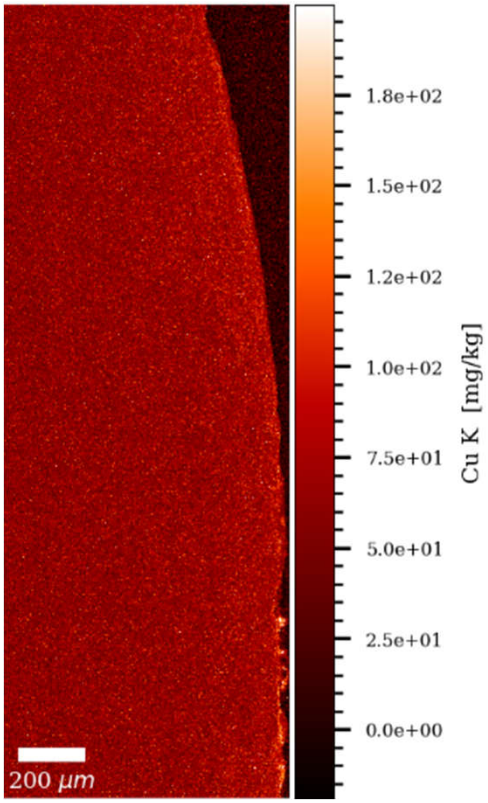


Odense 533 LLM1

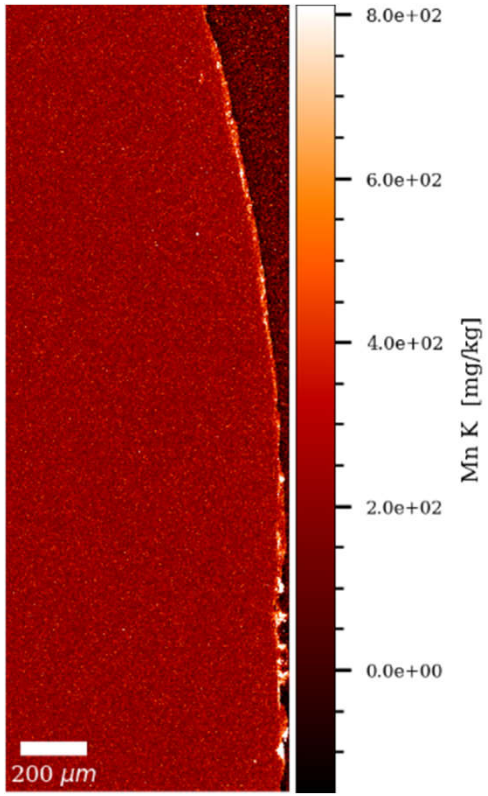
High resolution at 1 µm in cellular cementum

Gauss (1x1)

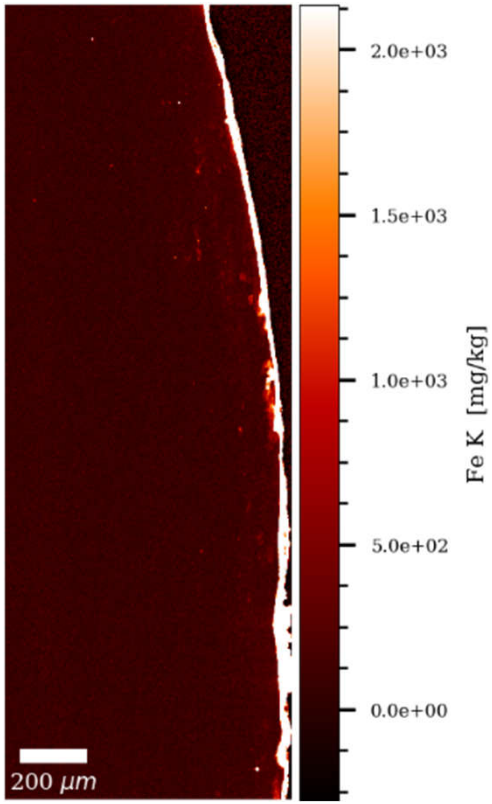
Cu K



Mn K



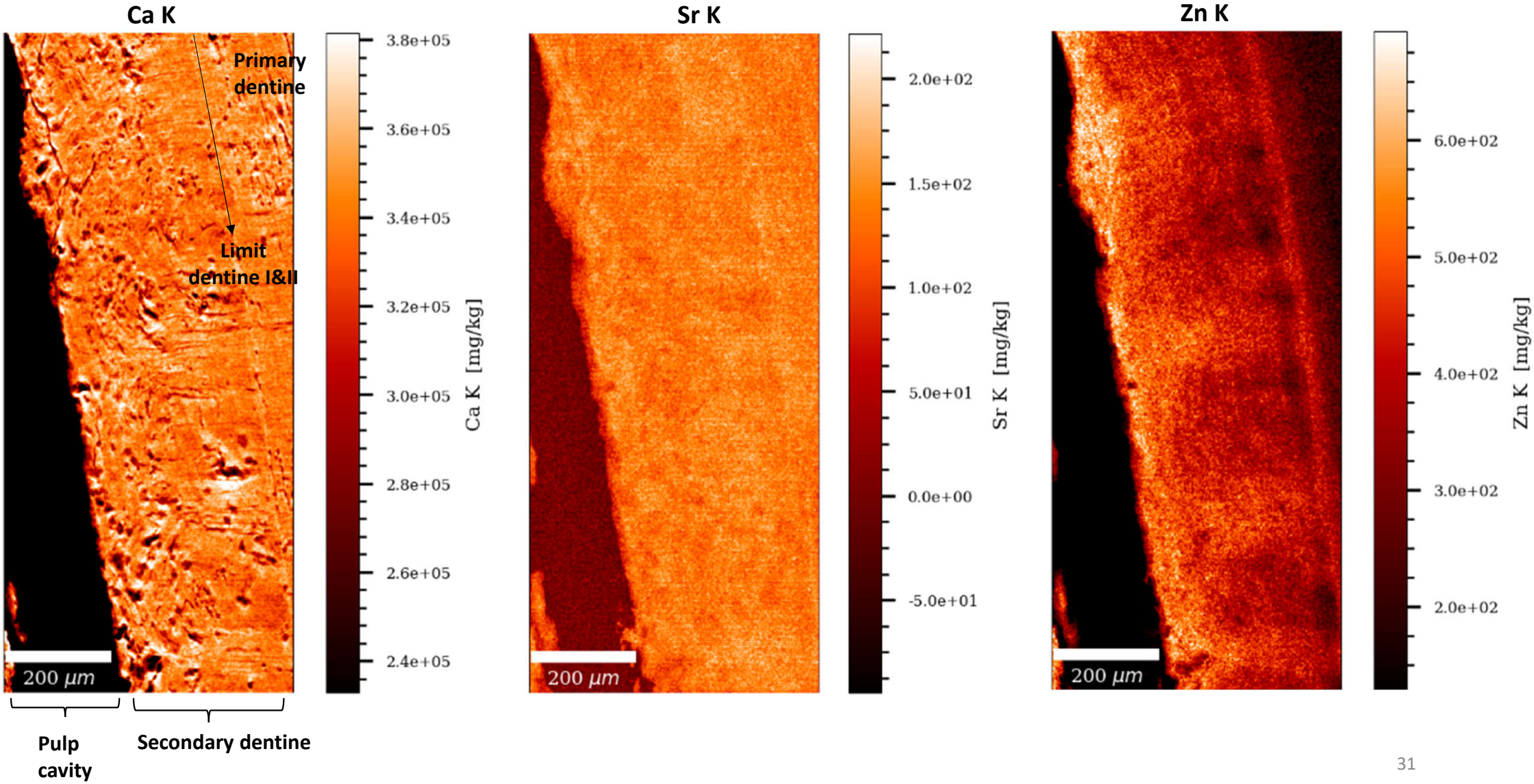
Fe K



Odense 533 LLM1

High resolution at 1 µm in secondary dentine

Gauss (1x1)

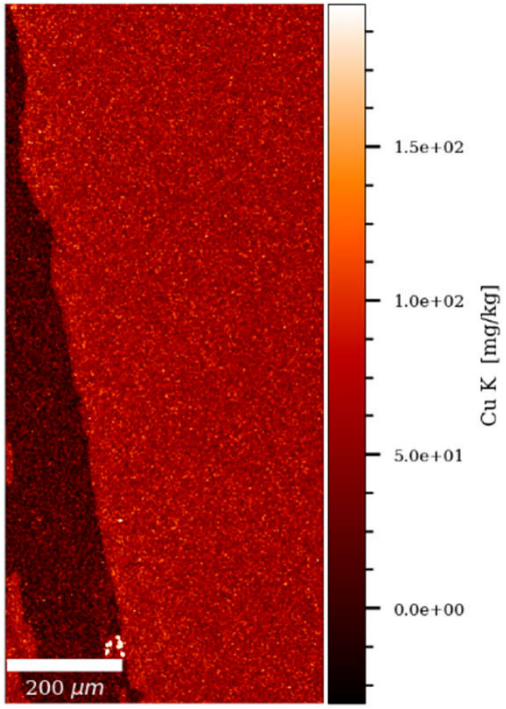


Odense 533 LLM1

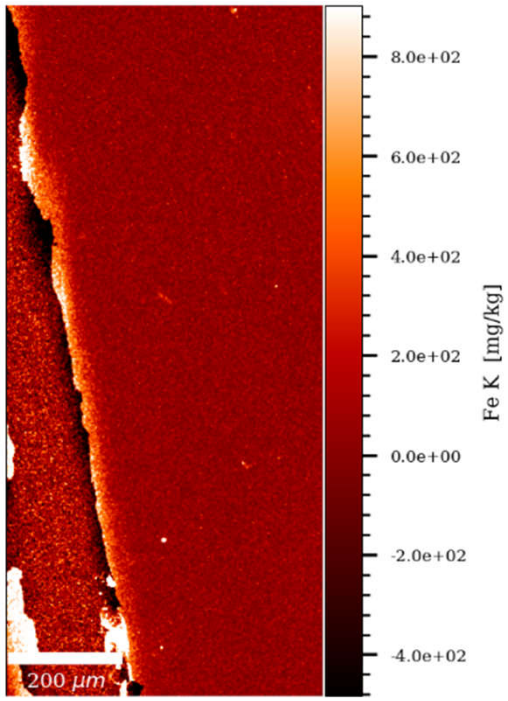
High resolution at 1 µm in secondary dentine

Gauss (1x1)

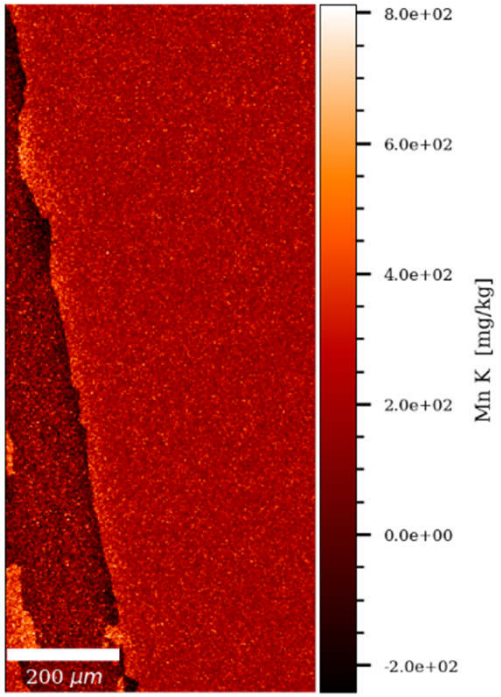
Cu K



Fe K



Mn K



Odense – 896 LLC

♂ 35-45 yrs. 1183 – 1265 cal. CE

Average tooth section thickness (µm): 99.4

Odense 896 LLC

Scanning

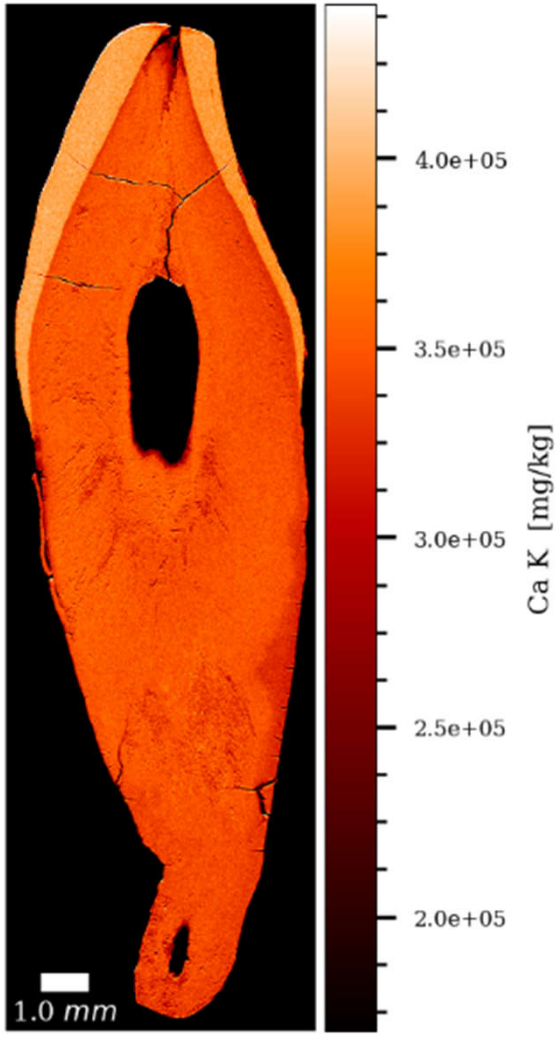
Overview at 10 µm

Odense 896 LLC

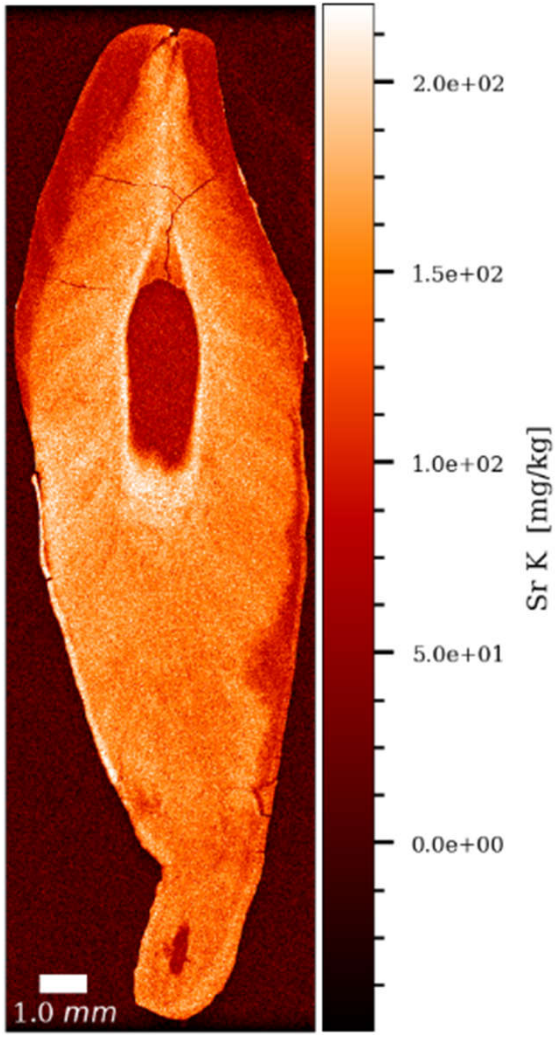
Overview at 10 µm

Gauss (0.8x0.8)

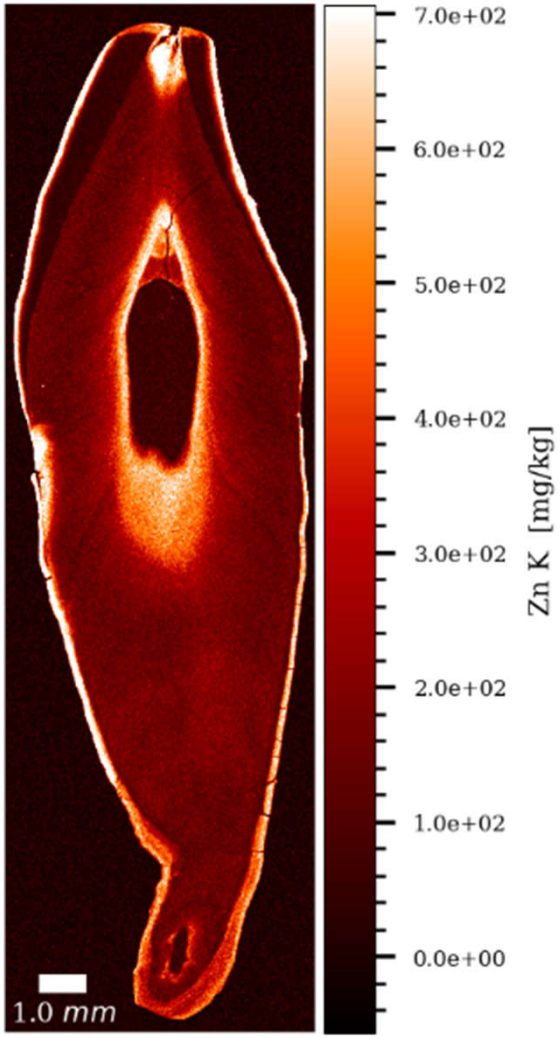
Ca K



Sr K



Zn K

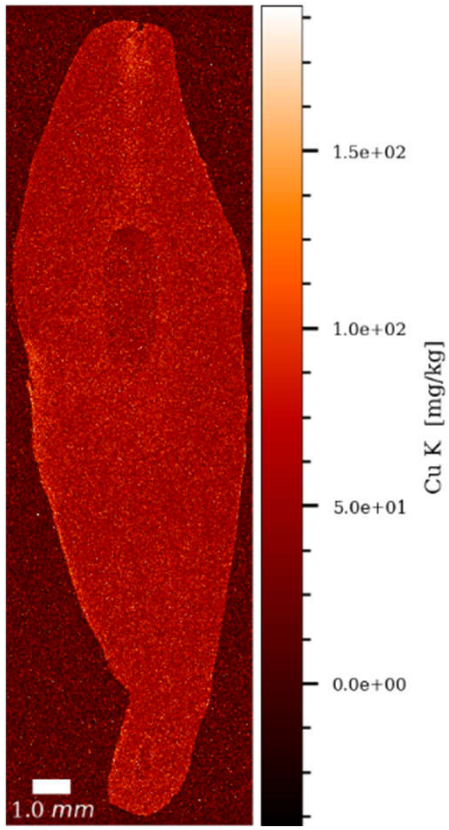


Odense 896 LLC

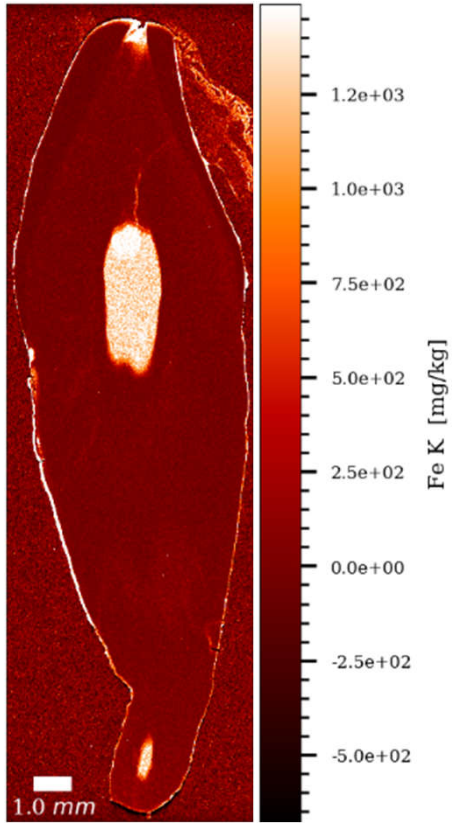
Overview at 10 µm

Gauss (0.8x0.8)

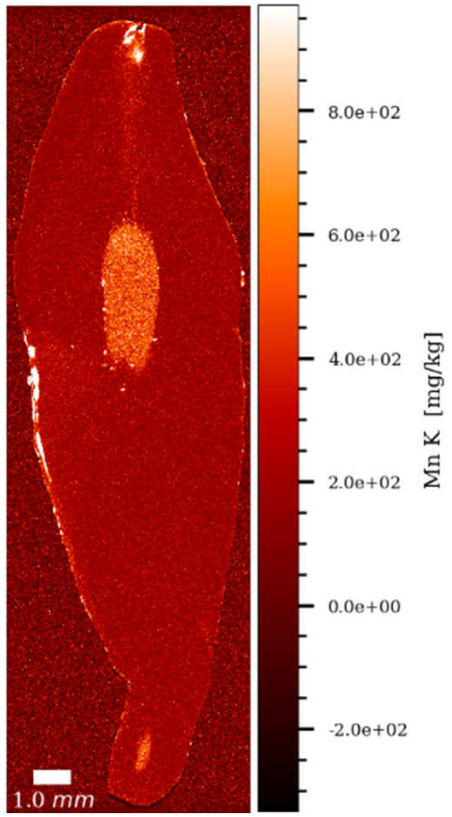
Cu K



Fe K

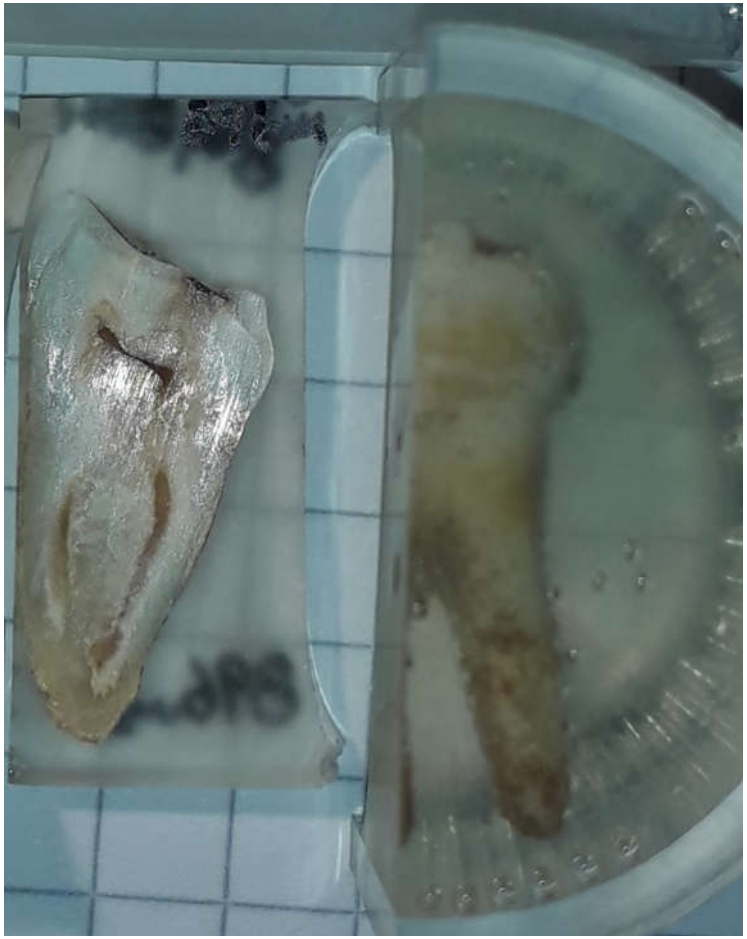


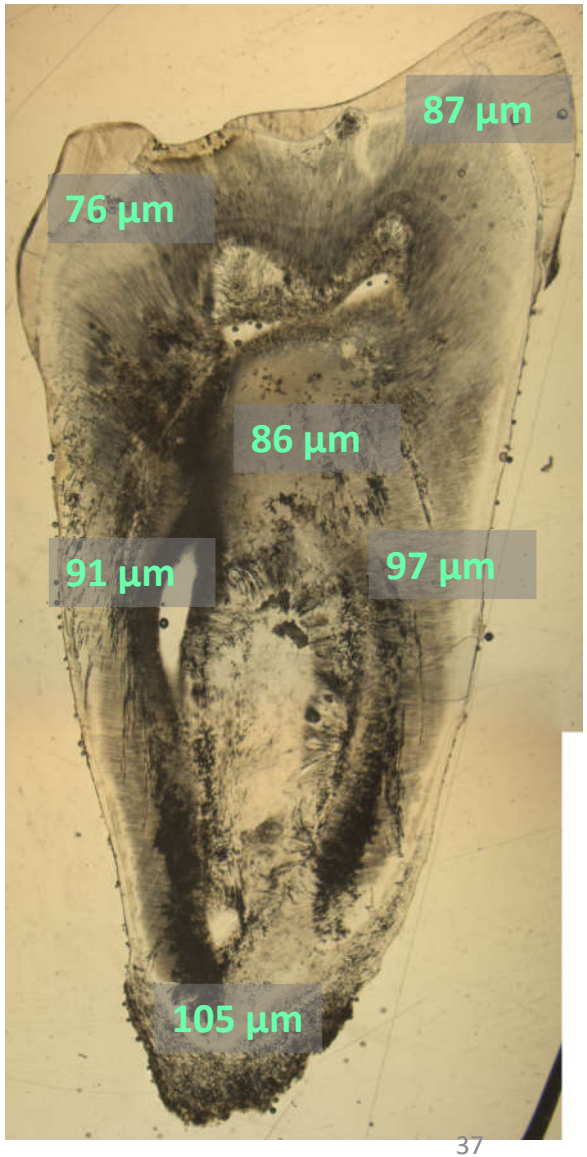
Mn K



Odense – 896 LLM1

♂ 35-45 yrs. 1183 – 1265 cal. CE

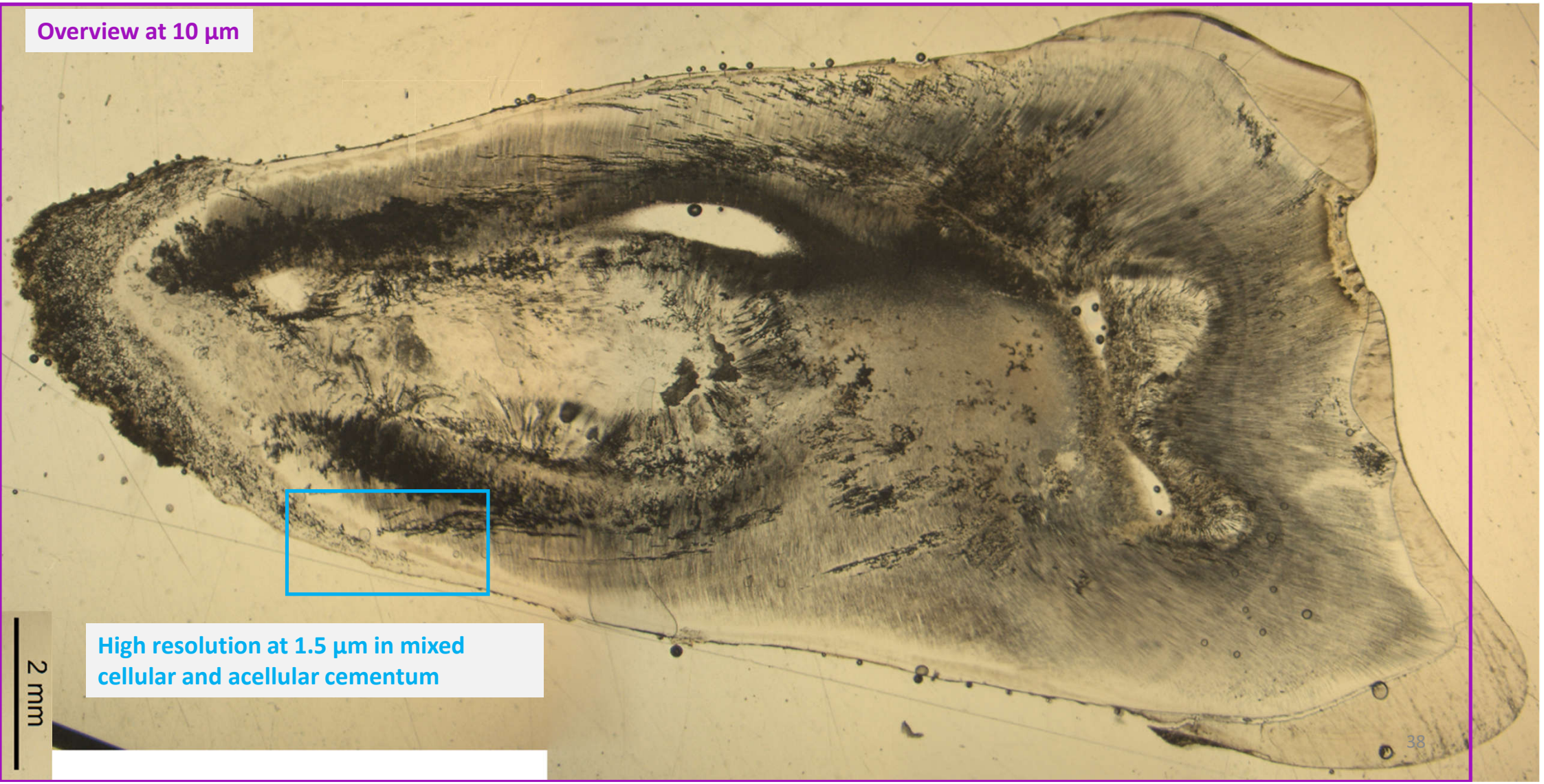




Average tooth section thickness (µm): 99.4

Odense 896 LLM1

Scanning

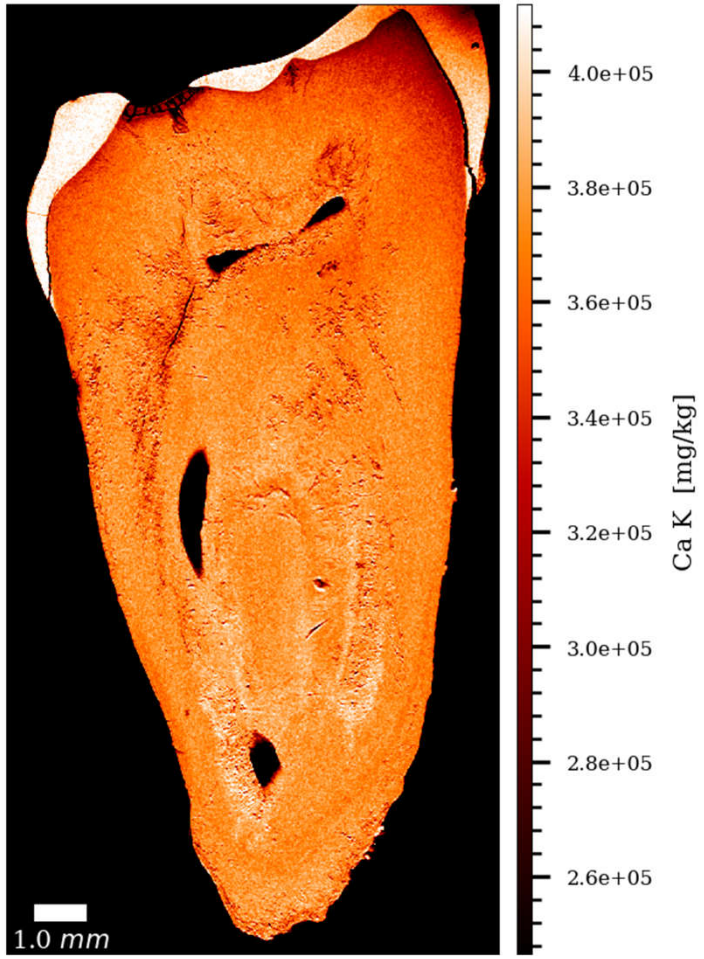


Odense 896 LLM1

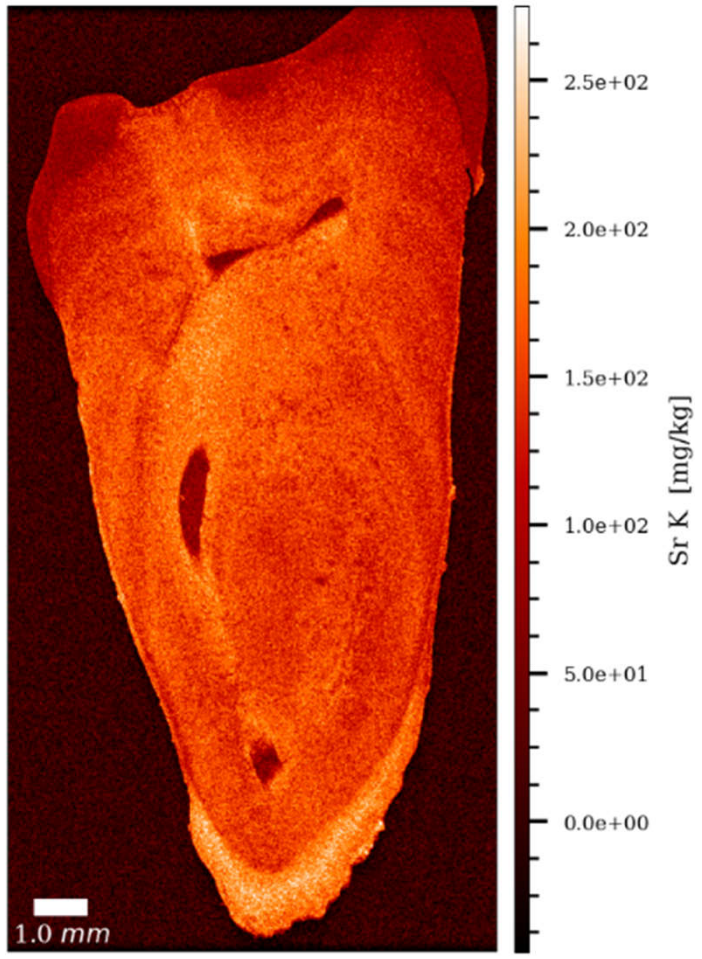
Overview at 10 µm

Gauss (1x1)

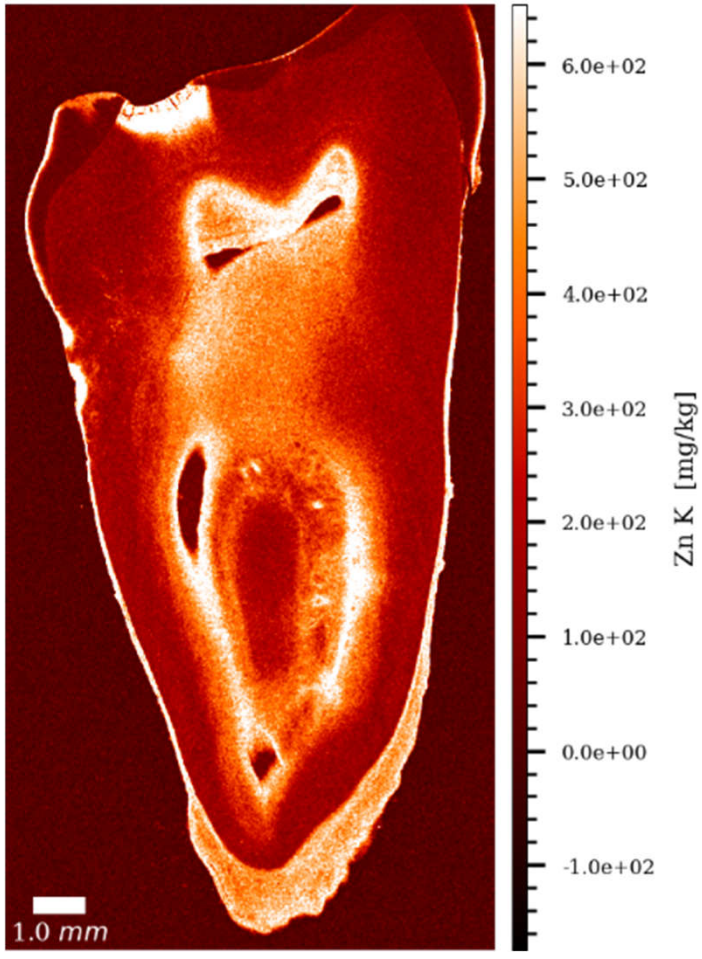
Ca K



Sr K



Zn K

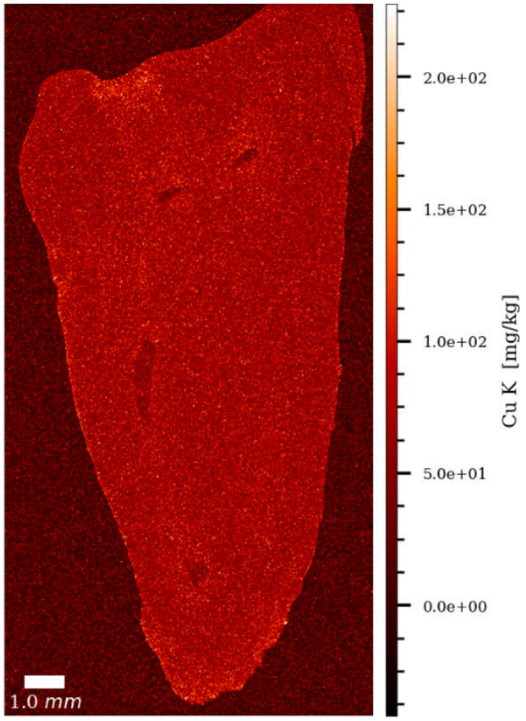


Odense 896 LLM1

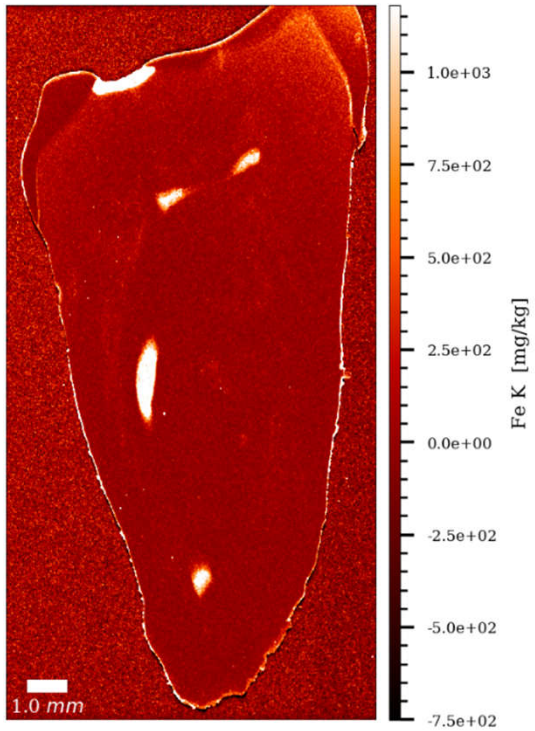
Overview at 10 µm

Gauss (1x1)

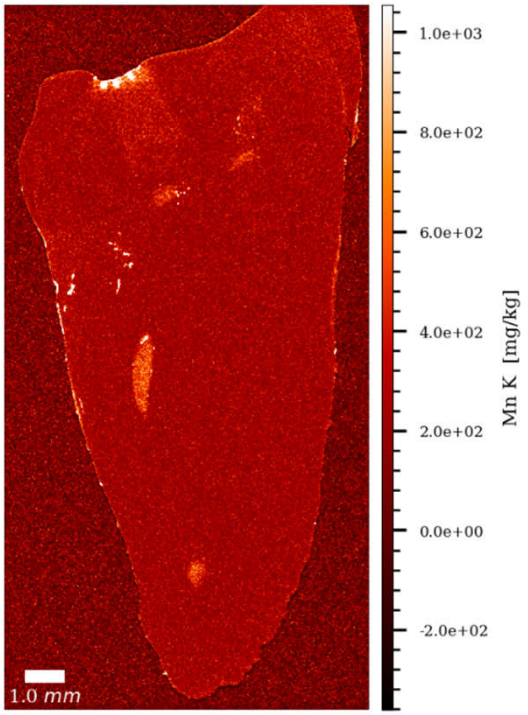
Cu K



Fe K



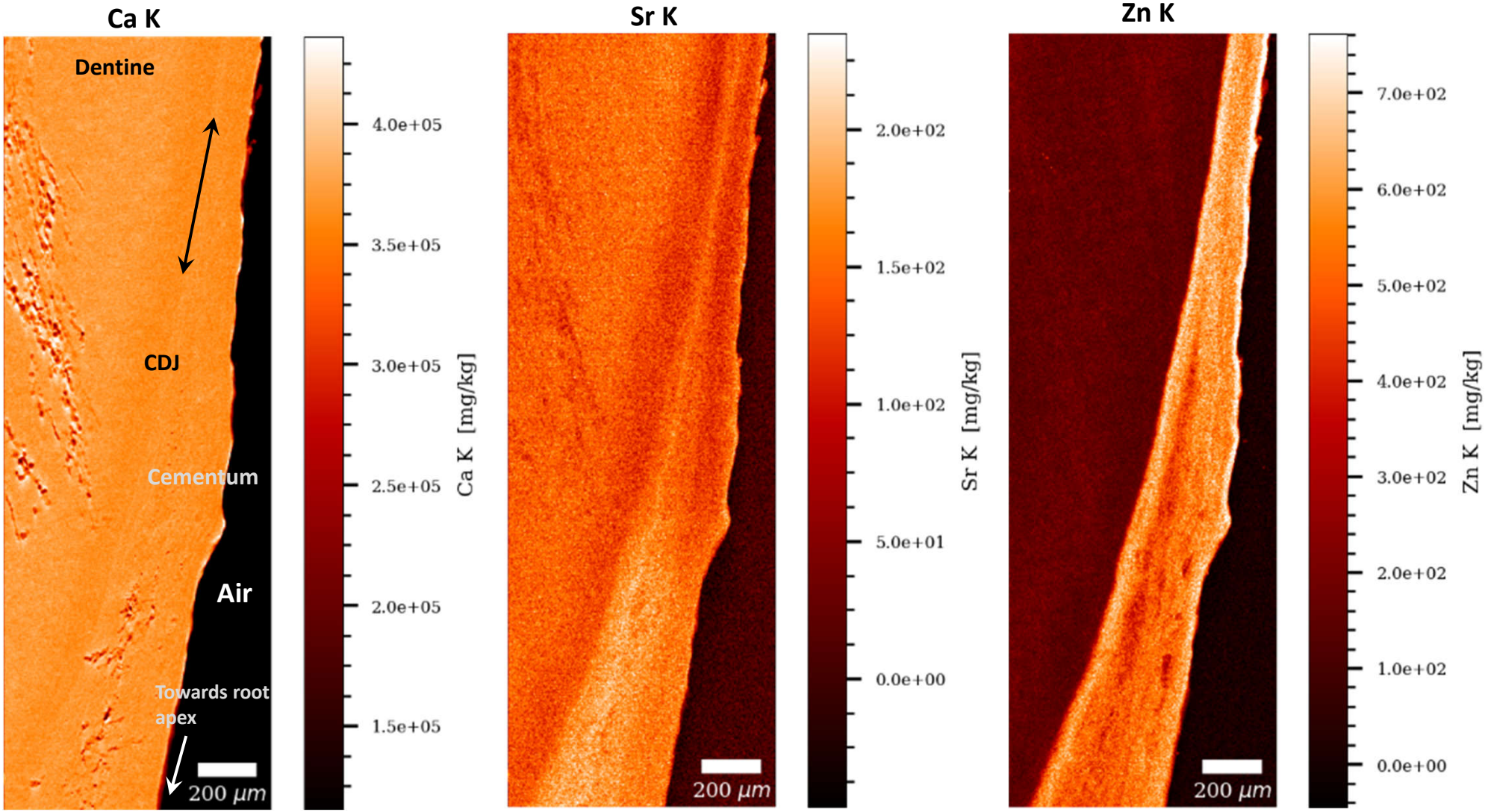
Mn K



Odense 896 LLM1

High resolution at 1.5 µm

Gauss (1x1)

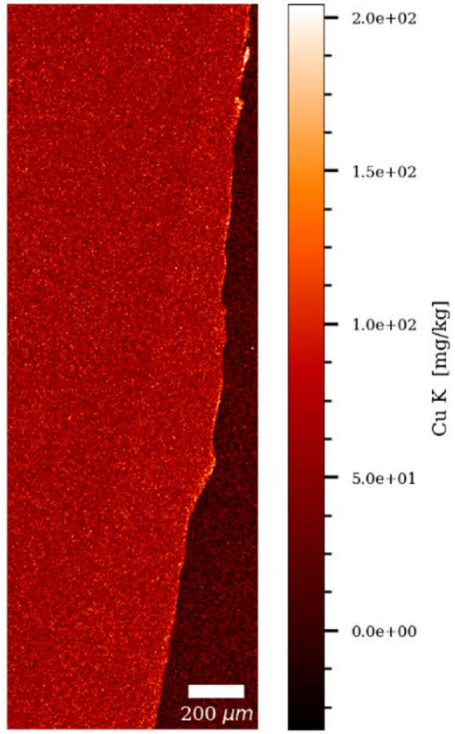


Odense 896 LLM1

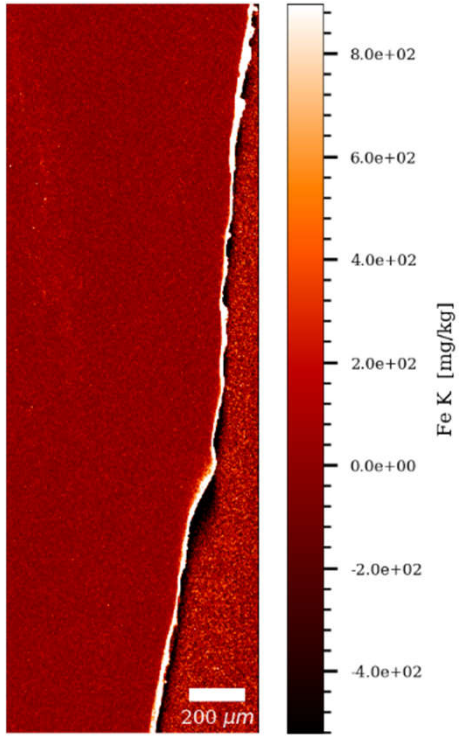
High resolution at 1.5 µm

Gauss (1x1)

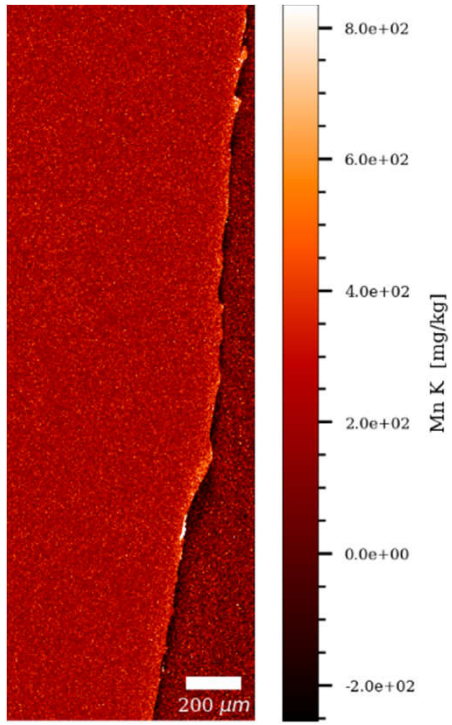
Cu K



Fe K

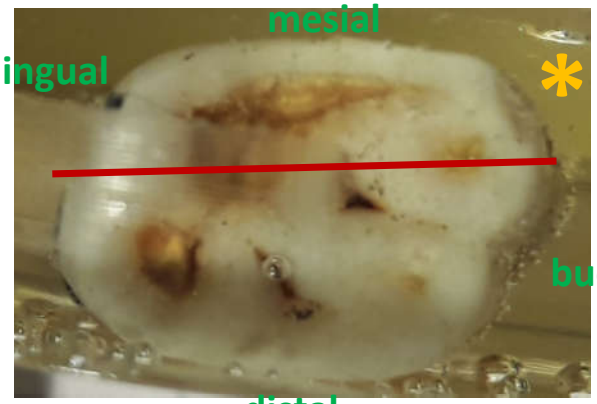


Mn K

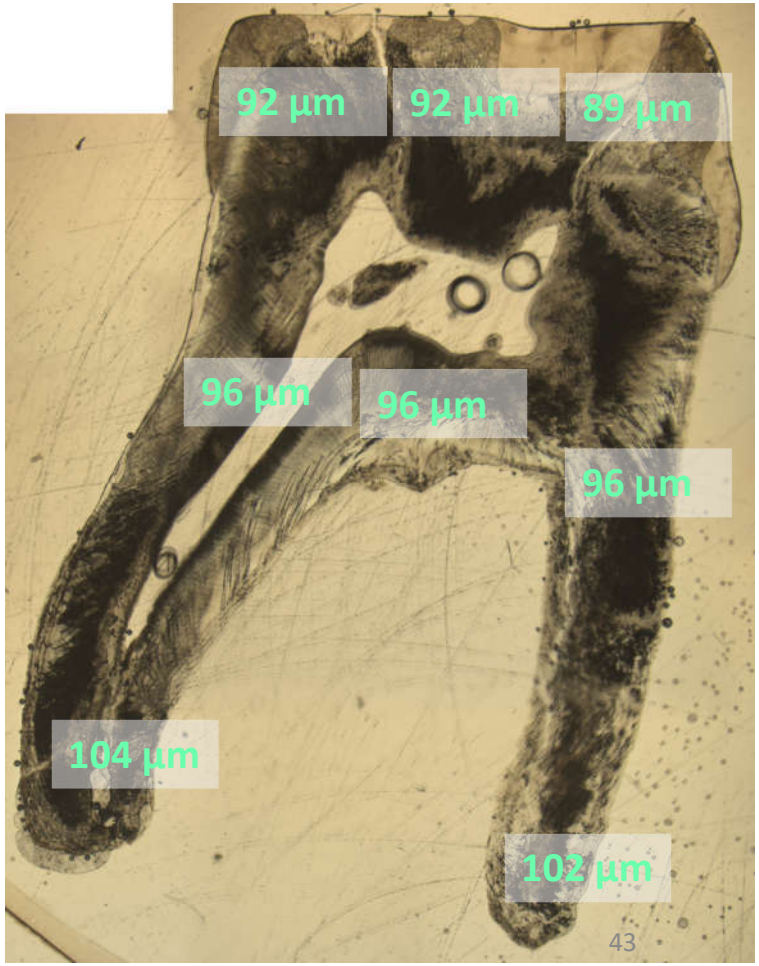


Odense – 914 ULM1

♀ 25-35 yrs. 1459 – 1566 cal. CE

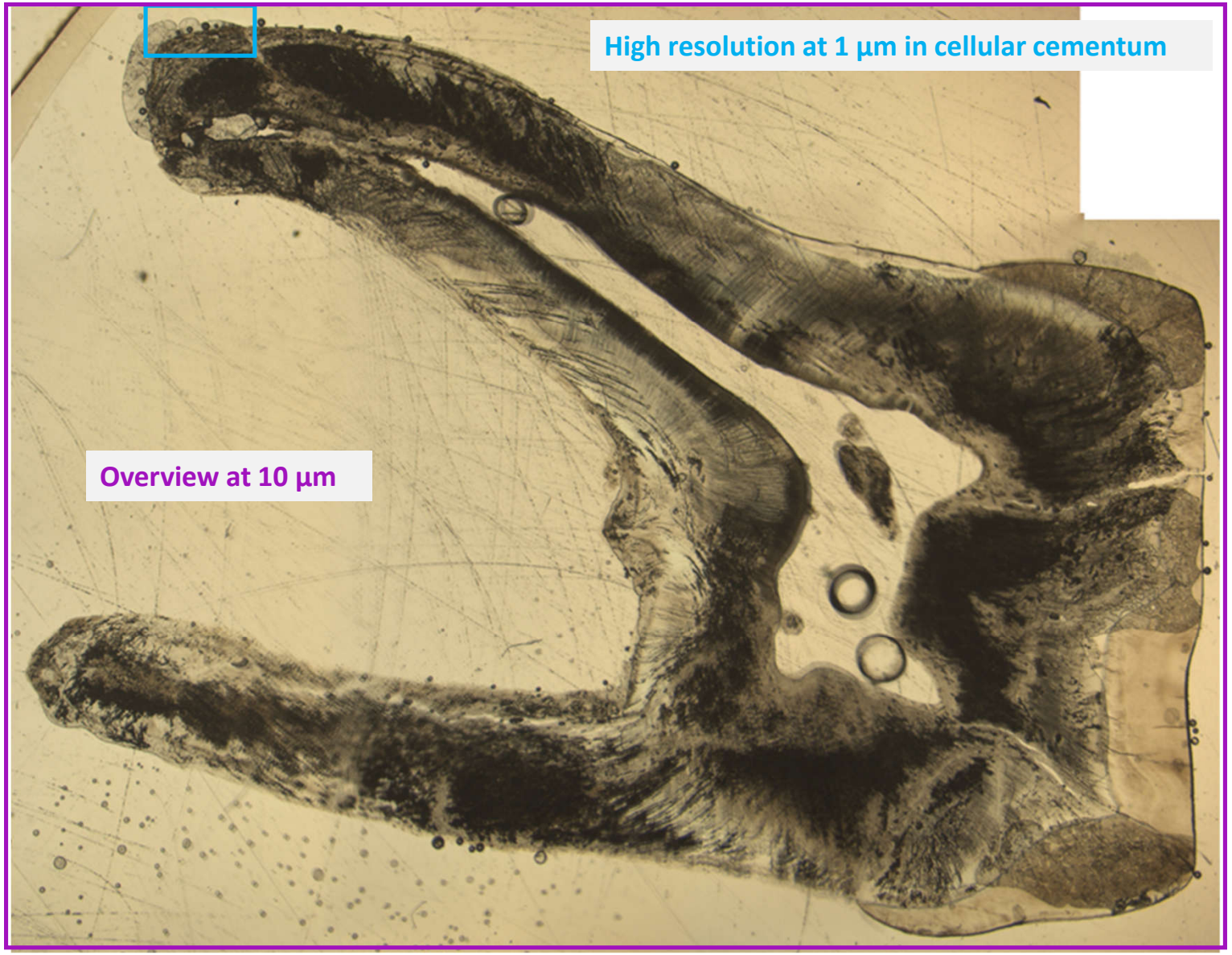


Average tooth section thickness (µm): 95.9



Odense 914 ULM1

Scanning

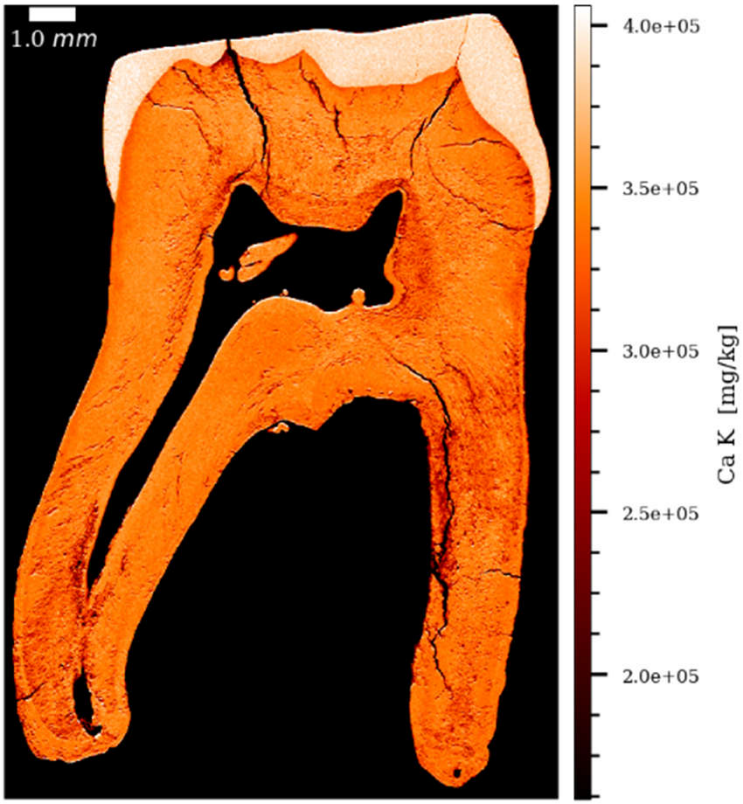


Odense 914 ULM1

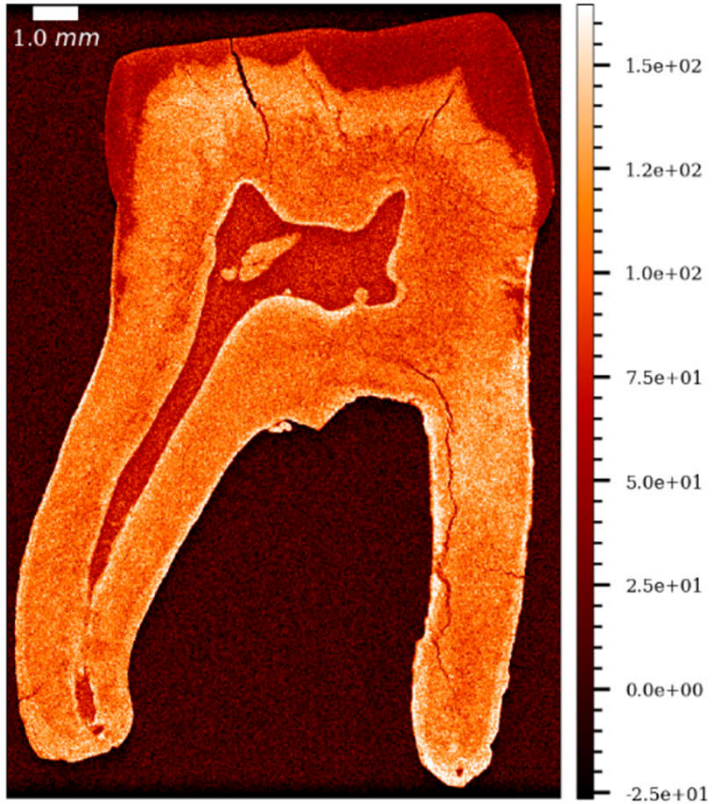
Overview at 10 µm

Gauss (1x1)

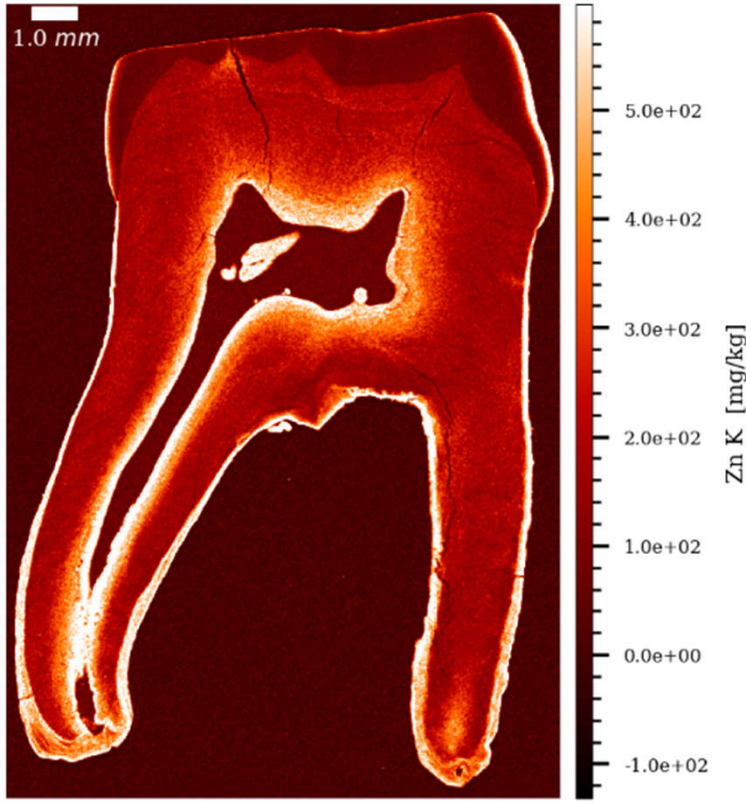
Ca K



Sr K



Zn K

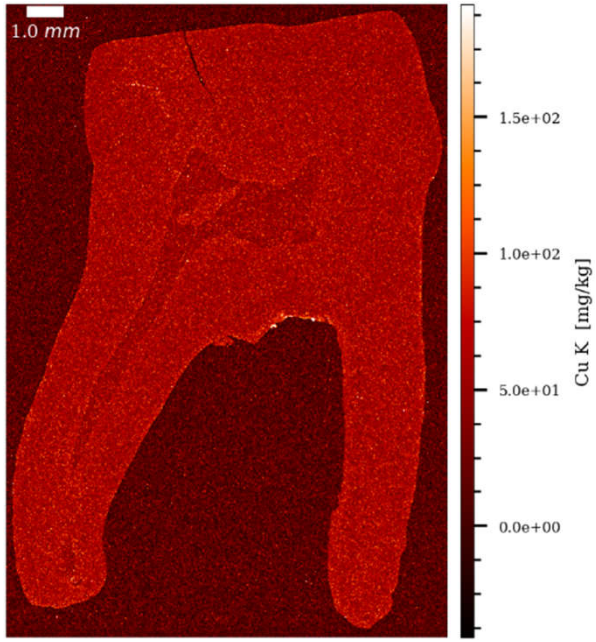


Odense 914 ULM1

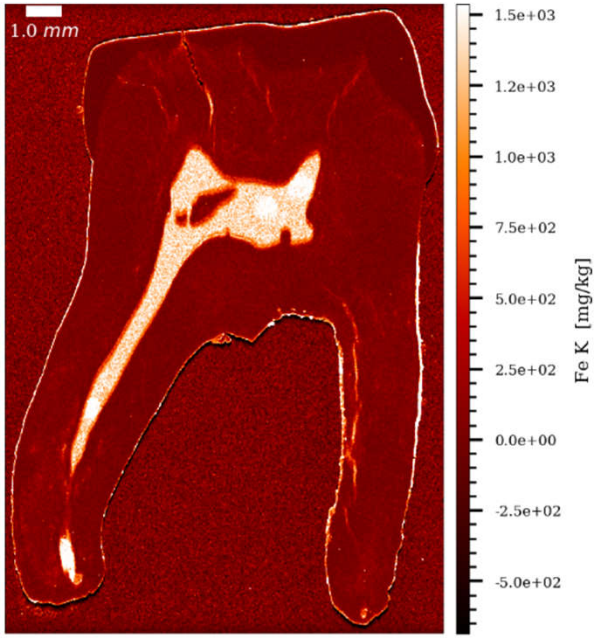
Overview at 10 µm

Gauss (1x1)

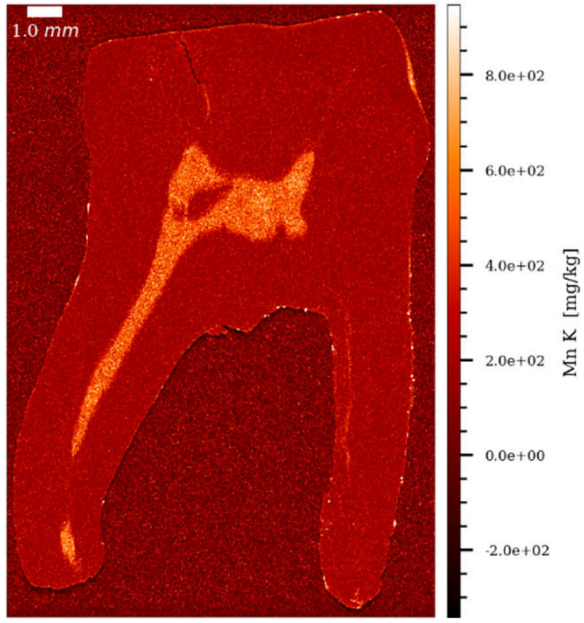
Cu K



Fe K



Mn K



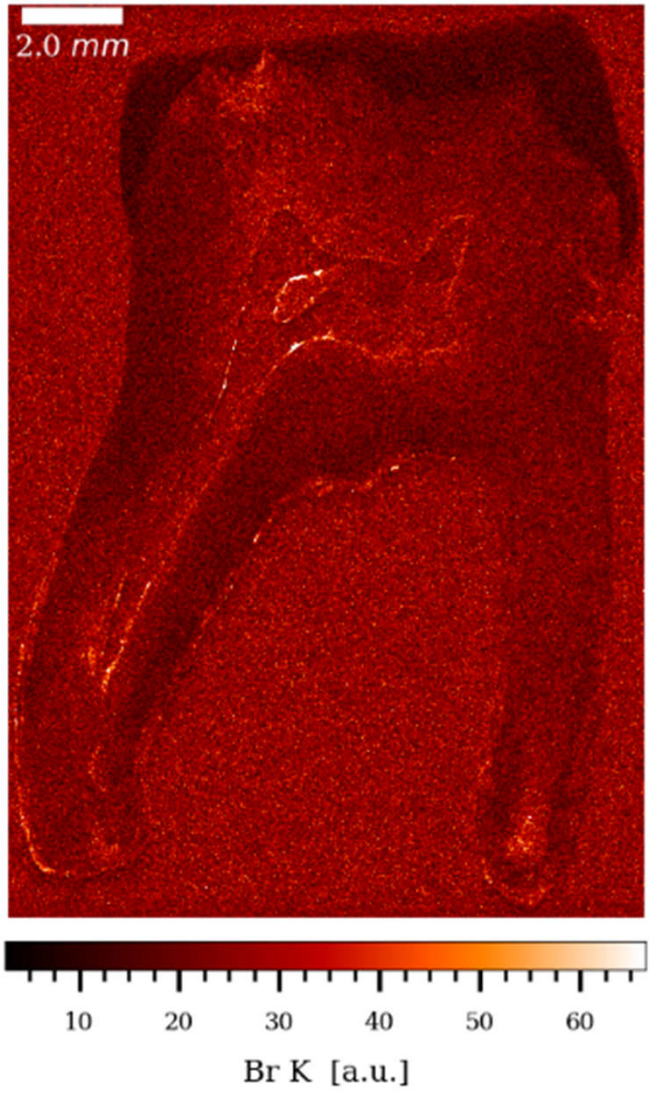
Odense 914 ULM1

Overview at 10 µm

Uncalibrated data (arbitrary units)

Gauss (1x1)

Br K



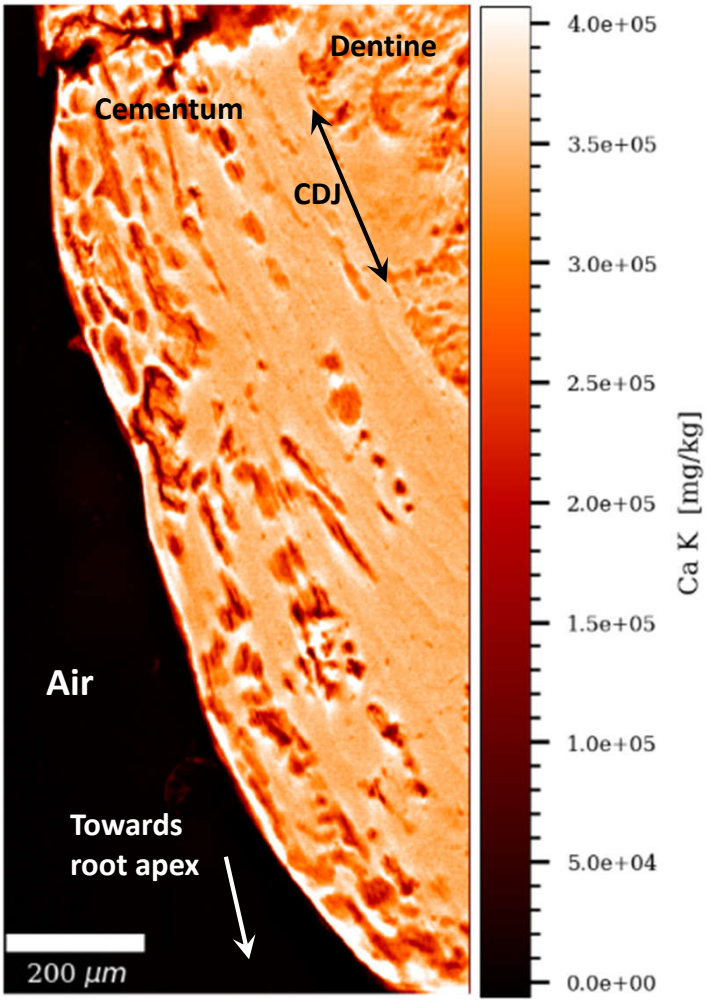
Pb L

Odense 914 ULM1

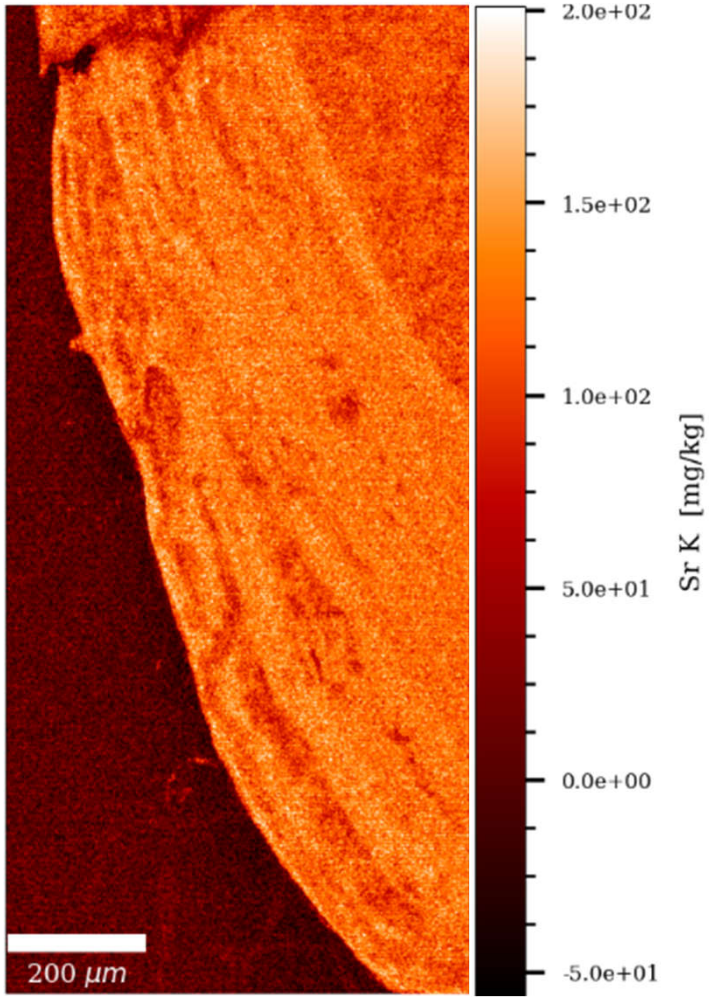
High resolution at 1 µm

Gauss (0.9x0.9)

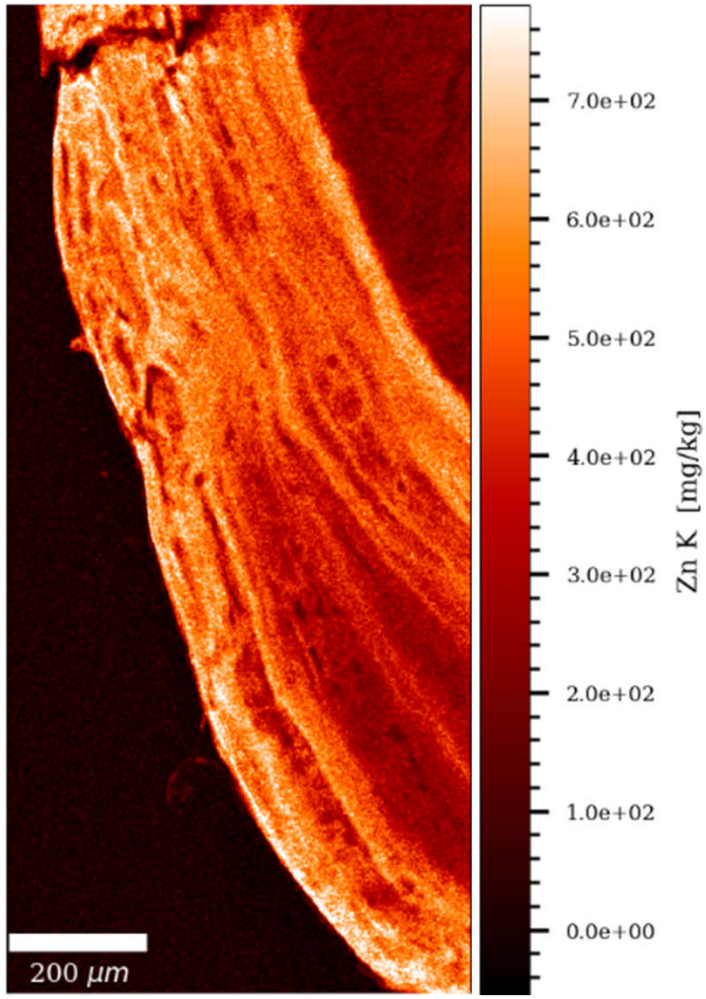
Ca K



Sr K



Zn K

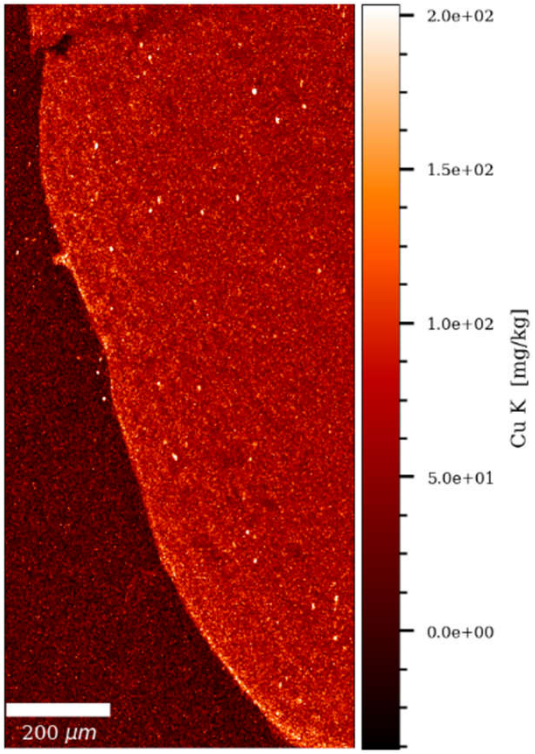


Odense 914 ULM1

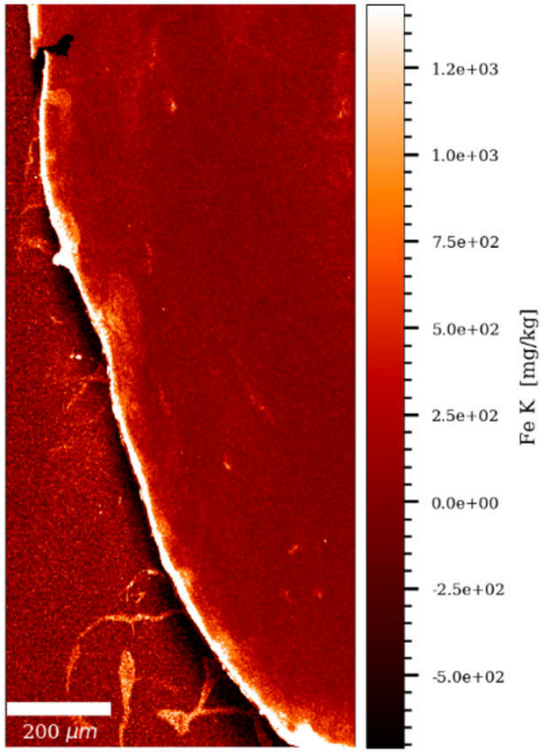
High resolution at 1 µm

Gauss (0.9x0.9)

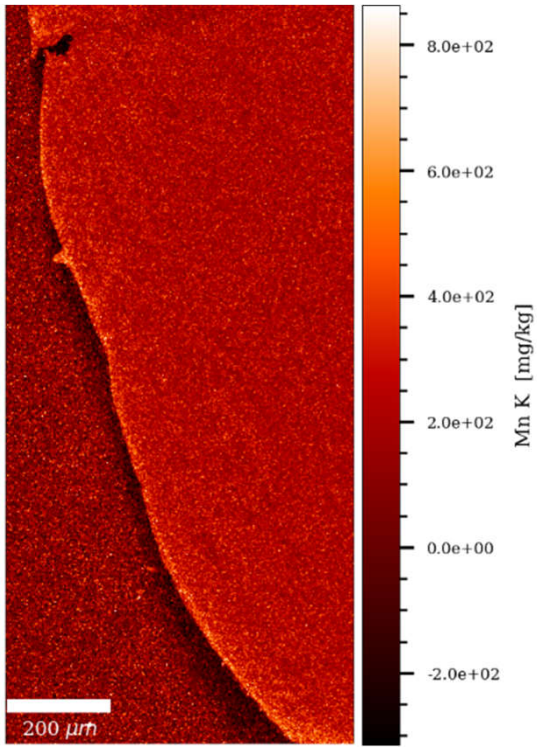
Cu K



Fe K



Mn K



Odense – 1149 URC

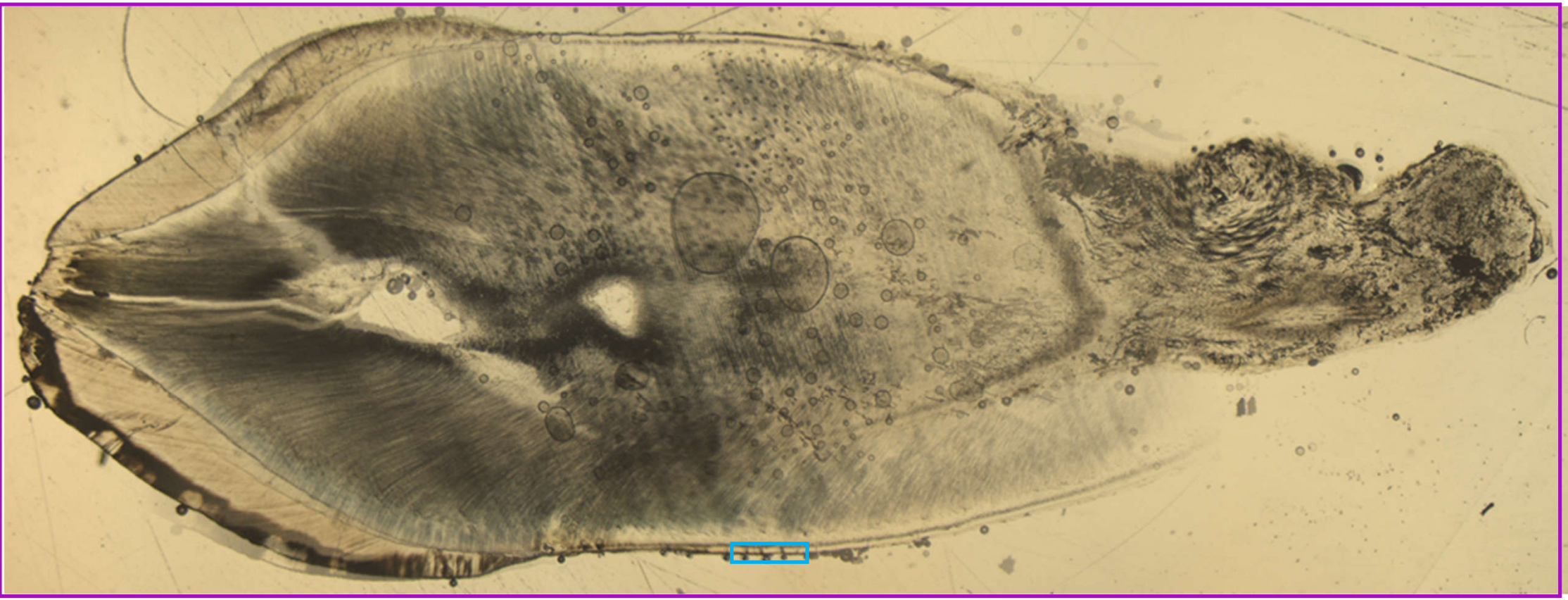
♀ 20-30 yrs. 1301 – 1415 cal. CE

Average tooth section thickness (µm): 98.0

Odense 1149 URC

Scanning

Overview at 10 µm

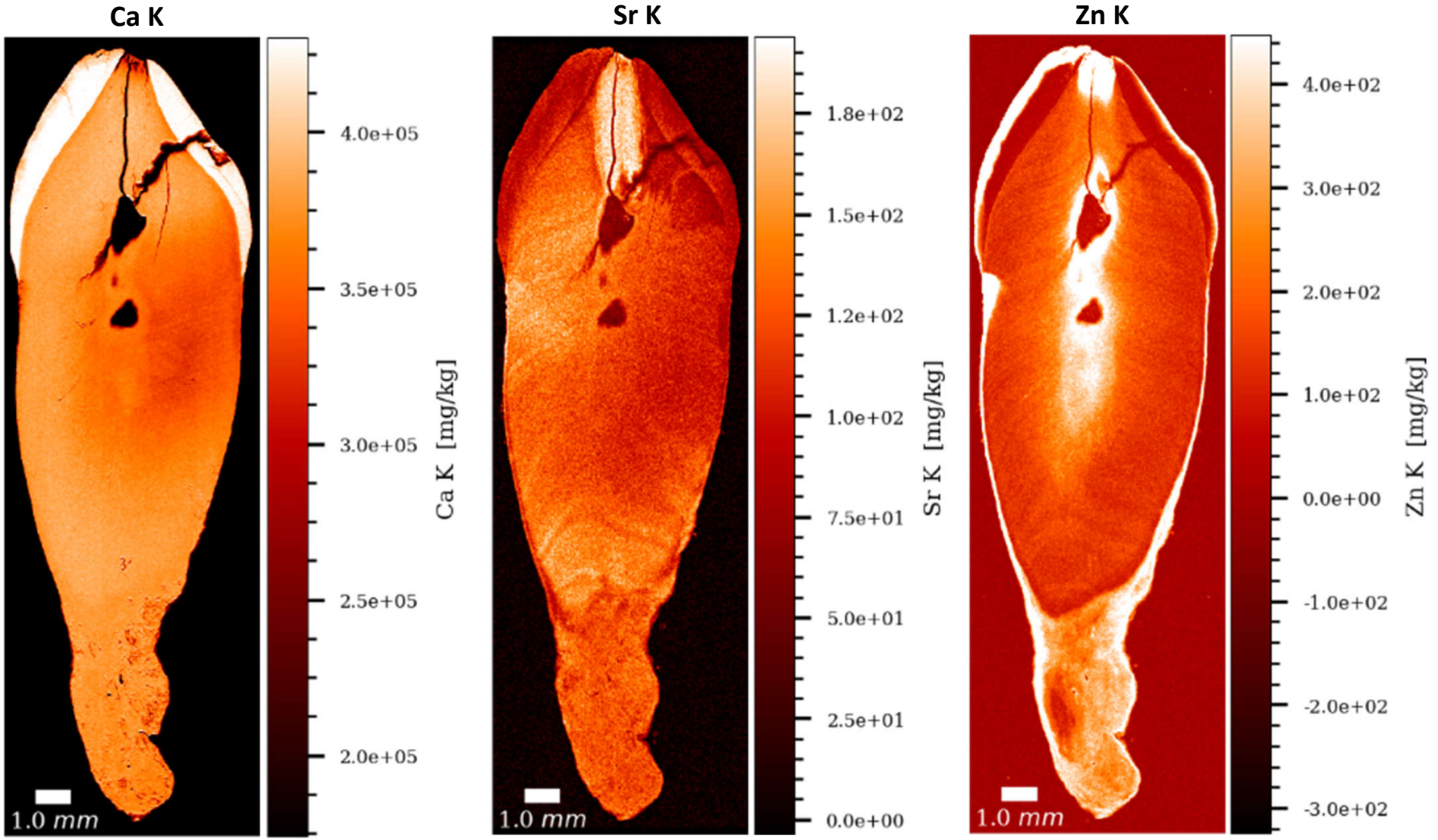


High resolution at 1 µm in acellular cementum

Odense 1149 URC

Overview at 10 µm

Gauss (1.2x1.2)

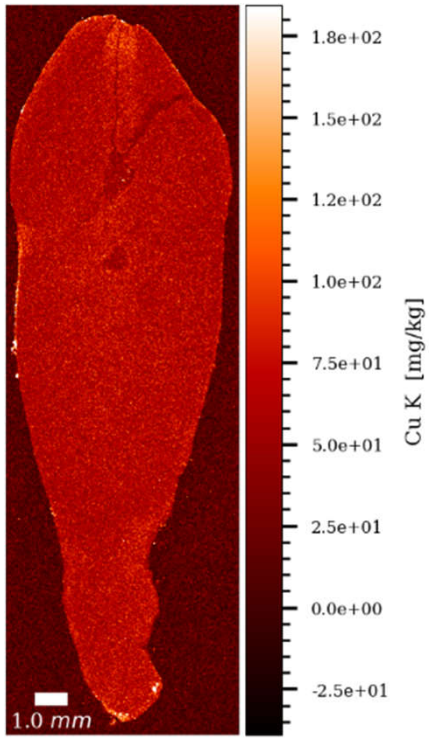


Odense 1149 URC

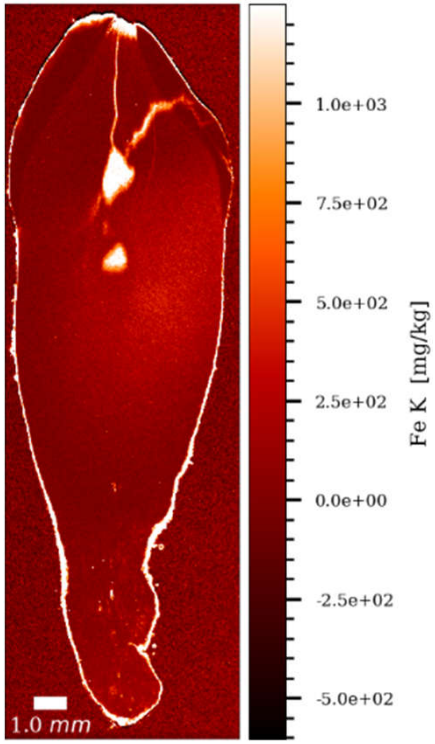
Overview at 10 µm

Gauss (1.2x1.2)

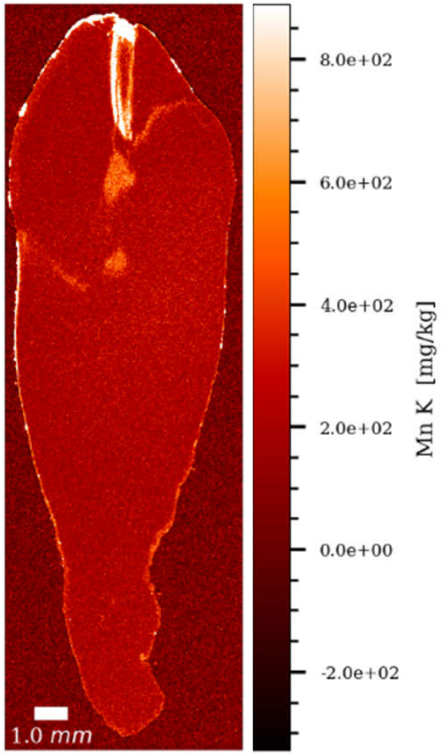
Cu K



Fe K



Mn K

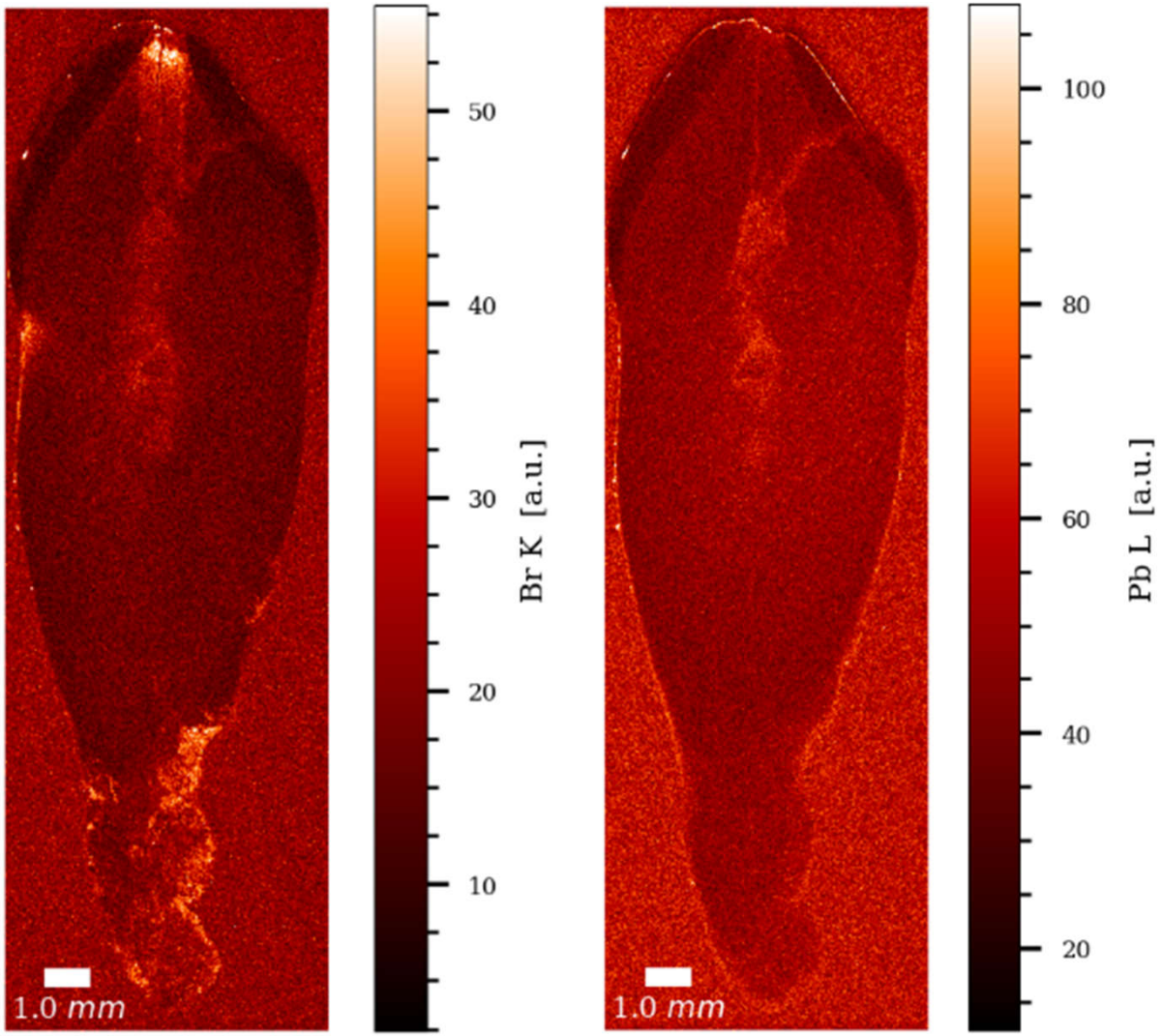


Odense 1149 URC

Overview at 10 µm

Uncalibrated data (arbitrary units)

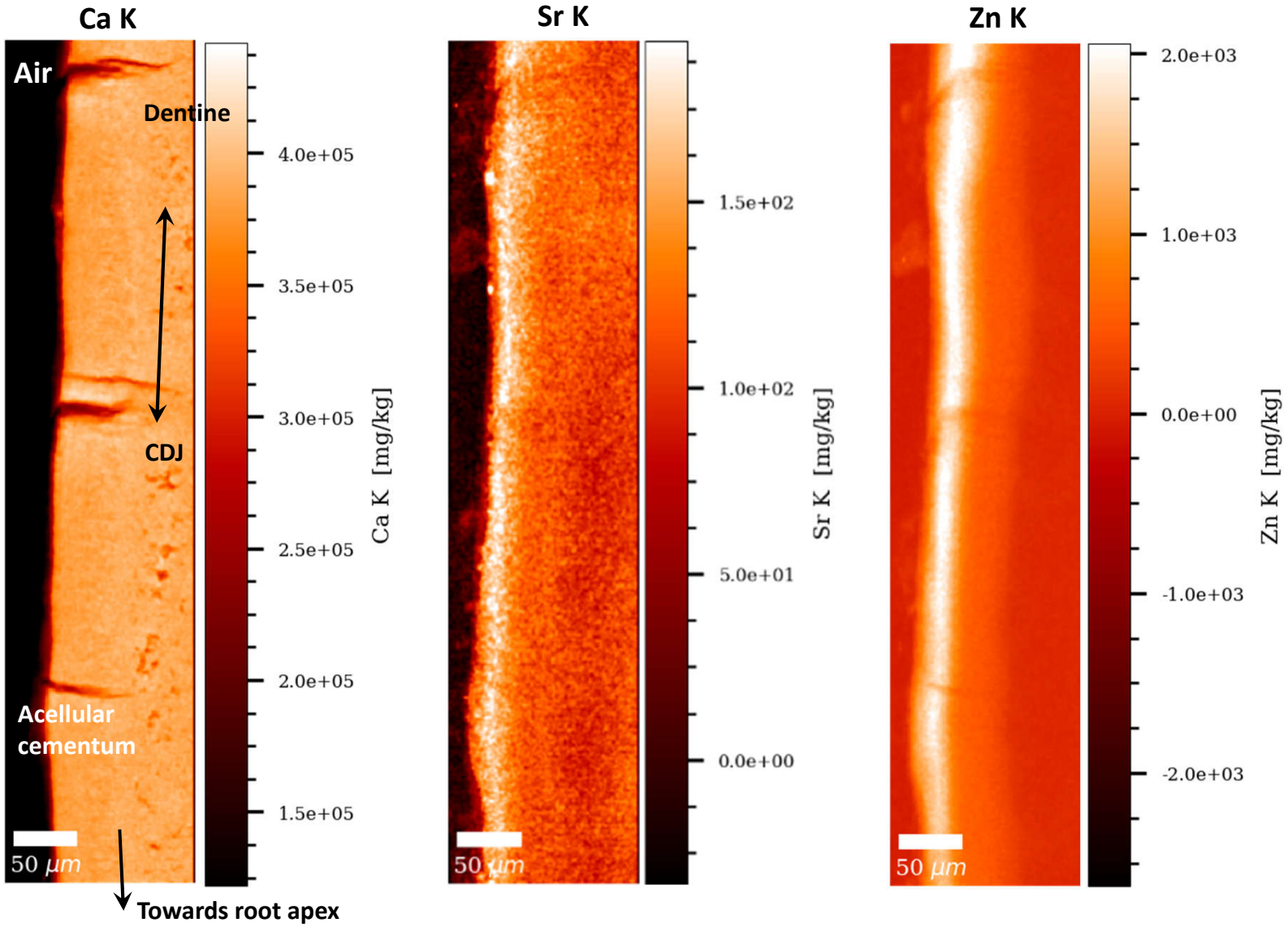
Gauss (1.2x1.2)



Odense 1149 URC

High resolution at 1 µm in acellular cementum

Gauss (1x1)

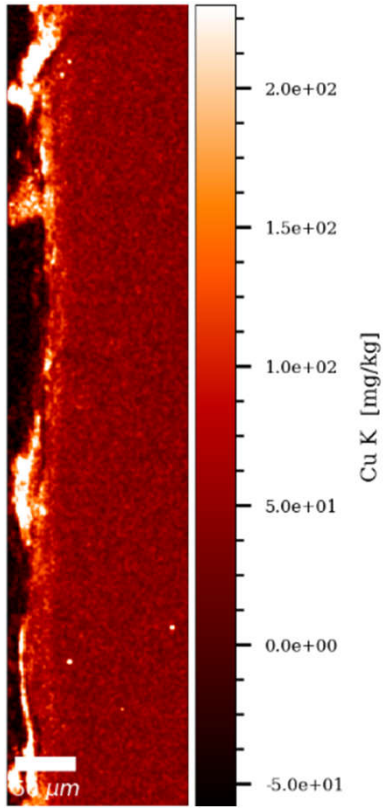


Odense 1149 URC

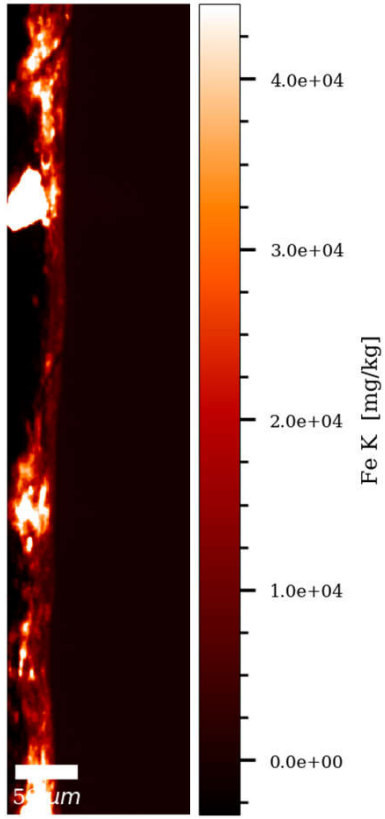
High resolution at 1 µm in acellular cementum

Gauss (1x1)

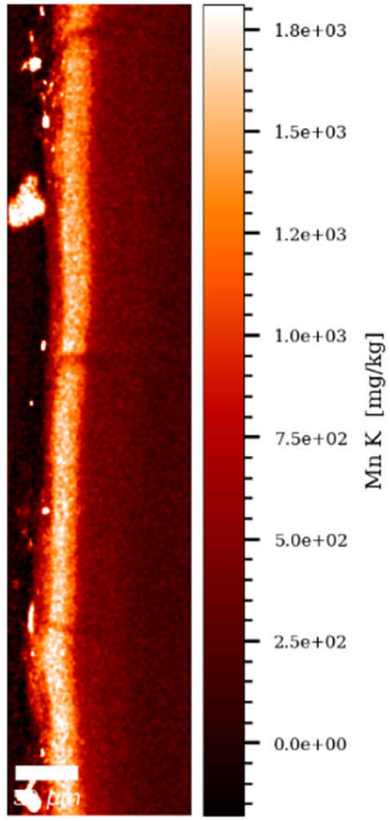
Cu K



Fe K



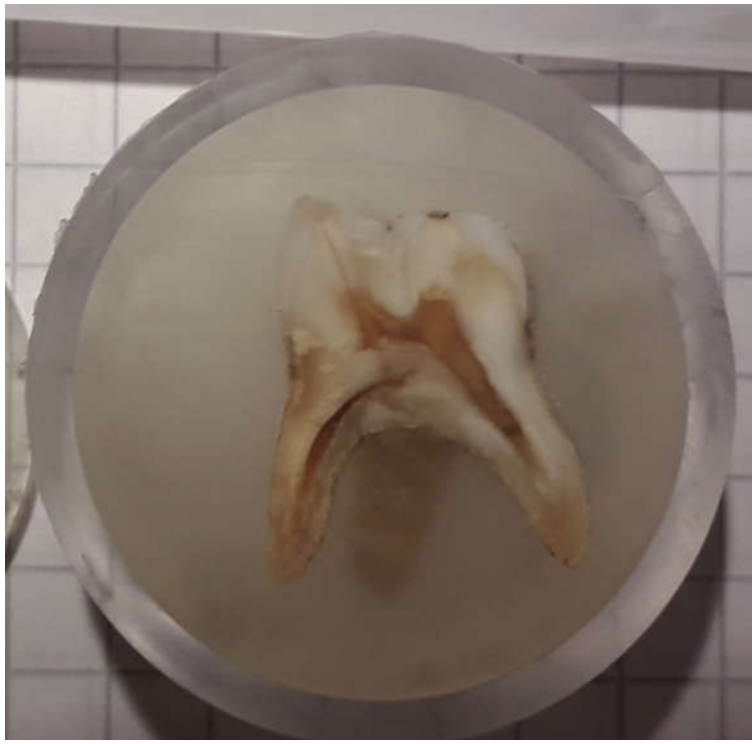
Mn K

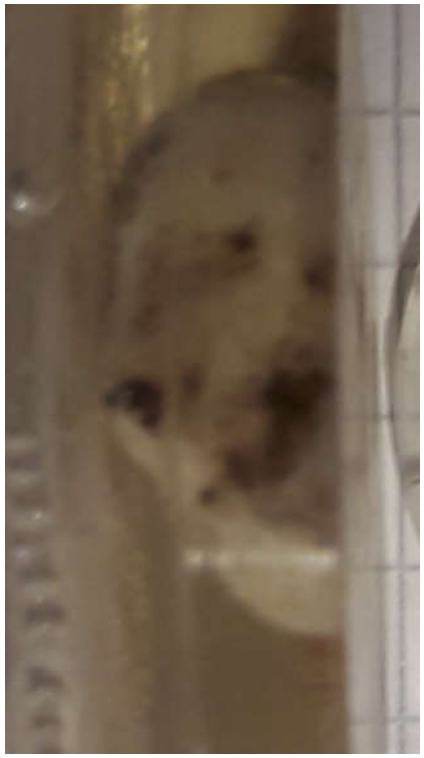


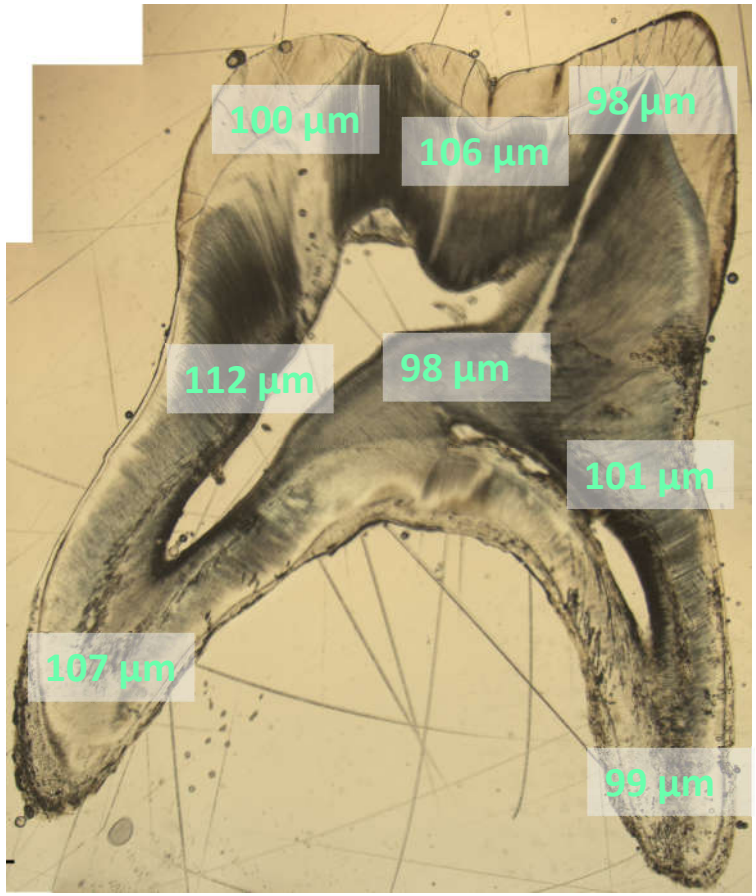
Odense – 1149 ULM1

♀ 20-30 yrs. 1301 – 1415 cal. CE

Average tooth section thickness (µm): 103.5



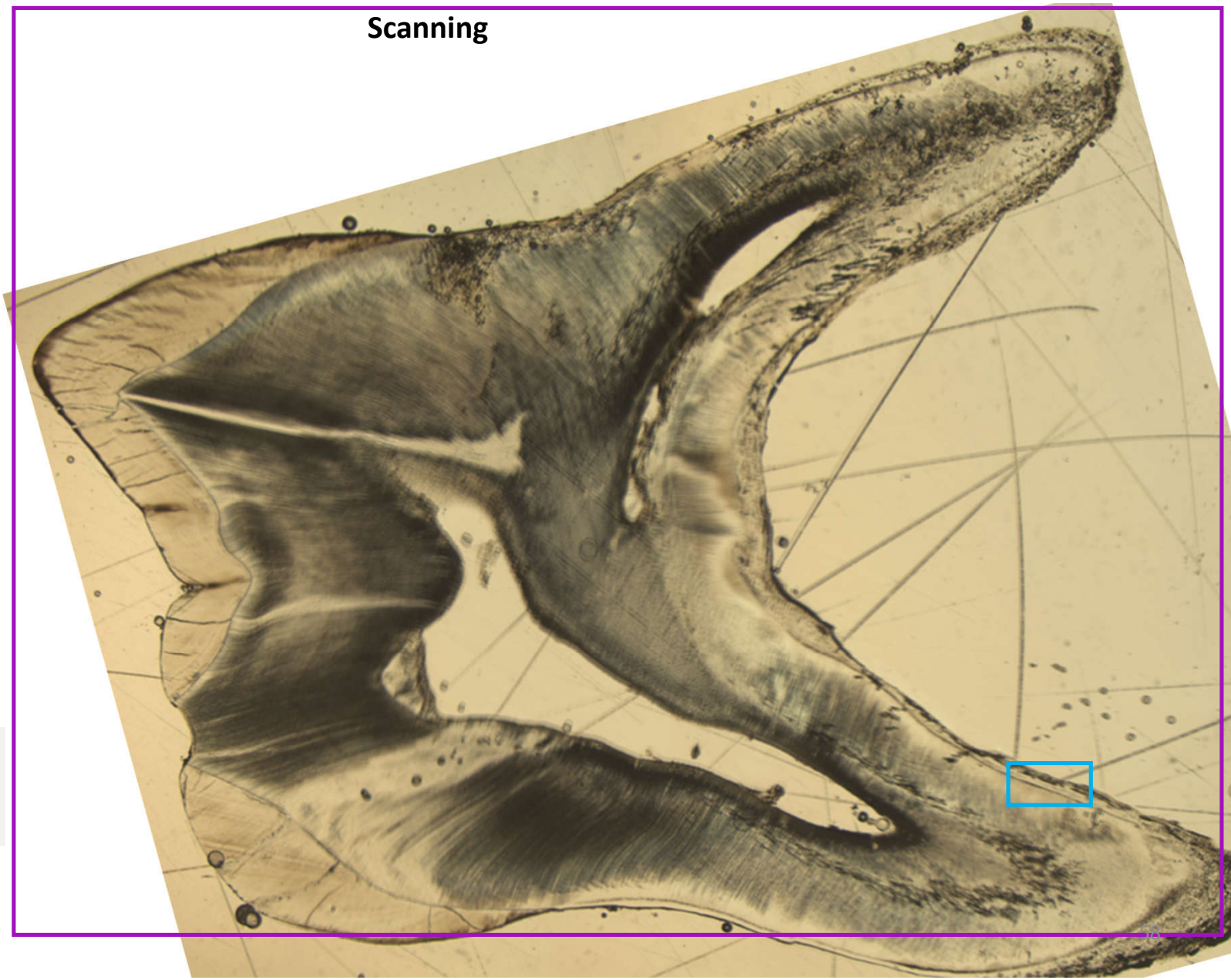




Odense 1149 ULM1

Overview at 10 µm
Problem of offset when centering sample

High resolution at 1 µm in mixed cellular and acellular cementum



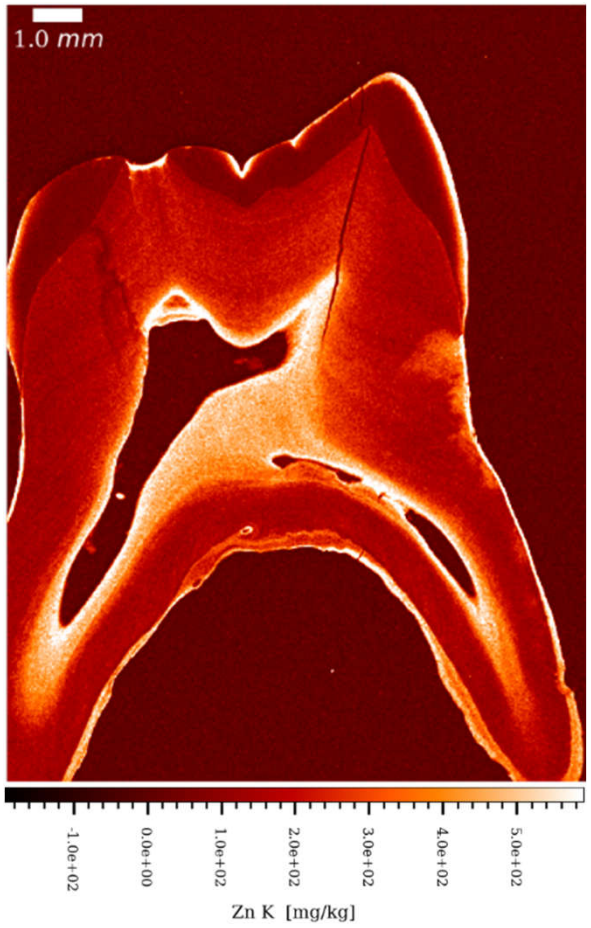
Odense 1149 ULM1

Overview at 10 µm

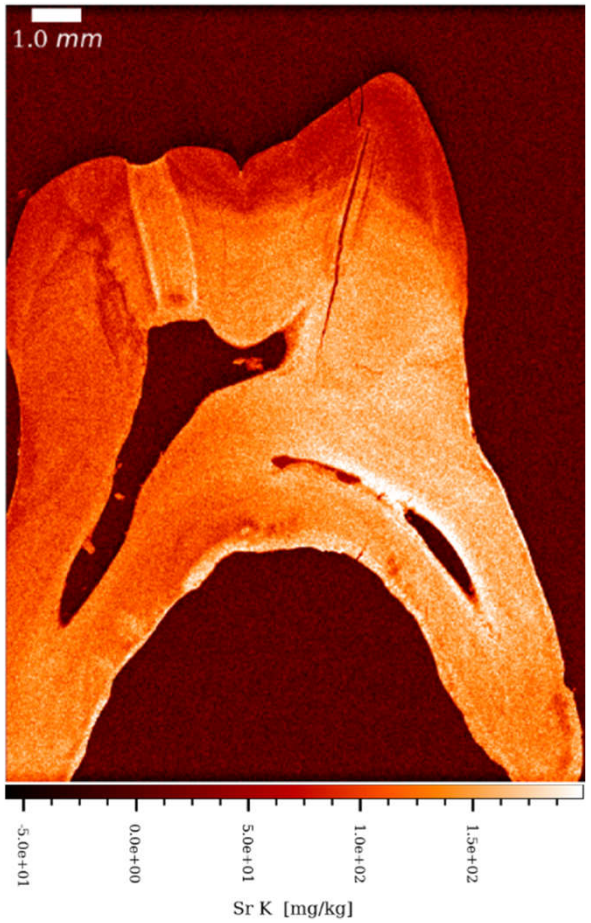
Gauss (1x1)

Ca K

Sr K



Zn K

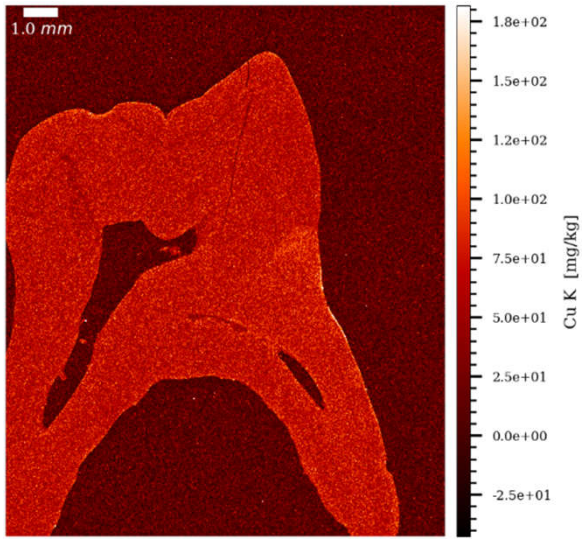


Odense 1149 ULM1

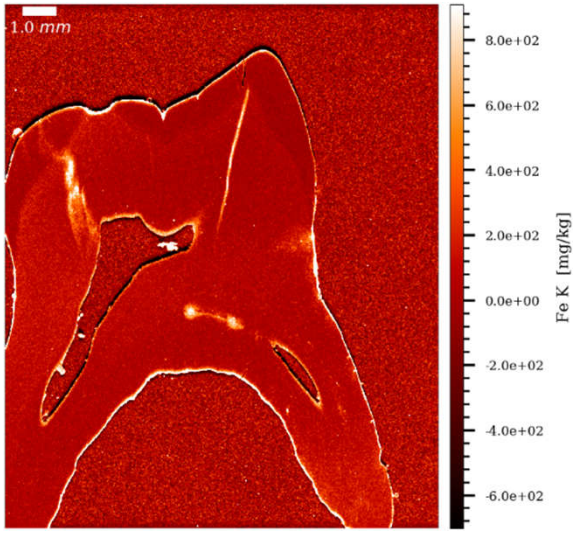
Overview at 10 µm

Gauss (1x1)

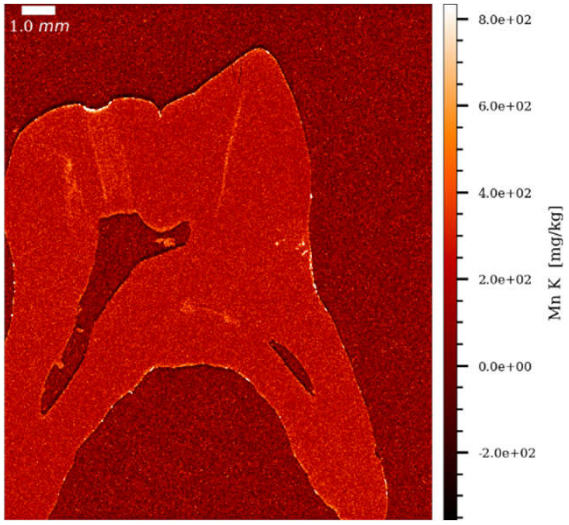
Cu K



Fe K



Mn K



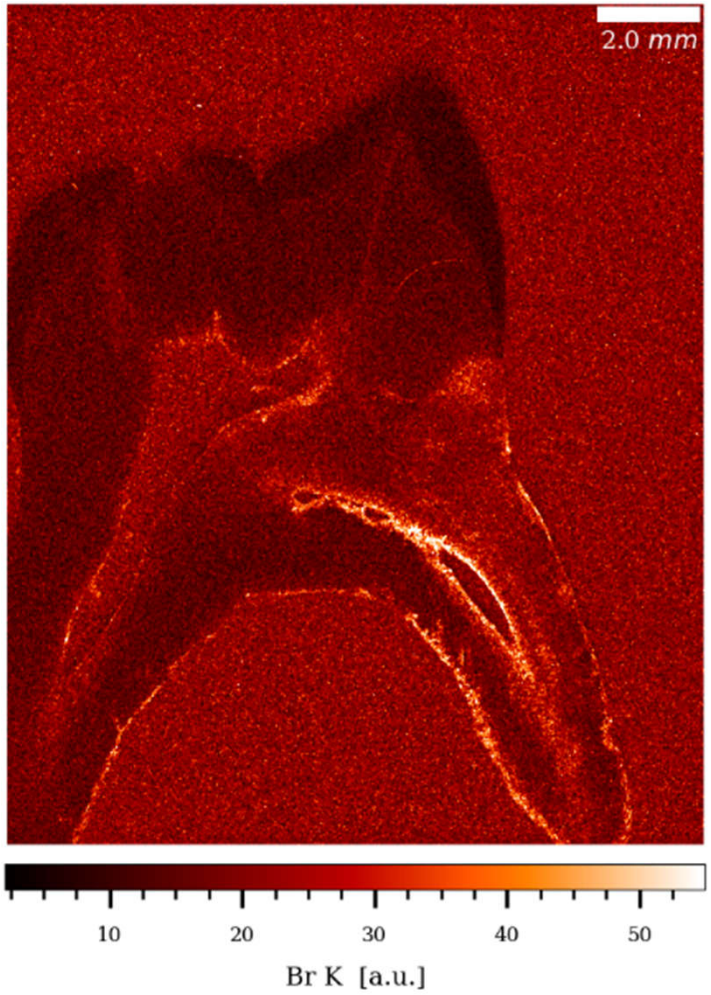
Odense 1149 ULM1

Overview at 10 µm

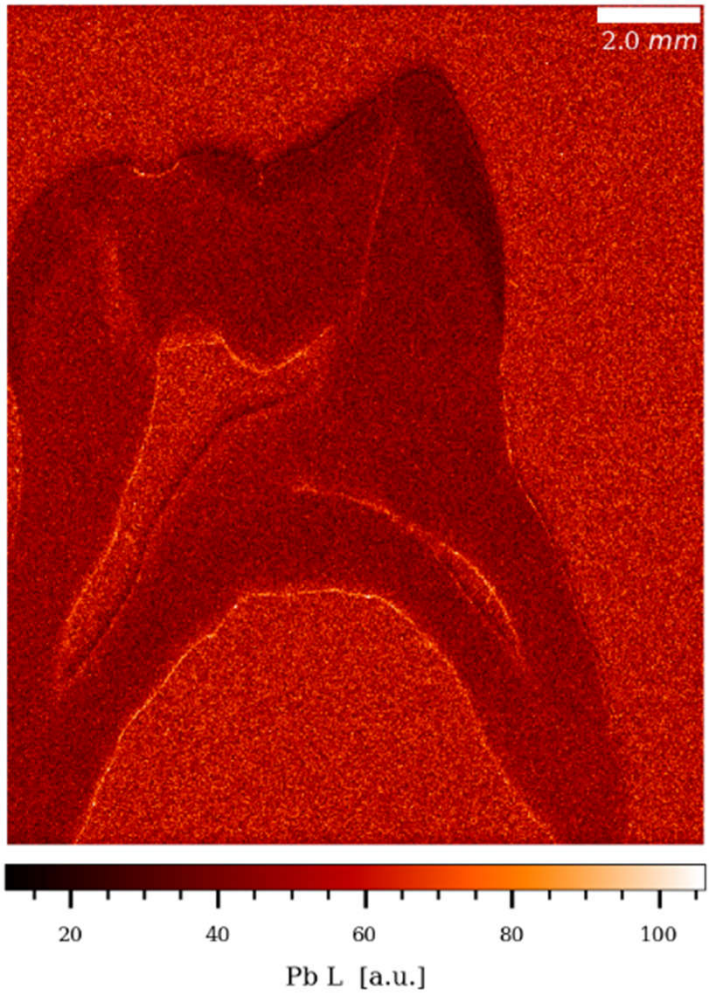
Uncalibrated data (arbitrary units)

Gauss (1x1)

Br K



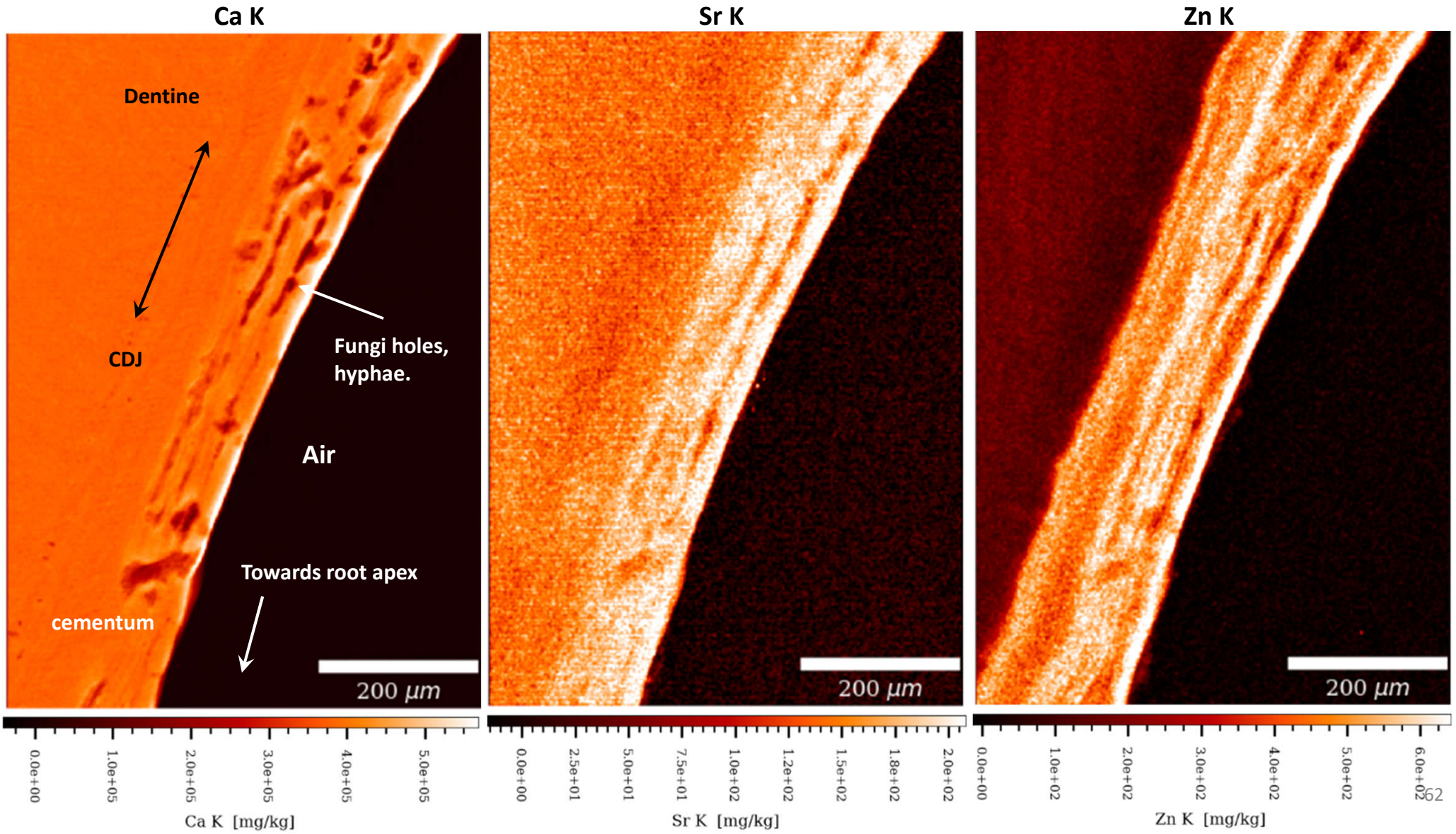
Pb L



Odense 1149 ULM1

High resolution at 1 µm

Gauss (1.2x1.2)

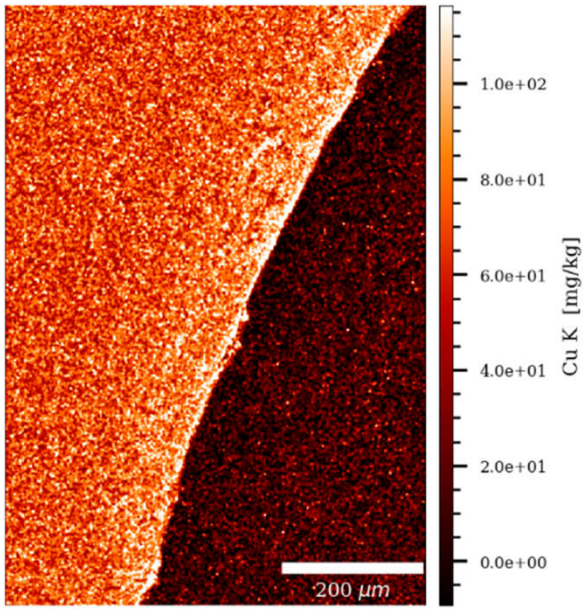


Odense 1149 ULM1

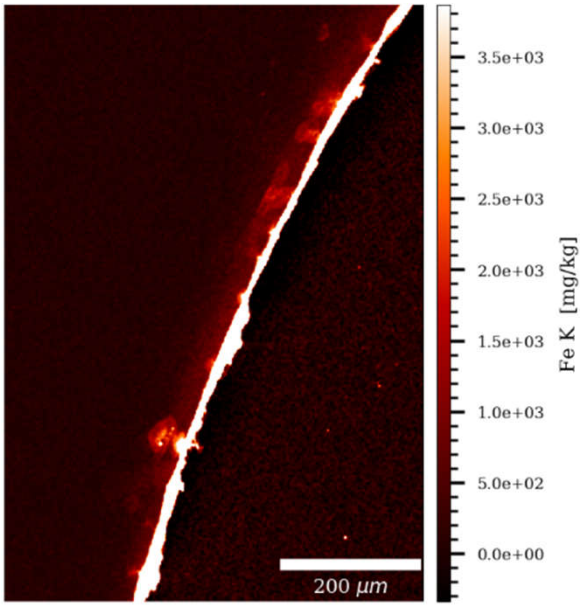
High resolution at 1 µm

Gauss (1.2x1.2)

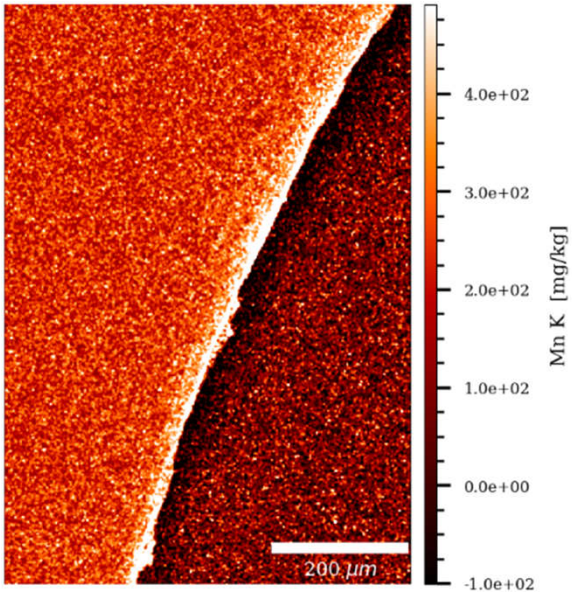
Cu K



Fe K



Mn K



Næstved – 6 ULC

♀ ~20 yrs. mid-13th – mid-16th c. CE

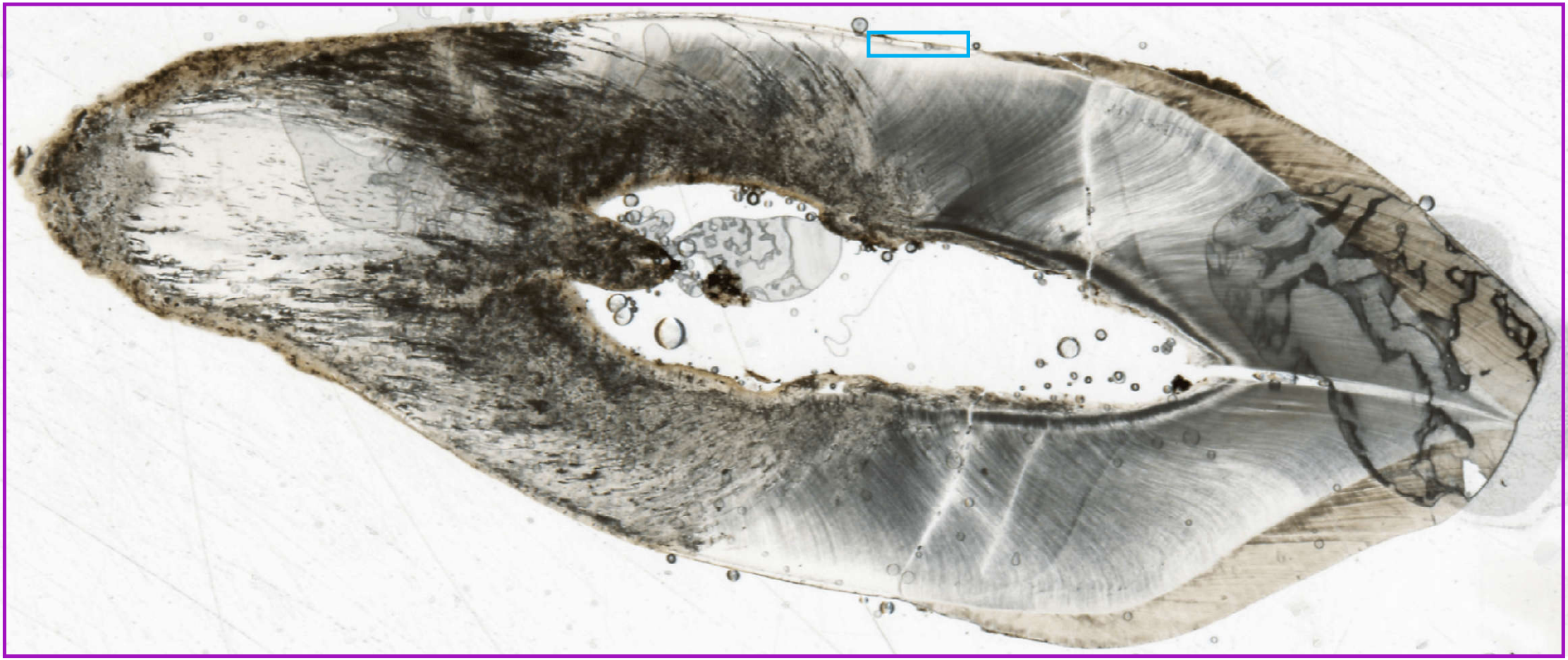
Average tooth section thickness (µm): 115.0

Næstved 6 ULC

Scanning

Overview at 10 µm

High resolution at 1 µm in acellular cementum

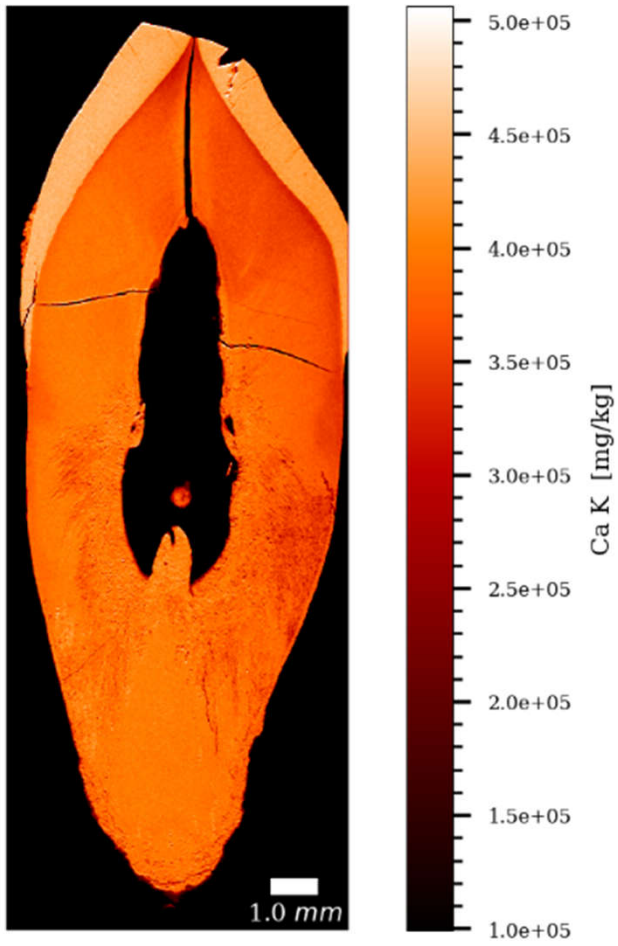


Næstved 6 ULC

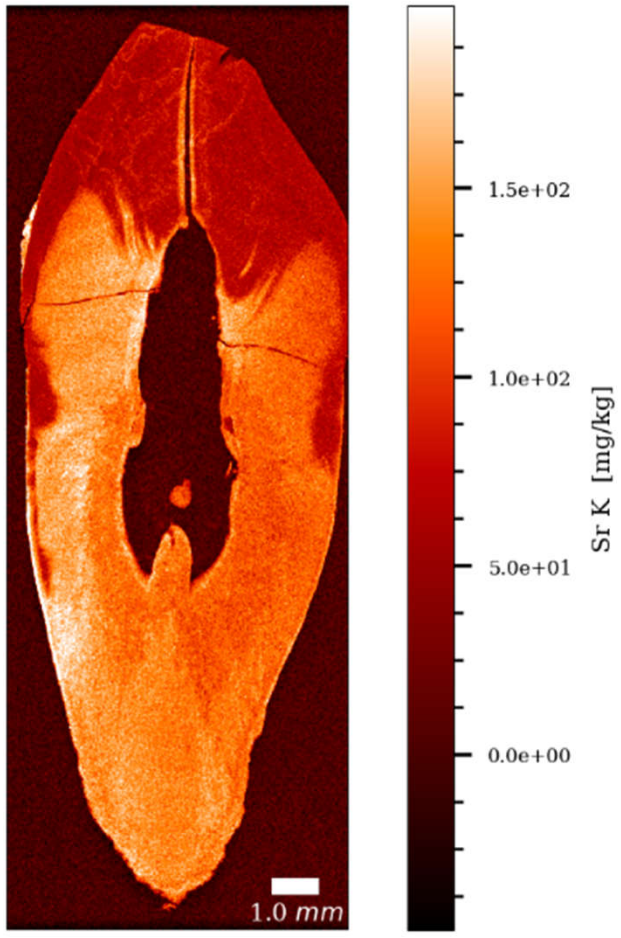
Overview at 10 µm

Gauss (1x1)

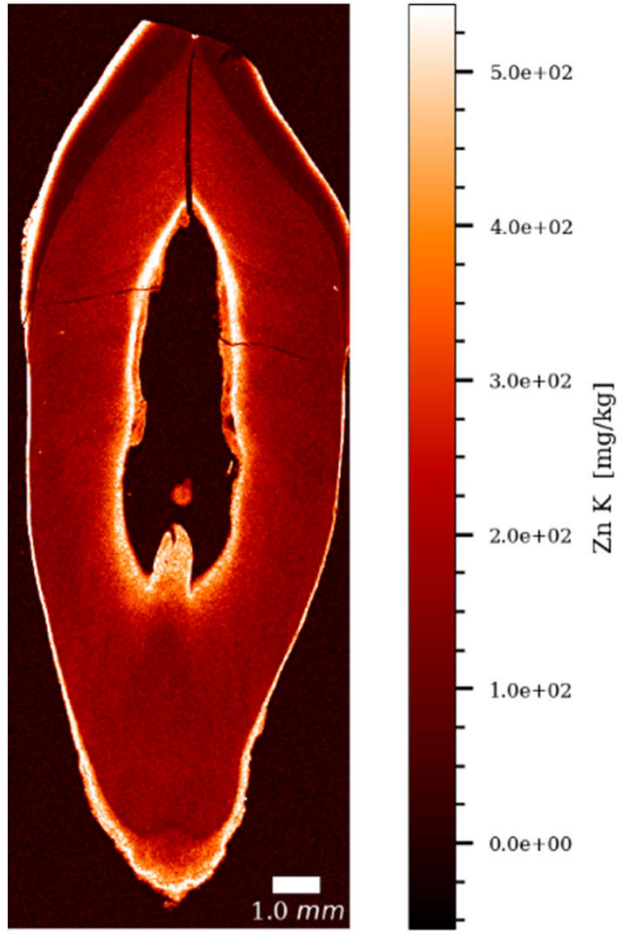
Ca K



Sr K



Zn K

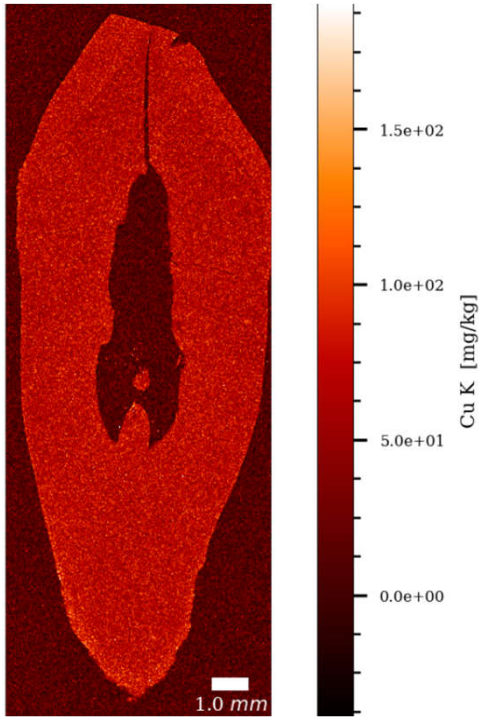


Næstved 6 ULC

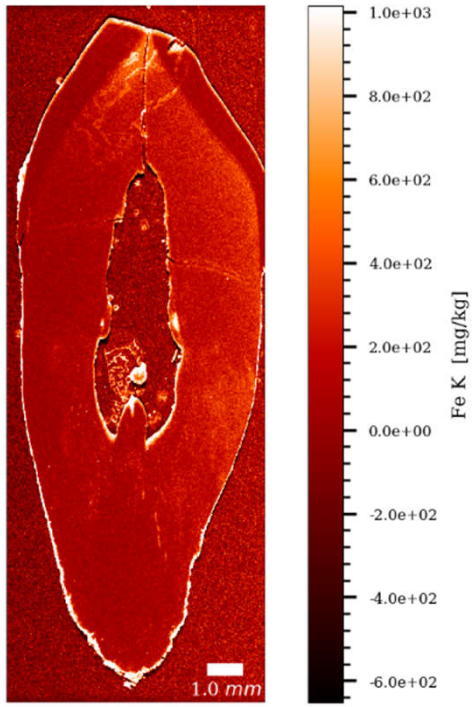
Overview at 10 µm

Gauss (1x1)

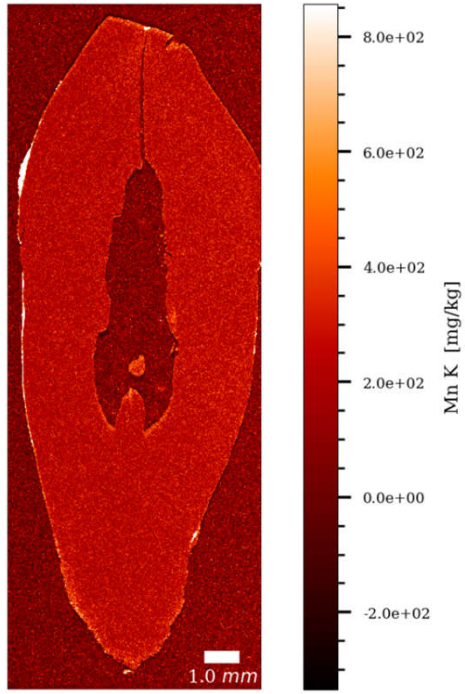
Cu K



Fe K



Mn K

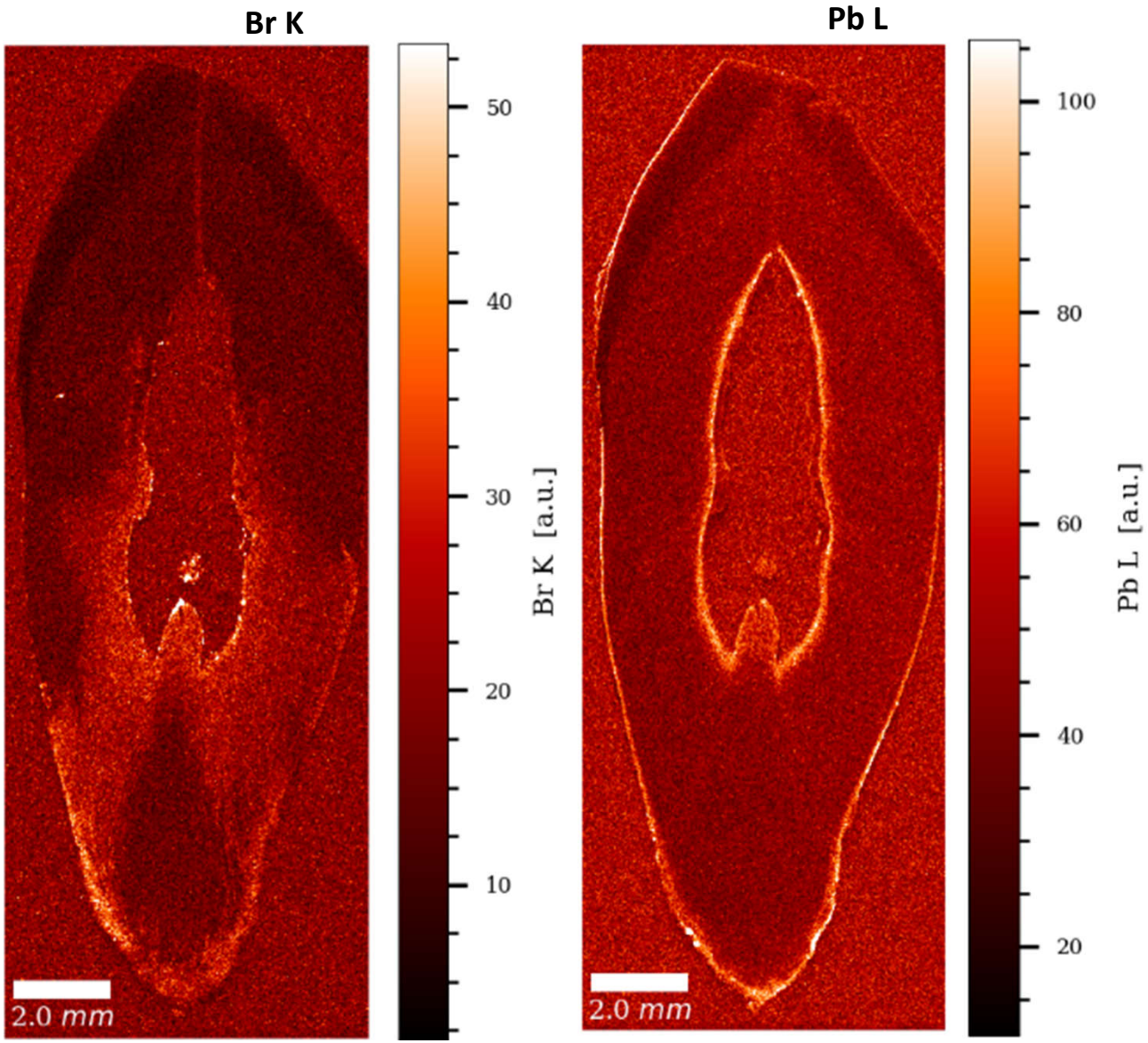


Næstved 6 ULC

Overview at 10 µm

Uncalibrated data (arbitrary units)

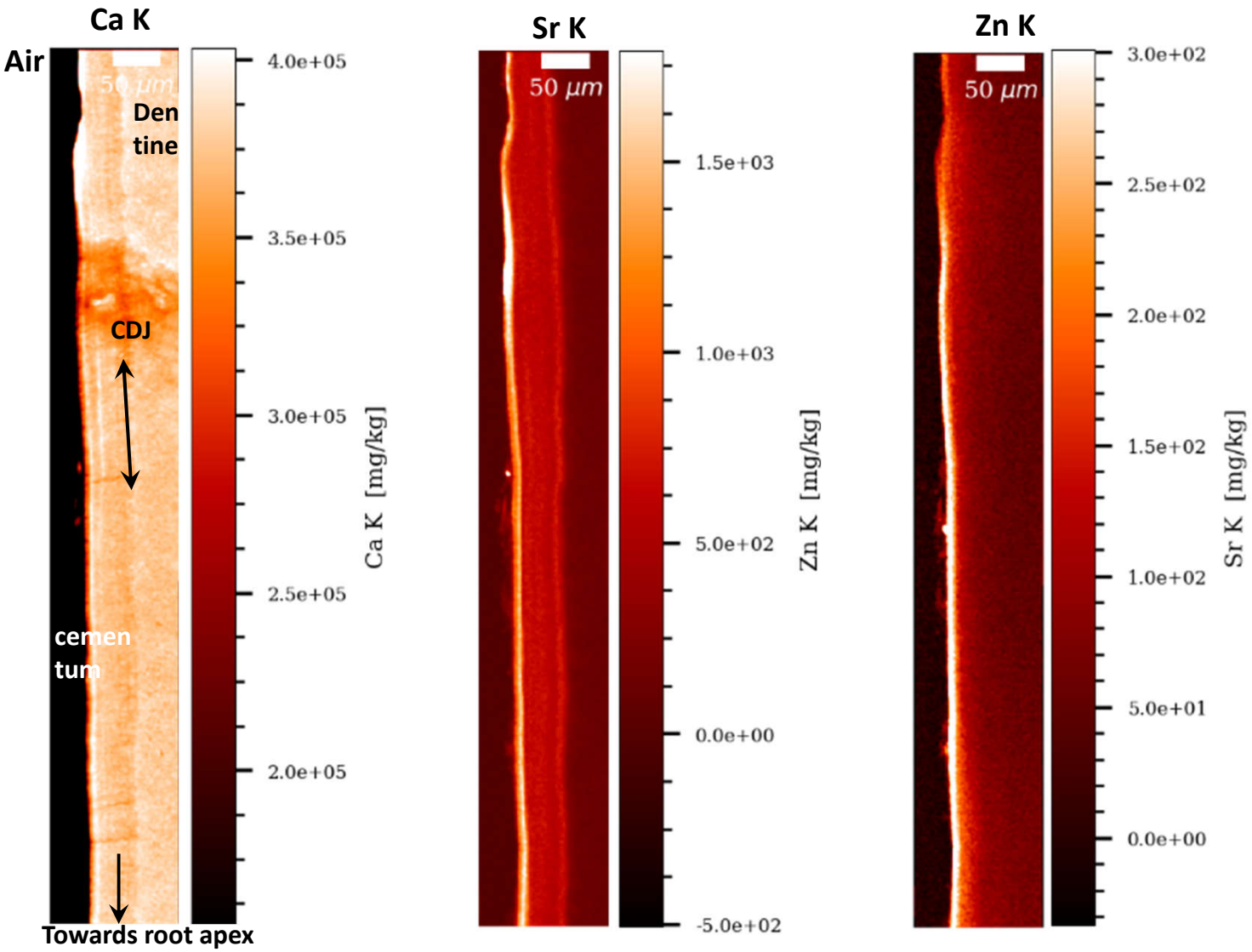
Gauss (1x1)



Næstved 6 ULC

High resolution at 1 µm

Gauss (1x1)

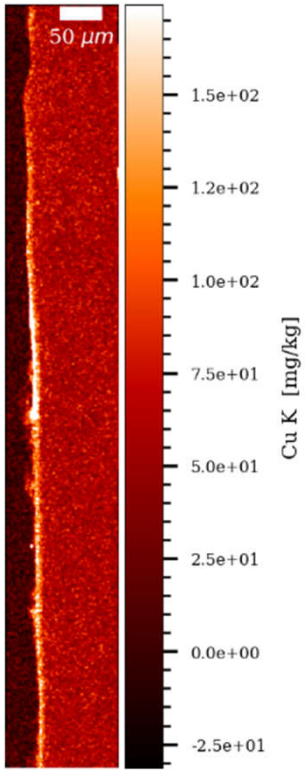


Næstved 6 ULC

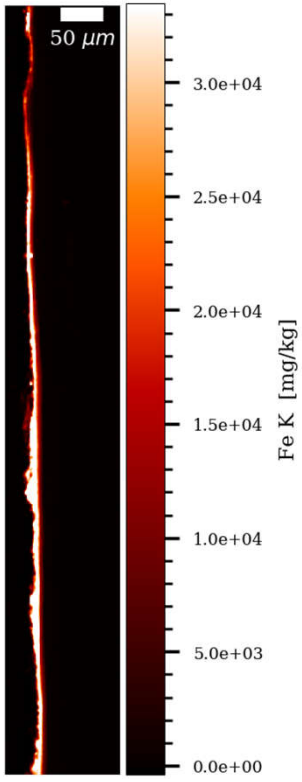
High resolution at 1 µm

Gauss (1x1)

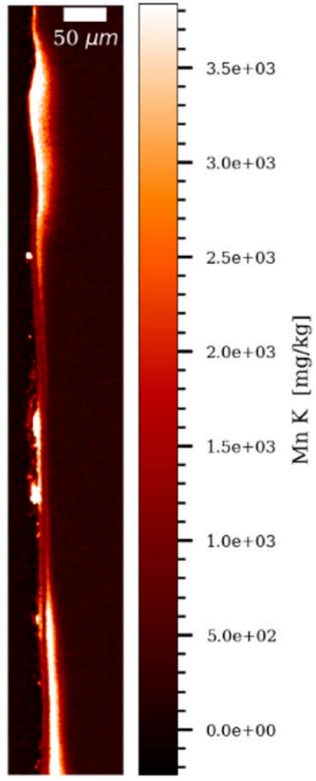
Cu K



Fe K



Mn K



Næstved – 211 URC

♀ 40-45 yrs. 1184 – 1266 cal. CE

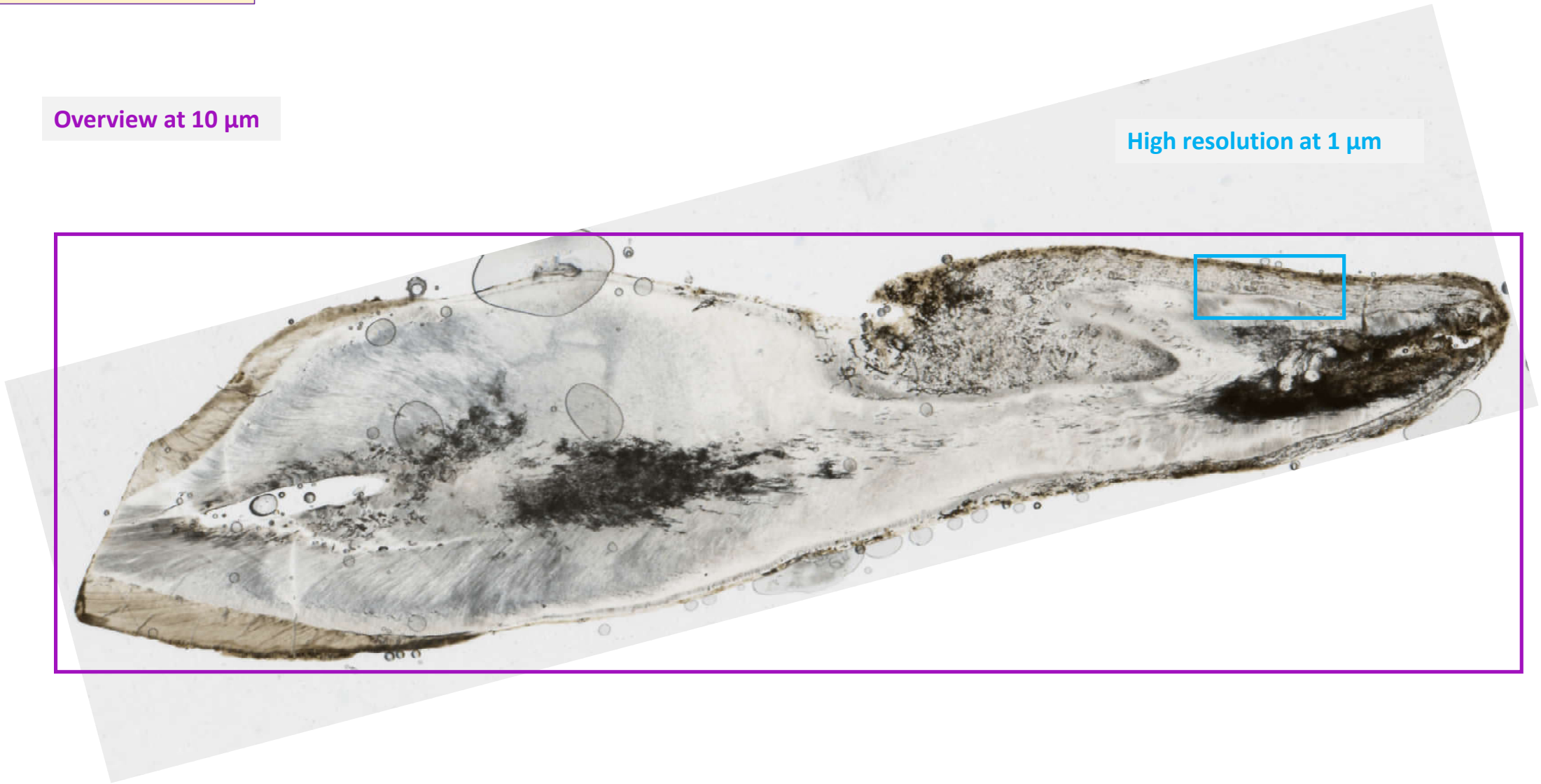
Average tooth section thickness (µm): 134.2

Næstved 211 URC

Scanning

Overview at 10 µm

High resolution at 1 µm

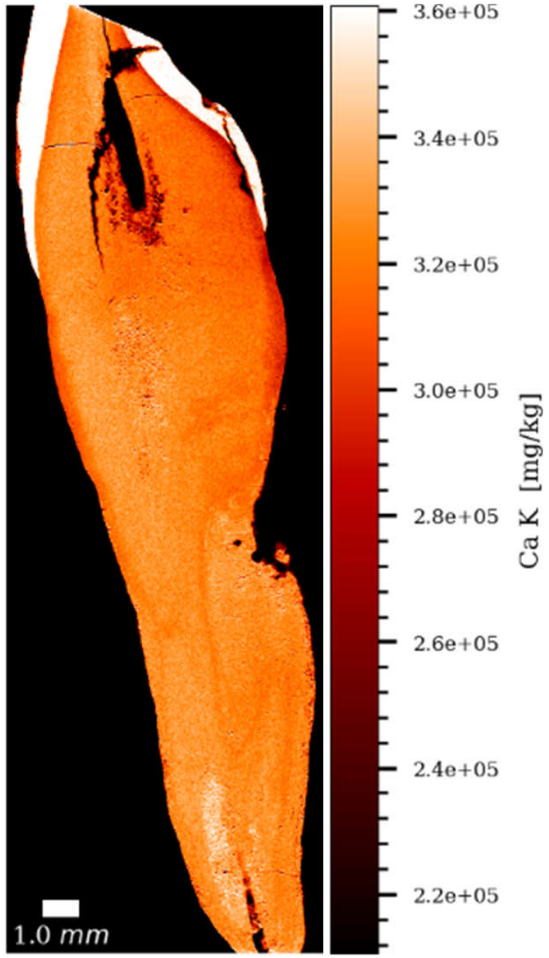


Næstved 211 URC

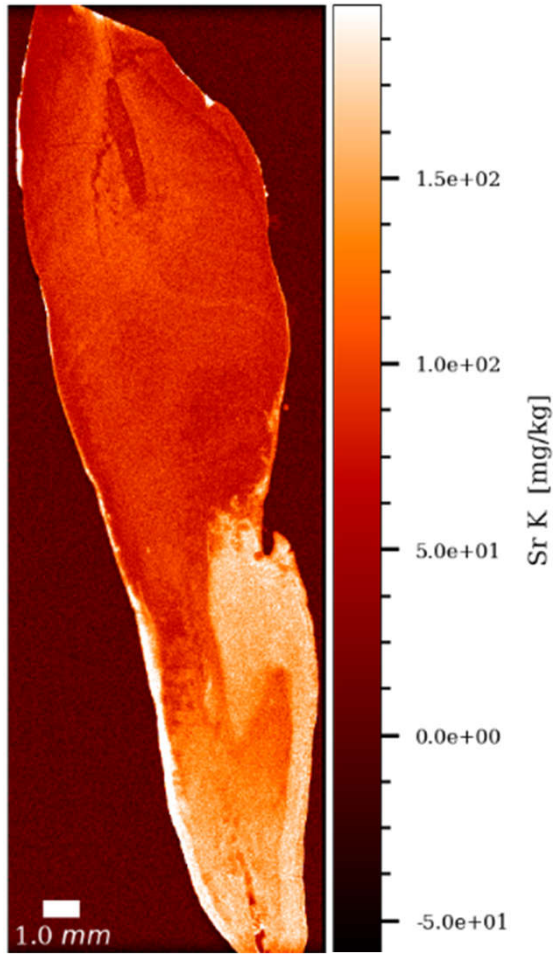
Overview at 10 µm

Gauss (1.2x1.2)

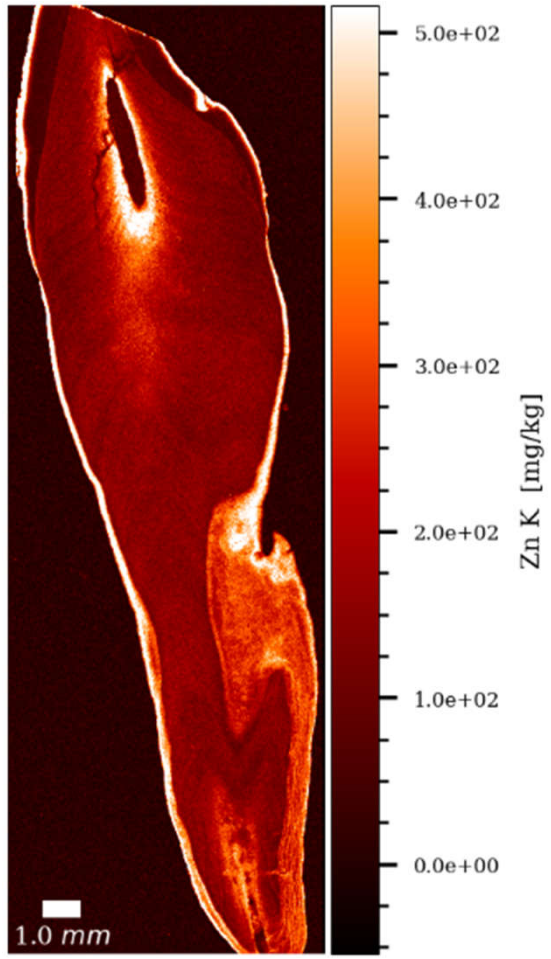
Ca K



Sr K



Zn K

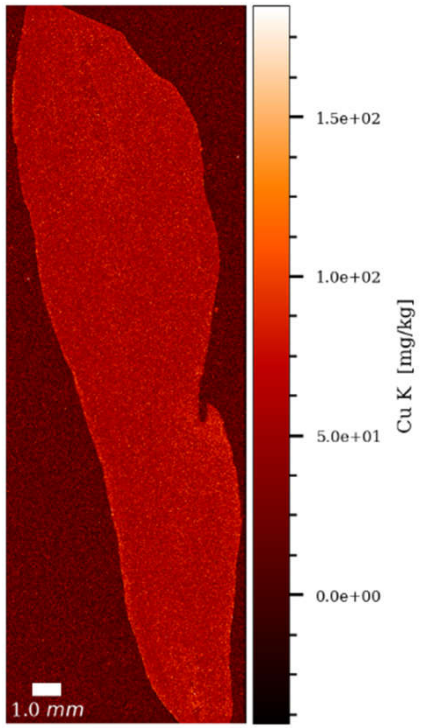


Næstved 211 URC

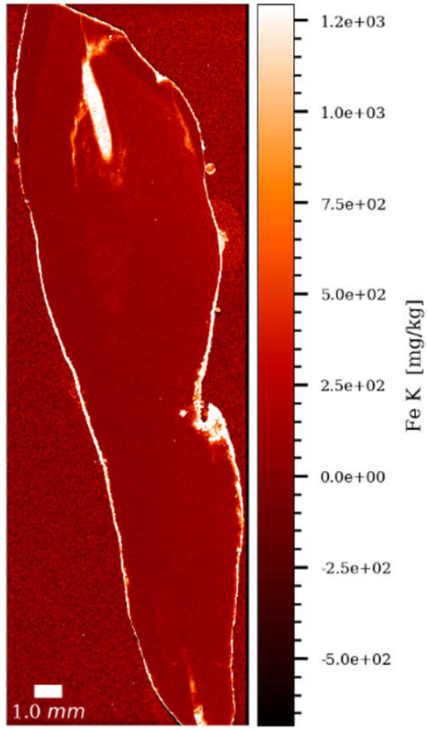
Overview at 10 µm

Gauss (1.2x1.2)

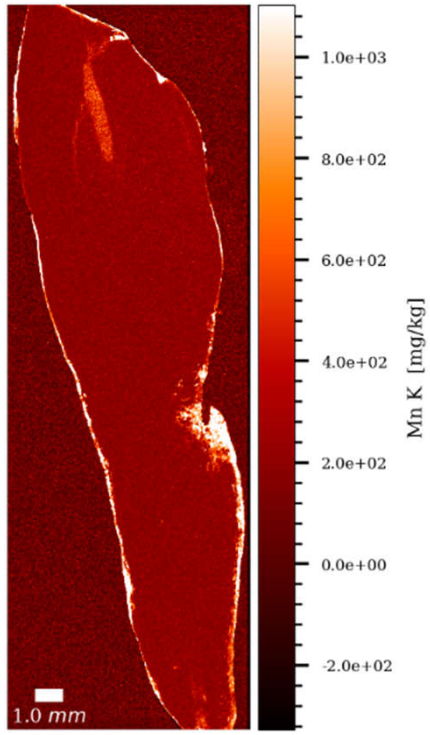
Cu K



Fe K



Mn K



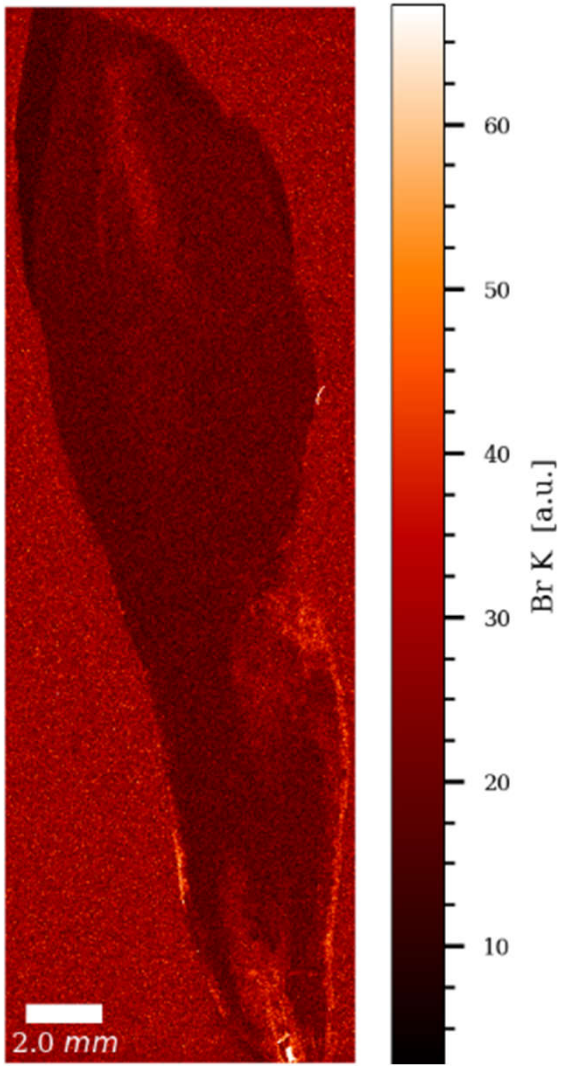
Næstved 211 URC

Overview at 10 µm

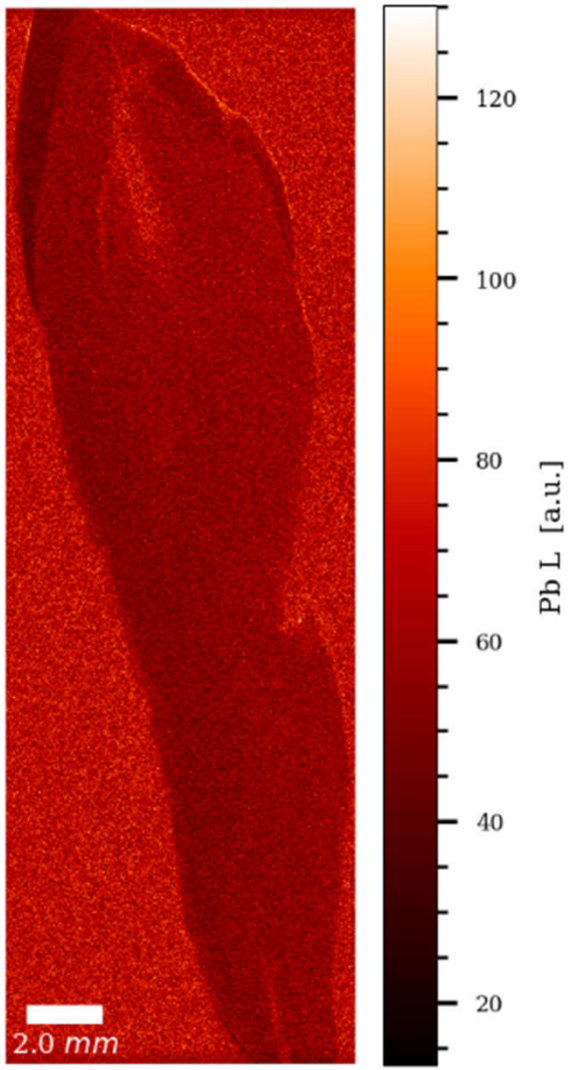
Uncalibrated data (arbitrary units)

Gauss (1.2x1.2)

Br K



Pb L



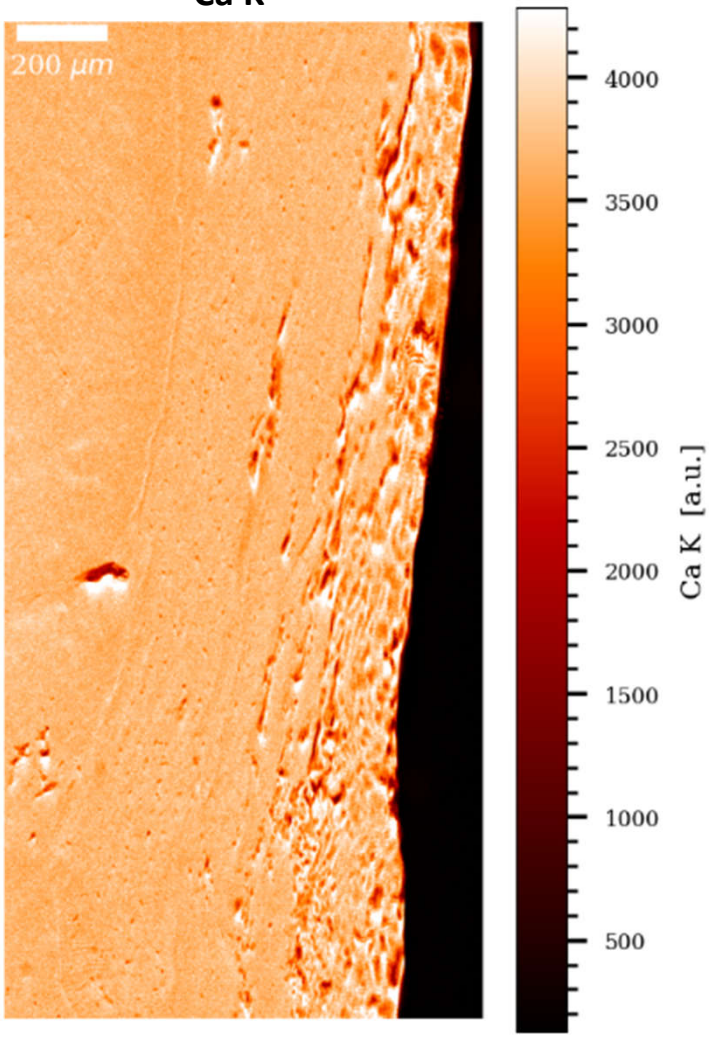
Næstved 211 URC

High resolution at 1 µm

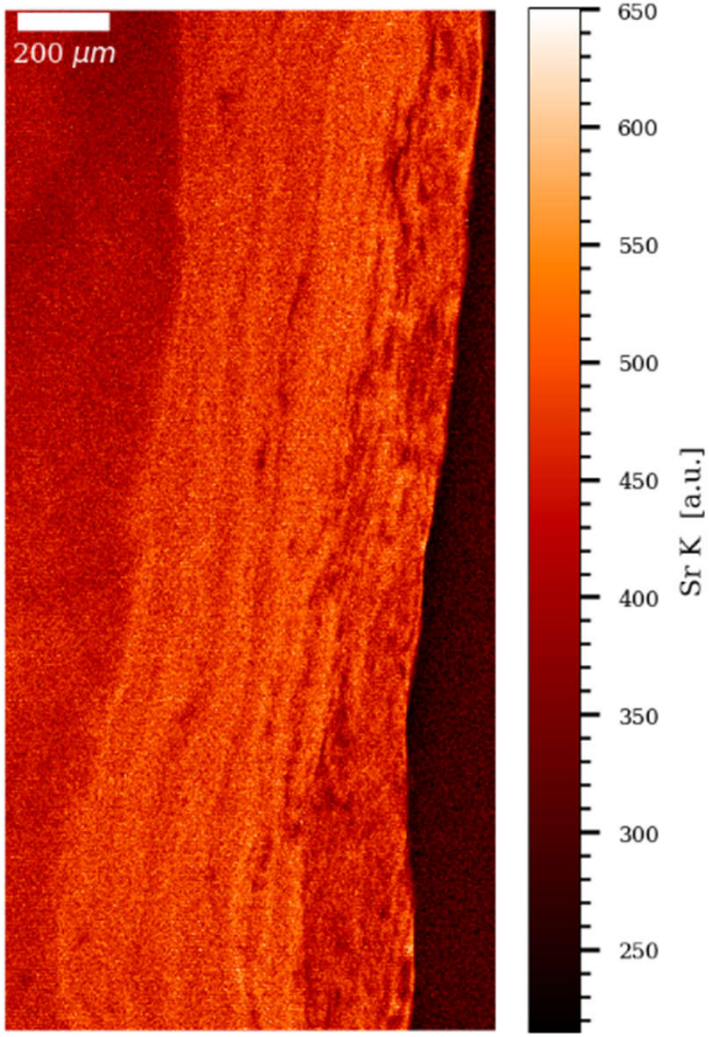
Uncalibrated data (arbitrary units)

Gauss (1x1)

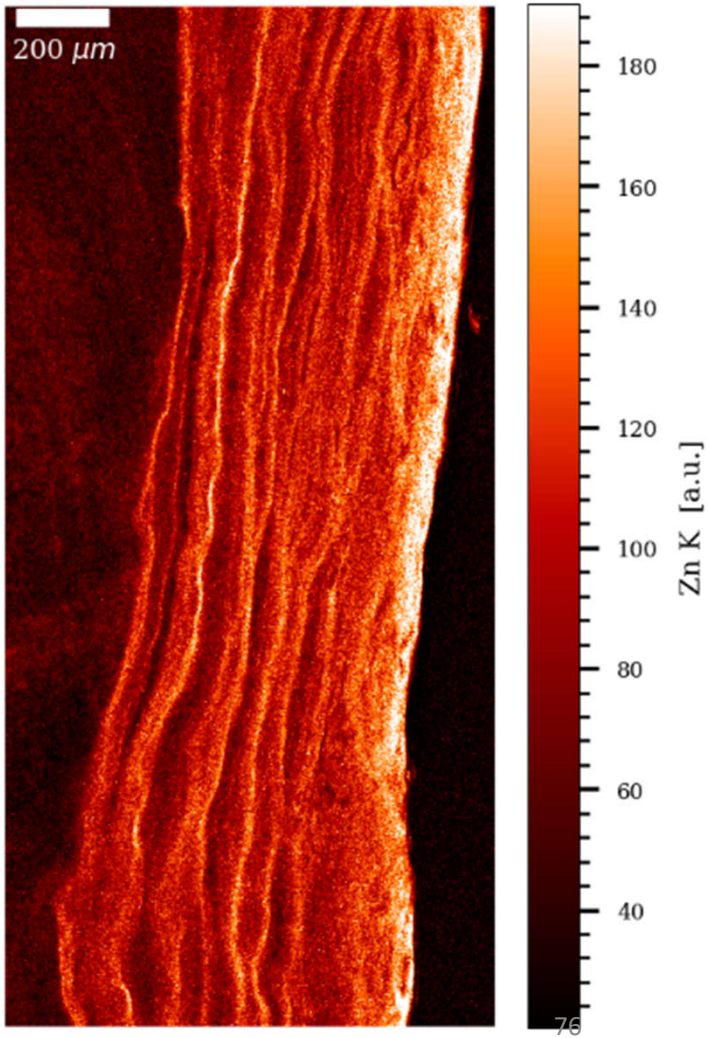
Ca K



Sr K



Zn K



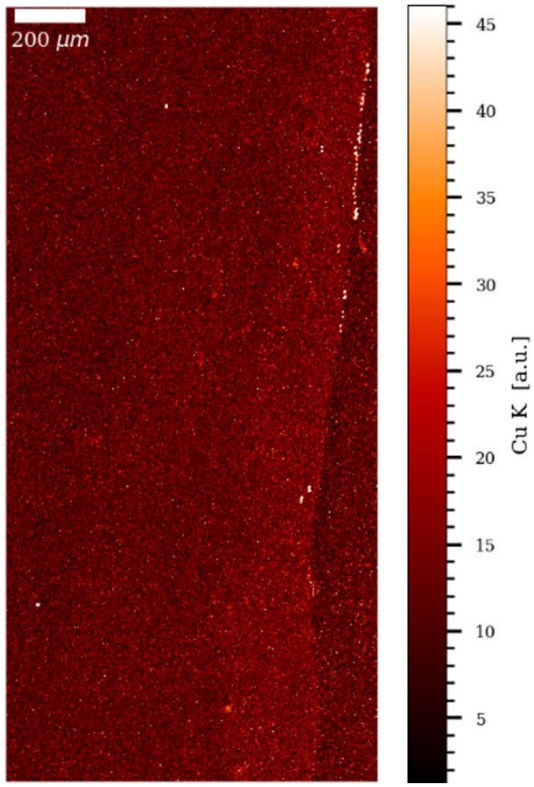
Næstved 211 URC

High resolution at 1 µm

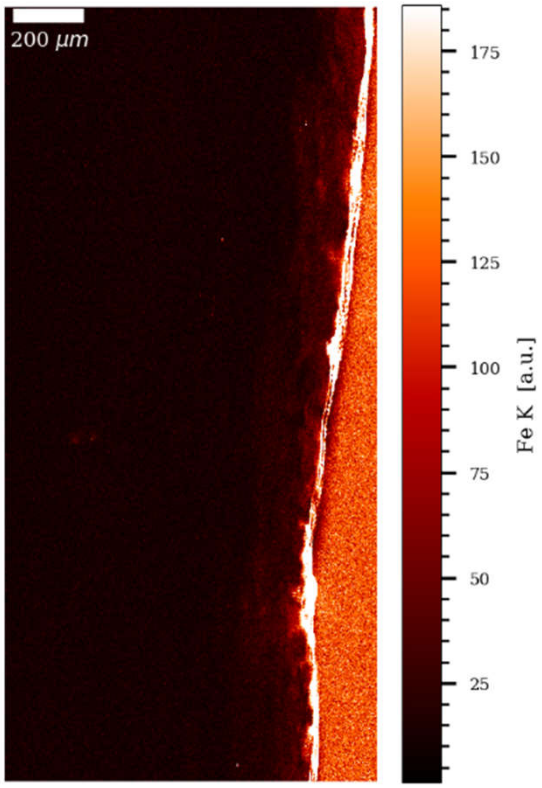
Uncalibrated data (arbitrary units)

Gauss (1x1)

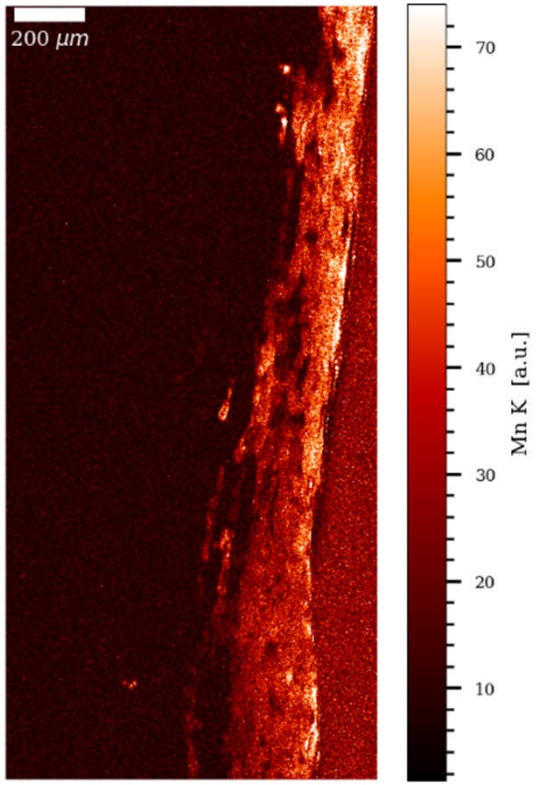
Cu K



Fe K



Mn K



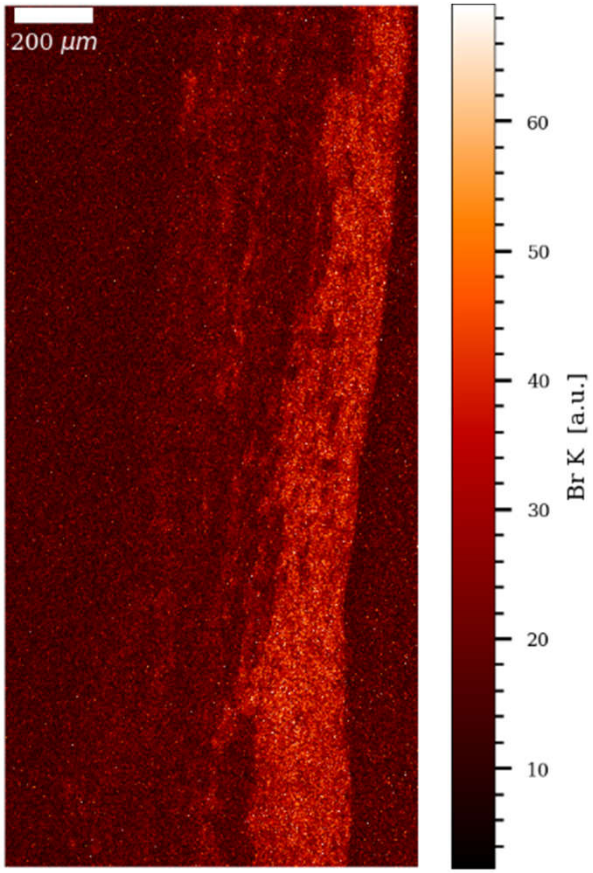
Næstved 211 URC

High resolution at 1 µm

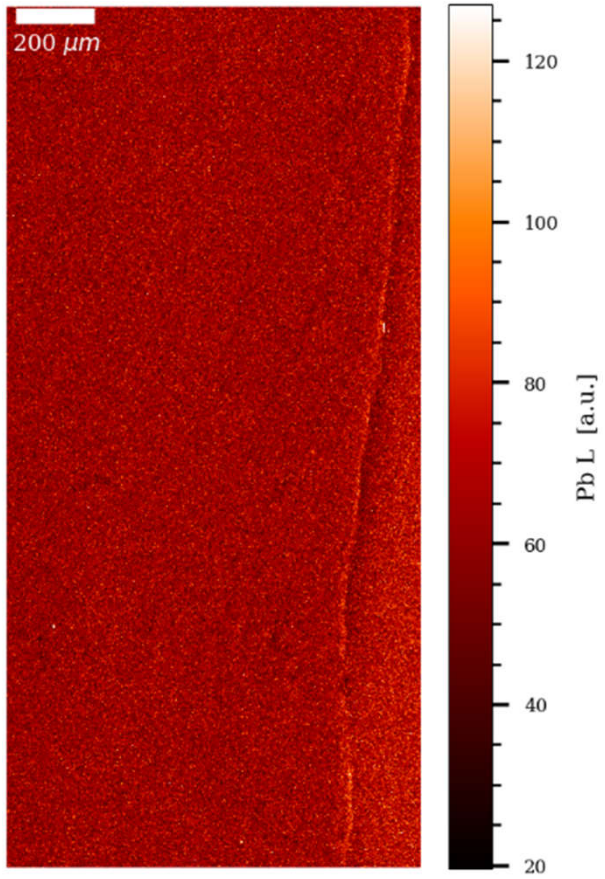
Uncalibrated data (arbitrary units)

Gauss (1x1)

Br K

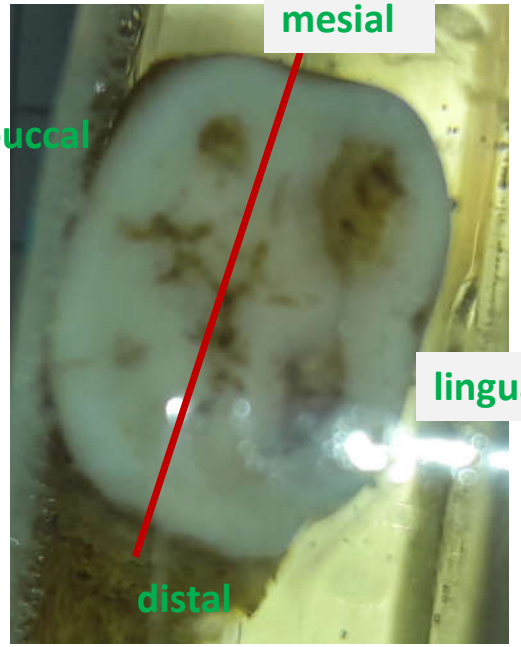


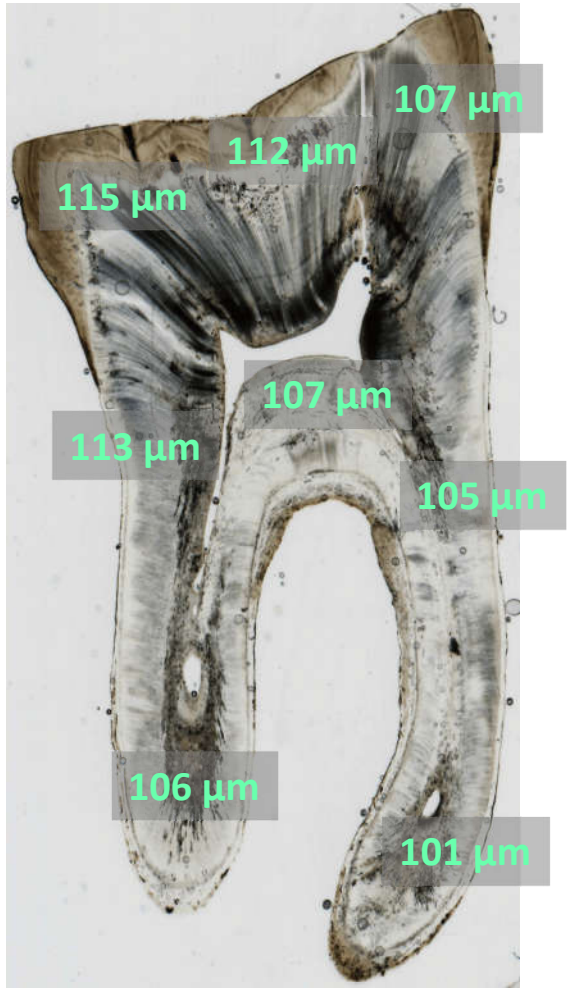
Pb L



Næstved – 211 LRM1

♀ 40-45 yrs. 1184 – 1266 cal. CE

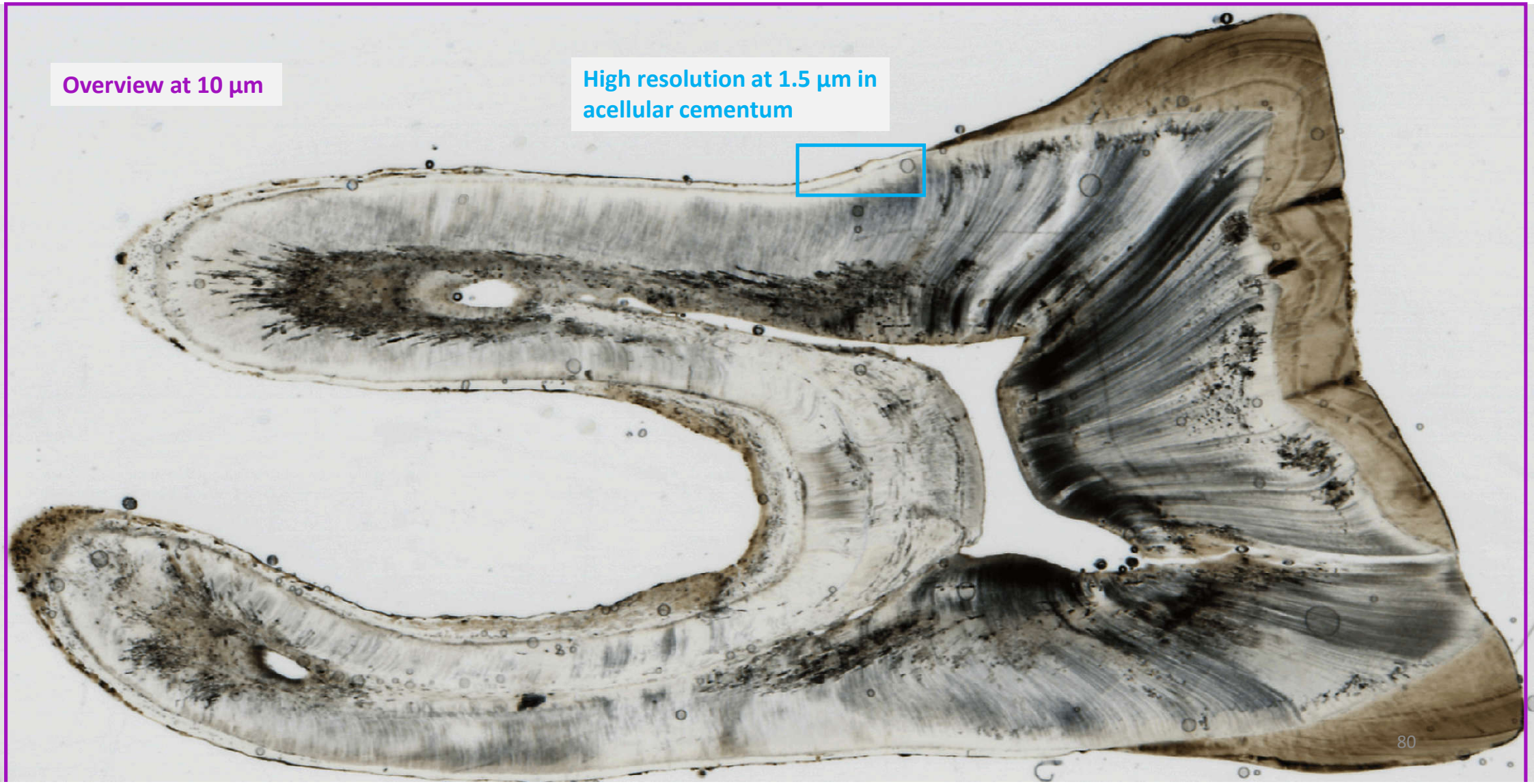




Average tooth section thickness (µm): 108.3

Næstved 211 LRM1

Scanning

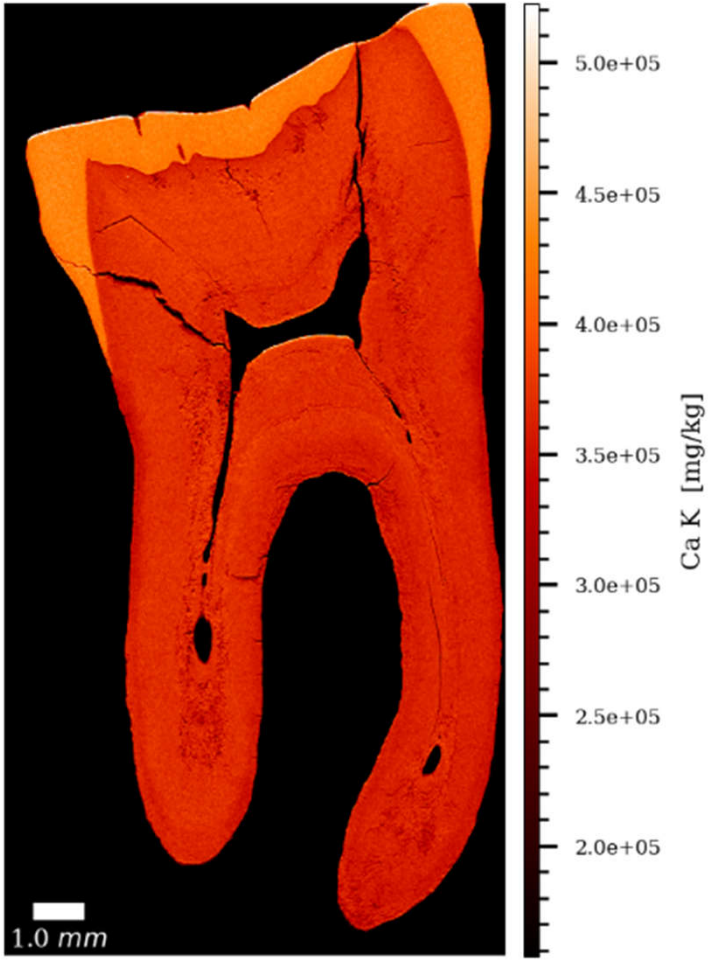


Næstved 211 LRM1

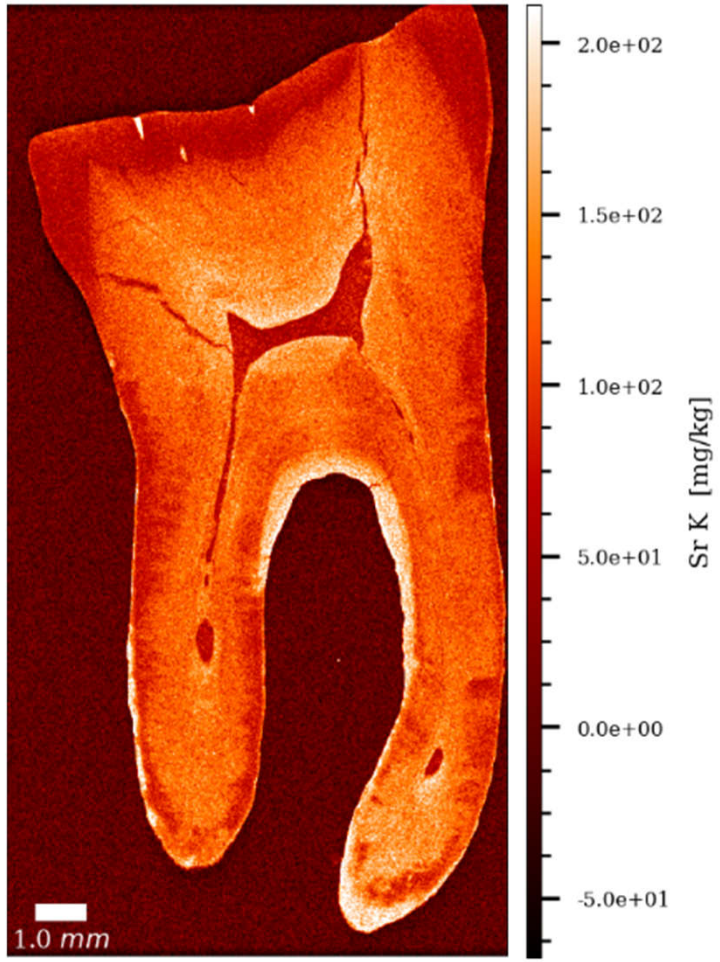
Overview at 10 µm

Gauss (1x1)

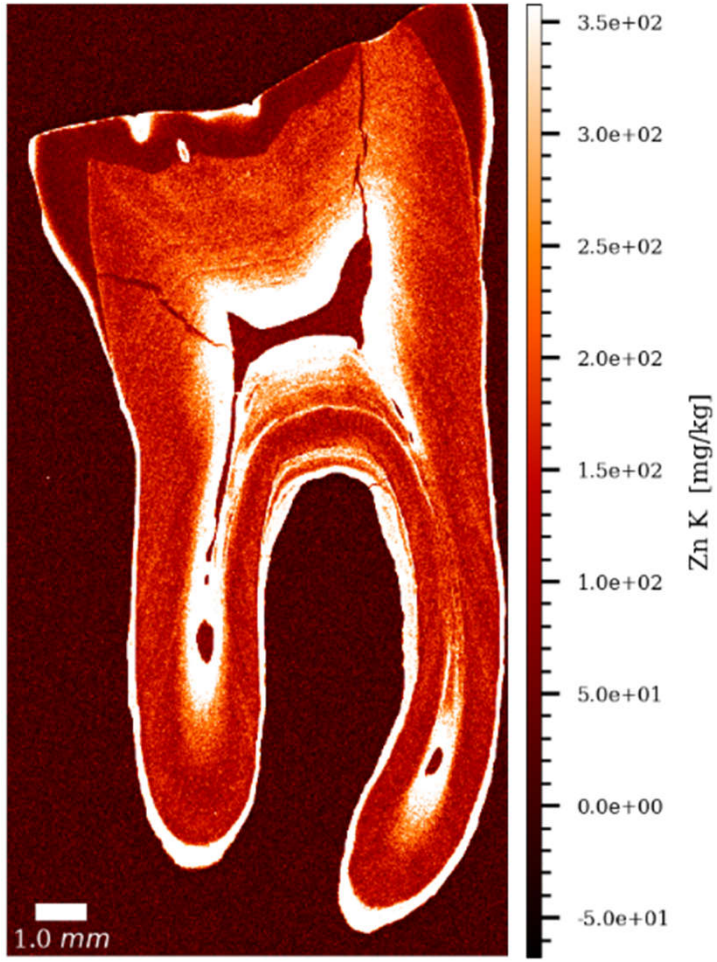
Ca K



Sr K



Zn K

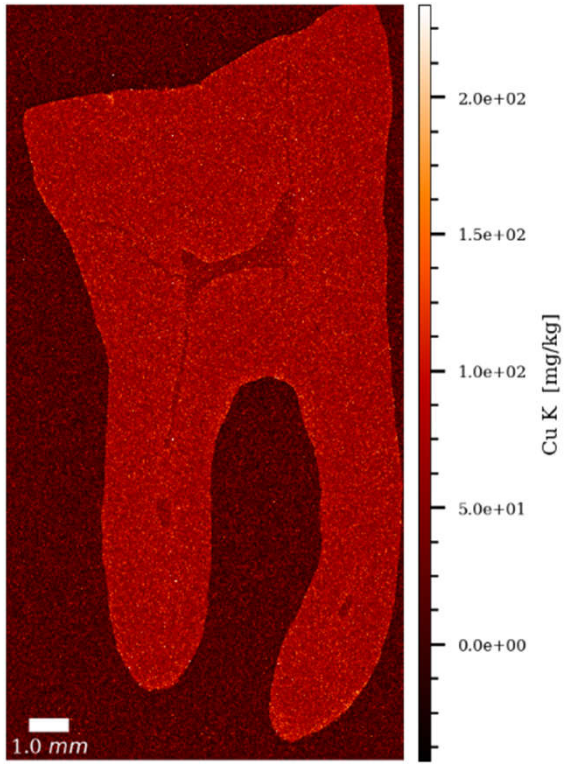


Næstved 211 LRM1

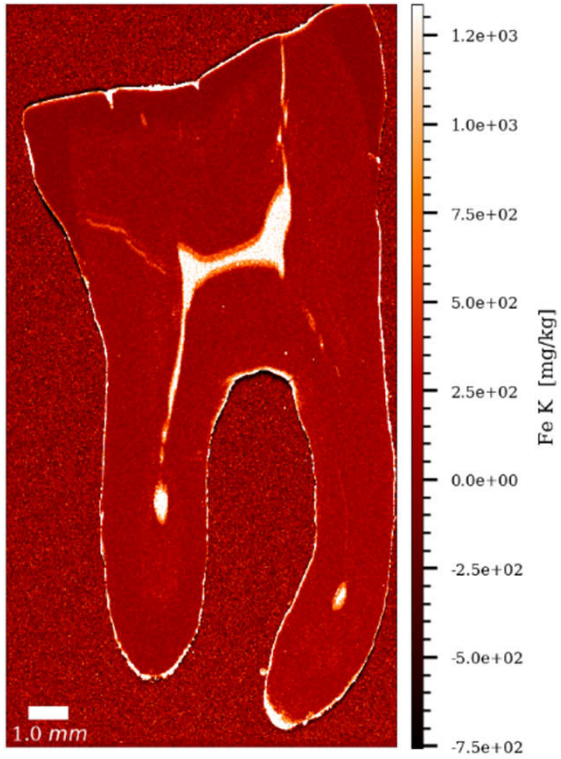
Overview at 10 µm

Gauss (1x1)

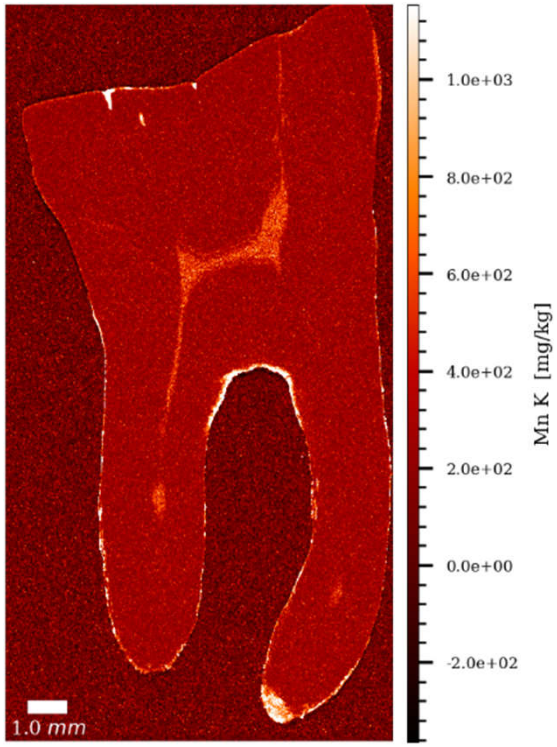
Cu K



Fe K



Mn K



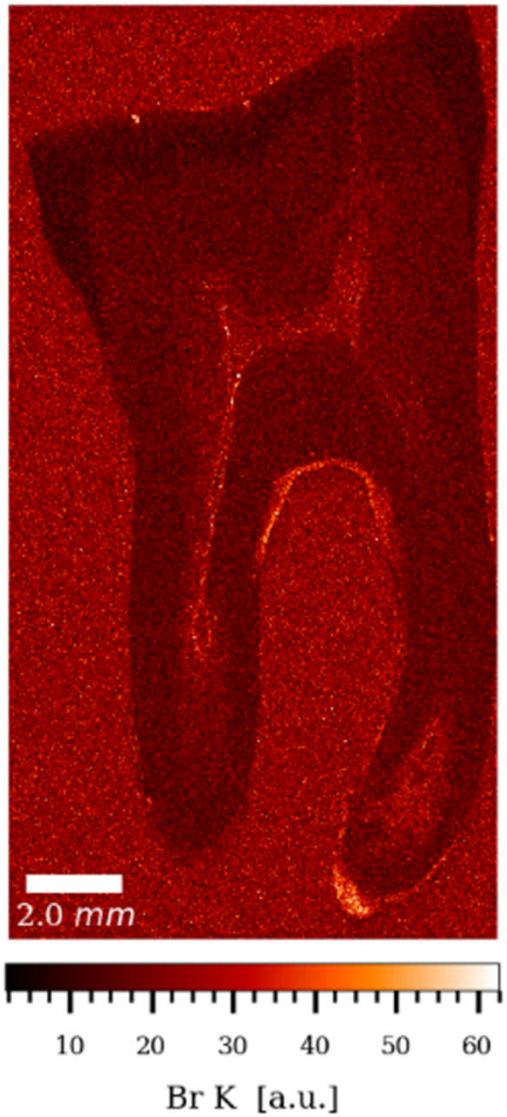
Næstved 211 LRM1

Overview at 10 µm

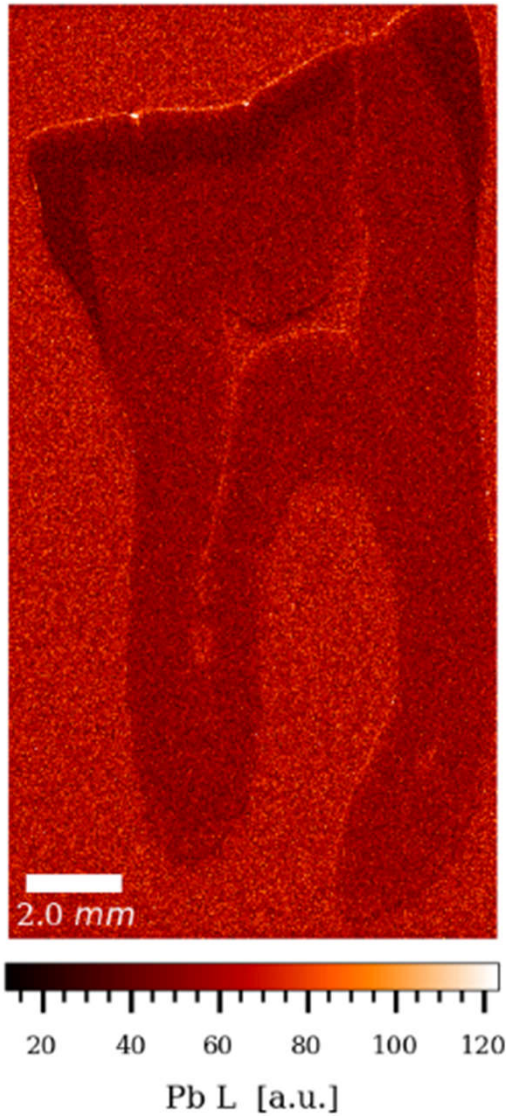
Gauss (1x1)

Uncalibrated data (arbitrary units)

Br K



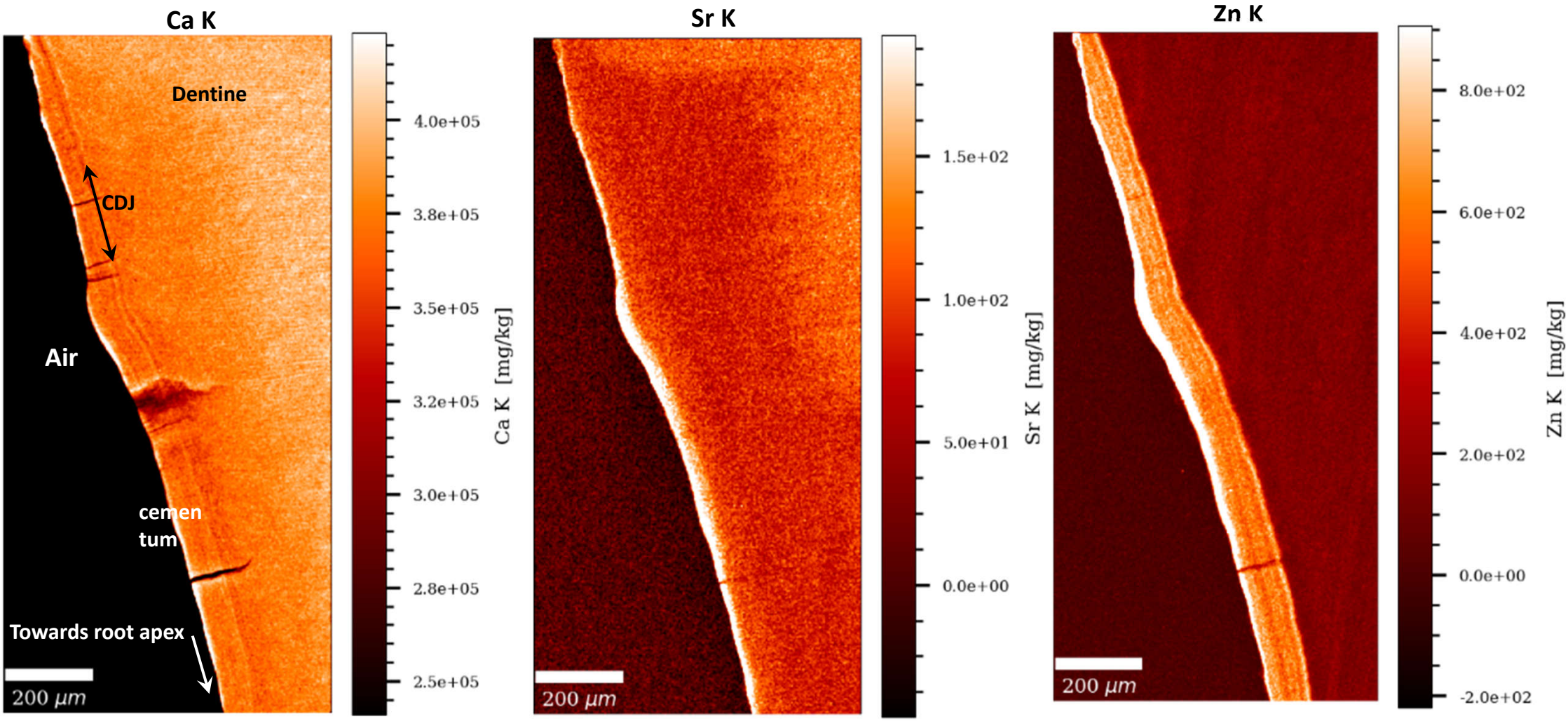
Pb L



Næstved 211 LRM1

High resolution at 1.5 µm

Gauss (1x1)

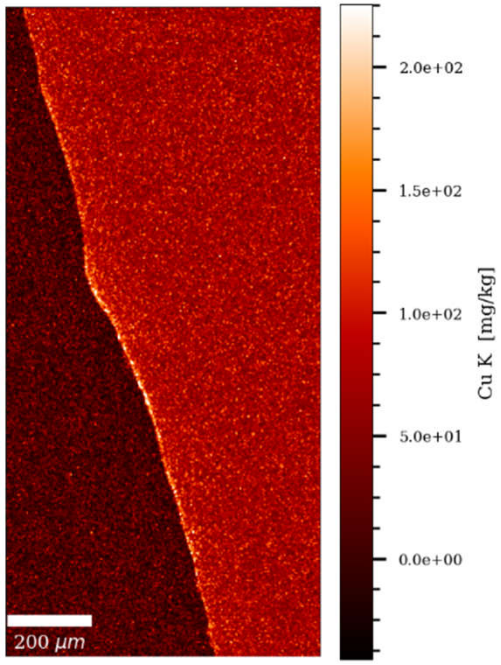


Næstved 211 LRM1

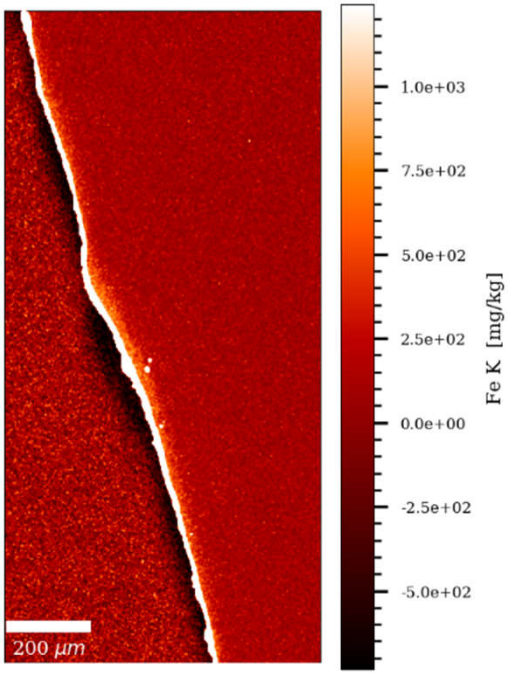
High resolution at 1.5 µm

Gauss (1x1)

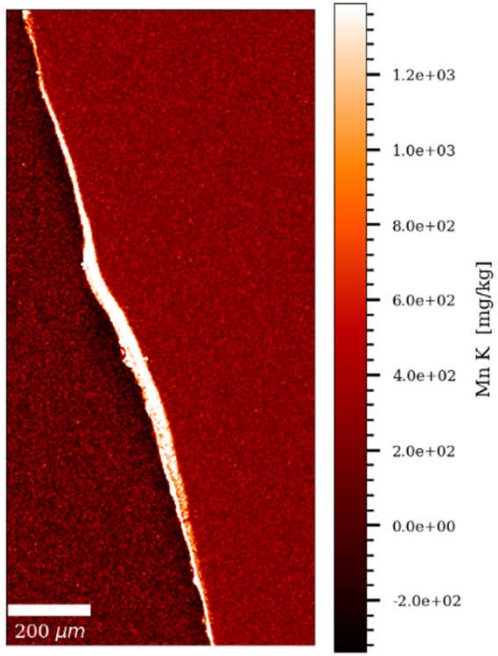
Cu K



Fe K

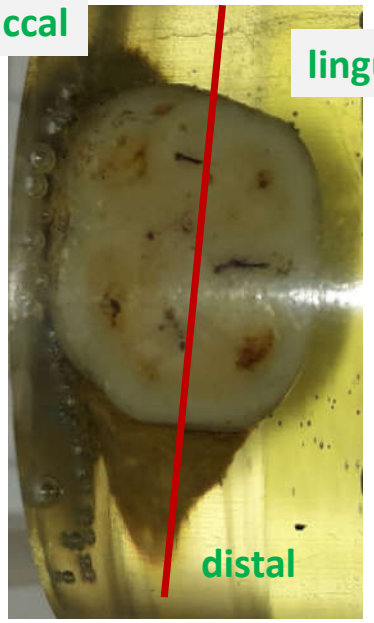


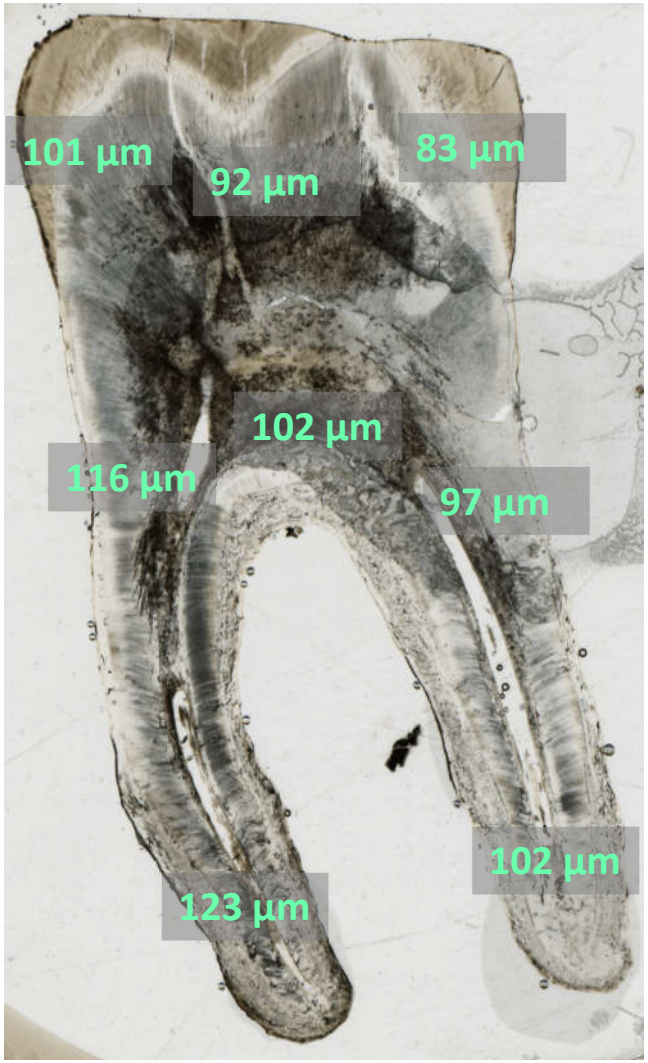
Mn K



Næstved – 268 LLM1

♂ 30-40 yrs. 1441 – 1522 cal. CE

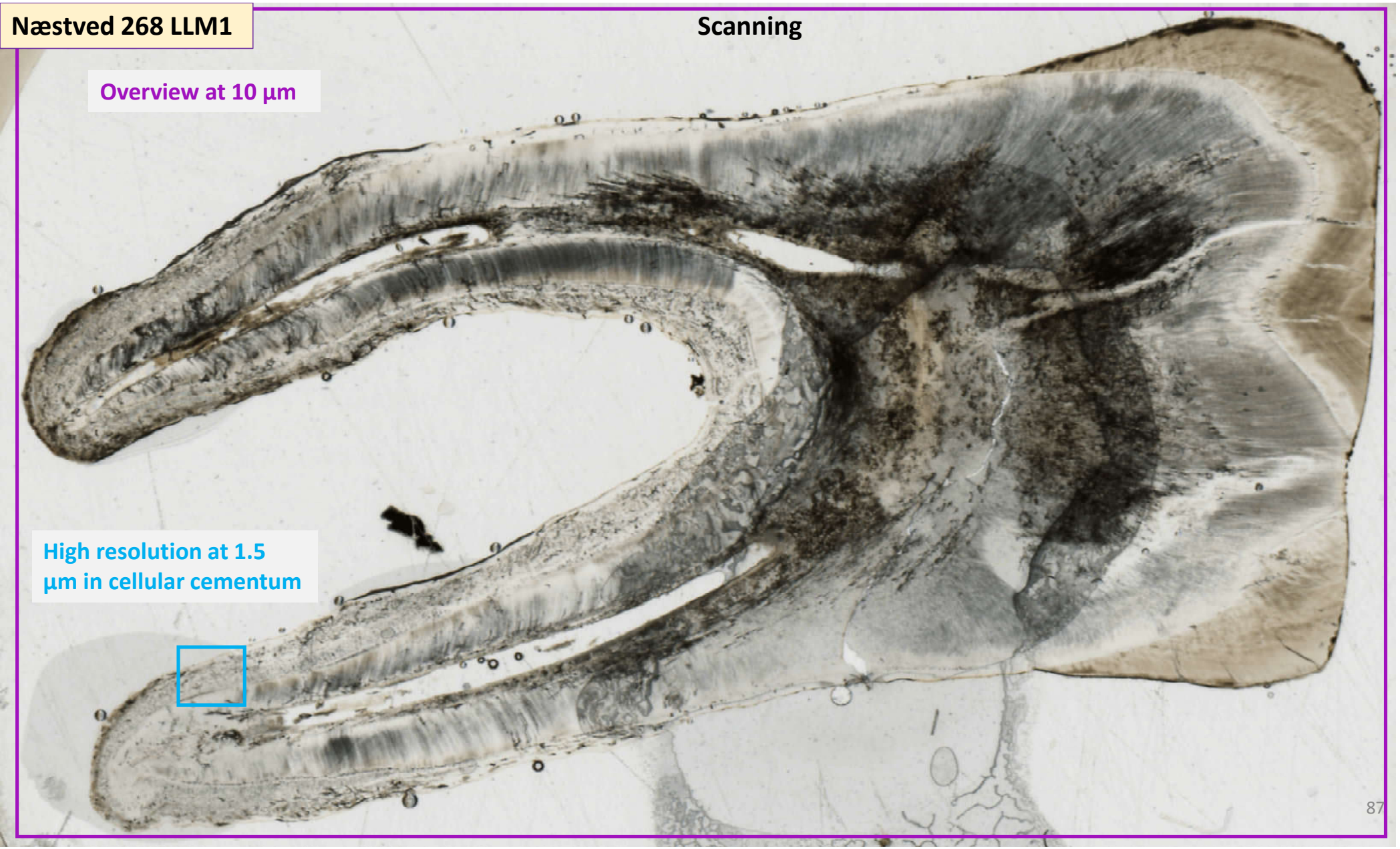




Average tooth section thickness (µm): 102.0

Næstved 268 LLM1

Scanning

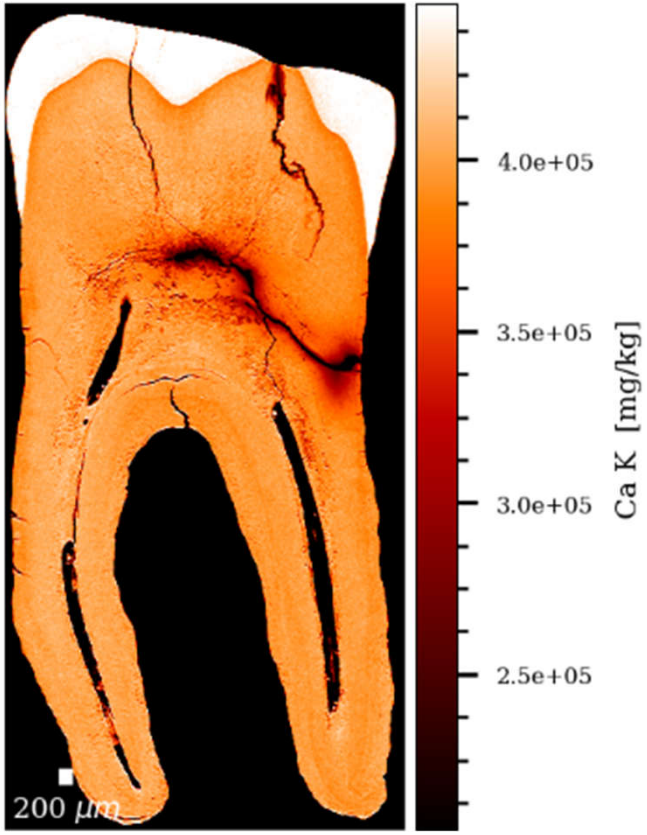


Næstved 268 LLM1

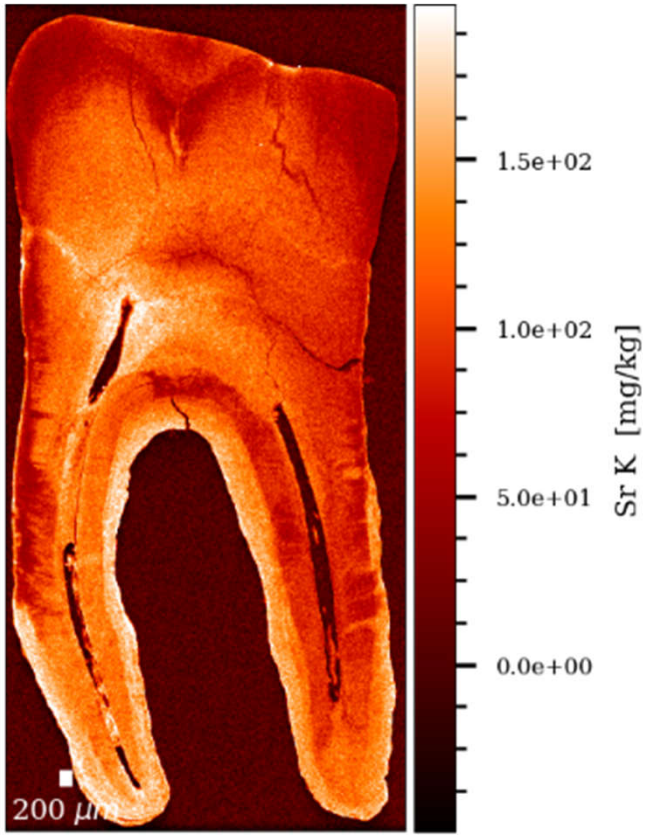
Overview at 10 µm

Gauss (1.2x1.2)

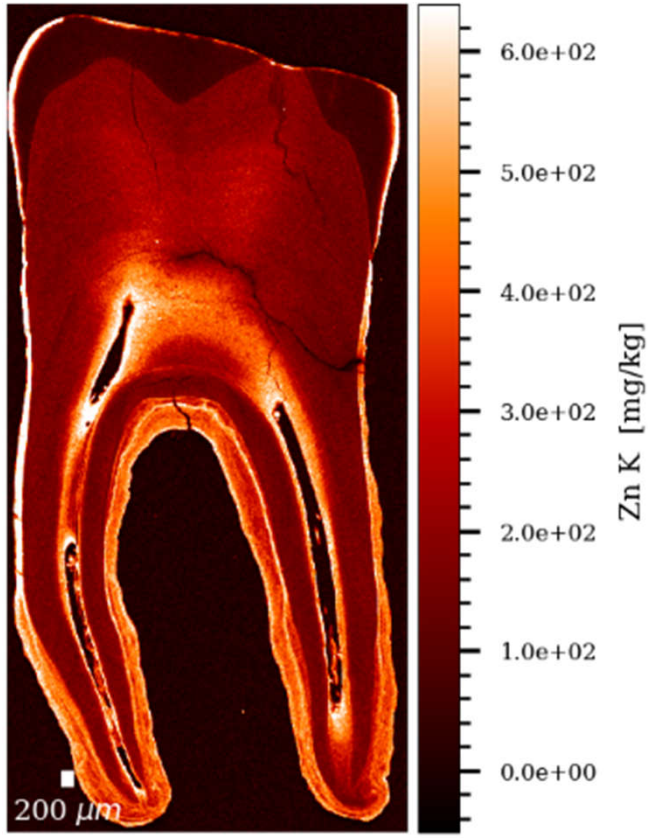
Ca K



Sr K



Zn K

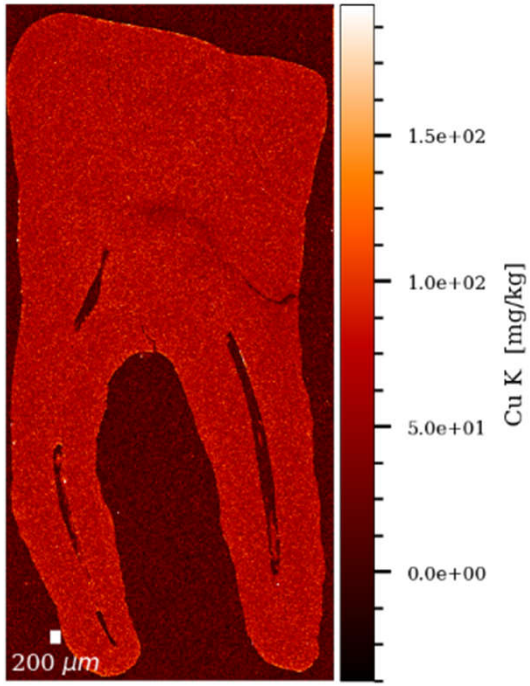


Næstved 268 LLM1

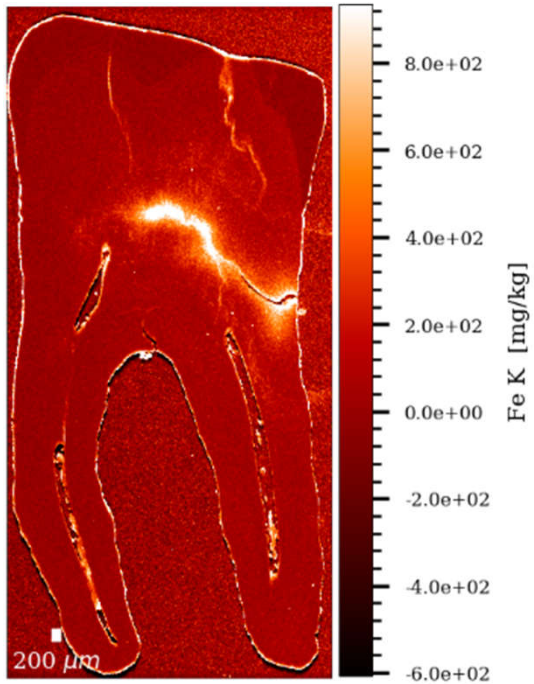
Overview at 10 µm

Gauss (1.2x1.2)

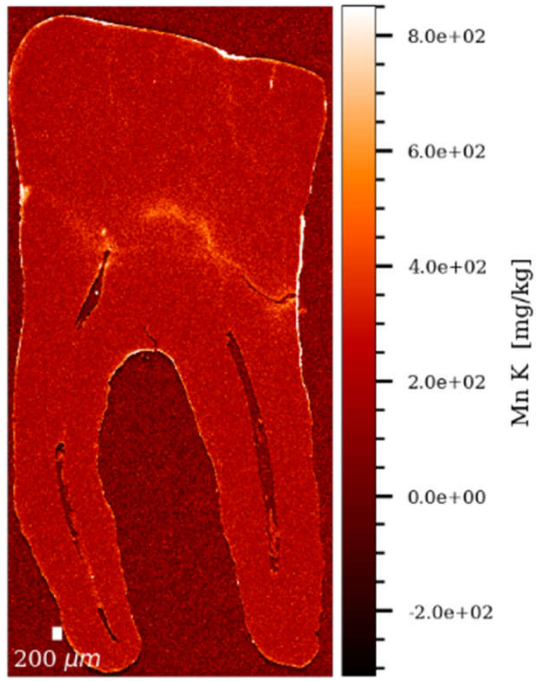
Cu K



Fe K



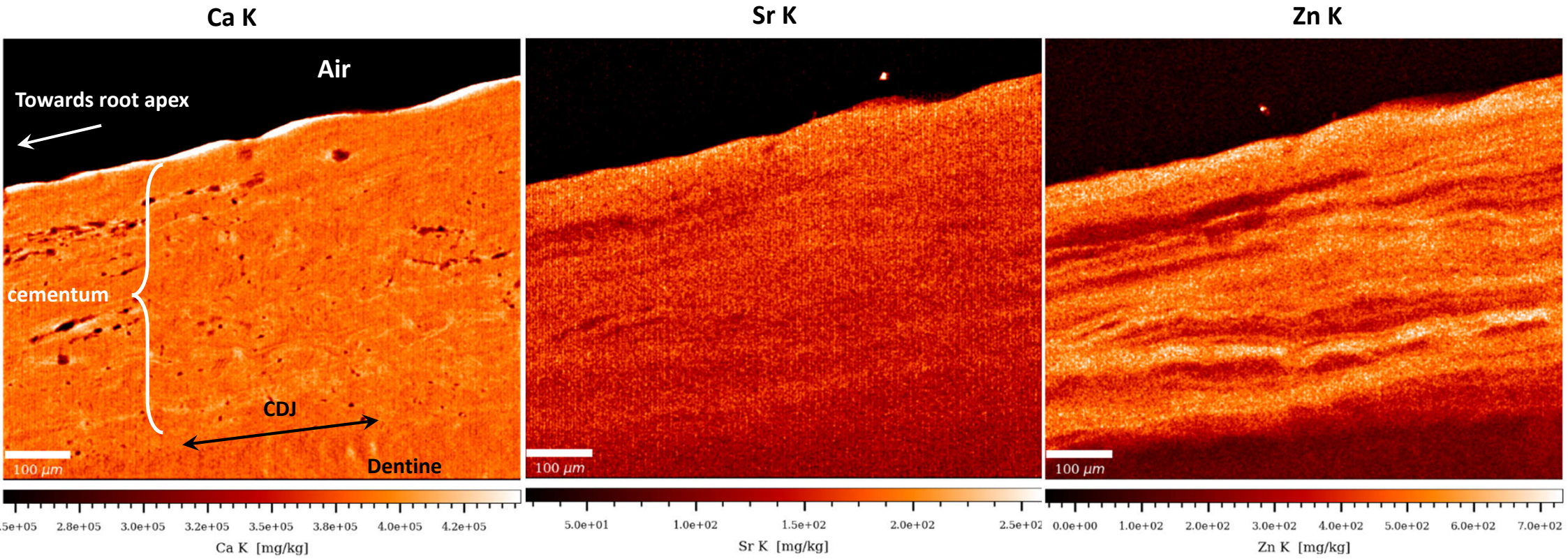
Mn K



Næstved 268 LLM1

High resolution at 1 µm

Gauss (1x1)

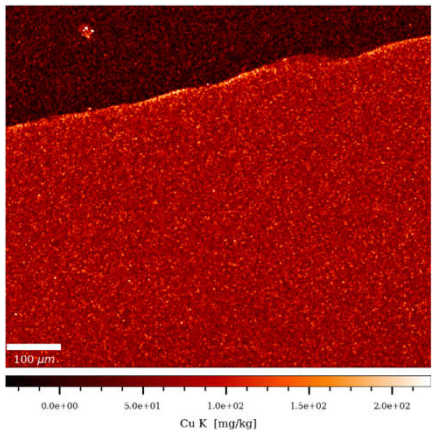


Næstved 268 LLM1

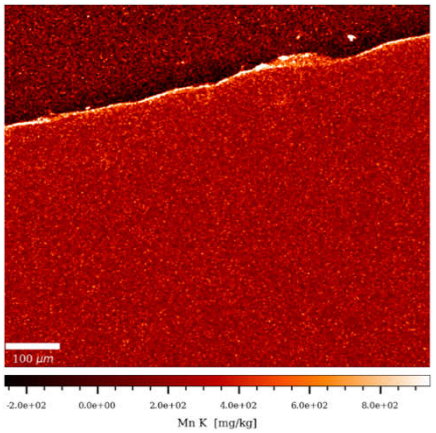
High resolution at 1 µm

Gauss (1x1)

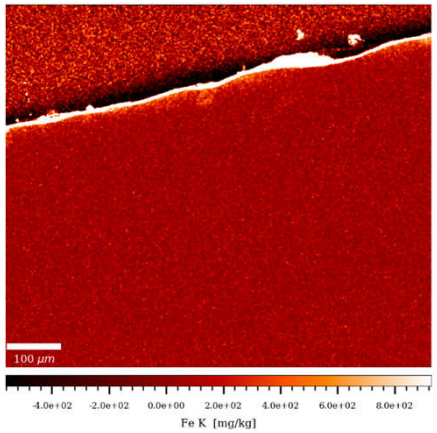
Cu K



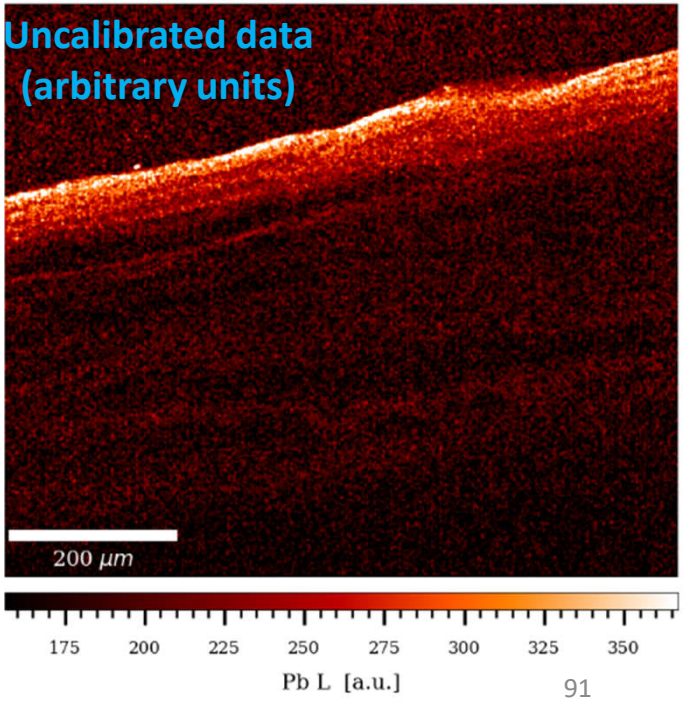
Mn K



Fe K

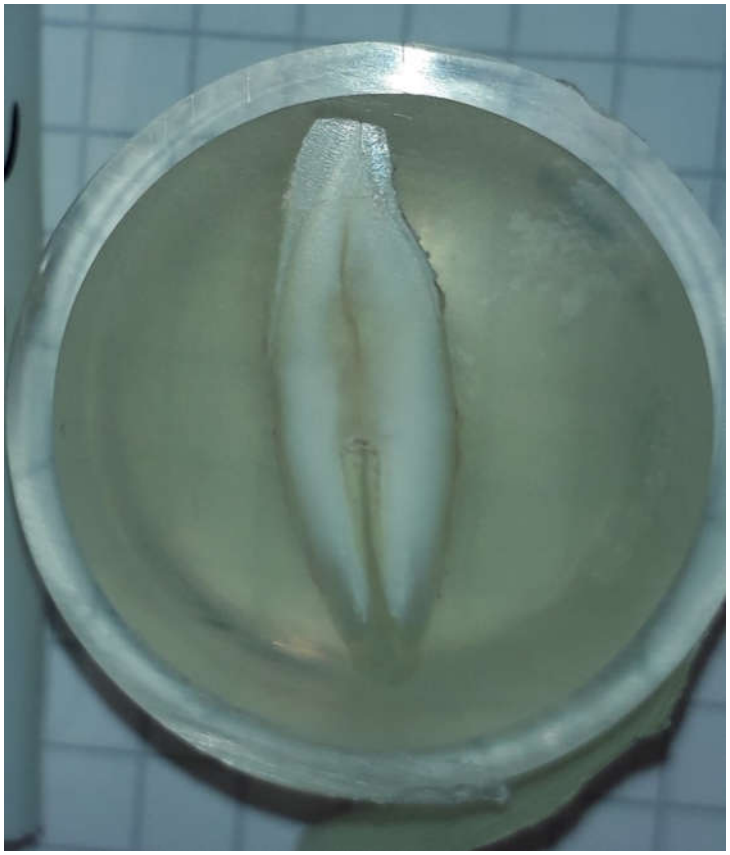


Pb L



Næstved – 305 LLC

♂ **30-35 yrs. mid-13th – mid-16th c. CE**

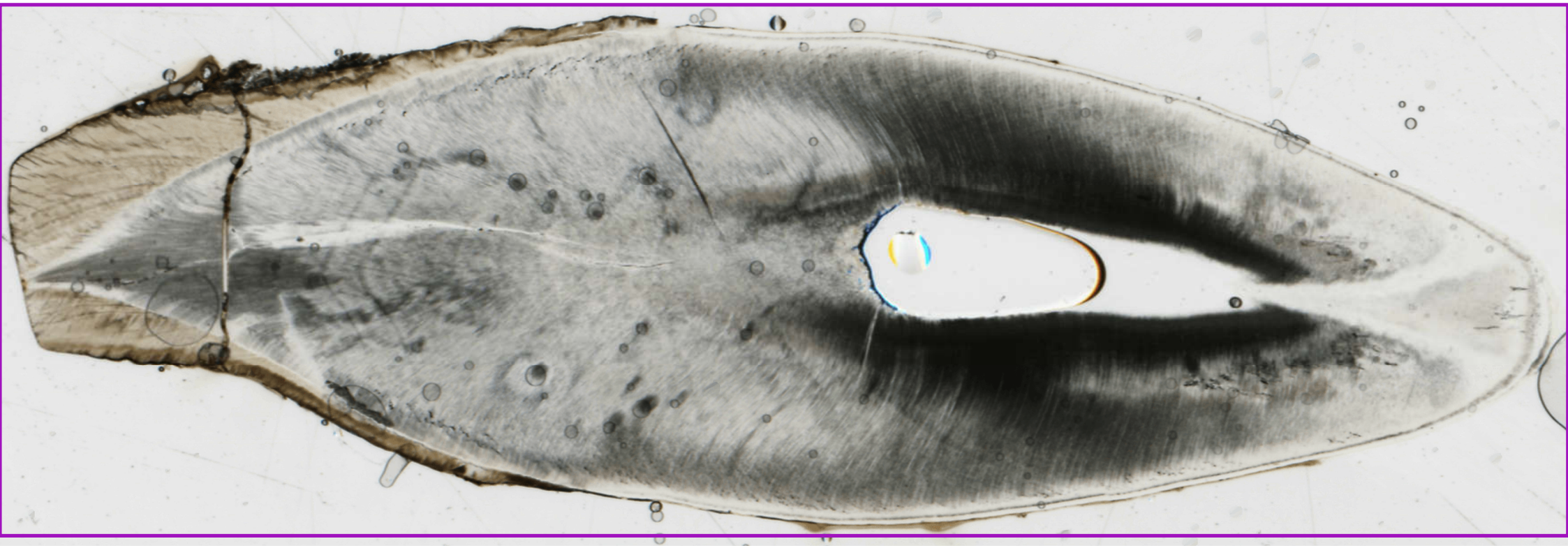


Average tooth section thickness (µm): 119.0

Næstved 305 LLC

Scanning

Overview at 10 µm

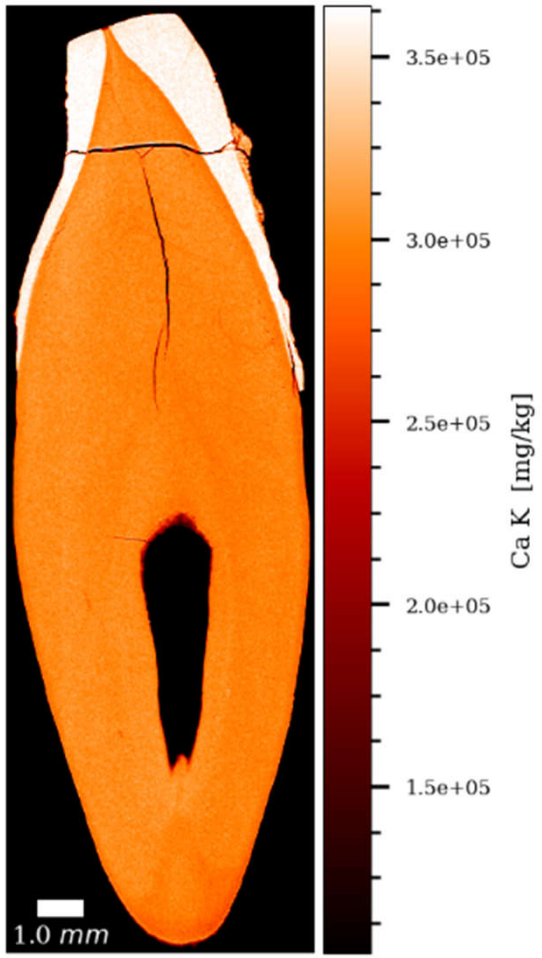


Næstved 305 LLC

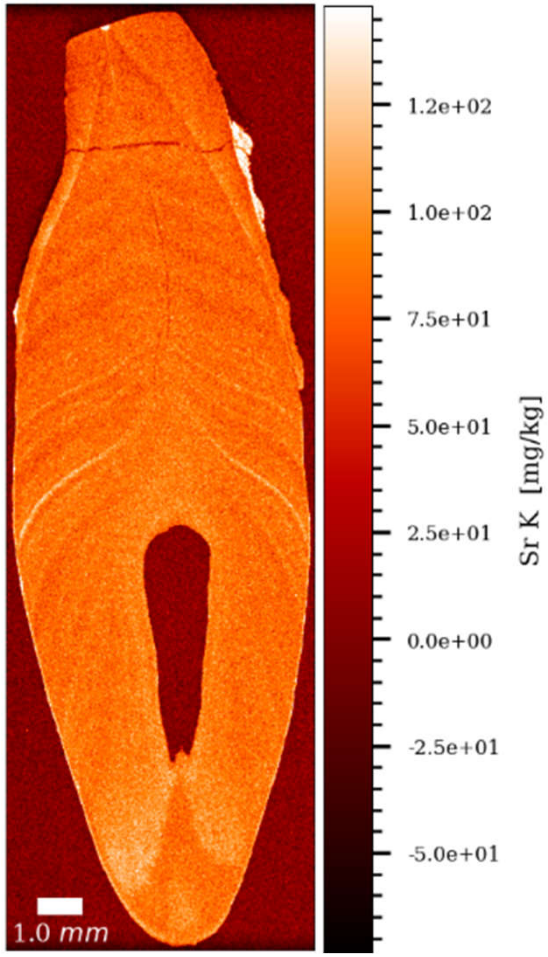
Overview at 10 µm

Gauss (1.2x1.2)

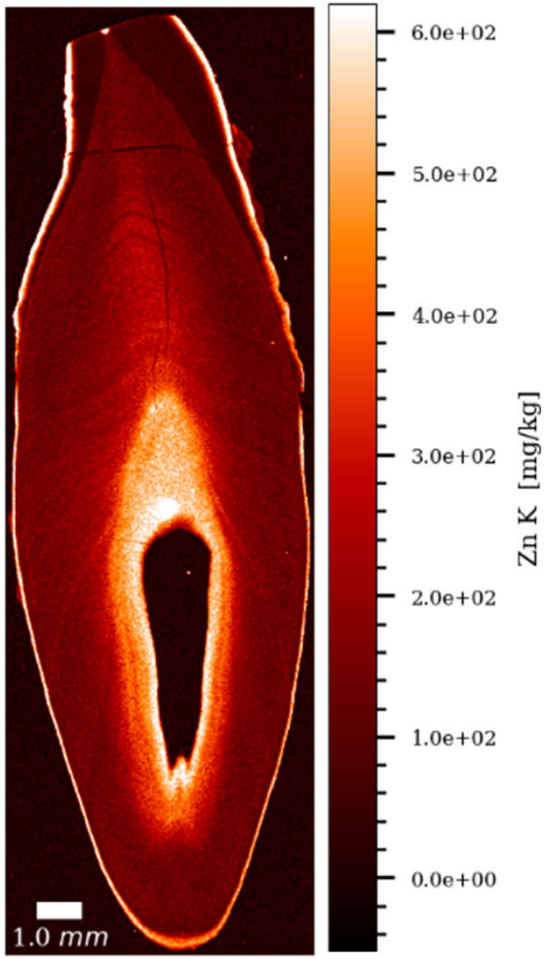
Ca K



Sr K



Zn K

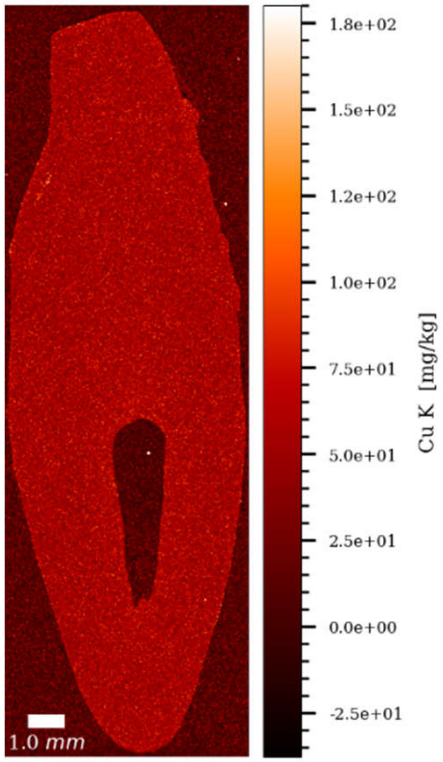


Næstved 305 LLC

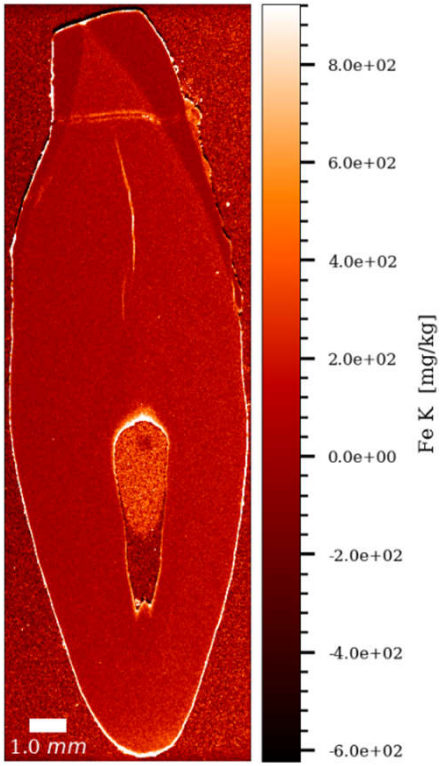
Overview at 10 µm

Gauss (1.2x1.2)

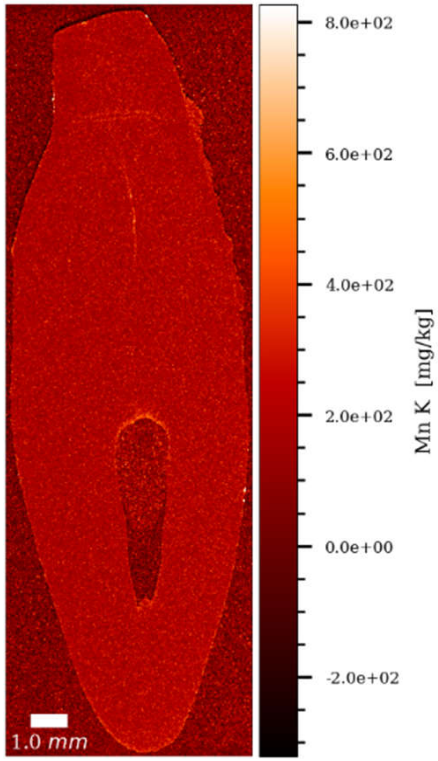
Cu K



Fe K



Mn K



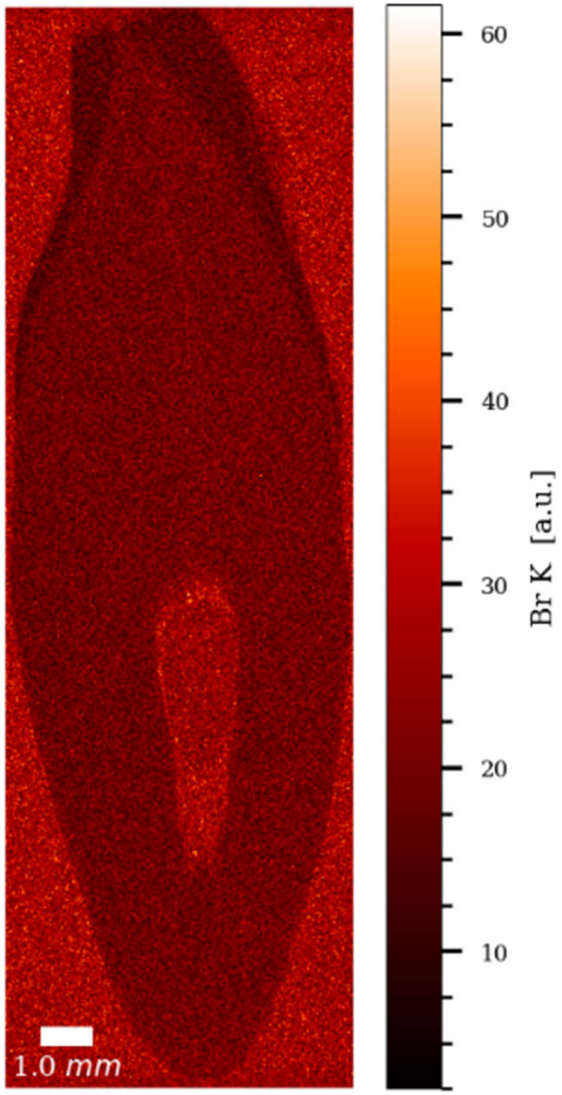
Næstved 305 LLC

Overview at 10 µm

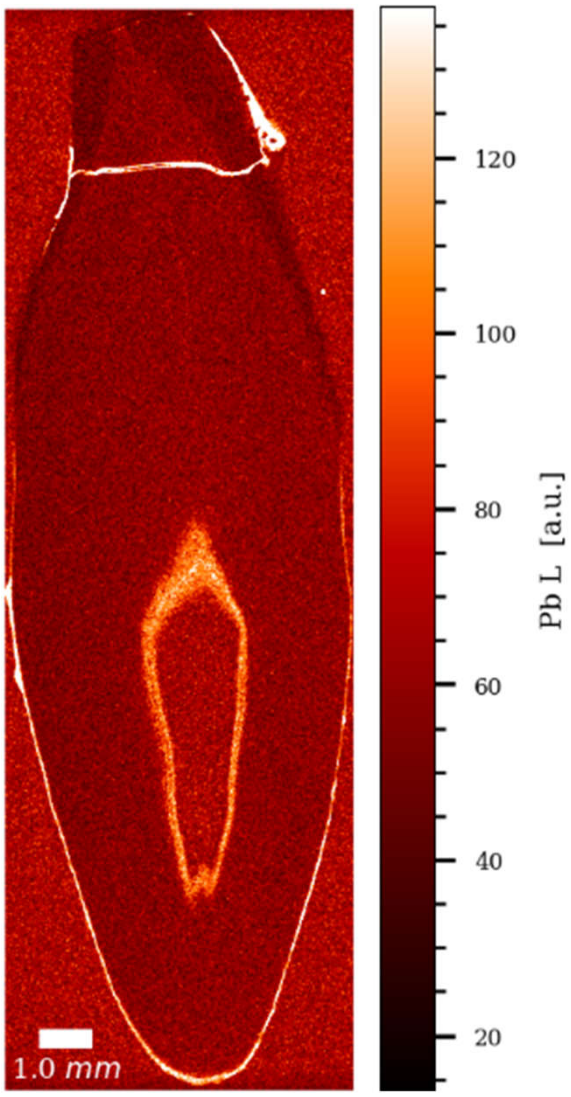
Uncalibrated data (arbitrary units)

Gauss (1.2x1.2)

Br K

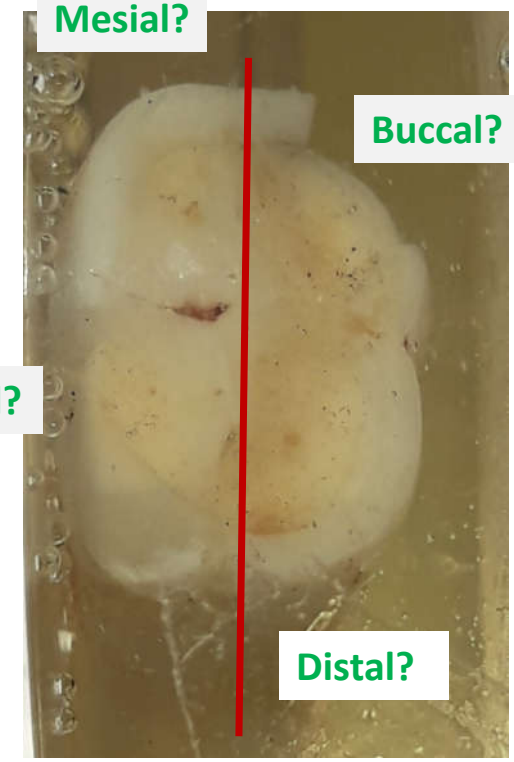


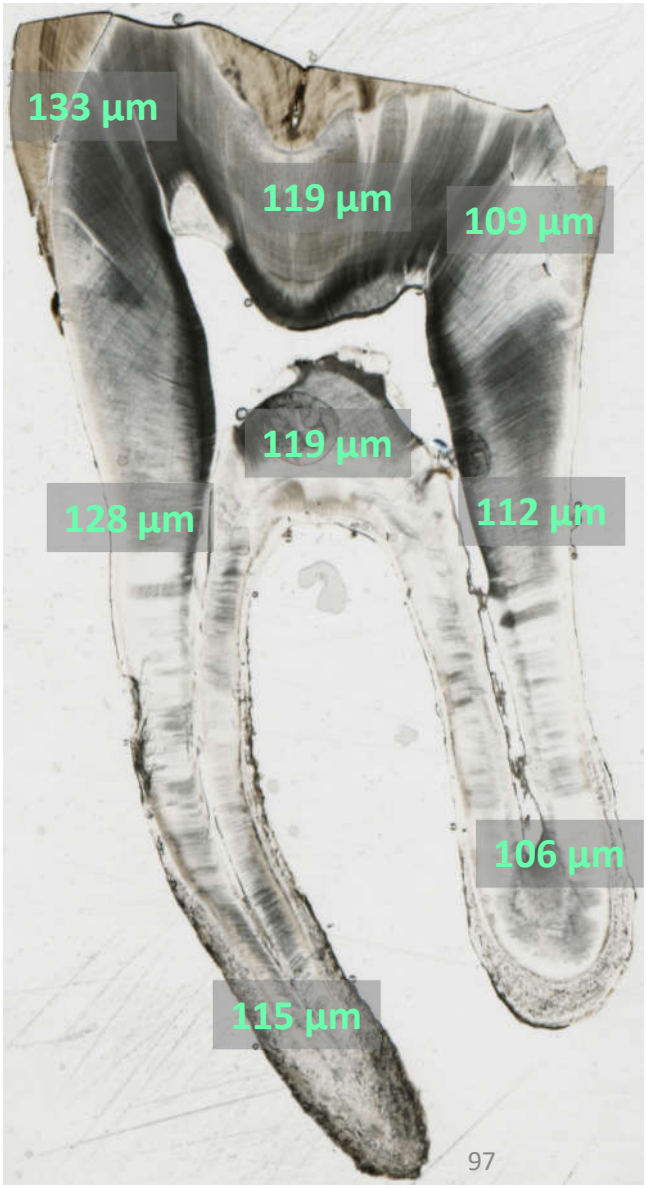
Pb L



Næstved – 305 LRM1

♂ 30-35 yrs. mid-13th – mid-16th c. CE

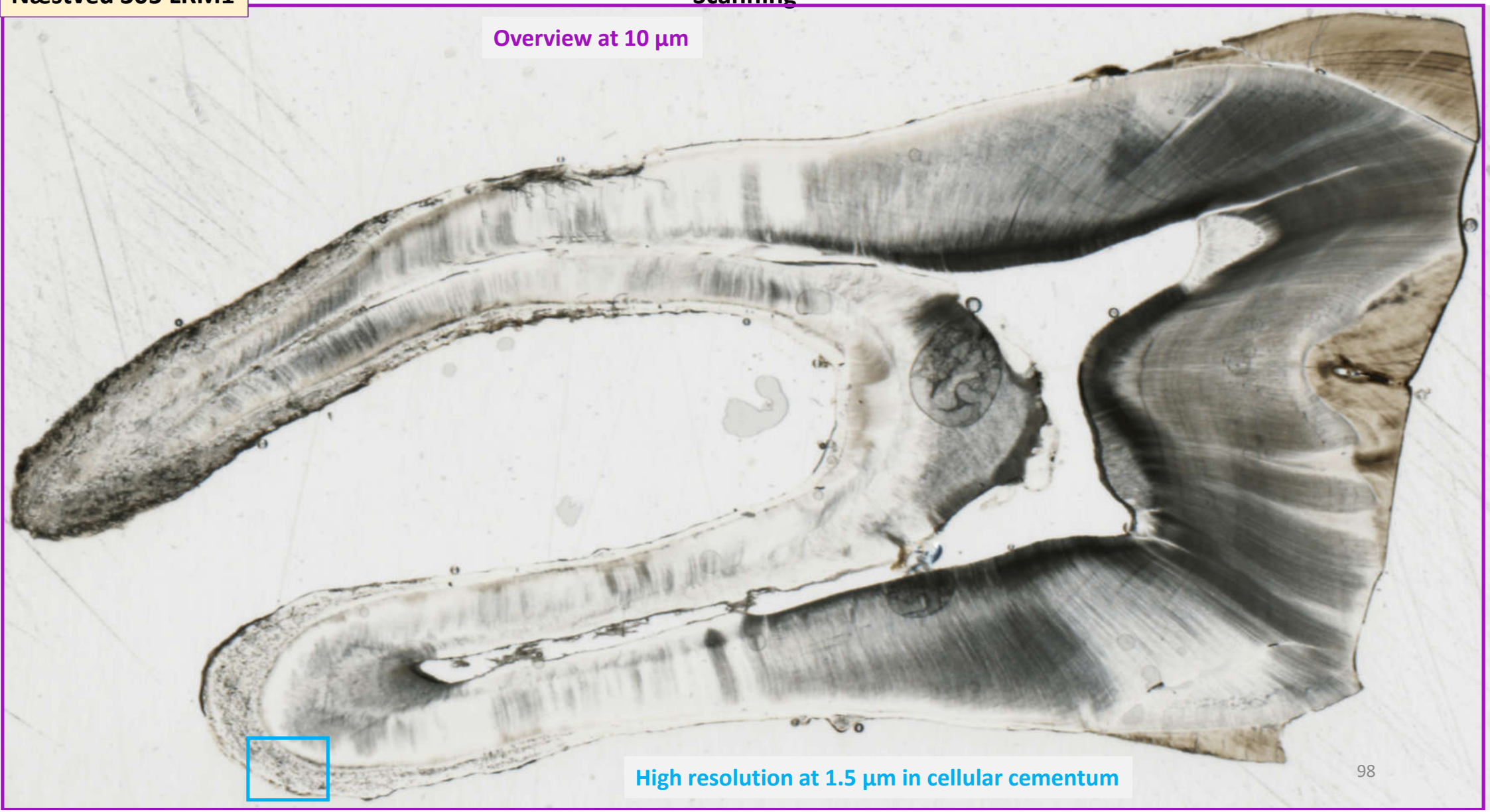




Average tooth section thickness (µm): 117.6

Næstved 305 LRM1

Scanning

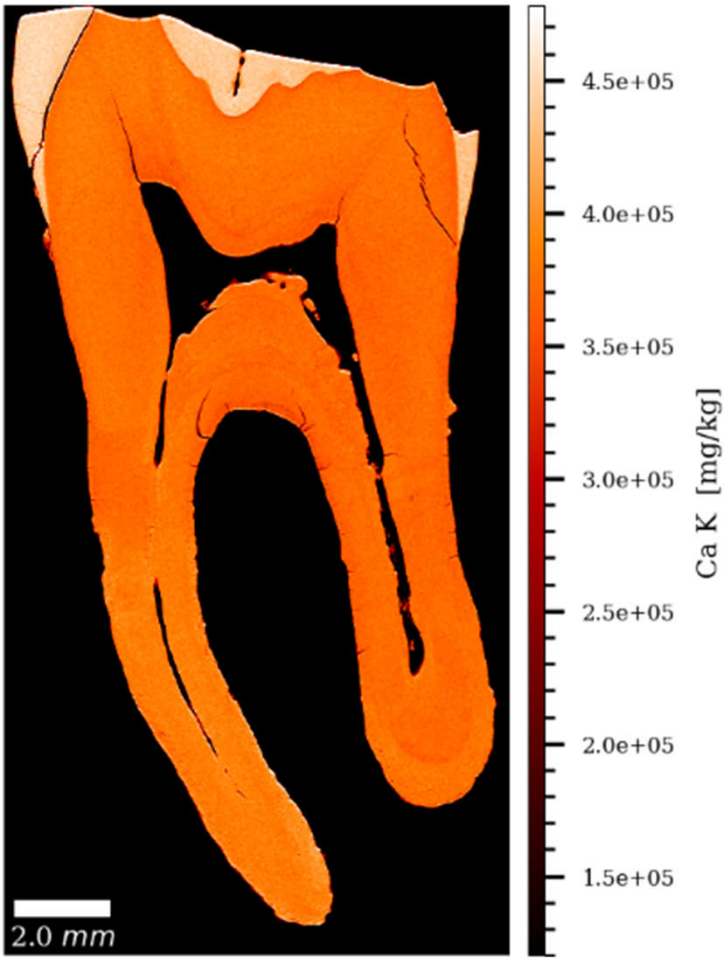


Næstved 305 LRM1

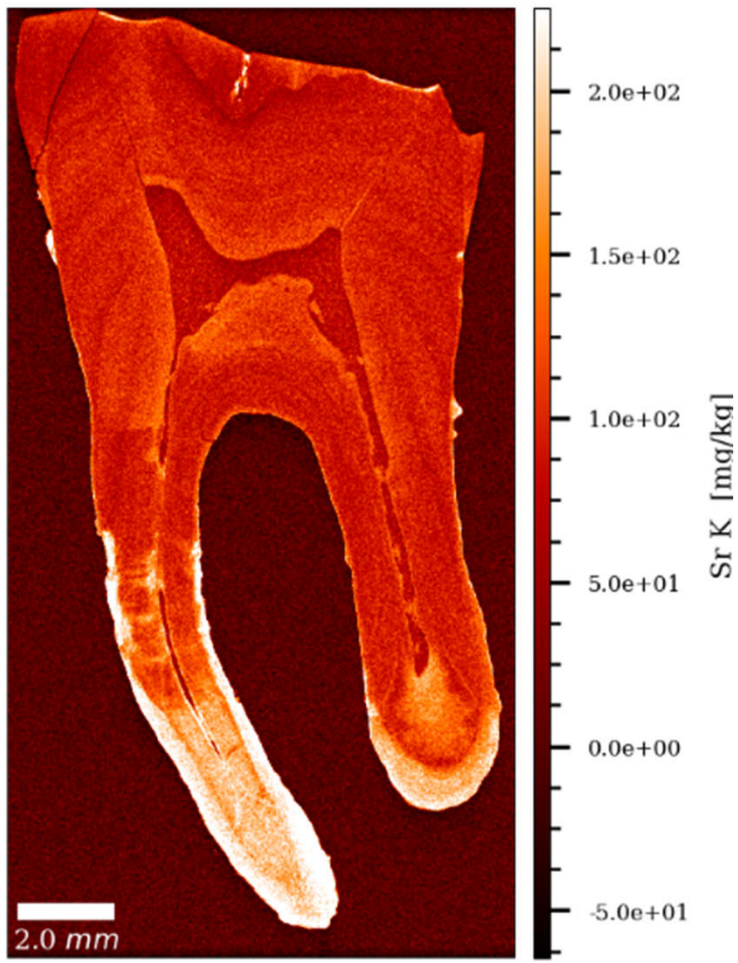
Overview at 10 µm

Gauss (1x1)

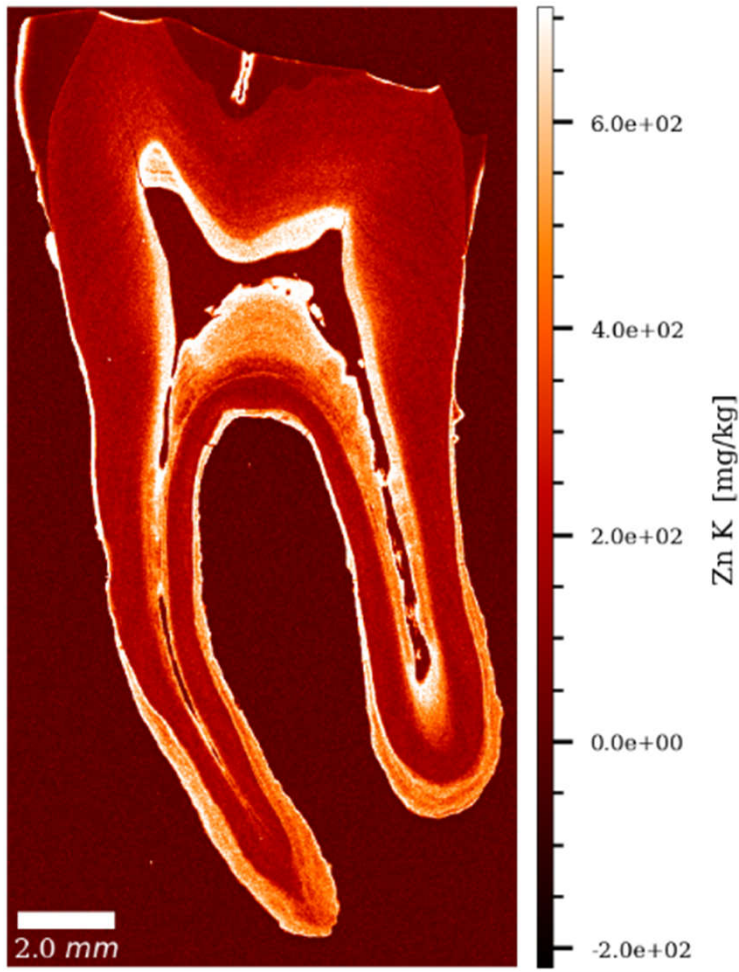
Ca K



Sr K



Zn K

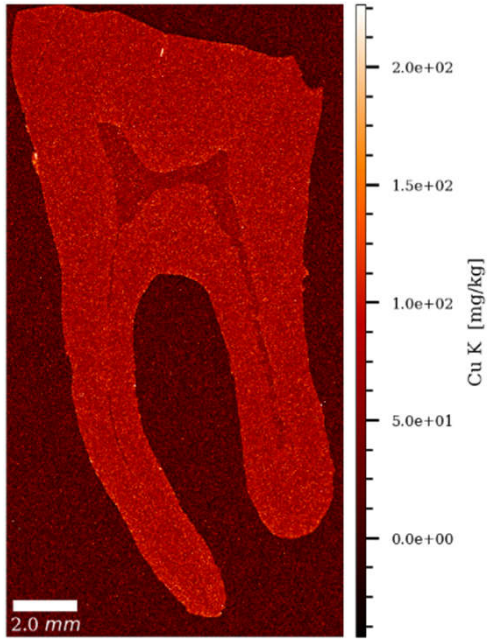


Næstved 305 LRM1

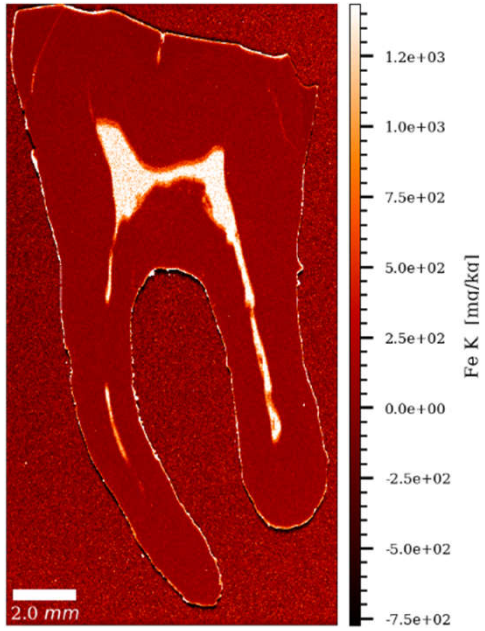
Overview at 10 µm

Gauss (1x1)

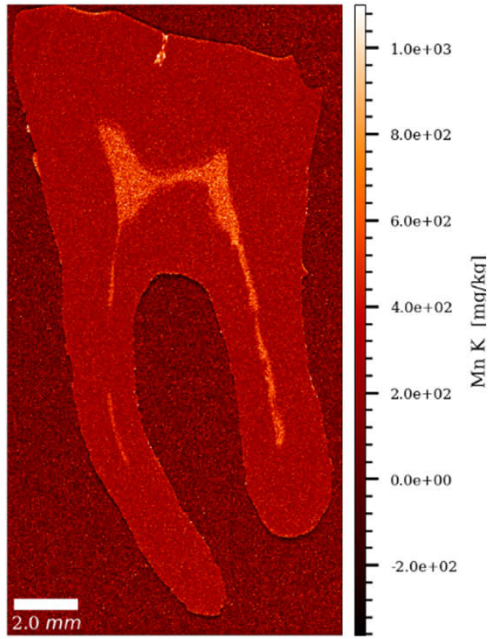
Cu K



Fe K



Mn K

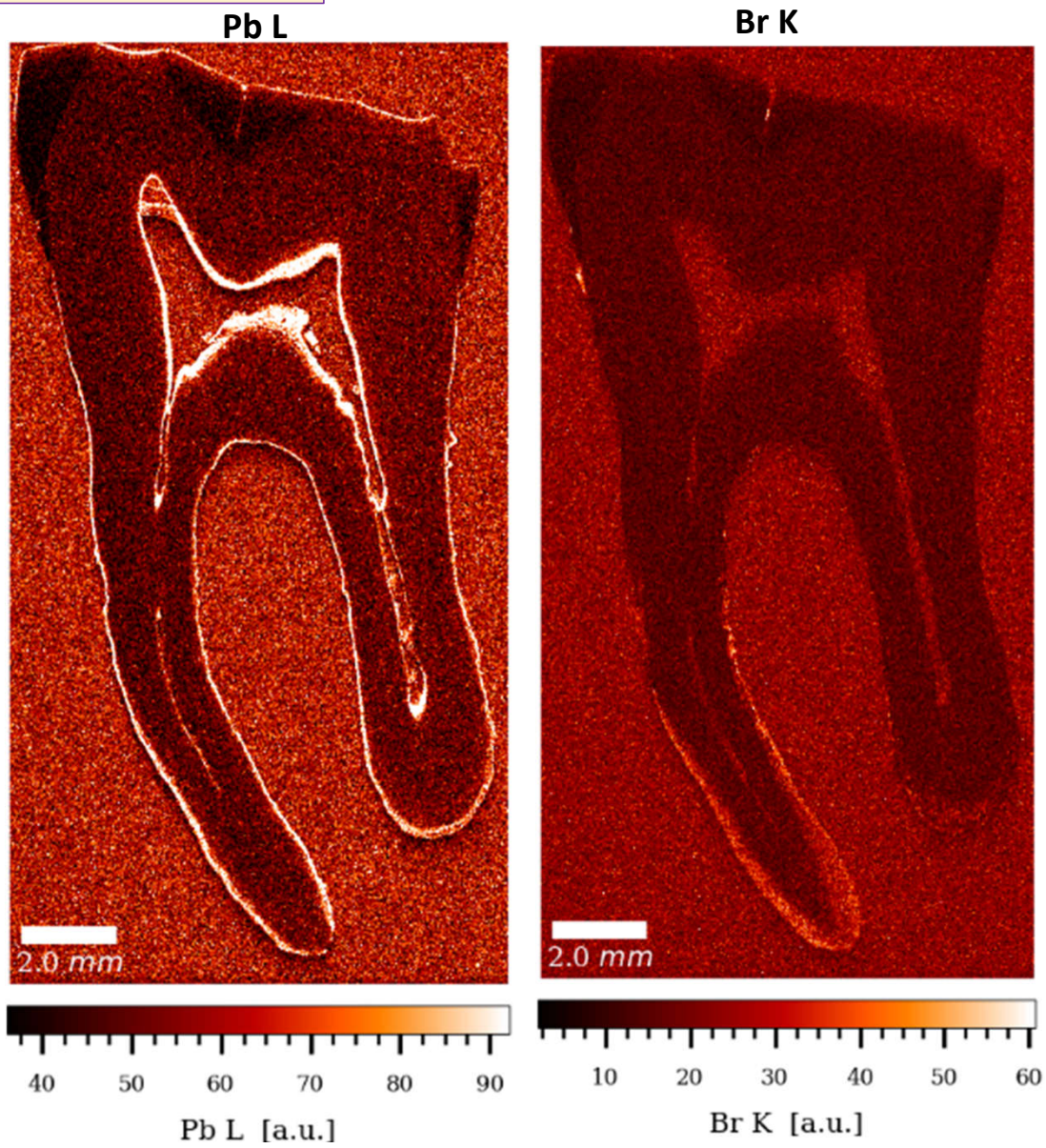


Næstved 305 LRM1

Overview at 10 µm

Uncalibrated data (arbitrary units)

Gauss (1x1)

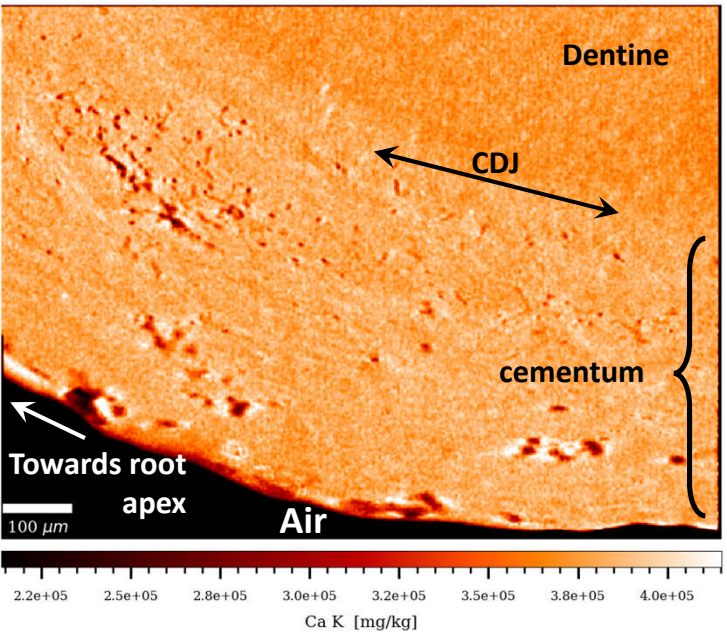


Næstved 305 LRM1

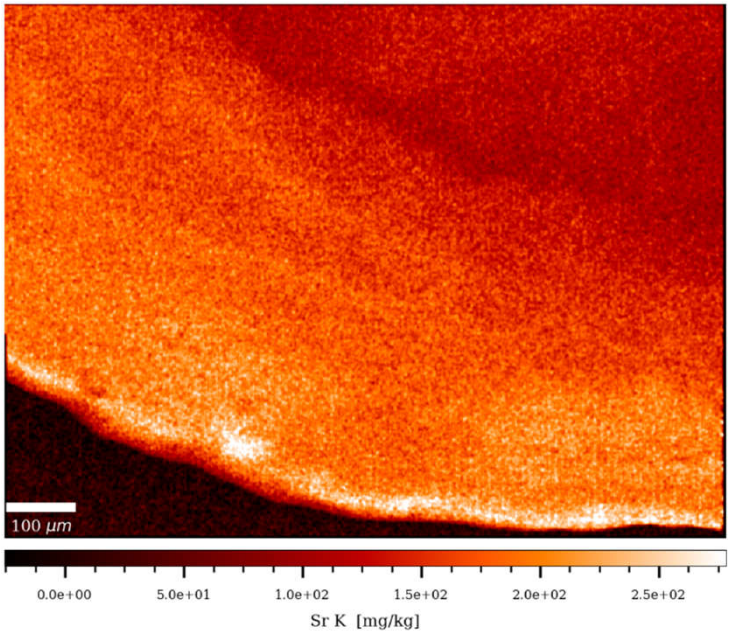
High resolution at 1.5 µm

Gauss (1x1)

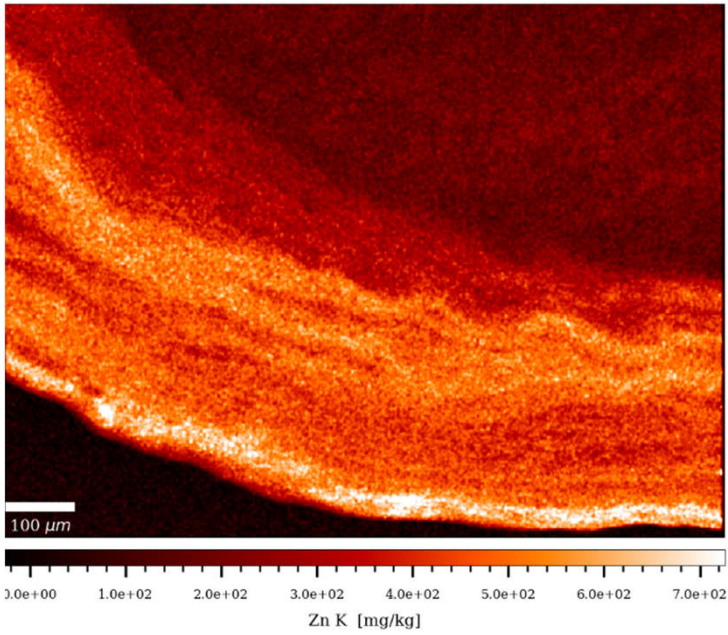
Ca K



Sr K



Zn K

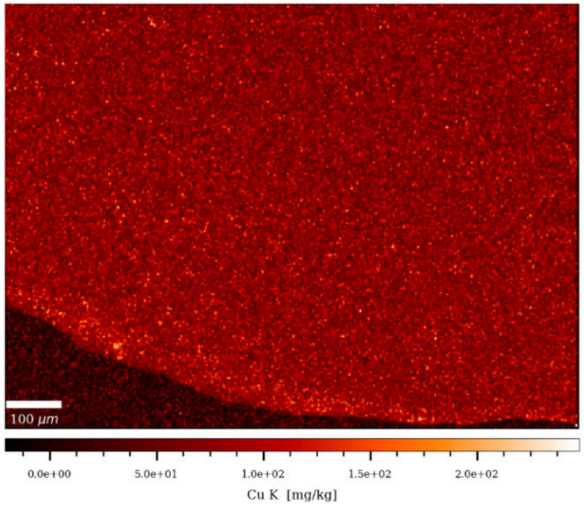


Næstved 305 LRM1

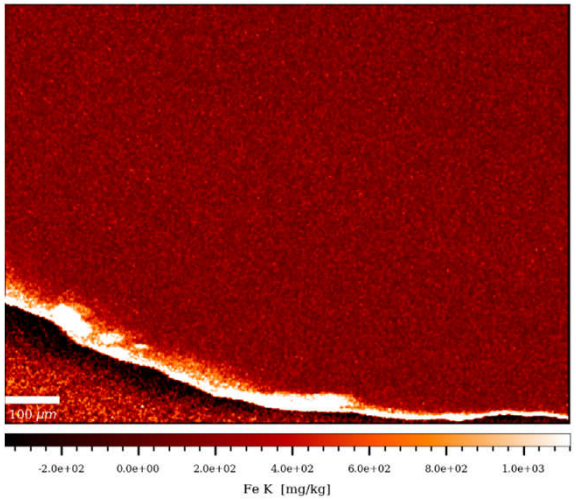
High resolution at 1.5 µm

Gauss (1x1)

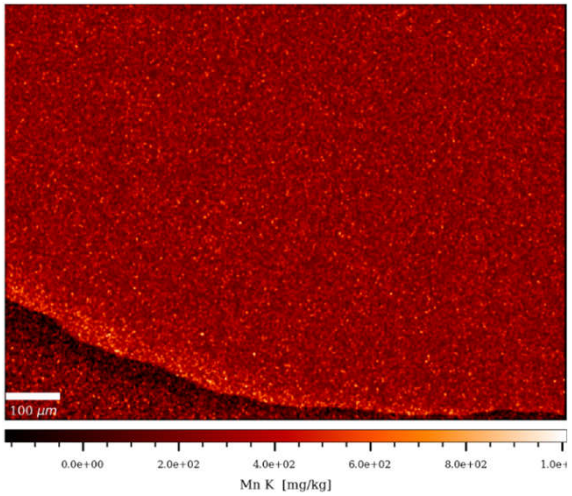
Cu K



Fe K



Mn K



File S3

Laser Ablation (LA-ICP-TOFMS) results

Using SXRF and LA-ICP-TOFMS to explore evidence of treatment and physiological responses to leprosy in medieval Denmark

Biology

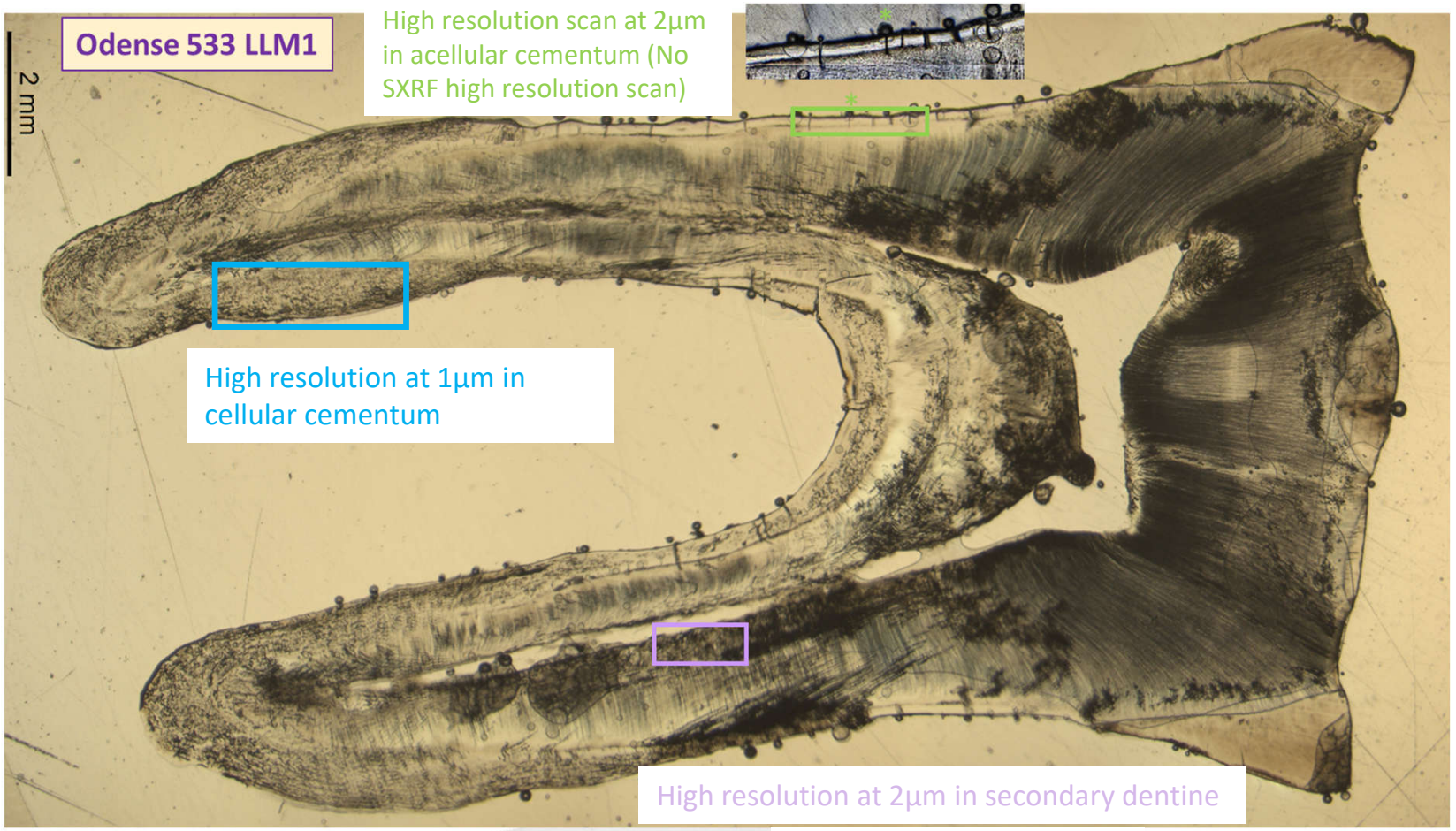
Anastasia Brozou, Marcello A. Mannino, Stijn J.M. Van Malderen, Jan Garrevoet, Eric Pubert, Benjamin T. Fuller, M. Christopher Dean, Thomas Colard, Frédéric Santos, Niels Lynnerup, Jesper L. Boldsen, Marie Louise Jørkov, Andrei Dorian Soficaru, Laszlo Vincze, Adeline Le Cabec

Corresponding author:

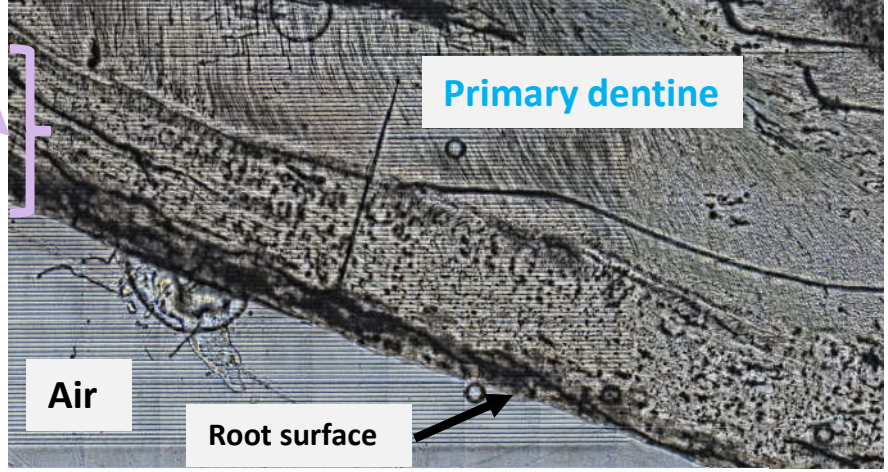
Adeline Le Cabec
E-mail: adeline.le-cabec@u-bordeaux.fr

Teeth with the best SXRF signal in cellular cementum.

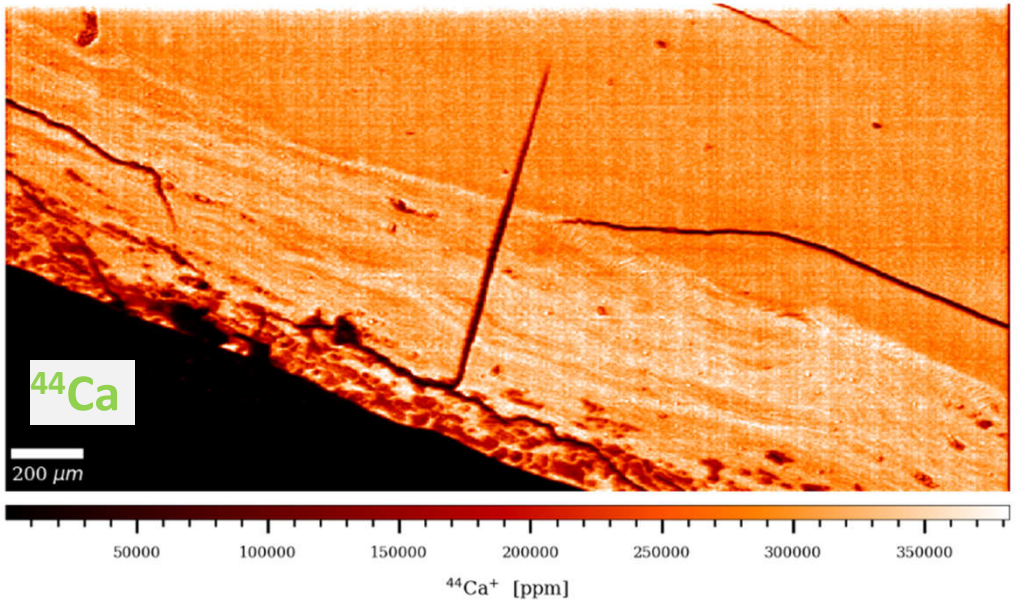
Odense 533 LLM1:
The cellular cementum and the secondary dentine are also imaged with SXRF.
The acellular cementum is scanned here for comparison.

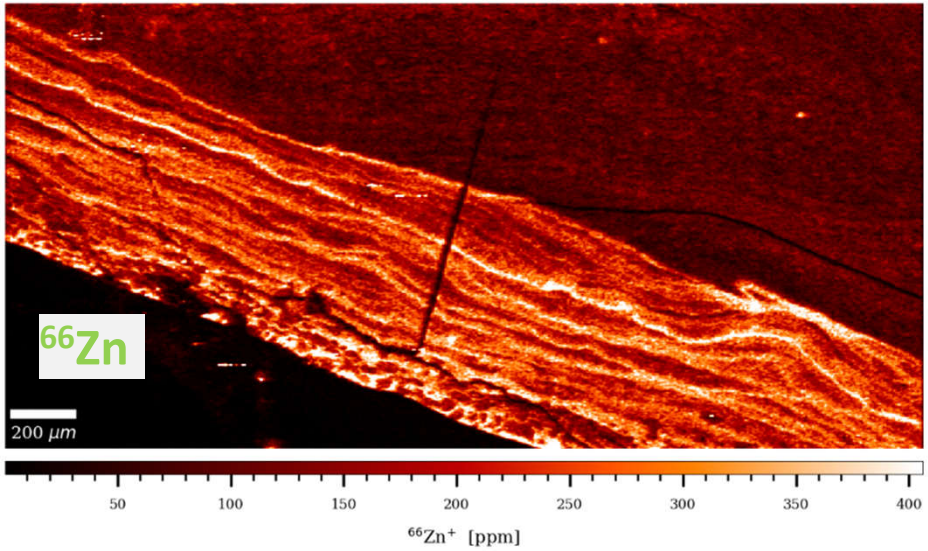


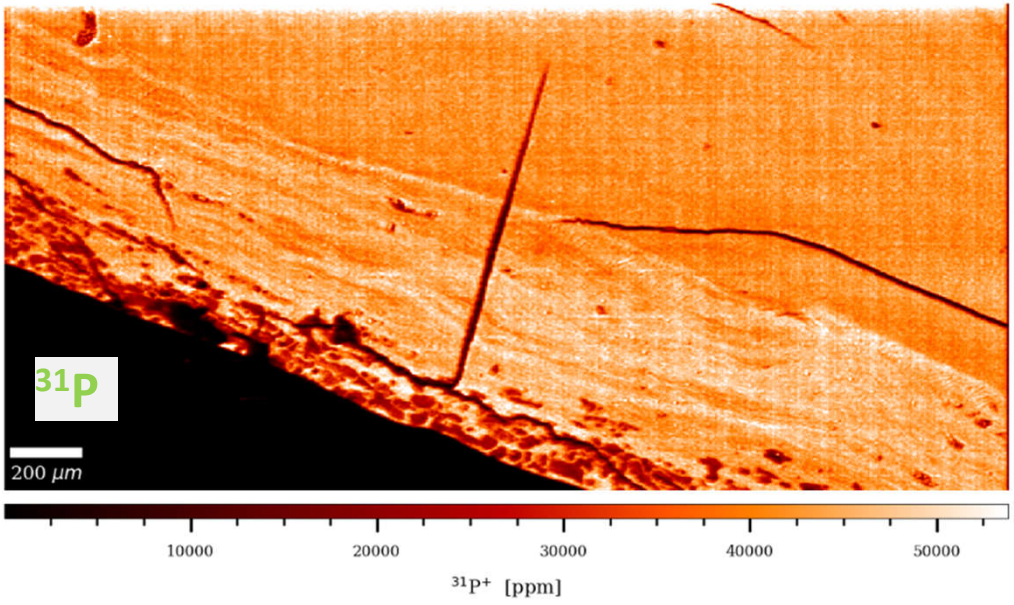
Naestved 211 URC – Cellular Cementum

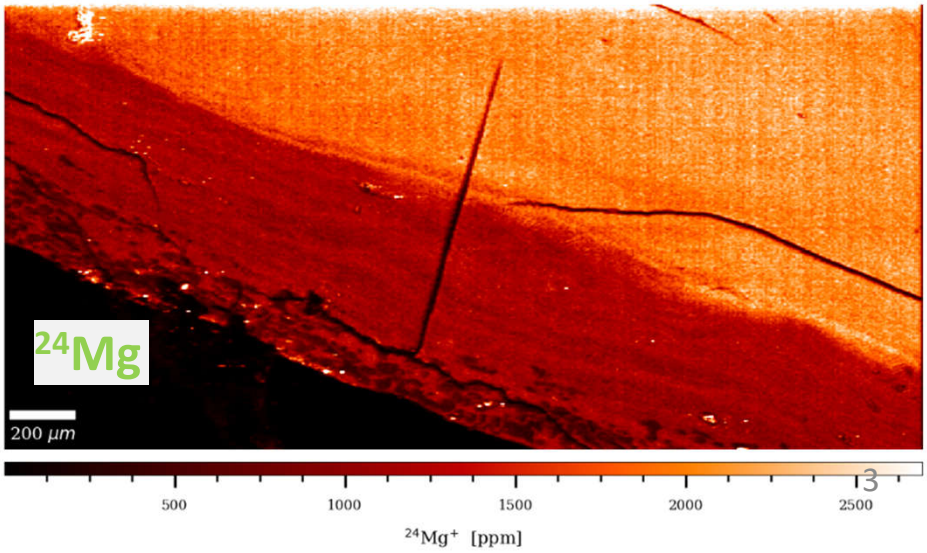


Gauss 0.8 x 0.8



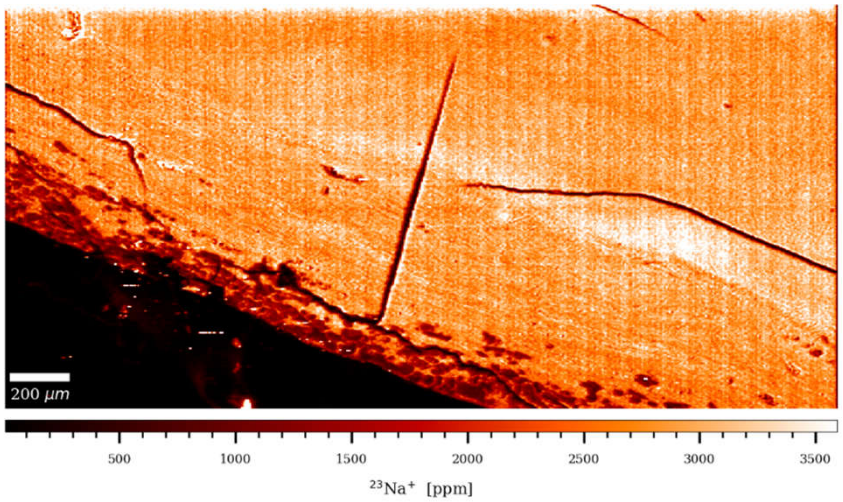




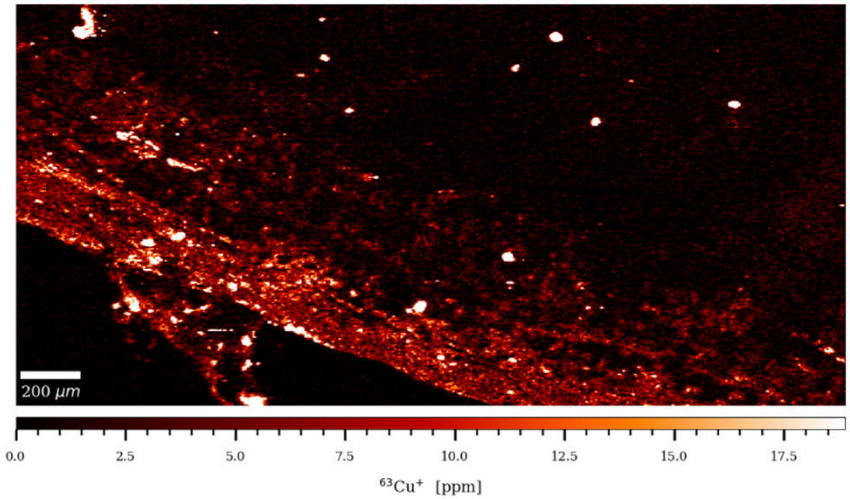


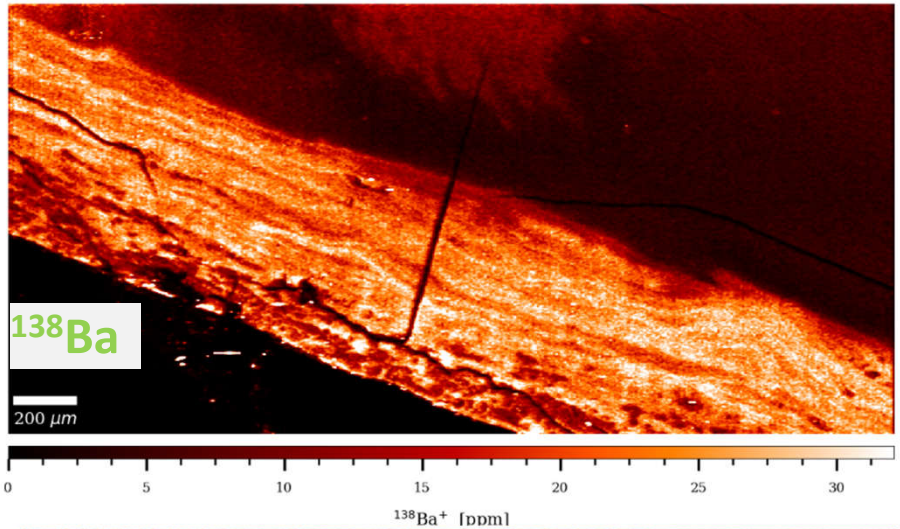
Næstved 211C – Cellular Cementum

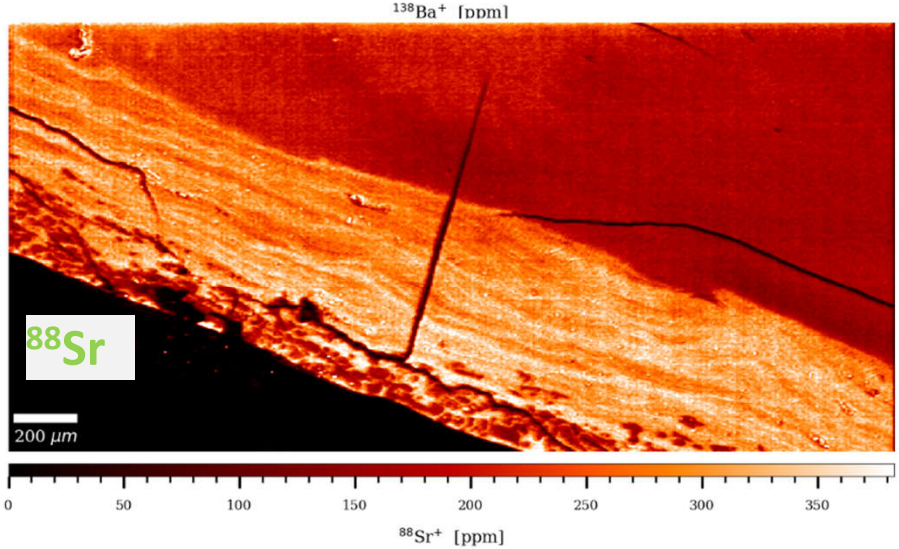
^{23}Na

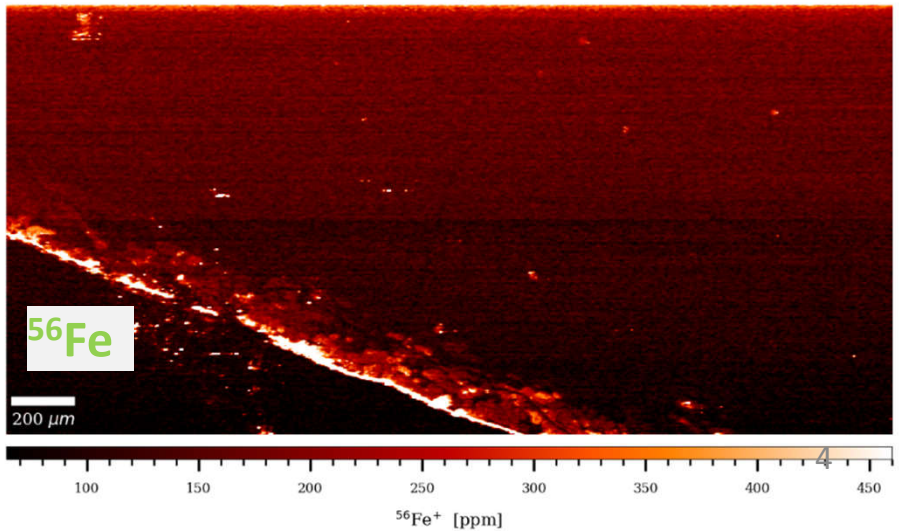


^{63}Cu



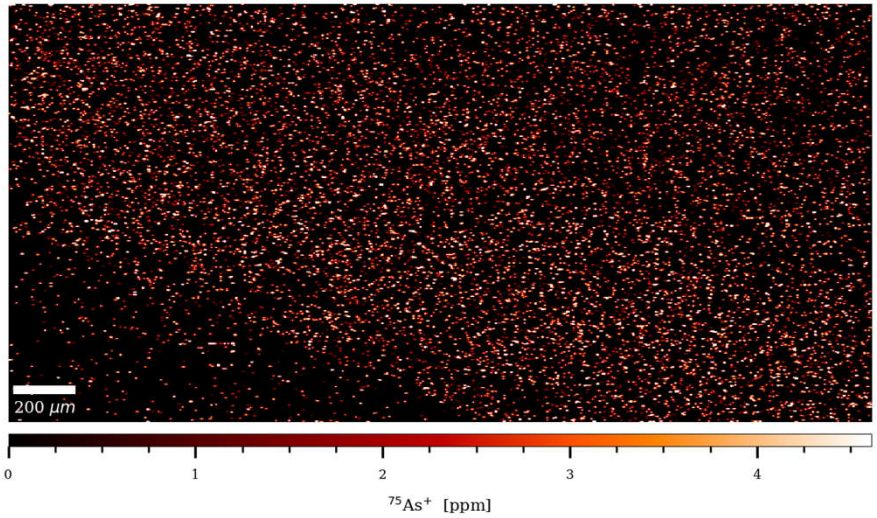




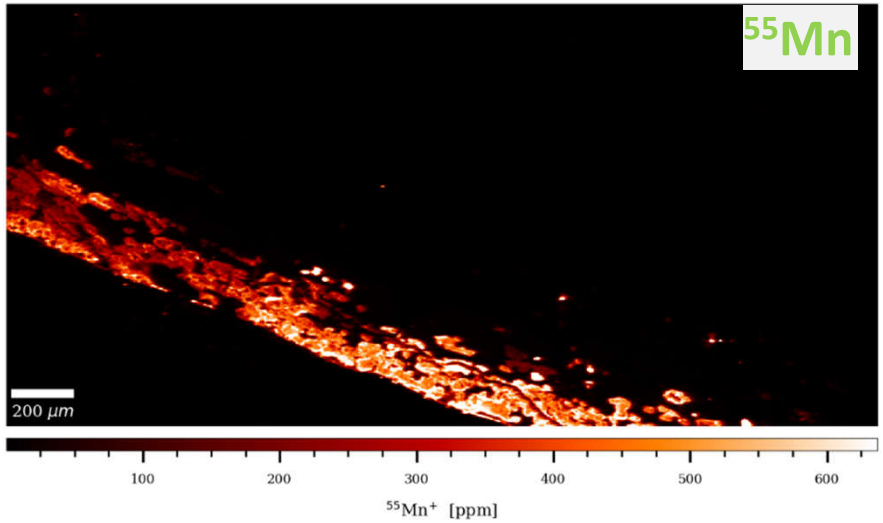


Næstved 211C – Cellular Cementum

^{75}As

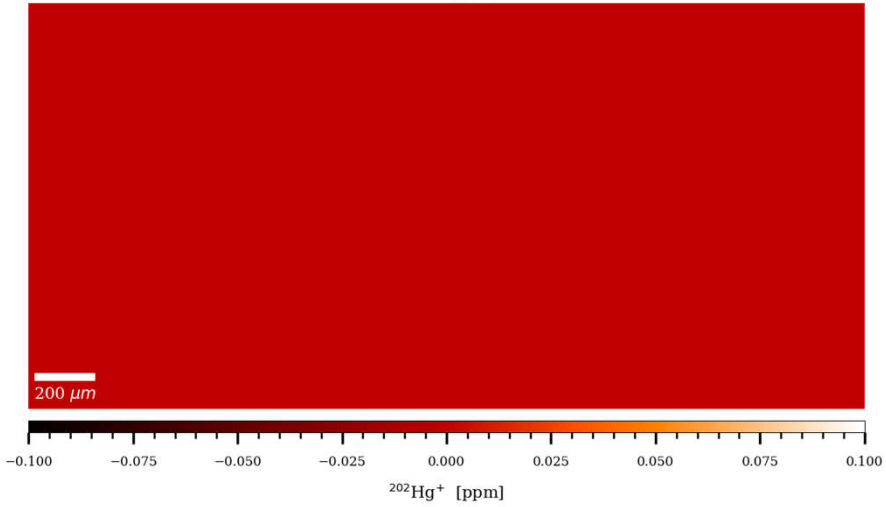


^{55}Mn

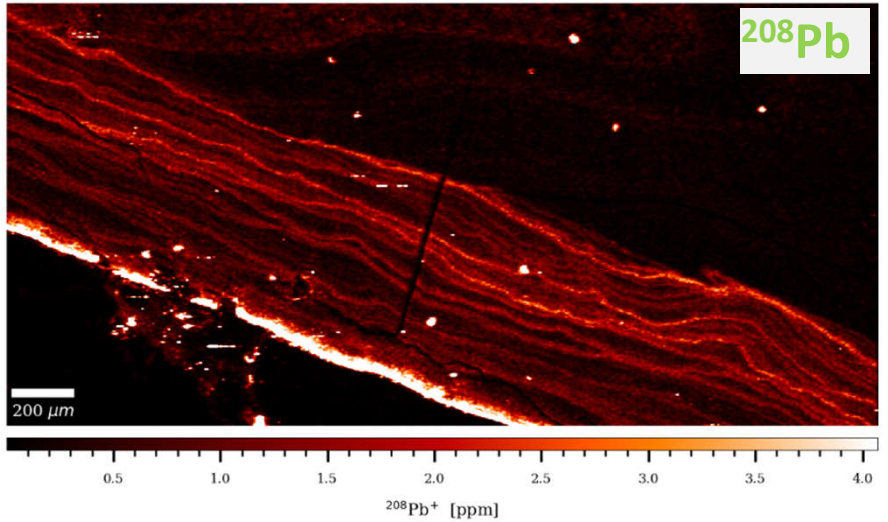


^{202}Hg

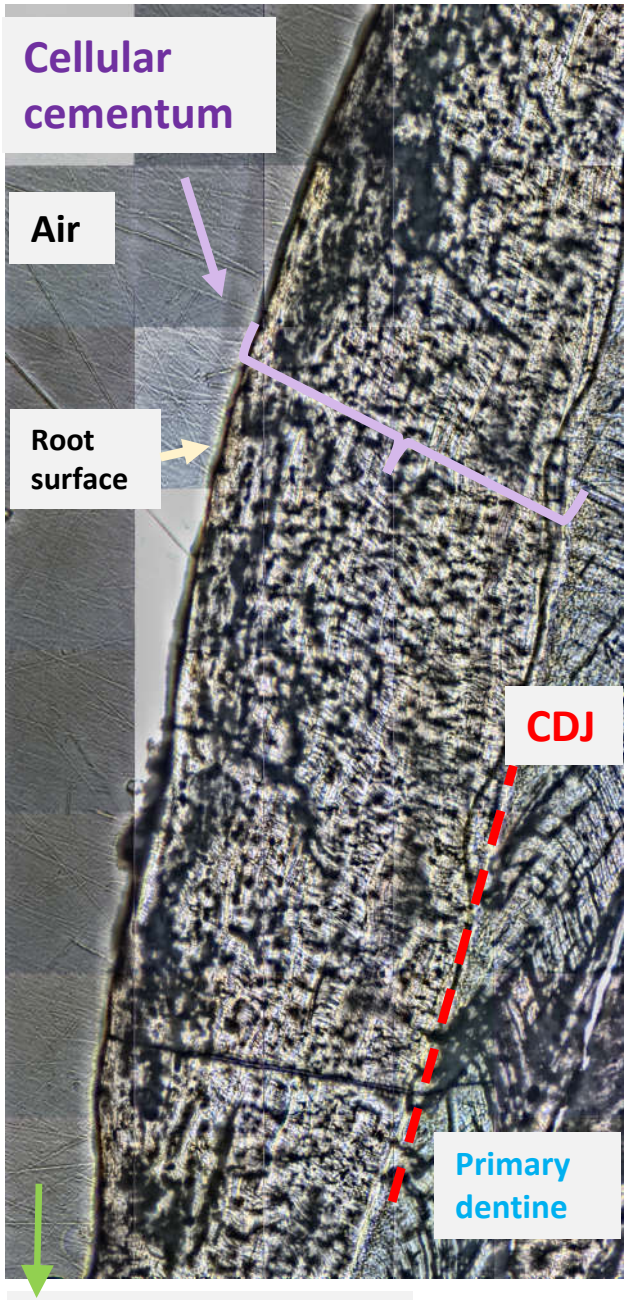
No detectable mercury



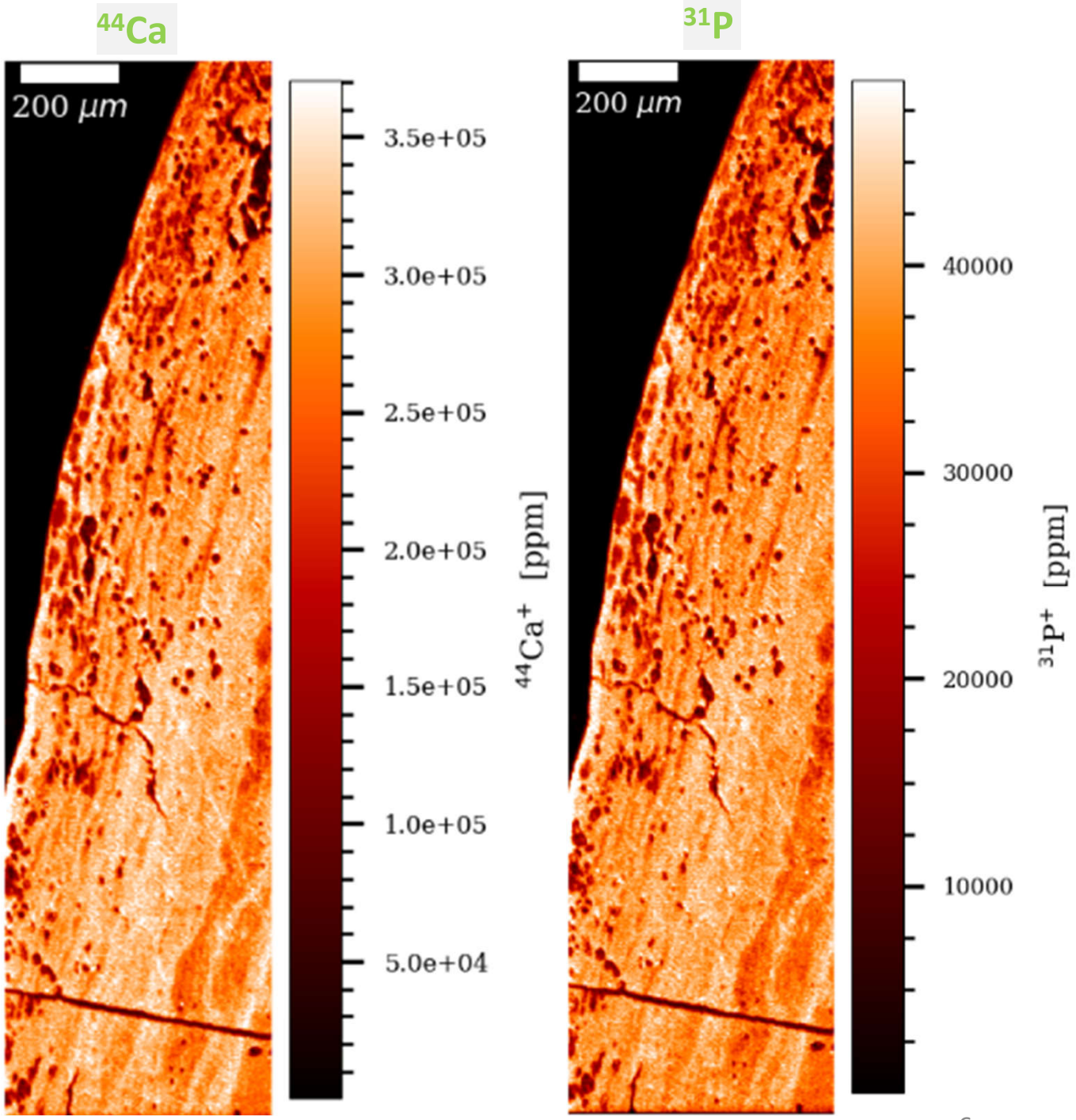
^{208}Pb



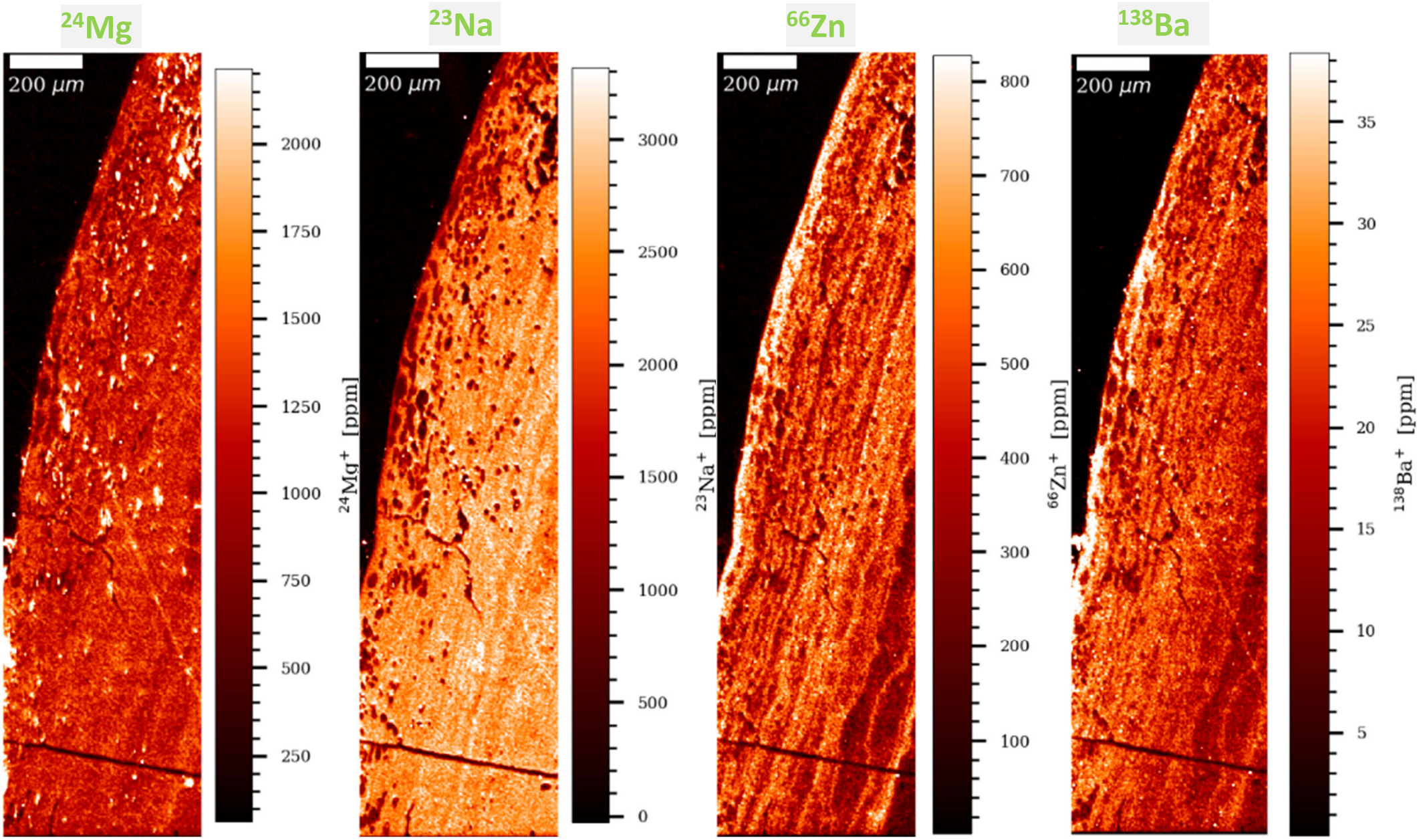
Odense 533 LLM1 – Cellular Cementum



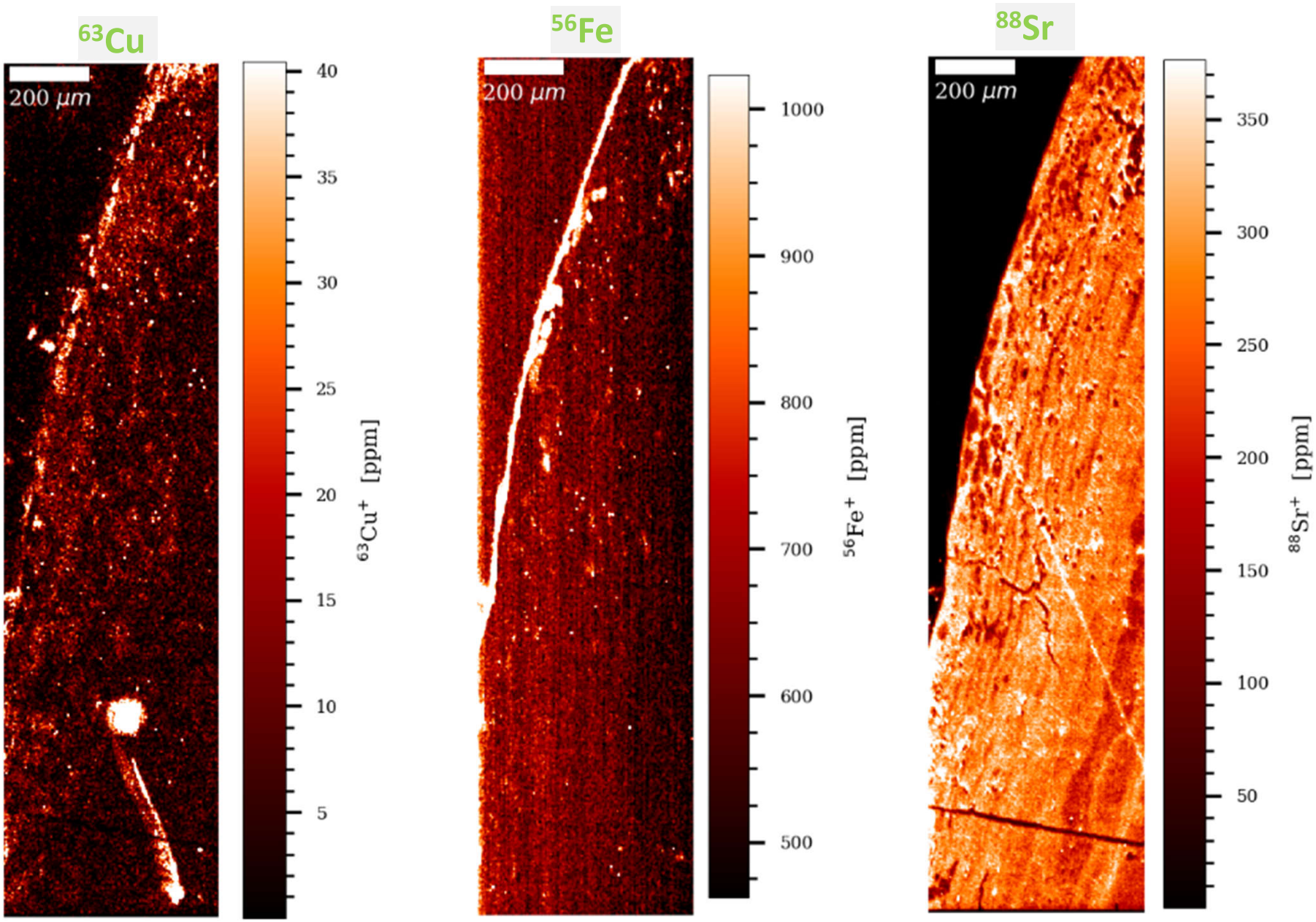
Gauss 0.9 x 0.9



Odense 533M – Cellular Cementum

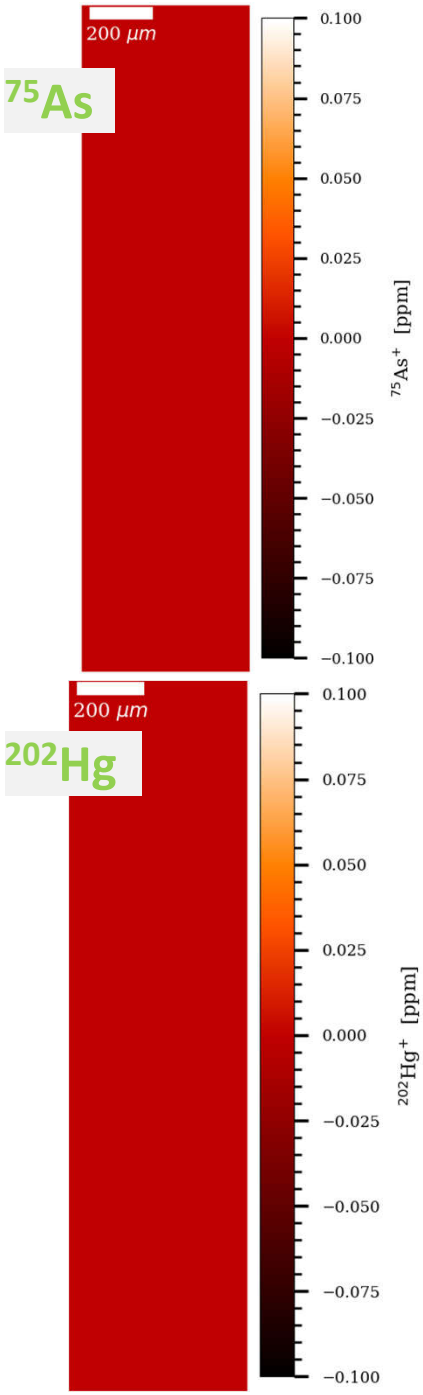


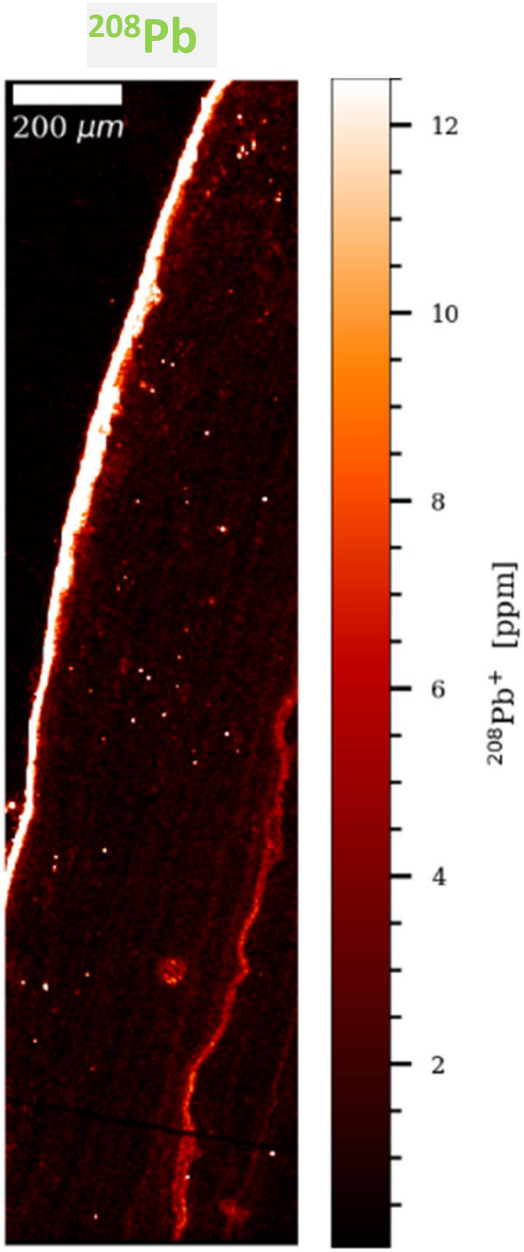
Odense 533M – Cellular Cementum

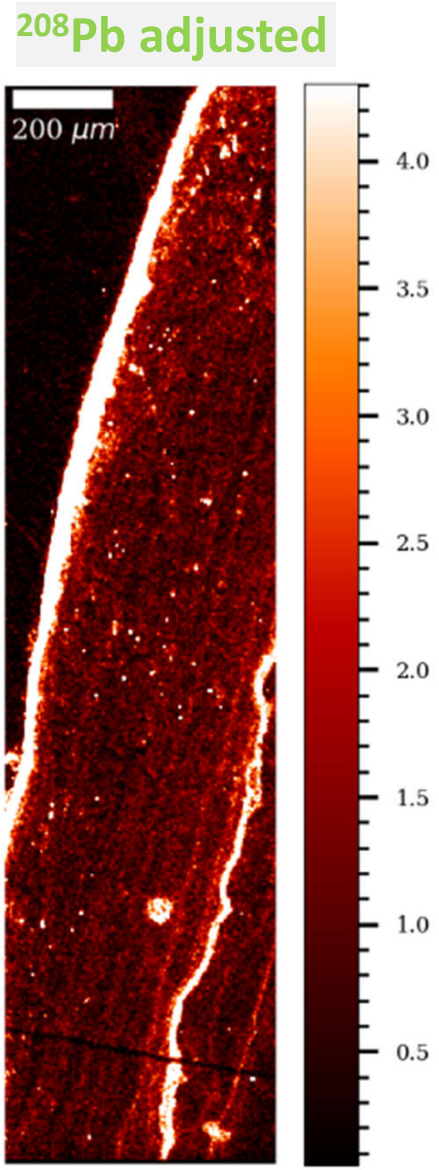


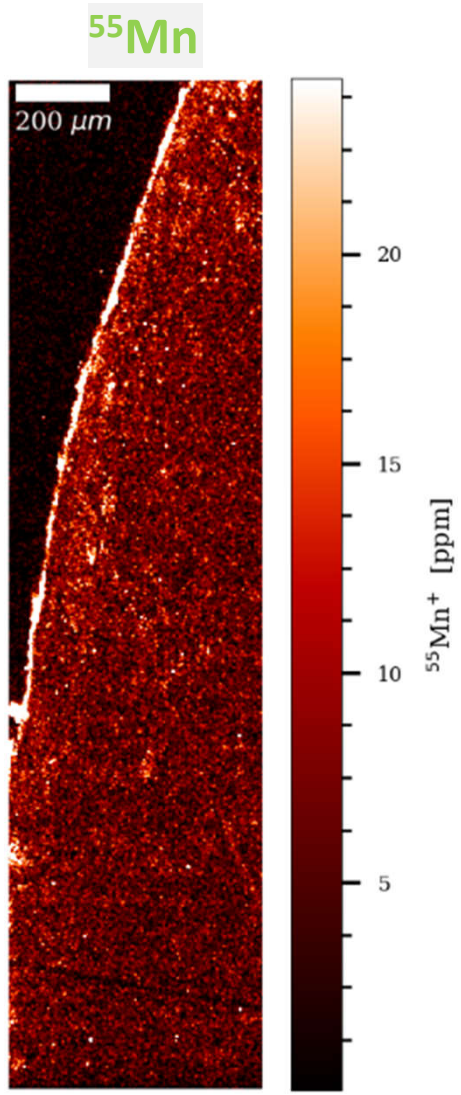
Odense 533M – Cellular Cementum

No detectable mercury or arsenic



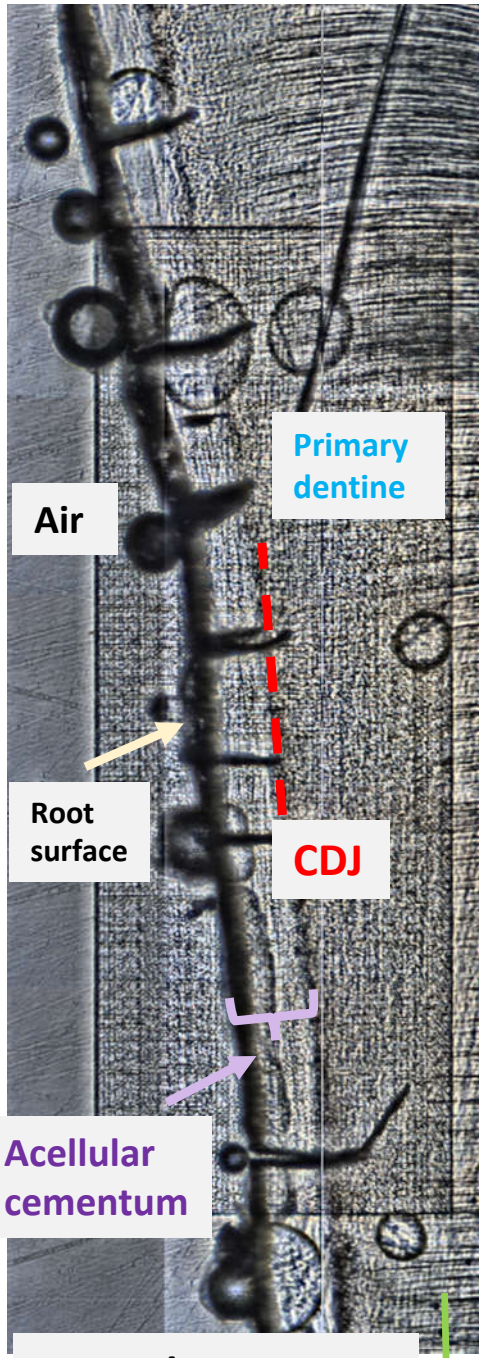




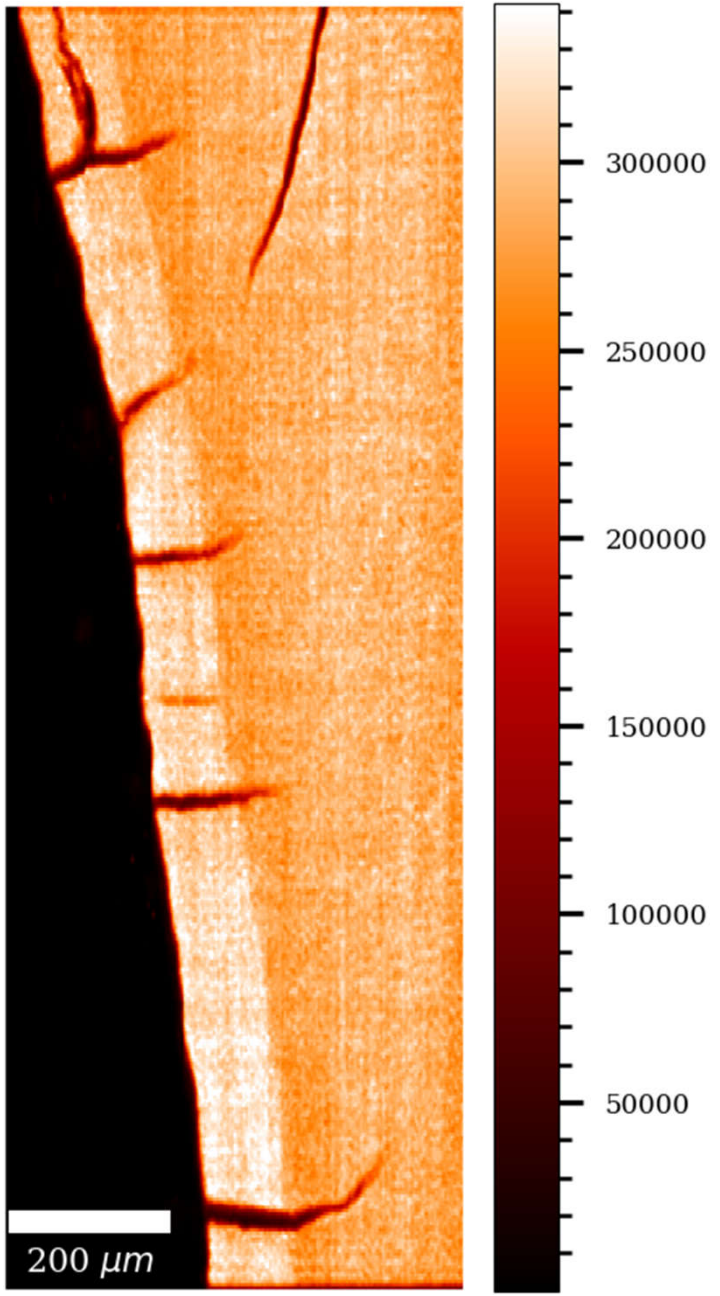


Odense 533 LLM1 – Acellular Cementum

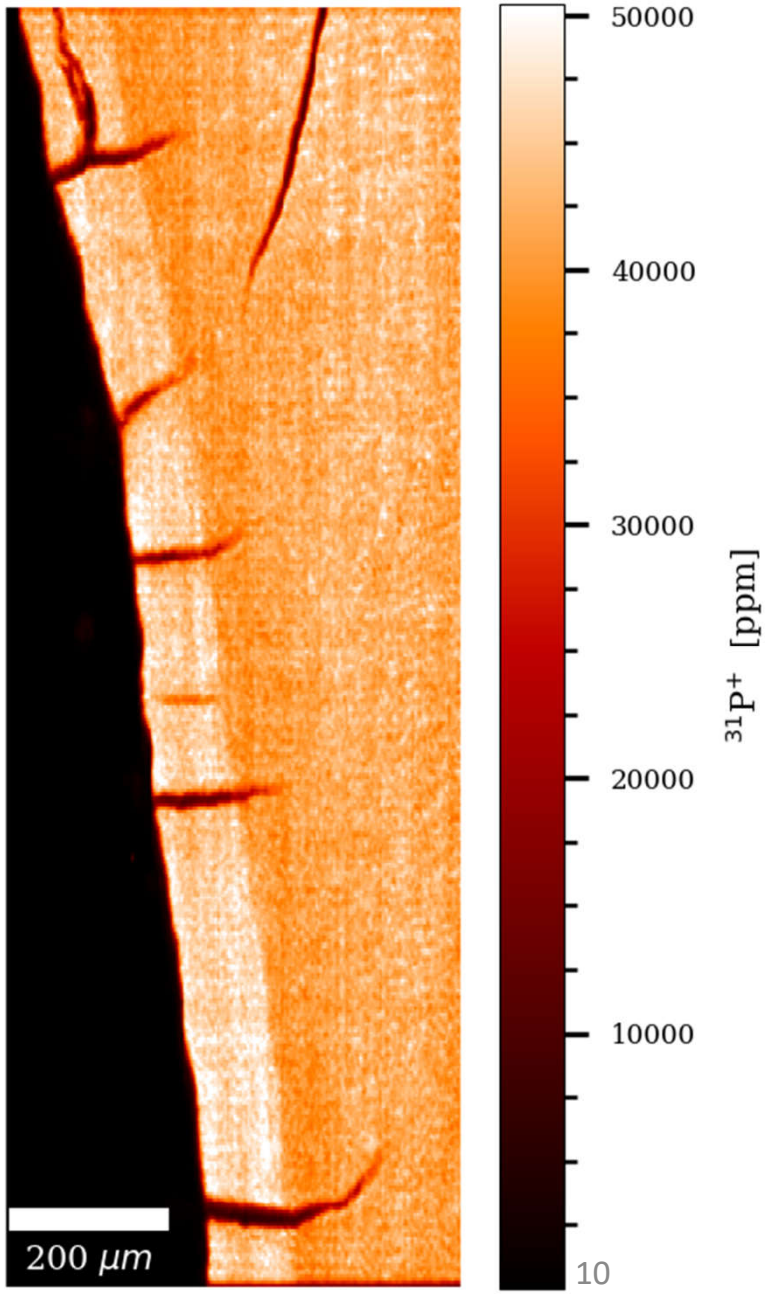
Gauss 0.8 x 0.8



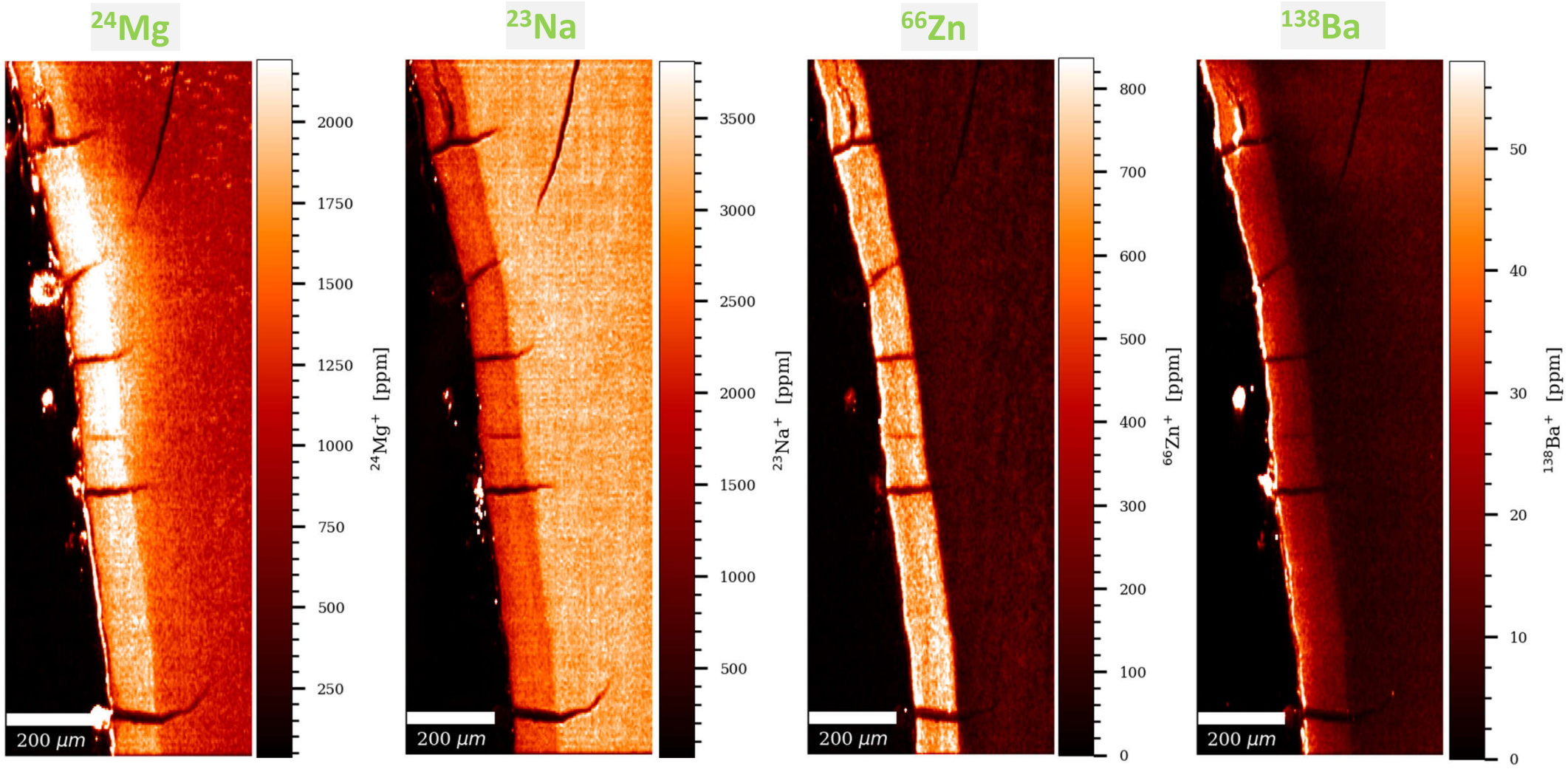
^{44}Ca



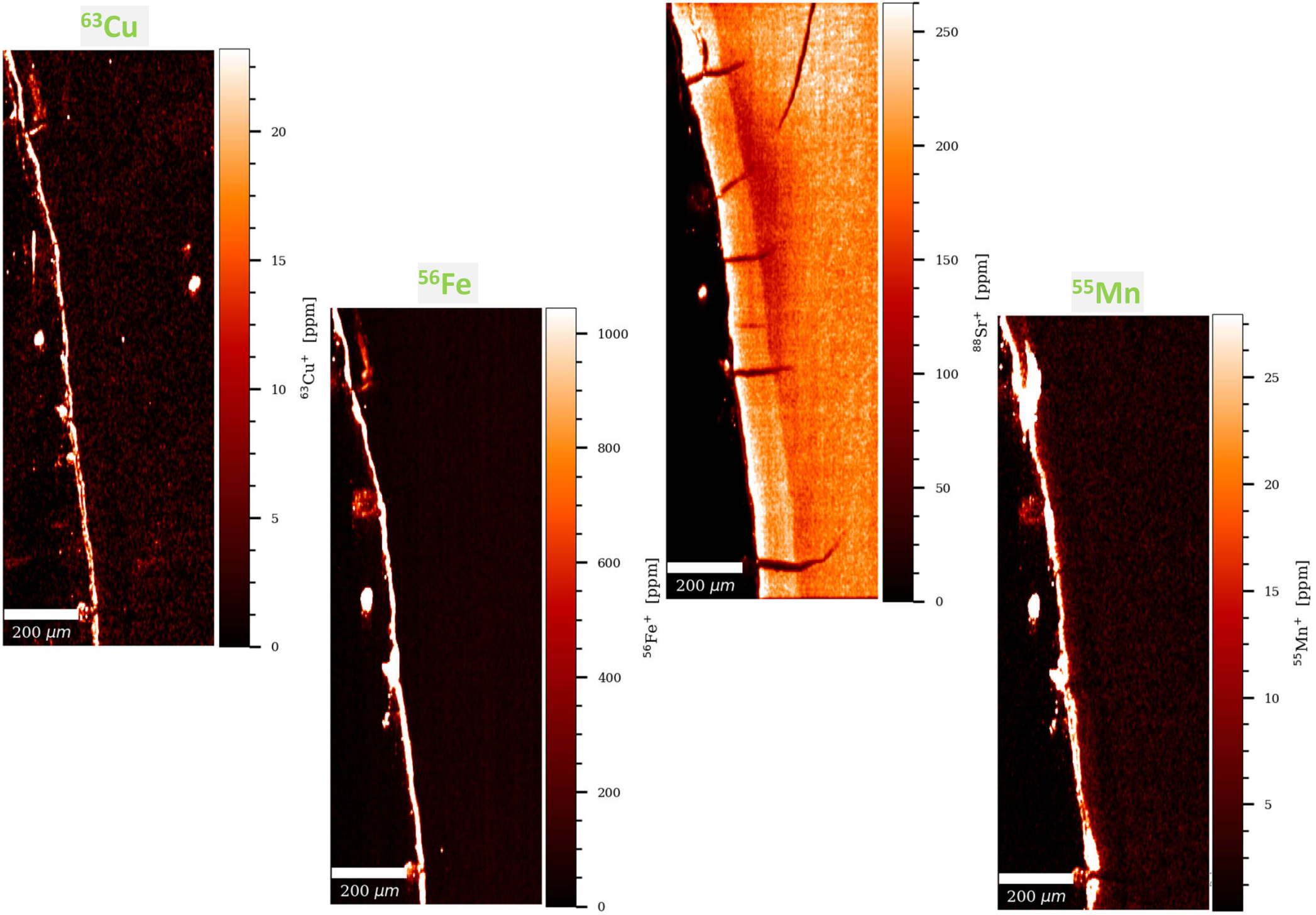
^{31}P



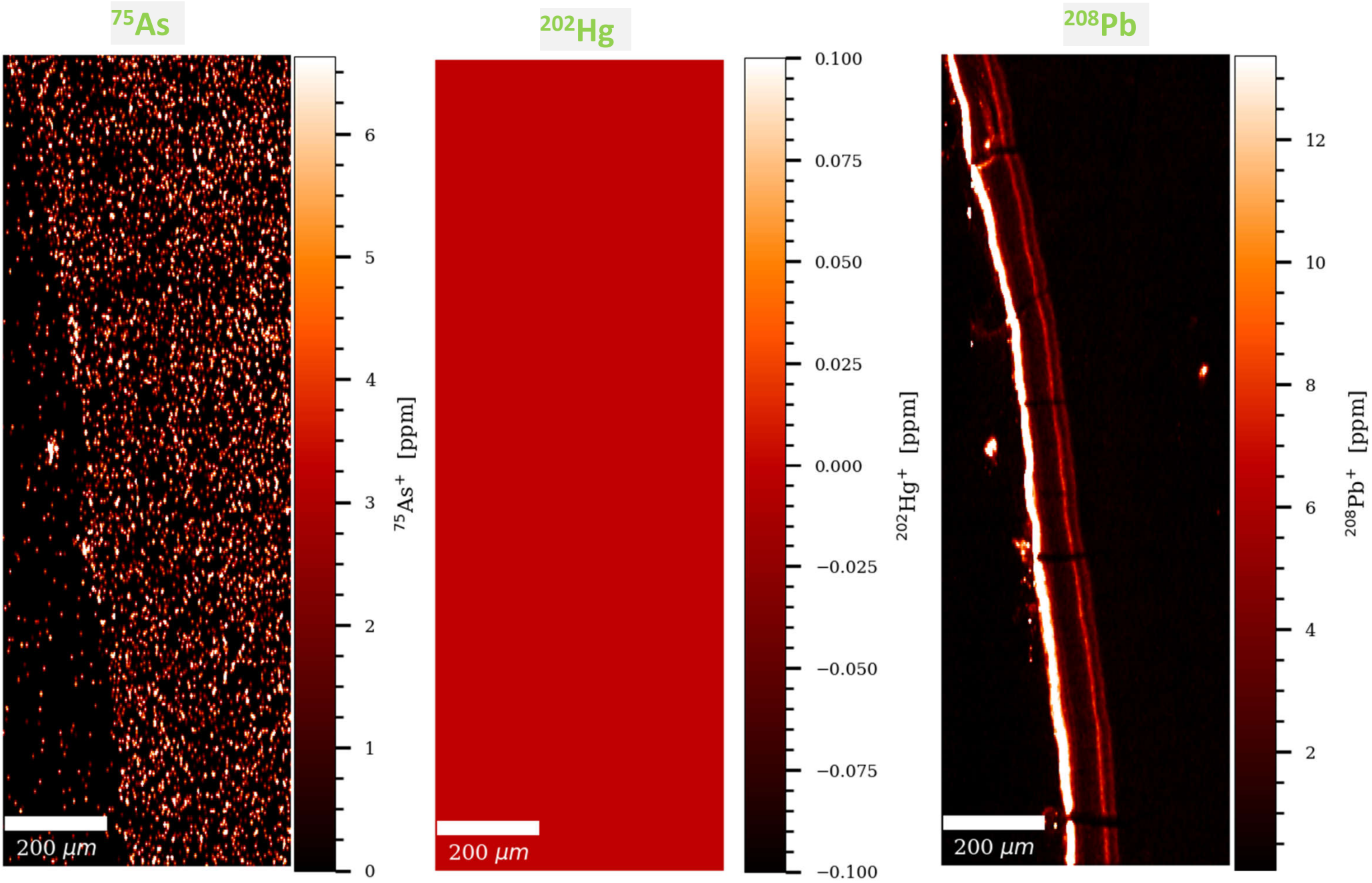
Odense 533M – Acellular Cementum



Odense 533M – Acellular Cementum



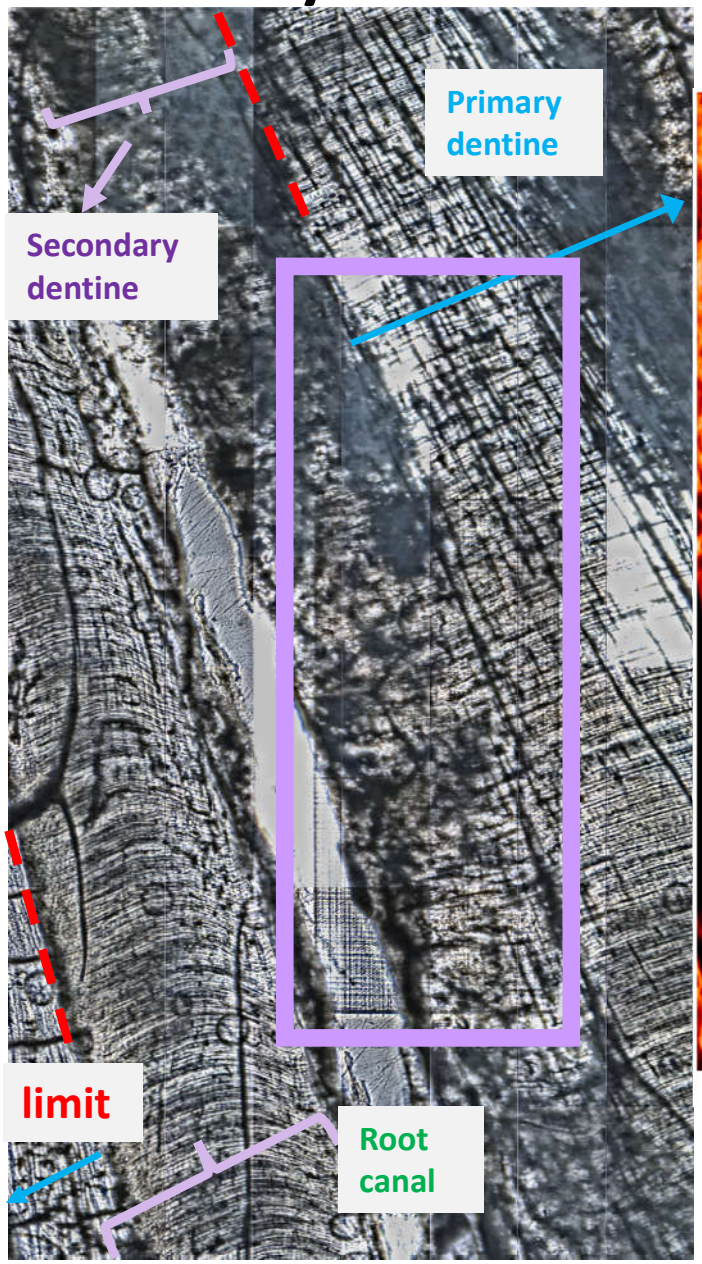
Odense 533M – Acellular Cementum



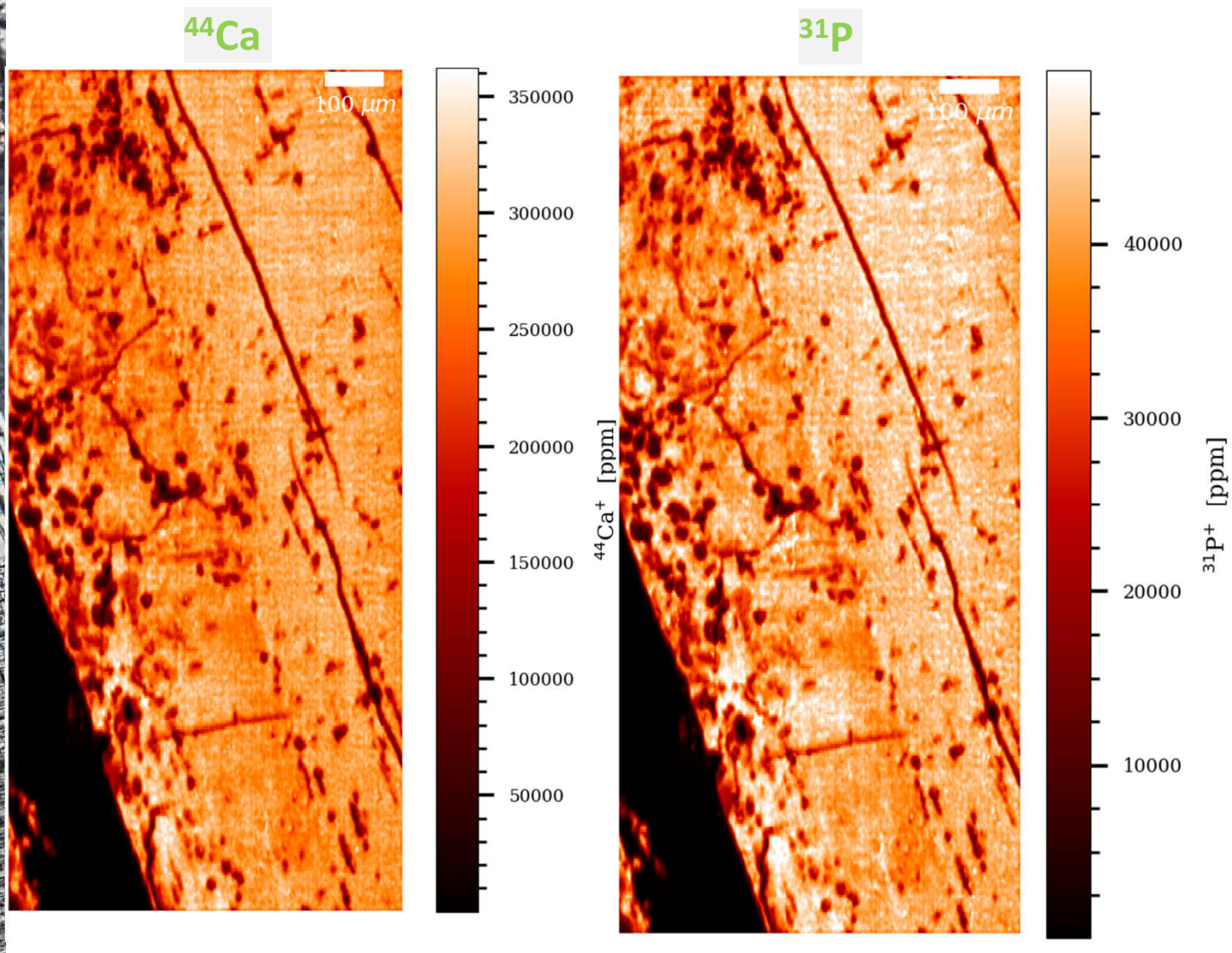
No detectable mercury

Odense 533 LLM1 – Secondary Dentine

Gauss 0.8 x 0.8

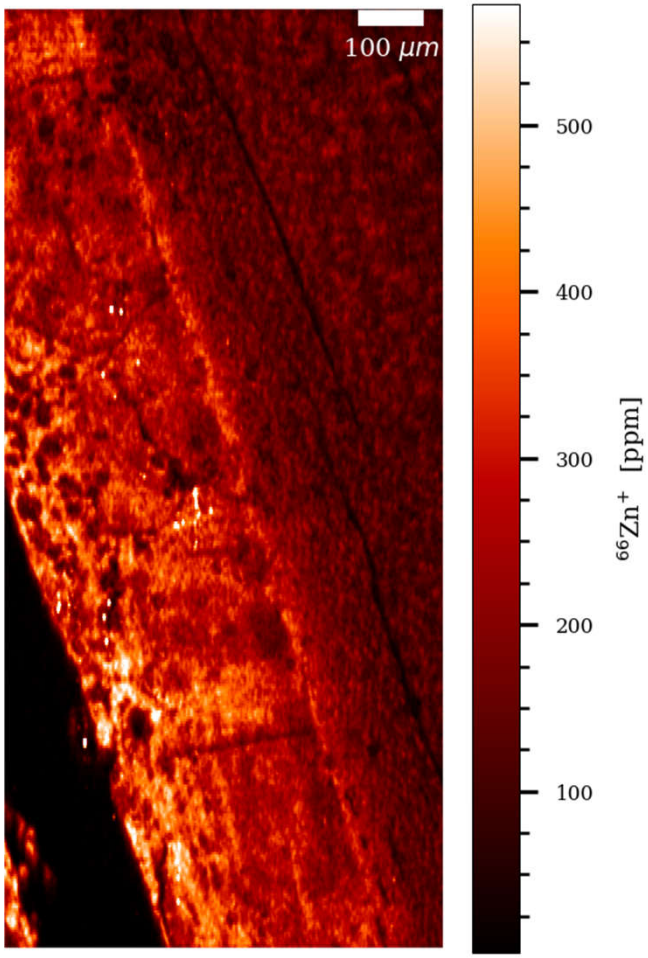


Towards root apex

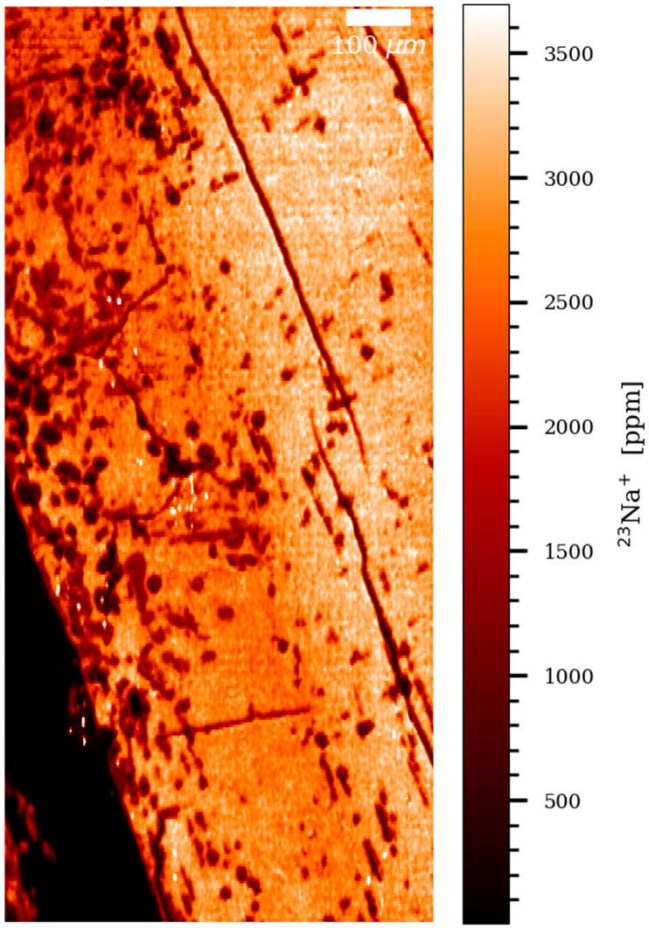


Odense 533M – Secondary Dentine

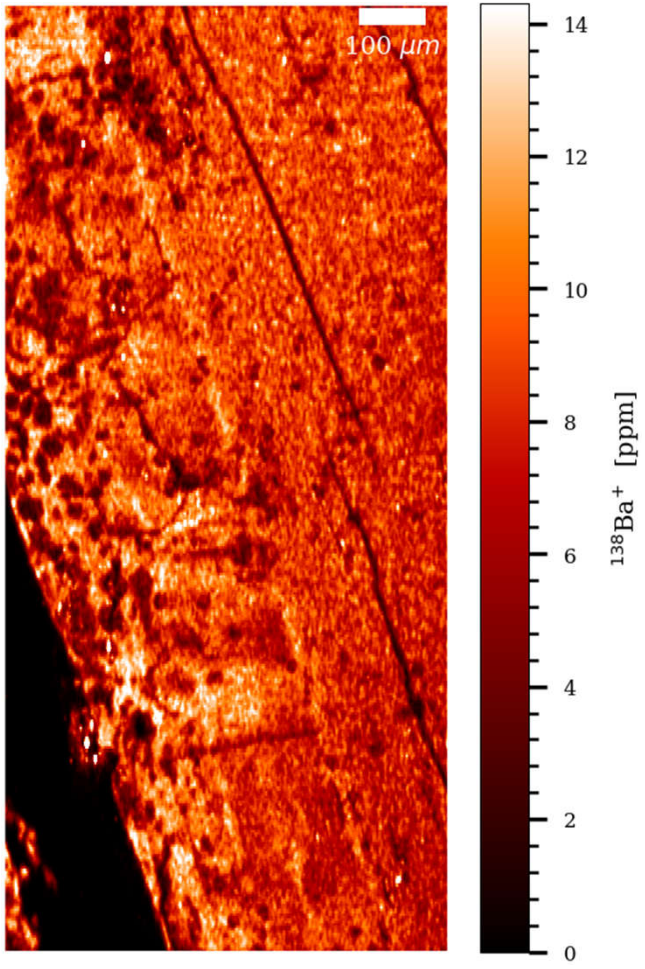
^{66}Zn



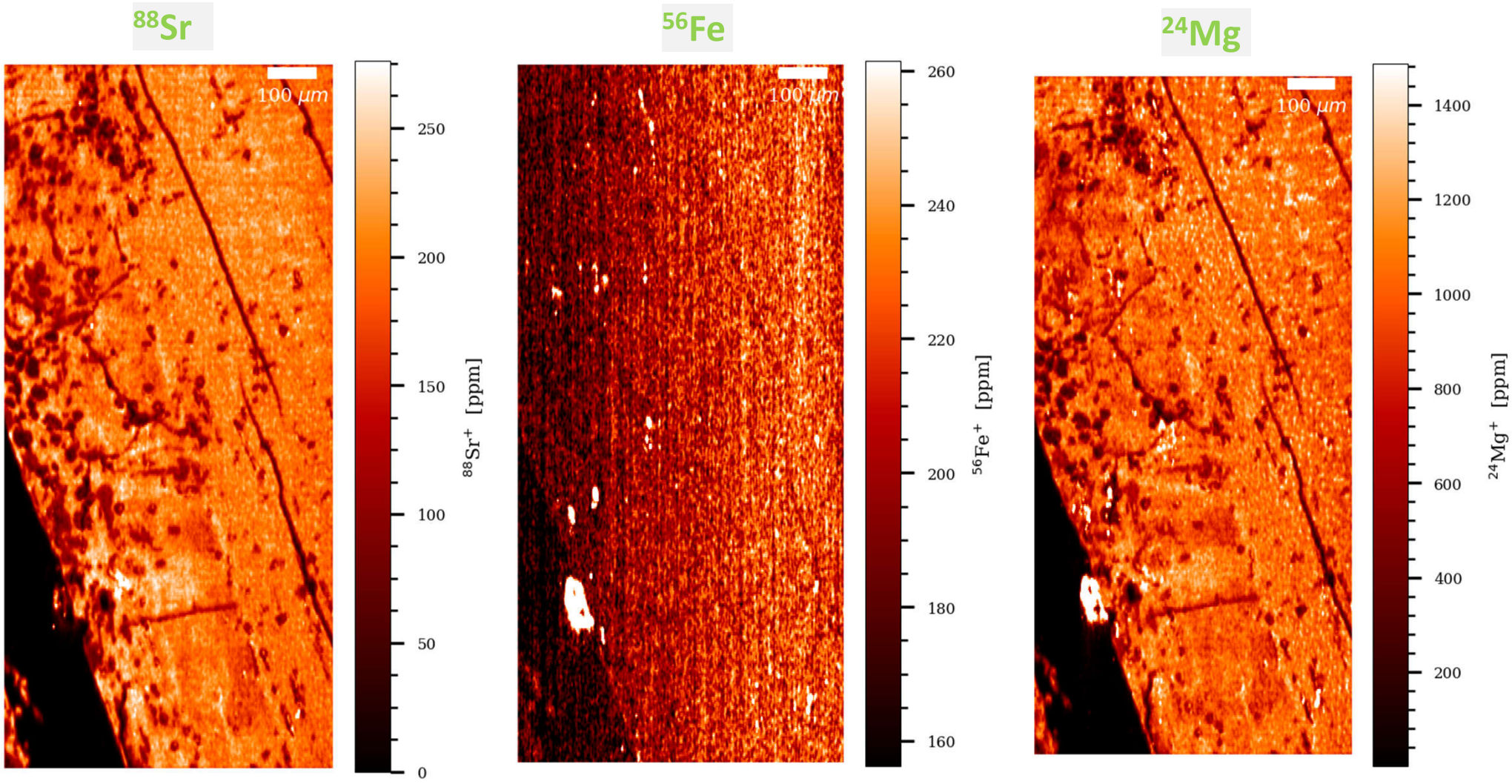
^{23}Na



^{138}Ba

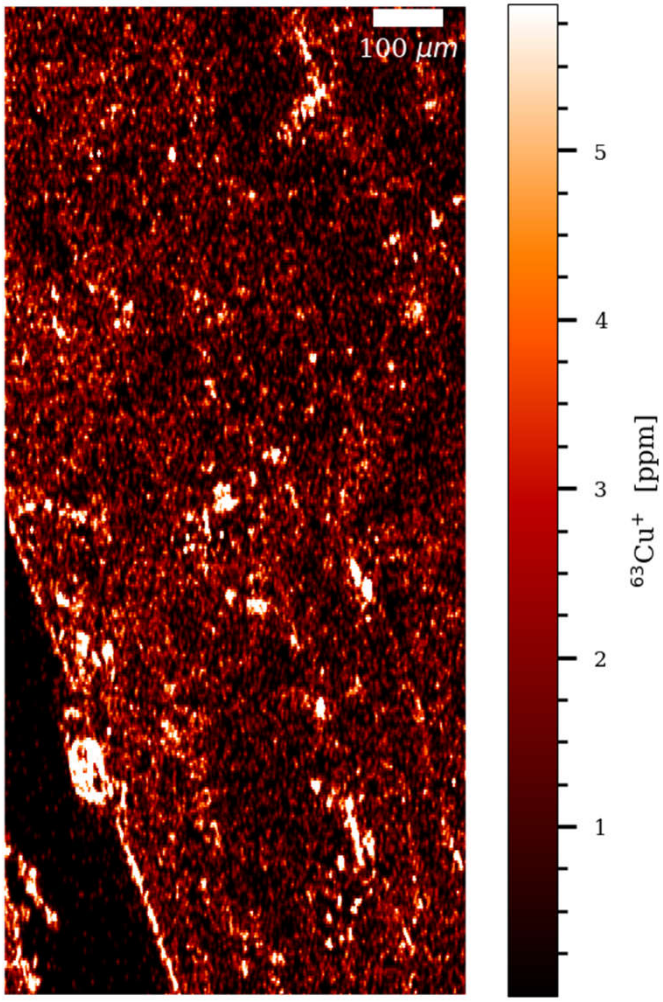


Odense 533M – Secondary Dentine

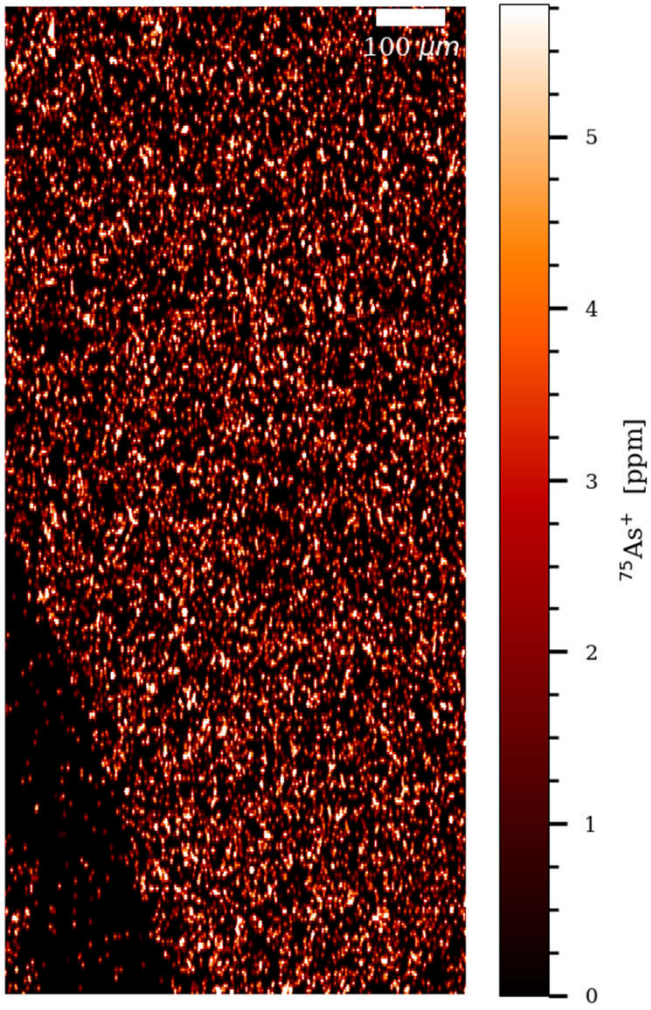


Odense 533M – Secondary Dentine

^{63}Cu

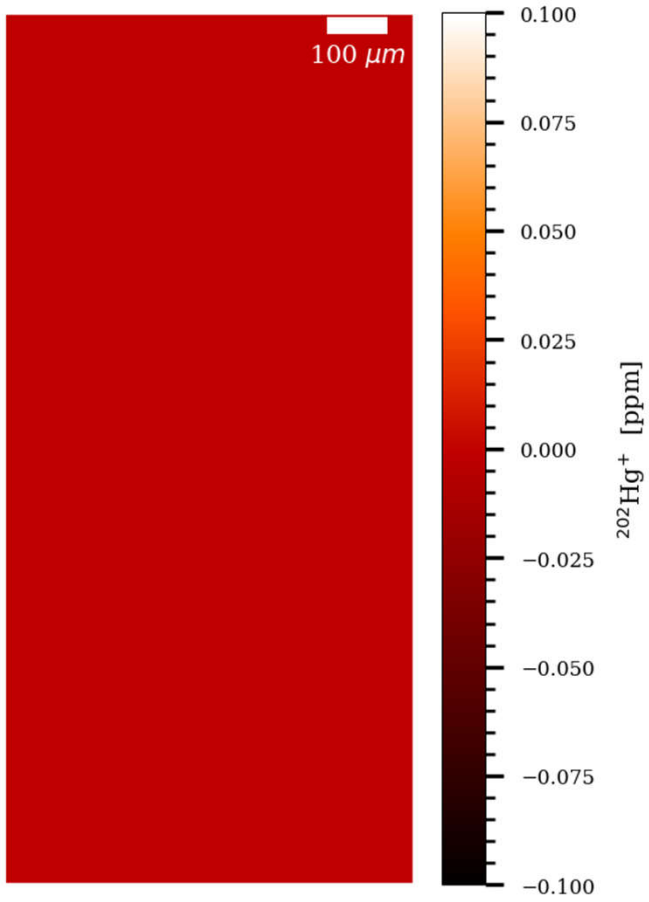


^{75}As



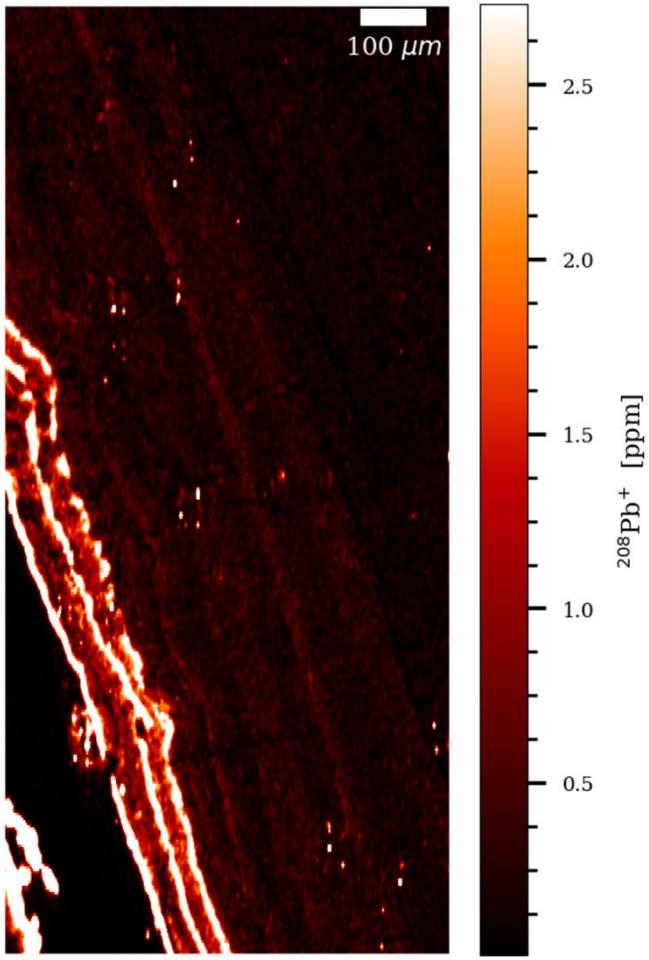
Odense 533M – Secondary Dentine

^{202}Hg



No detectable mercury

^{208}Pb



^{55}Mn

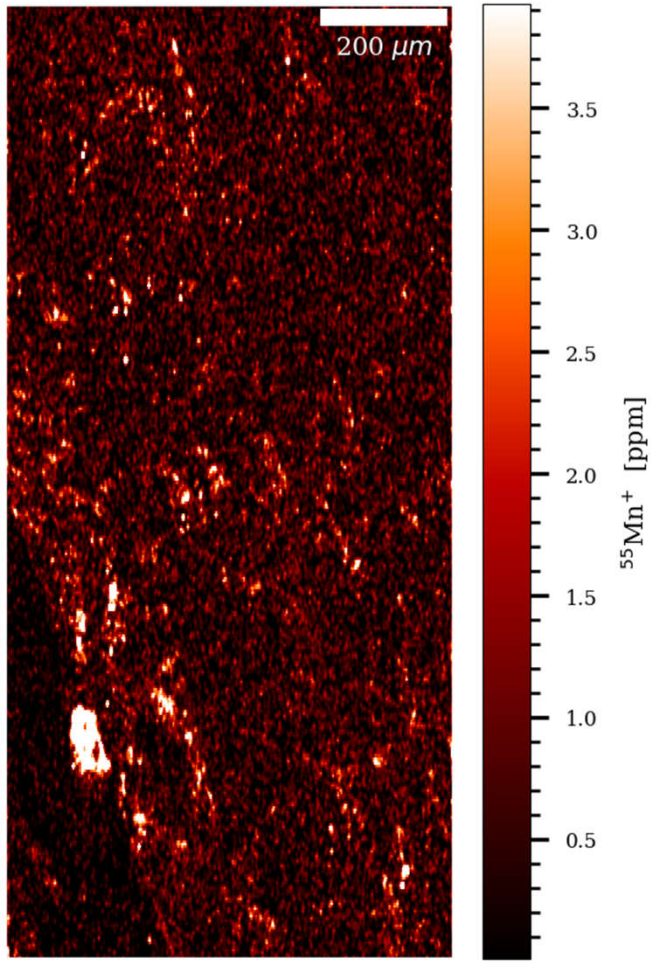


Table S1. List of individuals and teeth included in the study from the two medieval Danish leprosy sites (Odense and Næstved).

Site	Gr. Nr.	Teeth	Rounding of the edge of nasal aperture right	Rounding of the edge of nasal aperture left	Atrophy of the anterior nasal spine	Recession of the alveolar process of the premaxilla right	Recession of the alveolar process of the premaxilla left	Porosity / perforation of the palate right	Porosity / perforation of the palate left	Bones of hands	Lower legs	Bones of feet
Odense	265	LRC, ULM1	0	0	0	0	0	1	1	volar groove in two proximal phalanges	no indication	no indication at present elements
Odense	533	LLC, LLM1	1	1	1	1	1	1	1	no indication at present elements	tibiae: lamellar bone at areas of all shaft; fibulae: dense lamellar bone at medial distal shaft	no indication at present elements
Odense	896	LLC, LLM1	1	1	1	1	1	–	–	no indication at present elements	not present	no indication at present elements
Odense	914	LRC, ULM1	1	1	1	0	0	0	0	no indication at present elements	not present	not present
Odense	936	LLC, ULM1	1	0	1	1	1	1	1	volar groove in three proximal phalanges	not present	not present
Odense	1149	URC, ULM1	1	1	1	0	0	1	1	volar groove in two proximal phalanges	no indication	no indication at present elements
Næstved	6	ULC, URM1	1	1	0	0	0	1	1	non observable	slight porosity at the shaft of tibiae	no indication at present elements
Næstved	110	URC, LRM1	–	–	–	–	–	1	1	no indication at present elements	fibulae: porosity and lamellar bone at mid shaft and woven bone at distal shaft (laterally); left tibia: woven and lamellar bone at mid shaft and woven at ends of diaphysis	diaphyseal remodelling of one metatarsal, bone destruction at one tarsal fragment (calcaneus?)
Næstved	206	URC, ULM1	0	0	1	0	0	1	1	no indication at present elements	tibiae and fibulae: dense lamellar bone at all shaft; fibulae: bony outgrowths at the shaft	woven and lamellar bone at some metatarsals and phalanges (among others: 1st metatarsals and proximal and distal 1st phalanges)
Næstved	211	URC, LRM1	0	1	2	0	0	1	1	no indication at present elements	tibiae and femora: lamellar bone at all shaft	5th left metatarsal: woven at inferior mid shaft
Næstved	268	LRC, LLM1	0	0	0	0	0	1	1	proximal phalanx: pointed distal end (?) (post mortem damage in the area, but medullary cavity seems reduced)	left tibia: lamellar bone at all sides of shaft (more dense at the proximal inferior and at the mid and distal lateral sides); right tibia: woven bone at all sides of shaft (at the medial side mixed with lamellar bone, at the proximal inferior very dense); right fibula: dense lamellar at the inferior and medial shaft; left fibula: all shaft dense lamellar bone (shaft seems swallen, no cloaca)	right calcaneus: bone remodelling (also postmortem damage); left calcaneus: bone remodelling (mix woven and lamellar bone) at all sides of mid and distal parts; 2nd right metatasal: dense woven at the inferior shaft and thinner layer at the superior shaft
Næstved	305	LLC, LRM1	1	1	2	0	0	1	1	right: bone remodelling on shaft of metacarpals (mainly 5th) and phalanges; left: remodelling on shaft of metacarpals (mainly 4th)	right tibia and fibula: mix of woven and lamellar bone at all shaft; left tibia and fibula: non observable	non observable

The scoring system for changes on facial bones is provided by Boldsen and Freund (2006, Scandinavian Journal of Forensic Sciences, 2:67-72) and Boldsen (2007, Leprosy in Medieval Denmark – A comprehensive analysis) (Scores: -: No information due to poor preservation of the relevant bone area, 0: Unaffected, 1: Slightly affected, 2: Severely affected).

Abbreviations for teeth are designated as follows: 'L' or 'U' for 'lower' or 'upper'; 'L' or 'R' for 'left' or 'right'; 'C' or 'M' for 'canine' or 'molar'; and finally the tooth position in Arabic numerals. For instance, 'LLM1' represents 'lower left first molar'.

Table S2. Age and sex determination and ^{14}C dates of the individuals of interest for SXRF and LA-ICP-TOFMS scanning.

Site	Gr. Nr.	Sex	Age	Calibrated age CE (modelled) (2σ; 95.4%)	SXRF scans	LA-ICP-TOFMS scans
Næstved	6	female	~20	-	x	
Næstved	305	male	30-35	-	x	
Odense	896	male	35-45	1183 – 1265 [95.4%]	x	
Næstved	211	female	40-45	1184 – 1266 [95.4%]	x	x
Odense	533	female	25-35	1191 – 1269 [95.4%]	x	x
Odense	1149	female	20-30	1301 – 1415 [95.4%]	x	
Næstved	268	male	30-40	1441 – 1522 [95.4%]	x	
Odense	914	female	25-35	1459 – 1566 [95.4%]	x	

^{14}C dates from Brozou et al. 2021, American Journal of Physical Anthropology, doi: 10.1002/ajpa.24339

Table S3. Limits of detection (LOD) and of quantitation (LOQ) of the calibrated LA-ICP-TOFMS data.

	LOD [ppm]	LOQ [ppm]	
[23Na]+	240	780	
[24Mg]+	320	1070	
[31P]+	900	2950	
[44Ca]+	-	-	no Ca in the reference, so values cannot be calculated.
[55Mn]+	50	180	
[56Fe]+	50	170	
[63Cu]+	110	360	
[66Zn]+	330	1110	
[75As]+	380	1250	
[81Br]+	180	610	
[88Sr]+	30	90	
[138Ba]+	-	-	no Ba in the reference, so values cannot be calculated.
[202Hg]+	-	-	no Hg in the reference, so values cannot be calculated.
[208Pb]+	5	16	

Values are rounded to the nearest ten. LOQ values are shaded in blue as these are the values used to assess the significance of concentrations observed in the data.

Table S4. LA-ICP-TOFMS concentrations (in ppm) along a transect (in µm; See page 5 of Appendix A) in the cellular cementum of the Næstved 211 C.

Distance [µm]	23Na+	Uncertainty Mean (1s) [23Na]+ [ppm]	24Mg+	Uncertainty Mean (1s) [24Mg]+ [ppm]	31P+	Uncertainty Mean (1s) [31P]+ [ppm]	44Ca+	Uncertainty Mean (1s) [44Ca]+ [ppm]	55Mn+	Uncertainty Mean (1s) [55Mn]+ [ppm]	56Fe+	Uncertainty Mean (1s) [56Fe]+ [ppm]	63Cu+	Uncertainty Mean (1s) [63Cu]+ [ppm]	66Zn+	Uncertainty Mean (1s) [66Zn]+ [ppm]	75As+	Uncertainty Mean (1s) [75As]+ [ppm]	81Br+	Uncertainty Mean (1s) [81Br]+ [ppm]	88Sr+	Uncertainty Mean (1s) [88Sr]+ [ppm]	138Ba+	Uncertainty Mean (1s) [138Ba]+ [ppm]	202Hg+	Uncertainty Mean (1s) [202Hg]+ [ppm]	208Pb+	Uncertainty Mean (1s) [208Pb]+ [ppm]
0.00	304.60	37.15	272.41	25.59	5 821.01	921.68	39 275.54	6 174.35	215.62	14.41	738.09	40.57	3.52	0.38	57.24	9.64	0.00	0.00	8.21	0.98	49.97	6.40	10.49	0.26	0.00	0.00	1.94	0.21
2.13	743.76	63.89	499.50	28.48	14 450.46	1 659.59	97 967.71	10 857.77	404.05	18.15	1 108.57	149.85	6.68	0.87	133.58	15.18	0.00	0.00	7.87	1.20	123.55	11.30	19.11	0.72	0.00	0.00	4.61	0.32
4.25	1 497.07	208.57	758.87	20.64	25 123.83	1 709.99	172 457.96	10 699.64	544.66	28.16	1 371.87	187.21	10.34	1.62	229.57	14.90	0.00	0.00	7.00	0.67	213.11	11.82	28.05	1.40	0.00	0.00	8.03	0.37
6.38	2 111.44	452.31	853.32	22.64	32 535.95	1 422.91	226 246.90	8 291.13	580.91	46.44	1 144.35	127.93	12.18	1.71	291.46	15.68	0.00	0.00	7.07	0.47	267.85	10.57	30.14	1.33	0.00	0.00	10.10	0.40
8.51	1 752.76	269.66	781.14	14.36	34 149.44	1 153.39	241 417.09	5 529.93	602.13	52.83	709.96	54.29	11.68	1.05	291.66	16.08	0.00	0.00	8.66	0.88	273.41	7.10	26.04	0.87	0.00	0.00	10.07	0.24
10.64	1 189.48	75.63	700.60	16.72	32 163.74	1 064.12	235 046.45	4 772.38	654.09	33.33	438.08	18.78	10.28	0.88	263.22	16.59	0.00	0.00	9.92	1.37	256.00	4.86	22.21	0.69	0.00	0.00	9.49	0.20
12.76	964.60	40.41	652.95	22.30	29 140.55	1 116.84	222 085.47	6 659.97	682.54	12.70	323.75	7.78	9.41	0.97	240.00	15.89	0.00	0.00	9.03	1.29	233.98	6.24	20.27	0.86	0.00	0.00	8.75	0.12
14.89	872.50	33.17	571.40	24.86	25 675.55	1 073.85	201 375.67	6 899.08	623.79	23.05	266.39	3.74	8.12	0.67	214.97	11.71	0.00	0.00	7.64	1.11	207.90	7.65	18.18	0.85	0.00	0.00	7.42	0.21
17.02	793.95	16.06	471.66	20.49	22 760.53	766.95	181 161.34	4 467.66	543.06	18.25	239.67	2.82	6.58	0.30	186.83	8.25	0.00	0.00	6.91	1.04	184.57	5.60	15.80	0.56	0.00	0.00	6.34	0.20
19.14	752.60	7.79	420.81	17.90	21 466.42	428.77	171 642.68	2 244.41	507.26	8.97	239.56	4.23	6.02	0.20	167.20	6.03	0.00	0.00	6.54	0.73	175.04	2.80	14.29	0.23	0.00	0.00	5.67	0.16
21.27	748.88	17.16	412.35	12.35	21 332.59	287.48	169 035.12	2 454.27	490.58	6.50	241.11	3.77	6.10	0.42	164.23	5.88	0.00	0.00	6.88	0.54	173.29	2.01	13.52	0.28	0.00	0.00	5.08	0.15
23.40	742.61	23.82	424.63	8.29	20 989.47	416.30	165 797.89	3 705.93	461.38	8.70	224.65	2.92	6.11	0.79	175.42	6.48	0.01	0.01	7.36	0.51	169.65	3.02	12.76	0.40	0.00	0.00	4.52	0.16
25.53	751.56	28.27	447.52	12.07	20 902.17	469.23	166 113.45	3 834.60	449.52	10.59	210.31	3.39	5.78	0.87	188.53	10.61	0.01	0.01	6.96	0.64	168.86	2.89	12.47	0.38	0.00	0.00	4.16	0.15
27.65	787.25	16.85	473.46	11.83	22 141.39	326.52	172 557.11	2 225.90	461.21	9.18	204.48	3.22	4.75	0.66	192.98	11.68	0.01	0.01	7.01	0.77	172.51	2.58	13.03	0.32	0.00	0.00	3.93	0.11
29.78	901.81	30.84	547.73	15.27	25 901.07	605.28	192 298.70	3 400.29	500.49	14.50	202.34	3.33	4.30	0.43	208.19	7.18	0.00	0.00	8.21	0.83	191.34	5.01	14.85	0.66	0.00	0.00	3.73	0.12
31.91	1 228.29	57.93	712.16	21.58	33 046.11	844.25	234 998.10	5 432.44	561.83	12.84	202.66	3.05	5.42	0.53	277.80	5.95	0.01	0.00	8.63	0.79	234.34	5.45	18.51	0.69	0.00	0.00	3.87	0.10
34.03	1 684.56	70.57	920.62	23.99	41 133.73	724.86	286 217.10	5 571.99	557.36	15.44	195.82	4.90	7.07	0.59	374.48	8.74	0.01	0.01	7.40	0.32	285.06	3.74	22.51	0.46	0.00	0.00	4.06	0.07
36.16	2 017.94	60.83	1 087.41	24.44	46 800.98	456.25	321 675.00	4 257.44	449.79	27.71	176.73	7.97	6.63	0.60	430.81	3.94	0.01	0.01	6.63	0.48	321.14	3.56	25.36	0.62	0.00	0.00	3.74	0.11
38.29	2 180.08	57.37	1 168.15	23.80	49 266.68	410.07	335 900.75	3 802.19	320.76	31.00	156.86	9.29	4.88	0.68	432.58	9.10	0.00	0.00	7.21	0.72	341.02	5.10	26.66	0.64	0.00	0.00	3.30	0.18
40.42	2 268.51	75.91	1 174.56	28.51	49 369.85	716.82	337 059.36	4 827.17	254.57	40.64	149.05	12.77	4.24	1.00	419.04	9.42	0.00	0.00	7.05	0.70	351.93	6.73	27.12	0.63	0.00	0.00	3.00	0.20
42.54	2 315.32	98.80	1 151.58	31.46	48 360.14	1 198.19	333 382.69	6 775.47	242.17	51.04	157.38	18.91	5.24	1.20	402.16	5.42	0.00	0.00	7.00	0.92	355.10	8.01	27.43	0.70	0.00	0.00	2.83	0.20
44.67	2 321.74	120.72	1 113.40	37.17	46 932.34	1 723.99	325 957.54	10 099.03	246.37	58.05	176.78	23.91	6.36	0.91	376.93	8.37	0.00	0.00	9.77	1.63	350.10	10.32	27.53	0.75	0.00	0.00	2.77	0.20
46.80	2 266.62	137.57	1 053.56	51.96	45 167.82	2 194.26	315 054.96	13 691.63	239.85	58.34	189.48	24.91	6.60	0.62	366.14	11.21	0.00	0.00	11.01	2.01	338.82	12.89	27.00	0.89	0.00	0.00	2.68	0.14
48.93	2 192.92	155.75	1 006.62	71.85	43 612.08	2 549.25	304 400.73	16 913.85	226.13	51.91	191.04	23.33	6.34	0.21	372.00	16.34	0.03	0.02	8.39	1.85	325.59	14.66	26.15	1.11	0.00	0.00	2.50	0.07
51.05	2 146.90	165.50	1 009.47	79.92	42 660.75	2 608.12	297 902.65	17 284.29	226.08	47.41	185.68	18.31	6.78	0.58	370.89	20.18	0.10	0.09	6.16	1.41	321.30	14.69	25.31	1.29	0.00	0.00	2.23	0.06
53.18	2 204.61	156.99	1 077.75	67.20	43 128.78	2 237.29	301 979.73	14 470.31	244.57	47.19	182.03	13.62	7.74	0.86	368.73	21.00	0.07	0.07	6.18	0.50	331.79	14.11	26.19	0.98	0.00	0.00	2.14	0.08
55.31	2 360.47	132.73	1 196.75	48.73	45 270.00	1 550.48	317 468.59	10 157.00	261.06	43.99	184.78	10.81	8.27	0.91	370.14	21.21	0.04	0.02	6.91	0.55	351.35	12.75	29.70	0.95	0.00	0.00	2.27	0.05
57.43	2 499.05	102.63	1 330.09	66.77	47 243.31	1 055.45	332 592.30	6 872.66	250.99	36.04	183.51	7.58	8.88	1.26	366.71	20.51	0.21	0.13	6.73	0.80	369.74	11.49	32.16	1.29	0.00	0.00	2.36	0.08
59.56	2 610.66	78.15	1 412.32	76.00	48 191.09	795.13	339 567.26	5 476.41	207.21	20.20	167.71	5.13	8.82	1.90	363.71	13.78	0.62	0.32	6.74	0.85	378.38	10.43	32.17	1.26	0.00	0.00	2.25	0.10
61.69	2 661.38	56.97	1 364.50	58.69	47 961.58	784.38	337 976.19	6 010.50	157.06	5.82	139.77	4.84	7.41	1.61	341.54	9.77	0.70	0.31	7.65	1.04	372.38	8.82	31.01	1.05	0.00	0.00	1.86	0.08
63.82	2 597.50	48.07	1 244.56	30.43	46 690.42	715.26	330 000.99	5 159.44	144.37	11.41	118.57	2.47	6.44	0.83	300.00	4.17	0.26	0.10	7.75	1.25	351.81	5.00	28.49	0.74	0.00	0.00	1.47	0.05
65.94	2 444.98	46.64	1 142.47	20.65	44 525.93	563.20	316 280.90	3 501.17	186.06	20.80	119.28	2.94	6.29	0.63	279.66	1.78	0.03	0.01	5.56	0.90	324.17	4.14	25.59	0.51	0.00	0.00	1.29	0.05
68.07	2 268.21	79.78	1 047.19	23.20	42 135.94	839.25	300 653.11	5 989.31	278.57	31.30	139.74	3.27	6.66	0.62	290.28	4.53	0.00	0.00	4.17	0.42	298.60	8.14	24.28	0.68	0.00	0.00	1.23	0.05
70.20	2 078.20	101.27	963.85	28.95	40 306.26	1 149.14	287 207.13	8 154.33	406.48	41.60	171.83	6.55	7.82	0.60	302.87	9.15	0.00	0.00	6.37	0.73	281.31	10.13	23.60	0.77	0.00	0.00	1.18	0.05
72.32	1 952.72	102.41	928.98	39.45	39 795.79	1 444.09	285 028.30	8 957.81	543.97	42.60	209.21	10.43	8.45	0.64	296.15	11.78	0.00	0.00	9.28	1.15	274.56	10.70	23.14	1.07	0.00	0.00	1.15	0.08
74.45	1 935.19	93.83	921.31	46.43	40 114.36	1 606.29	293 653.45	9 262.27	649.96	36.65	245.15	11.29	8.24	0.65	276.52	12.44	0.00	0.00	8.51	1.10	276.46	10.42	23.00	1.40	0.00	0.00	1.13	0.07
76.58	1 896.72	94.01	883.70	49.30	39 189.44	1 530.71	293 907.52	9 120.15	686.59	32.72	268.11	11.86	8.42	0.57	255.97	10.08	0.00	0.00	7.21	0.69	276.12	10.42	22.44	1.21	0.00	0.00	1.17	0.07
78.71	1 844.04	111.97	853.56	50.63	37 647.13	1 610.08	285 391.00	9 750.37	669.79	31.05	279.99	12.15	8.93	0.39	249.48	9.31	0.00	0.00	7.59	0.80	271.45	12.16	21.58	1.22	0.00	0.00	1.24	0.07
80.83	1 877.94	135.91	843.87	45.69	36 930.25	1 731.98	276 903.57	10 455.23	631.98	31.15	280.64	13.04	8.58	0.37	252.82	11.23	0.00	0.00	7.81	0.84	266.78	12.99	20.74	1.44	0.00	0.00	1.29	0.07
82.96	1 912.56	150.21	832.48	46.63	36 276.05	1 792.81	267 118.46	10 802.74	586.30	30.80	267.05	14.26	8.79	0.40	248.43	9.13	0.00	0.00	8.77	0.76	259.19	12.88	19.98	1.45	0.00	0.00	1.21	0.05
85.09	1 945.94	166.72	825.04	52.26	35 737.67	2 003.93	261 379.48	12 872.80	545.77	30.26	246.85	13.47	9.83	0.21	238.39	8.83	0.01	0.00	12.08	0.70	250.96	14.01	20.27	1.60	0.00	0.00	0.97	0.05
87.21	2 025.70	183.52	834.63	62.60	35 983.91	2 310.13	262 743.04	15 387.07	515.56	33.30	226.19	12.68	9.47	0.53	235.97	12.83	0.11	0.04	14.80	1.08	249.35	15.98	20.69	1.82	0.00	0.00	0.78	0.05
89.34	2 126.60	183.69	855.11	71.34	36 497.05	2 240.49	266 835.24	14 959.29	486.96	36.49	208.04	13.43	8.58	1.00	240.81	12.89	0.51	0.15	11.99	0.82	252.83	15.90	20.26	1.68	0.00	0.00	0.74	0.04
91.47	2 174.84	158.19	876.21	74.17	36 791.07	1 948.11	269 582.20	12 655.30	449.67	37.15	188.89	14.28	8.87	1.35	242.60	10.09	1.00	0.31	8.36	0.56	256.54	13.43	20.01	1.22	0.00	0.00	0.70	0.03
93.60	2 148.37	125.23	876.56	64.09	36 678.32	1 599.81	269 009.79	9 617.21	417.12	34.04	166.54	13.75	10.09	1.40	240.73	6.90	1.02	0.25	6.60	0.88	256.06	10.24	19.98	0.94	0.00	0.00	0.70	0.03
95.72	2 088.68	97.77	891.47	47.07	36 459.65	1 195.23	266 630.47	6 701.69	420.13	27.76	150.00	12.96	10.56	1.07	244.64	6.29	0.54	0.12	6.23	0.54	251.87	7.87	19.65	0.84	0.00	0.00	0.76	0.03
97.85	2 098.44	83.27	902.19	33.13	36 658.49	966.55	267 583.21	5 480.80	457.90	21.16	150.22	11.59	10.30	0.64	257.05	8.37	0.13	0.04	7.18	0.48	251.29	7.20	19.44	0.74	0.00	0.00	0.85	0.03
99.98	2 172.26	97.95	883.10	27.24	36 582.08	1 063.39	269 344.44	7 124.28	479.10	21.36	157.90	10.47	11.20	1.55	261.12	13.17	0.01	0.01	7.43	0.49	251.88	7.67	19.49	0.70	0.00	0.00	0.95	0.04
102.10	2 137.99	110.11	866.52	39.54	35 527.87	1 350.02	262 654.03	9 284.08	457.46	24.16	153.58	8.48	11.45	1.86	237.81	15.27	0.00	0.00	7.86	0.80	246.10	9.14	19.56	1.01	0.00	0.00	1.00	0.05
104.23	2 026.36	104.47	868.39	46.30	34 326.92	1 440.20	252 610.23	9 919.68	416.92	32.17	138.19	4.90	10.81	2.21	218.15	12.63	0.00	0.00	8.85	1.56	235.59	9.23	19.61	1.25	0.00	0.00	0.96	0.06
106.36	1 896.94	93.51	860.24	44.99	33 264.90	1 259.74	243 081.31	8 688.33	390.62	35.54	128.26	3.52	11.92	2.84	218.65	13.72	0.00	0.00	9.06	1.81	225.24	8.31	18.27	1.12	0.00	0.00	0.92	0.06
108.49	1 791.43	79.62	822.40	36.31	32 614.60	1 127.31	235 832.40	7 008.77	388.32	28.65	122.02	3.61	13.26	2.62	220.62	15.90	0.00	0.00	8.39	1.32	220.79	7.88	16.71	0.86	0.00	0.00	0.96	0.04
110.61	1 737.62	46.77	770.20	28.01	32 397.16	832.41	232 941.16	4 069.48	409.30	17.72	119.81	2.89	11.75	1.26	222.91	15.60	0.00	0.00	6.07	0.54	221.21	5.47	17.09	0.48	0.00	0.00	1.09	0.06
112.74	1 672.35	36.84	723.92	26.82	31 433.69	640.05	226 721.17	2 530.14	428.91	17.87	129.34	2.70	9.33	0.69	222.14	15.60	0.00	0.00	4.17	0.24	216.99	4.14	17.80	0.21	0.00	0.00	1.22	0.12
114.87	1 480.82	23.40	640.32	25.22	27 984.39	586.10	202 156.91	2 618.84	390.28	16.95	139.21	2.93	8.64	0.85	211.02	11.56	0.00	0.00	5.17	0.46	196.50	4.81	16.26	0.15	0.00	0.00	1.21	0.15
116.99	1 141.48	19.09	522.13	19.61	22 655.17	757.40	161 082.19	4 473.50	299.79	17.92	128.30	3.18	7.82	0.79	187.59	7.00	0.00	0.00	8.14	0.97	161.18	5.66	12.44	0.28	0.00	0.00	0.90	0.09
119.12	802.40	35.60	403.10	14.06	17 065.77	809.21	117 633.03	5 489.74	203.87	19.80	111.04	1.52	5.63	0.51	153.30	6.83	0.00	0.00	9.78	1.17	119.99	5.73	8.43	0.42	0.00	0.00	0.52	0.02
121.25	553.44	50.78	288.38	19.34	12 381.29	856.57	83 783.06	6 343.10	125.07	15.43	99.62	1.92	4.09	0.45	117.60	7.49	0.01	0.00	8.27	0.92	85.22	6.54	5.70	0.60	0.00	0.00	0.29	0.02
123.38	420.43	48.64	221.67	26.10	9 840.20	824.57	66 561.76	6 463.26	89.08	10.37	93.24	3.16	3.78	0.58	97.20	8.45	0.07	0.03	6.44	0.73	66.23	6.80	4.57	0.61	0.00	0.00	0.21	0.03
125.50	404.55	32.58	221.42	16.68	9 725.86	551.78	65 753.63	4 627.97	104.83	11.56	97.58	3.00	3.74	0.38	88.98	6.63	0.36	0.16	5.52	0.49	62.17	4.92	4.59	0.43	0.00	0.00	0.21	0.03
127.63	589.96	55.07	305.47	16.85	12 807.33	816.18	89 009.99	6 214.26	178.91	19.88	109.74	3.33	5.32	0.62	91.37	3.37	0.76	0.35	5.98	0.51	80.42	4.78	6.51	0.52	0.00	0.00	0.33	0.02
129.76	1 024.06	91.32	472.71	34.87	19 253.50	1 347.59	138 271.70	10 560.65	297.34	31.70	130.30	2.31	7.86	0.88	117.80	6.77	0.58	0.26	7.15	0.96	124.59	7.71	10.50	0.69	0.00	0.00	0.60	0.02
131.89	1 565.94	92.02	658.47	27.71	27 272.81	1 161.43	197 888.05	10 184.58	402.26	45.15	148.51	6.94	9.31	1.32	171.13	7.25	0.20	0.08	7.13	0.76	181.83	7.51	14.68	0.60	0.00	0.00	0.86	0.06
134.01	2 037.97	68.81	829.20	23.83	35 088.17	742.69	253 618.26	5 616.52	432.38	49.47	143.46	8.08	10.71	1.24	228.42	7.64	0.27	0.09	6.72	0.68	238.76	5.91	18.71	0.37	0.00	0.00	1.01	0.05
136.14	2 410.16	156.97	1 004.69	59.18	41 803.62	1 602.48	298 832.78	9 130.85	392.89	34.12	130.76	5.64	11.66	0.88	280.13	14.01	0.99	0.29	6.30	0.49	288.64	12.91	22.85	0.93	0.00	0.00	1.08	0.04
138.27	2 734.82	202.40	1 156.38	64.64	47 039.74	1 934.69	332 374.50	12 186.53	345.86	35.16	131.48	8.69	10.78	0.42	318.17	19.60	1.97	0.48	6.44	0.76	328.49	15.92	26.88	1.21	0.00	0.00	1.10	0.06
140.39	2 971.78	185.41	1 217.25	45.98	49 965.45	1 624.58	350 987.22	11 412.09	319.05	68.41	145.85	17.71	8.99	0.87	322.60	16.84	2.50	0.76	7.72	1.06	348.57	14.46	30.22	1.22	0.00	0.00	0.99	0.10
142.52	2 939.88	134.77	1 175.27	38.25	49 689.60	1 346.45	349 221.96	9 894.63	298.80	86.58	163.92	27.31	6.79	1.57	303.74	13.25	2.22	0.63	8.72	0.80	346.41	11.33	31.47	0.92	0.00	0.00	0.78	0.12
144.65	2 729.18	102.91	1 106.42	46.97	47 932.18	1 675.94	336 129.88	11 747.18	279.22	85.30	173.34	29.91	5.43	1.81	286.31	7.23	1.57	0.53	9.35	0.39	335.24	10.90	31.20	0.85	0.00	0.00	0.64	0.09
146.78	2 541.41	105.60	1 071.24	54.33	46 580.80	2 042.27	323 877.13	14 498.48	254.17	73.08	168.73	23.55	5.27	1.64	282.66	3.01	0.74	0.20	8.63	0.53	328.93	12.94	30.26	0.52	0.00	0.00	0.61	0.05
148.90	2 410.61	101.05	1 042.65	53.74	45 504.95	2 084.33	313 365.35	14 157.41	221.97	59.14	153.88	15.87	5.48	1.41	285.11	4.51	0.29	0.04	7.29	0.54	326.10	13.35	27.96	0.71	0.00	0.00	0.69	0.03
151.03	2 306.04	94.76	995.65	44.56	44 578.57	1 850.74	305 297.86	11 171.83	204.71	52.48	145.48	12.39	5.71	1.29	287.46	7.48	0.52	0.20	7.61	0.75	320.58	11.06	24.97	1.21	0.00	0.00	0.71	0.02
153.16	2 316.41	75.24	989.07	30.82	44 907.61	1 425.65	306 772.92	8 388.67	191.58	47.06	143.34	11.42	6.25	1.31	296.04	8.23	1.02	0.38	7.70	0.81	319.22	8.61	23.25	1.16	0.00	0.00	0.71	0.03
155.28	2 423.12	56.75	1 043.70	17.67	46 075.76	1 240.50	315 211.54	7 198.52	159.10	36.32	136.07	9.93	6.91	1.10	312.11	7.23	1.26	0.55	6.22	0.77	320.69	8.31	23.55	1.16	0.00	0.00	0.80	0.02
157.41	2 590.93	50.72	1 135.03	14.05	47 635.22	961.57	328 061.70	5 304.88	118.77	25.13	123.69	8.36	5.63	0.46	327.61	8.07	1.38	0.68	5.48	0.77	330.73	5.76	25.86	1.16	0.00	0.00	0.86	0.02
159.54	2 732.83	30.98	1 174.42	15.47	48 766.76	449.94	337 760.05	3 492.69	88.26	17.34	119.35	6.87	4.30	0.39	342.02	7.06	1.41	0.42	5.78	0.97	350.33	1.81	28.38	0.92	0.00	0.00	0.92	0.04
161.67	2 847.22	33.04	1 189.23	24.48	50 006.91	339.01	345 601.73	1 823.02	68.76	11.83	125.30	4.57	4.70	0.66	363.78	3.70	1.73	0.60	5.93	0.85	371.06	1.64	29.44	0.64	0.00	0.00	0.98	0.07
163.79	2 819.96	35.59	1 199.41	19.51	49 951.16	305.96	347 658.97	1 725.76	54.23	7.56	122.45	2.97	4.97	0.71	366.76	3.62	1.30	0.38	7.39	0.99	371.00	1.46	28.19	0.93	0.00	0.00	0.94	0.06
165.92	2 718.55	40.05	1 178.79	10.92	48 545.56	366.05	344 378.47	2 823.77	43.83	4.15	111.21	4.73	5.17	0.99	348.55	6.47	0.71	0.23	8.16	1.29	356.20	3.99	26.36	0.91	0.00	0.00	0.95	0.05
168.05	2 652.25	54.29	1 145.41	13.62	47 347.73	343.64	339 131.91	3 181.76	37.41	2.40	103.42	5.08	5.45	1.42	344.14	12.15	0.72	0.23	6.67	1.00	347.65	4.48	25.85	0.60	0.00	0.00	0.97	0.04
170.17	2 677.09	65.16	1 121.24	18.12	47 162.37	311.40	336 548.27	2 995.98	31.42	1.59	102.55	3.83	4.80	1.26	340.65	13.47	1.13	0.51	5.80	0.69	347.79	3.51	25.89	0.57	0.00	0.00	0.93	0.03
172.30	2 730.86	60.01	1 120.24	21.46	47 408.86	387.45	335 613.83	3 065.48	28.38	1.76	103.81	3.26	4.46	0.92	307.91	10.35	0.85	0.40	6.01	0.84	343.92	3.56	25.40	0.70	0.00	0.00	0.94	0.04
174.43	2 729.83	50.86	1 135.99	21.63	47 244.58	531.61	333 844.90	2 952.45	28.04	4.53	107.98	2.45	4.91	0.55	278.50	8.43	0.26	0.13	5.93	1.00	337.31	4.01	24.23	0.74	0.00	0.00	1.00	0.03
176.56	2 723.60	50.28	1 139.58	22.11	47 112.39	479.39	331 628.41	2 566.28	28.44	7.18	109.03	2.23	4.99	0.20	269.35	7.46	0.13	0.08	7.48	1.48	334.97	3.25	23.50	0.60	0.00	0.00	1.03	0.02
178.68	2 776.03	52.56	1 147.32	21.91	47 219.80	358.60	331 279.01	2 593.48	27.69	8.01	104.14	2.95	5.13	0.16	273.82	5.70	0.19	0.13	9.45	1.75	332.71	2.77	23.02	0.60	0.00	0.00	0.95	0.01
180.81	2 835.77	48.29	1 166.84	18.63	46 614.94	303.34	330 830.28	3 827.36	28.62	7.85	106.79	2.88	5.11	0.36	281.63	5.94	0.09	0.06	9.67	1.59	327.34	4.12	21.85	0.50	0.00	0.00	0.83	0.01
182.94	2 887.10	47.40	1 199.95	18.34	46 303.20	354.53	332 462.48	4 448.48	43.11	12.81	117.29	1.66	5.34	0.40	284.15	5.76	0.02	0.01	9.79	1.27	329.12	5.69	20.91	0.52	0.00	0.00	0.78	0.02
185.06	2 900.35	67.96	1 231.27	20.28	46 066.71	425.85	333 492.35	3 677.95	73.73	22.52	119.12	1.73	6.09	0.57	273.30	5.63	0.04	0.03	9.77	0.80	328.45	5.73	20.66	0.72	0.00	0.00	0.75	0.02
187.19	2 792.93	39.62	1 205.07	24.69	45 270.49	281.78	327 744.02	1 738.52	112.22	34.32	114.87	1.87	6.93	0.28	264.35	6.69	0.11	0.09	8.41	1.51	317.44	4.19	20.33	0.67	0.00	0.00	0.76	0.03
189.32	2 729.93	32.59	1 155.91	30.38	45 033.18	240.10	323 735.87	2 610.44	151.46	52.33	120.05	2.20	7.83	0.57	267.03	5.03	0.09	0.08	6.10	1.47	312.22	2.23	20.02	0.49	0.00	0.00	0.74	0.04
191.45	2 734.58	46.27	1 112.62	25.66	45 337.85	289.57	325 692.03	3 226.69	167.87	66.42	125.61	4.59	7.79	0.95	267.49	3.98	0.03	0.03	3.97	0.81	315.51	2.82	20.63	0.56	0.00	0.00	0.70	0.05
193.57	2 790.83	36.27	1 111.20	20.41	45 971.08	410.93	329 424.23	3 251.25	140.47	60.96	120.28	4.05	7.69	1.07	257.50	1.28	0.00	0.00	2.75	0.53	322.19	4.21	21.29	0.68	0.00	0.00	0.70	0.04
195.70	2 926.35	44.65	1 170.73	19.91	47 241.28	660.39	335 760.78	4 286.88	89.73	41.13	113.11	1.91	7.33	1.09	254.48	7.28	0.00	0.00	2.08	0.22	335.30	4.44	21.66	0.62	0.00	0.00	0.70	0.02
197.83	2 964.28	37.55	1 204.63	12.64	47 237.13	569.79	336 116.07	4 147.10	42.48	18.81	107.37	3.47	6.31	1.01	267.95	7.79	0.00	0.00	3.68	0.54	340.79	2.21	21.48	0.48	0.00	0.00	0.71	0.02
199.95	2 906.18	21.25	1 207.01	15.63	46 410.04	306.18	332 162.62	2 510.27	18.01	5.20	104.62	5.00	5.90	0.68	294.49	6.66	0.00	0.00	7.16	0.77	339.77	2.52	21.34	0.47	0.00	0.00	0.79	0.03
202.08	2 859.86	36.04	1 219.24	22.12	46 793.83	382.35	334 576.35	2 039.82	11.52	0.83	102.75	2.81	6.61	0.39	335.45	7.50	0.00	0.00	8.20	0.74	346.70	4.50	22.22	0.47	0.00	0.00	1.00	0.04
204.21	2 835.43	38.22	1 245.50	23.53	47 796.72	304.61	339 845.06	2 618.50	10.66	0.46	100.78	2.37	8.34	0.92	374.26	5.40	0.03	0.02	6.08	0.47	355.57	4.39	24.08	0.30	0.00	0.00	1.19	0.04
206.34	2 846.43	29.74	1 234.61	24.45	48 490.98	376.94	342 587.68	1 959.16	10.67	0.51	97.14	2.59	9.06	1.19	382.11	4.06	0.24	0.19	5.06	0.62	359.31	3.19	25.51	0.33	0.00	0.00	1.14	0.06
208.46	2 879.43	34.45	1 218.78	31.78	48 728.68	476.63	344 041.33	3 305.80	10.99	0.49	91.79	2.26	8.48	1.08	359.40	6.31	0.60	0.39	6.02	0.47	359.91	2.91	25.85	0.32	0.00	0.00	0.95	0.05
210.59	2 912.46	68.96	1 228.79	35.95	48 457.28	717.76	342 723.48	5 133.85	11.26	0.41	91.05	2.50	7.55	0.75	325.91	3.29	0.89	0.26	6.77	0.57	355.13	4.80	25.38	0.37	0.00	0.00	0.87	0.04
212.72	2 978.30	82.40	1 210.27	23.05	48 339.19	654.68	341 341.69	4 849.92	11.38	0.67	96.70	3.40	6.51	0.61	296.76	3.62	1.48	0.59	6.11	0.59	352.85	5.15	24.81	0.46	0.00	0.00	0.82	0.04

214.85	2 984.46	80.65	1 174.43	26.37	47 669.94	649.45	337 098.65	5 279.20	10.86	0.94	105.48	3.40	7.62	2.10	282.11	7.68	1.54	0.70	6.07	0.41	347.21	6.51	24.09	0.64	0.00	0.00	0.75	0.06
216.97	2 878.08	98.67	1 134.11	40.84	45 245.63	690.19	322 765.83	6 218.56	9.48	0.96	116.60	8.95	14.73	7.30	287.37	15.98	0.64	0.29	7.11	0.43	325.98	8.91	23.27	0.73	0.00	0.00	0.87	0.19
219.10	2 821.31	96.82	1 118.50	50.84	43 069.18	576.56	309 392.38	4 891.00	9.13	0.77	137.60	18.77	24.03	12.36	291.82	20.62	0.10	0.05	7.21	0.91	306.49	7.98	23.70	0.92	0.00	0.00	1.11	0.36
221.23	2 787.73	61.83	1 107.65	37.75	42 099.05	604.03	304 134.15	3 554.22	10.53	0.69	197.51	42.90	25.79	13.12	285.67	14.63	0.01	0.00	5.82	0.95	304.92	5.42	26.66	2.29	0.00	0.00	1.24	0.43
223.35	2 724.68	58.04	1 099.22	28.49	41 843.10	884.90	300 585.92	4 459.17	12.56	1.01	313.86	89.20	30.51	16.84	289.02	7.48	0.00	0.00	4.70	0.83	315.11	5.39	33.46	5.32	0.00	0.00	1.49	0.52
225.48	2 719.26	50.54	1 126.46	30.95	42 056.69	1 258.46	299 438.70	7 514.41	14.04	1.44	361.76	96.96	49.93	27.67	294.06	9.31	0.01	0.01	4.60	0.98	326.83	6.43	36.49	5.58	0.00	0.00	1.97	0.68
227.61	2 820.33	46.01	1 188.32	35.15	42 451.97	1 761.96	304 501.54	12 261.83	14.02	1.47	291.24	56.85	77.47	40.55	314.29	11.63	0.02	0.02	5.65	1.39	335.42	8.79	32.26	2.95	0.00	0.00	2.44	0.82
229.74	2 901.28	50.35	1 222.55	28.15	42 349.87	2 198.31	306 937.74	16 101.98	13.09	1.29	212.59	19.97	96.72	48.53	322.73	11.00	0.01	0.01	5.90	1.04	333.12	12.11	27.99	1.23	0.00	0.00	2.62	0.90
231.86	2 870.11	31.29	1 205.29	19.14	41 156.23	2 397.65	298 963.21	16 696.31	12.38	1.48	181.40	12.69	105.13	52.10	304.19	11.48	0.00	0.00	5.33	0.56	319.94	13.05	26.71	1.10	0.00	0.00	2.61	0.95
233.99	2 766.48	47.67	1 176.56	19.80	39 517.81	2 315.76	285 687.32	15 844.42	11.44	1.30	172.00	14.70	110.03	54.91	296.88	13.64	0.00	0.00	5.88	1.19	304.53	12.85	25.16	1.00	0.00	0.00	2.49	0.96
236.12	2 728.46	41.32	1 124.91	12.43	38 891.51	2 243.55	277 536.50	15 658.31	10.34	0.87	160.57	15.27	114.27	57.26	304.09	14.29	0.00	0.00	7.79	1.68	295.96	12.82	22.93	0.76	0.00	0.00	2.34	0.95
238.24	2 750.00	41.42	1 091.35	16.55	39 304.52	2 181.65	279 756.97	15 351.76	10.77	0.85	158.89	20.40	104.41	51.90	303.07	14.66	0.00	0.00	7.59	1.39	294.54	12.54	21.98	0.66	0.00	0.00	2.20	0.89
240.37	2 759.24	62.43	1 109.10	20.00	40 091.73	1 856.88	287 677.20	13 961.82	12.62	0.92	162.95	19.68	84.60	41.43	290.16	15.98	0.01	0.01	6.24	1.22	296.41	11.48	21.88	0.62	0.00	0.00	2.07	0.80
242.50	2 744.11	60.57	1 118.90	25.18	40 636.53	1 552.63	291 655.23	12 128.20	13.46	0.76	153.91	13.92	62.86	29.38	279.76	15.39	0.06	0.06	7.31	1.09	297.92	9.51	21.68	0.55	0.00	0.00	1.85	0.62
244.63	2 783.93	46.87	1 123.46	27.08	41 680.30	1 237.44	297 573.15	9 201.21	12.96	0.55	137.35	9.72	41.42	18.38	286.62	13.86	0.17	0.14	9.06	0.78	309.86	5.13	22.23	0.47	0.00	0.00	1.48	0.40
246.75	2 851.64	56.29	1 146.58	29.62	43 180.46	1 159.30	305 391.86	7 189.02	11.96	0.30	135.22	14.87	27.78	12.42	302.24	10.92	0.17	0.14	8.64	0.81	325.16	3.64	23.14	0.45	0.00	0.00	1.17	0.30
248.88	2 885.60	53.04	1 167.95	26.35	43 699.96	1 189.65	307 147.42	7 256.59	10.00	0.21	149.41	26.75	23.29	10.80	301.83	7.41	0.06	0.04	7.01	1.32	324.38	3.34	23.28	0.40	0.00	0.00	1.09	0.30
251.01	2 818.40	56.04	1 154.24	13.32	43 140.25	1 126.66	304 271.93	7 235.26	8.52	0.28	147.99	23.43	17.90	7.54	285.14	8.99	0.05	0.02	6.10	1.43	313.26	5.55	22.67	0.16	0.00	0.00	0.93	0.19
253.13	2 779.07	61.29	1 141.36	18.57	43 129.80	933.71	306 158.86	5 951.60	8.99	0.65	122.79	6.79	10.55	3.33	276.86	6.63	0.22	0.09	6.95	1.48	312.05	6.04	22.55	0.25	0.00	0.00	0.67	0.06
255.26	2 905.05	52.03	1 144.42	15.59	44 240.12	543.17	315 003.73	3 932.88	10.91	0.83	109.19	1.69	5.87	1.20	268.28	3.31	0.46	0.16	7.54	0.88	320.97	4.31	23.24	0.46	0.00	0.00	0.43	0.01
257.39	3 009.80	39.50	1 125.92	9.71	45 256.75	270.64	321 082.64	2 414.73	11.81	0.73	104.86	2.77	4.43	0.74	239.82	3.80	0.64	0.28	6.64	0.51	325.10	2.24	23.19	0.43	0.00	0.00	0.31	0.02
259.52	2 958.06	42.96	1 086.85	9.62	45 000.11	320.63	318 767.69	1 803.00	10.32	0.66	107.41	2.51	3.28	0.53	215.29	2.53	0.63	0.38	5.93	0.69	319.17	1.17	23.00	0.45	0.00	0.00	0.33	0.03
261.64	2 874.80	37.79	1 071.73	9.89	44 465.73	317.67	317 011.42	1 657.96	9.35	0.48	115.45	2.59	2.13	0.32	206.80	4.41	0.27	0.15	6.63	0.85	313.32	2.55	23.06	0.45	0.00	0.00	0.40	0.04
263.77	2 910.81	34.39	1 118.43	7.23	45 895.26	225.88	327 743.98	1 799.41	9.91	0.49	119.64	3.35	1.46	0.18	216.06	5.68	0.07	0.02	7.77	0.75	322.56	1.98	24.37	0.42	0.00	0.00	0.42	0.04
265.90	2 928.66	48.68	1 155.46	17.80	47 538.92	473.01	338 570.57	3 430.73	10.12	0.74	119.01	3.99	1.54	0.17	234.99	7.88	0.28	0.09	7.87	0.80	335.74	4.24	26.37	0.65	0.00	0.00	0.46	0.05
268.02	2 847.32	53.65	1 113.56	24.23	47 082.31	652.91	335 304.77	4 666.25	8.24	0.58	114.04	4.48	2.10	0.28	234.79	10.88	1.03	0.30	7.71	0.91	337.25	6.23	27.27	0.76	0.00	0.00	0.49	0.06
270.15	2 850.91	63.28	1 079.96	20.98	46 411.36	679.79	331 118.08	4 924.28	6.88	0.48	110.79	2.94	2.56	0.52	220.39	11.53	1.63	0.48	8.16	1.46	336.31	5.91	27.37	0.92	0.00	0.00	0.47	0.06
272.28	2 994.50	68.45	1 106.92	13.20	47 066.66	524.93	334 110.29	3 417.50	7.60	0.23	116.24	1.52	1.95	0.38	214.61	8.37	1.03	0.30	8.09	1.24	337.89	3.25	27.53	0.92	0.00	0.00	0.42	0.03
274.41	3 140.37	83.56	1 162.72	28.17	48 036.68	674.77	339 864.47	4 666.87	7.95	0.26	118.92	2.81	0.83	0.12	219.28	9.71	0.26	0.09	7.82	0.48	342.69	4.62	27.64	0.65	0.00	0.00	0.43	0.02
276.53	3 200.87	84.86	1 208.49	32.88	48 859.97	712.88	347 969.21	5 296.97	7.59	0.43	115.27	3.43	0.57	0.21	230.00	7.00	0.03	0.01	7.59	0.51	352.71	5.30	28.32	0.28	0.00	0.00	0.46	0.02
278.66	3 178.50	65.33	1 258.47	26.84	50 255.72	813.39	359 474.43	5 071.22	7.59	0.63	108.91	3.25	0.99	0.36	249.33	5.57	0.00	0.00	6.06	0.50	368.25	5.28	29.81	0.78	0.00	0.00	0.57	0.03
280.79	3 029.17	39.61	1 268.86	27.44	50 815.90	689.65	362 390.15	3 906.44	7.28	0.40	103.41	1.83	1.30	0.37	282.02	7.28	0.00	0.00	5.19	0.66	376.80	4.94	30.63	0.49	0.00	0.00	0.73	0.04
282.91	2 944.00	31.29	1 242.49	21.08	50 373.63	385.90	357 721.06	3 011.82	7.05	0.33	106.23	2.10	1.19	0.25	323.34	7.35	0.01	0.00	5.84	0.55	377.45	4.26	30.92	0.30	0.00	0.00	0.91	0.03
285.04	3 065.80	40.41	1 245.03	15.65	51 079.54	434.20	363 512.40	4 199.45	7.24	0.66	114.26	2.42	0.99	0.13	353.26	8.32	0.13	0.04	7.78	0.77	383.63	5.43	31.94	0.59	0.00	0.00	1.13	0.07
287.17	3 142.28	41.70	1 240.47	12.80	52 259.98	463.73	373 151.05	4 251.44	6.75	0.47	115.04	2.43	1.19	0.29	354.02	7.15	0.74	0.23	9.62	1.33	391.96	4.56	32.17	0.65	0.00	0.00	1.21	0.06
289.30	3 132.01	49.90	1 234.15	13.42	53 068.30	495.59	375 609.26	3 262.80	6.79	0.36	112.65	1.48	1.62	0.39	346.95	8.39	1.54	0.44	10.92	1.20	393.18	4.78	31.77	0.59	0.00	0.00	1.22	0.06
291.42	3 041.17	44.49	1 204.34	15.09	52 525.71	530.44	367 130.98	2 364.01	7.72	0.71	111.04	1.08	1.99	0.45	338.45	9.99	1.38	0.45	10.54	0.79	378.32	2.22	31.57	0.51	0.00	0.00	1.22	0.05
293.55	2 871.52	18.19	1 154.68	12.95	50 803.42	444.08	356 116.92	2 950.29	7.56	0.85	110.72	1.46	1.68	0.39	316.12	10.64	0.63	0.33	8.97	0.63	360.43	2.72	31.61	0.79	0.00	0.00	1.21	0.05
295.68	2 811.57	29.60	1 131.48	9.67	49 817.74	299.05	352 121.25	2 091.81	6.53	0.83	117.95	1.85	1.02	0.25	287.64	6.78	0.37	0.17	7.91	0.86	354.86	2.09	30.70	0.65	0.00	0.00	1.26	0.05
297.81	2 946.13	43.99	1 141.66	10.14	49 714.72	342.00	352 831.59	1 656.39	6.22	0.60	122.68	2.78	1.03	0.32	268.45	4.12	0.89	0.48	7.81	0.95	354.72	2.45	29.58	0.41	0.00	0.00	1.28	0.06
299.93	3 075.31	47.84	1 167.88	5.51	49 130.41	440.33	348 705.58	2 247.96	6.27	0.38	118.47	3.52	1.48	0.28	257.27	5.91	1.10	0.52	8.20	1.15	342.71	4.78	28.35	0.22	0.00	0.00	1.16	0.05
302.06	3 066.15	32.36	1 163.59	9.62	47 663.90	502.50	337 801.07	3 680.99	5.18	0.47	114.06	3.22	1.95	0.29	244.23	6.83	0.60	0.21	7.82	0.81	319.95	4.41	26.15	0.29	0.00	0.00	0.91	0.06
304.19	3 082.92	34.58	1 167.96	17.68	46 689.90	372.24	332 393.54	3 226.71	3.93	0.53	112.94	3.07	1.86	0.32	231.94	6.52	0.24	0.10	6.66	0.49	307.98	2.22	24.61	0.27	0.00	0.00	0.70	0.06
306.31	3 138.81	52.93	1 180.51	17.12	46 153.19	239.05	331 399.87	1 418.98	3.51	0.46	109.48	2.16	1.13	0.20	220.49	6.54	0.36	0.10	5.81	0.59	304.95	2.58	24.36	0.33	0.00	0.00	0.61	0.06
308.44	3 070.87	75.81	1 162.84	18.55	44 960.17	497.74	325 456.61	2 097.83	3.18	0.45	107.41	3.34	0.74	0.19	209.81	4.09	1.10	0.39	5.04	0.57	296.30	3.02	23.82	0.52	0.00	0.00	0.59	0.04
310.57	2 921.40	64.02	1 124.69	11.50	44 251.90	411.29	320 049.20	2 861.90	2.83	0.39	106.38	5.23	0.72	0.23	220.16	12.44	1.55	0.65	5.46	0.56	292.96	3.66	23.18	0.27	0.00	0.00	0.59	0.04
312.70	2 801.36	44.48	1 078.07	13.34	44 469.08	464.49	318 848.72	3 580.34	2.83	0.29	102.94	3.83	0.61	0.22	242.37	16.84	0.94	0.42	7.34	0.79	299.95	4.33	23.64	0.32	0.00	0.00	0.67	0.06
314.82	2 733.13	56.60	1 067.93	21.00	45 170.24	715.34	321 837.61	4 512.14	2.89	0.33	103.68	1.53	0.48	0.12	265.84	13.64	0.23	0.11	8.87	1.04	307.40	4.91	24.98	0.60	0.00	0.00	0.77	0.07
316.95	2 714.92	43.46	1 092.57	20.00	45 694.96	555.93	326 389.32	2 912.71	2.48	0.26	105.94	1.77	0.70	0.11	284.56	4.62	0.03	0.01	8.96	0.81	314.66	4.12	25.91	0.53	0.00	0.00	0.85	0.05
319.08	2 697.73	26.45	1 113.96	13.28	45 534.39	297.69	327 925.71	2 757.15	2.18	0.22	106.24	4.20	1.17	0.14	288.68	7.87	0.13	0.09	8.29	1.06	315.89	3.61	26.49	0.35	0.00	0.00	0.96	0.06
321.20	2 740.26	40.50	1 146.18	21.07	45 873.69	404.96	330 244.26	3 033.03	2.32	0.38	104.34	4.42	1.33	0.15	286.81	11.91	0.61	0.31	6.81	0.62	316.14	3.30	27.49	0.37	0.00	0.00	1.12	0.07
323.33	2 974.94	99.05	1 203.56	31.10	47 585.14	520.07	338 141.92	2 762.10	2.42	0.39	104.66	3.46	1.34	0.27	304.38	8.61	1.26	0.60	5.81	0.67	327.23	2.95	28.29	0.48	0.00	0.00	1.36	0.08
325.46	3 240.12	163.76	1 260.31	48.14	49 041.90	696.88	346 195.85	1 469.00	2.05	0.27	106.12	1.64	1.64	0.32	337.76	9.68	1.12	0.47	5.28	0.85	344.26	2.89	28.95	0.65	0.00	0.00	1.67	0.10
327.59	3 104.98	105.15	1 233.99	35.50	48 423.12	478.32	343 600.22	3 241.11	1.83	0.11	101.33	2.33	2.17	0.33	335.60	9.34	0.76	0.20	4.79	0.63	347.64	2.00	28.61	0.59	0.00	0.00	1.83	0.08
329.71	2 907.51	56.05	1 179.66	22.61	47 687.06	433.26	339 502.10	4 388.74	2.12	0.14	101.35	2.78	2.59	0.43	307.10	3.05	1.37	0.35	4.46	0.56	342.92	1.94	27.40	0.43	0.00	0.00	1.75	0.07
331.84	3 029.97	43.74	1 184.05	17.29	48 263.32	339.18	343 306.91	2 593.31	2.79	0.21	105.98	3.71	2.49	0.42	290.51	4.01	2.48	0.53	4.52	0.50	341.47	1.98	27.17	0.38	0.00	0.00	1.61	0.11
333.97	3 185.37	40.77	1 219.59	25.14	48 449.30	466.33	342 781.68	1 508.66	3.59	0.24	107.61	3.77	3.51	0.82	275.35	7.77	2.87	0.77	5.67	0.85	332.50	2.68	27.01	0.52	0.00	0.00	1.49	0.10
336.09	3 157.54	96.19	1 243.44	52.19	47 779.30	969.79	333 069.27	2 739.04	4.19	0.47	108.14	3.56	7.70	2.72	276.84	17.48	1.72	0.47	7.91	1.40	318.51	4.27	26.35	0.75	0.00	0.00	1.45	0.08
338.22	3 145.50	125.42	1 232.90	65.64	47 789.45	1 311.65	328 500.17	4 207.10	4.08	0.53	108.38	4.06	10.07	3.80	290.47	24.31	0.44	0.14	9.31	1.22	314.46	5.97	25.80	0.83	0.00	0.00	1.39	0.11
340.35	3 166.29	83.01	1 184.11	32.69	48 081.70	877.22	334 142.72	3 630.60	3.25	0.19	106.10	3.47	6.35	2.02	276.32	16.09	0.05	0.01	9.45	1.02	315.30	3.63	25.06	0.49	0.00	0.00	1.14	0.06
342.48	3 095.45	72.18	1 141.07	20.67	47 145.75	584.58	336 187.44	3 189.59	2.40	0.10	102.91	3.18	2.26	0.44	250.35	6.15	0.14	0.12	8.76	0.96	307.72	2.02	24.24	0.38	0.00	0.00	0.90	0.06
344.60	2 970.62	51.38	1 121.62	20.40	45 368.65	458.44	329 717.42	3 160.67	1.95	0.09	104.36	3.93	1.12	0.17	232.71	2.44	0.60	0.43	6.79	0.72	295.96	2.31	23.87	0.61	0.00	0.00	0.75	0.06
346.73	2 807.60	36.18	1 077.63	20.97	43 171.91	358.70	313 591.94	2 749.89	1.88	0.14	111.25	3.87	1.09	0.23	211.89	3.32	0.85	0.52	4.80	1.00	282.38	3.04	22.94	0.63	0.00	0.00	0.62	0.04
348.86	2 701.90	34.58	1 019.17	15.82	41 100.19	345.44	296 025.83	2 031.25	2.42	0.32	117.59	3.50	0.78	0.16	191.81	6.17	0.41	0.22	4.36	0.66	270.26	3.01	21.00	0.39	0.00	0.00	0.54	0.03
350.98	2 731.71	22.18	1 006.75	15.96	40 324.15	377.15	290 139.33	1 730.81	2.79	0.30	115.64	3.39	0.58	0.10	175.06	6.01	0.07	0.04	5.30	0.34	264.77	3.56	19.64	0.26	0.00	0.00	0.56	0.03
353.11	2 798.27	23.46	1 012.18	15.39	40 419.29	556.01	291 459.60	2 315.21	2.60	0.17	107.28	3.44	0.84	0.21	163.20	3.77	0.00	0.00	5.90	0.43	262.14	3.79	19.94	0.38	0.00	0.00	0.55	0.01
355.24	2 767.12	37.54	991.36	13.25	40 163.53	679.40	290 837.82	3 347.68	1.82	0.16	100.92	4.18	0.85	0.20	161.81	5.58	0.00	0.00	6.55	0.40	260.60	3.63	20.78	0.71	0.00	0.00	0.50	0.02
357.37	2 776.72	39.33	988.33	10.27	40 346.15	489.86	294 533.64	3 668.39	1.07	0.10	99.40	5.95	0.53	0.10	162.57	7.31	0.01	0.00	6.10	0.63	266.23	3.87	21.17	0.57	0.00	0.00	0.48	0.03
359.49	2 919.26	58.58	1 019.58	16.03	41 958.79	526.32	307 407.73	5 576.81	1.17	0.25	106.12	7.38	0.51	0.12	177.06	7.48	0.11	0.04	4.13	0.57	278.38	5.05	21.60	0.22	0.00	0.00	0.48	0.03
361.62	2 995.61	43.00	1 043.88	11.07	43 684.01	275.52	318 294.37	3 977.02	1.77	0.40	117.05	5.36	0.71	0.14	202.50	4.55	0.59	0.23	3.71	0.51	286.16	3.05	21.83	0.32	0.00	0.00	0.48	0.03
363.75	2 943.09	24.16	1 060.64	7.92	44 554.70	291.36	321 530.43	1 317.88	1.81	0.22	121.69	2.37	0.94	0.16	208.72	6.37	1.25	0.49	5.73	0.74	288.28	1.97	22.45	0.34	0.00	0.00	0.53	0.04
365.87	2 864.48	40.56	1 096.72	9.09	44 841.93	397.90	322 810.14	1 459.36	1.39	0.13	118.41	4.10	1.04	0.17	202.04	6.32	1.04	0.40	7.79	0.90	291.46	2.73	23.76	0.46	0.00	0.00	0.63	0.05
368.00	2 881.02	39.51	1 142.96	14.23	45 820.31	362.76	328 789.19	2 180.92	1.08	0.13	116.48	4.05	1.01	0.24	213.36	5.90	0.33	0.13	8.16	1.01	305.17	2.13	25.59	0.39	0.00	0.00	0.71	0.04
370.13	2 930.58	42.76	1 170.55	20.58	46 653.57	370.57	331 949.13	3 152.43	1.39	0.32	119.40	3.17	0.98	0.35	228.49	8.85	0.04	0.02	7.49	1.03	314.93	3.52	26.25	0.37	0.00	0.00	0.78	0.02
372.26	2 860.85	44.19	1 171.55	22.69	46 330.12	536.19	329 753.14	4 327.75	1.86	0.34	125.33	3.04	0.97	0.32	234.68	10.85	0.00	0.00	6.44	0.93	312.91	4.52	25.53	0.39	0.00	0.00	0.90	0.05
374.38	2 803.55	37.97	1 186.34	19.61	46 327.71	520.72	330 775.86	3 942.31	1.87	0.26	128.82	2.31	0.86	0.29	245.64	7.47	0.00	0.00	6.19	0.89	313.44	4.46	26.00	0.37	0.00	0.00	1.13	0.05
376.51	2 803.99	31.34	1 196.43	24.61	46 836.29	389.59	334 144.63	3 097.23	1.76	0.24	127.40	2.34	0.74	0.21	268.26	5.52	0.00	0.00	8.17	0.93	316.24	2.72	27.13	0.32	0.00	0.00	1.36	0.04
378.64	2 866.53	33.86	1 200.32	27.24	47 629.72	280.68	340 822.29	2 621.85	1.88	0.21	124.55	3.20	1.30	0.30	301.48	4.89	0.05	0.03	10.44	0.74	324.92	2.38	27.82	0.46	0.00	0.00	1.63	0.03
380.77	2 850.64	22.03	1 191.88	23.40	47 690.58	230.58	340 028.12	1 881.67	2.02	0.19	125.07	4.05	2.25	0.44	316.70	8.08	0.35	0.16	9.44	0.68	329.46	2.40	27.94	0.71	0.00	0.00	1.84	0.05
382.89	2 719.05	29.14	1 184.24	15.84	47 032.93	215.68	335 798.09	2 774.44	2.20	0.23	129.01	4.29	2.63	0.29	310.09	10.65	1.22	0.50	5.68	0.52	327.21	3.26	27.96	0.79	0.00	0.00	1.85	0.05
385.02	2 707.19	54.56	1 188.45	26.71	47 333.60	444.54	341 797.52	4 185.61	2.27	0.19	129.51	1.81	3.03	0.40	323.49	10.23	2.87	0.90	3.55	0.32	334.28	4.33	28.42	0.67	0.00	0.00	1.79	0.05
387.15	2 853.23	71.84	1 228.27	47.83	48 405.61	827.18	351 600.91	6 988.78	1.89	0.14	125.46	1.84	3.93	0.57	350.72	7.82	5.24	1.33	3.92	0.38	350.40	8.49	29.06	1.01	0.00	0.00	1.80	0.04
389.27	2 936.18	78.40	1 274.85	52.38	48 316.00	977.15	351 597.77	7 968.71	1.43	0.18	121.11	0.74	4.00	0.48	344.07	5.37	6.06	1.42	5.43	0.46	351.36	10.11	28.28	1.15	0.00	0.00	1.71	0.05
391.40	2 931.51	64.15	1 259.36	47.85	47 432.11	919.05	344 286.22	7 107.82	1.25	0.15	118.58	1.42	3.09	0.35	311.21	8.46	4.04	1.03	6.84	0.64	336.93	7.67	27.14	0.77	0.00	0.00	1.54	0.06
393.53	2 915.29	42.48	1 224.77	36.43	46 989.40	670.40	339 092.23	5 399.95	1.26	0.23	113.43	2.38	2.53	0.45	290.47	12.14	1.74	0.56	7.13	0.79	325.13	4.50	26.19	0.42	0.00	0.00	1.34	0.05
395.66	2 819.43	54.28	1 210.69	37.64	46 434.45	545.70	333 580.69	4 738.74	1.47	0.33	110.38	4.40	1.75	0.40	271.92	12.08	0.53	0.19	6.28	0.48	314.66	3.35	25.21	0.20	0.00	0.00	1.14	0.05
397.78	2 721.05	53.91	1 180.08	35.22	45 488.92	376.82	324 701.82	3 318.23	1.57	0.24	110.94	4.09	1.07	0.21	248.64	7.09	0.10	0.04	5.67	0.60	302.62	2.84	24.93	0.53	0.00	0.00	0.97	0.05
399.91	2 808.52	45.64	1 154.14	23.74	45 436.61	379.76	323 496.66	2 226.32	1.38	0.13	110.27	3.44	1.24	0.17	238.27	3.31	0.02	0.01	6.11	0.56	304.75	2.56	25.95	0.70	0.00	0.00	0.95	0.02
402.04	2 960.28	35.68	1 147.66	11.11	46 424.47	535.54	332 493.50	2 953.97	0.96	0.15	111.48	2.66	1.43	0.25	242.10	4.92	0.21	0.08	7.59	1.54	317.84	2.42	26.96	0.43	0.00	0.00	1.08	0.04
404.16	2 961.42	32.61	1 143.64	10.93	46 729.52	696.42	337 645.84	3 926.23	0.68	0.11	113.42	1.69	1.04	0.11	249.60	7.41	0.99	0.34	8.27	1.13	318.93	2.47	26.80	0.30	0.00	0.00	1.11	0.05
406.29	2 816.48	45.97	1 117.23	11.96	45 510.61	437.85	331 100.17	2 324.50	0.70	0.07	114.10	2.11	0.67	0.15	253.62	8.99	1.87	0.57	8.10	0.53	309.56	3.44	25.76	0.33	0.00	0.00	1.11	0.05
408.42	2 785.48	52.31	1 104.80	11.86	45 214.57	438.01	327 369.88	4 133.29	0.87	0.07	115.75	3.37	0.38	0.10	249.86	9.71	1.58	0.48	7.48	0.53	309.69	5.39	25.13	0.46	0.00	0.00	1.16	0.07
410.55	2 931.35	43.76	1 136.30	20.04	46 590.62	739.26	334 345.55	6 108.93	1.15	0.12	122.30	2.80	0.41	0.09	259.61	9.97	0.57	0.19	8.15	0.53	318.15	6.63	25.30	0.40	0.00	0.00	1.25	0.07
412.67	3 003.35	51.85	1 163.56	16.41	47 406.67	956.03	337 256.25	6 862.01	1.51	0.26	122.83	2.46	0.86	0.18	274.54	12.64	0.10	0.04	9.62	0.87	319.87	6.68	24.98	0.28	0.00	0.00	1.44	0.05
414.80	2 986.21	45.12	1 191.34	10.18	47 523.85	824.25	336 060.14	5 278.68	1.62	0.19	118.75	1.76	1.15	0.20	292.79	13.92	0.22	0.18	10.04	0.98	320.69	4.58	24.97	0.33	0.00	0.00	1.77	0.04
416.93	3 029.44	53.22	1 247.95	16.63	48 225.88	541.90	343 460.28	3 525.26	1.16	0.14	118.77	3.13	1.21	0.31	322.96	11.28	0.66	0.47	8.54	0.40	334.07	3.33	26.12	0.38	0.00	0.00	2.13	0.04
419.05	3 035.43	44.23	1 278.90	18.28	48 701.27	311.59	349 627.25	3 681.95	0.63	0.19	117.59	2.36	1.04	0.23	338.54	10.89	0.77	0.46	7.13	0.59	342.94	3.61	27.05	0.24	0.00	0.00	2.17	0.04
421.18	2 911.50	49.33	1 262.08	24.15	47 716.78	502.29	344 419.06	4 770.71	0.55	0.14	116.84	1.32	0.87	0.09	333.07	11.33	0.60	0.21	5.76	0.68	340.56	4.32	27.23	0.50	0.00	0.00	1.91	0.04
423.31	2 765.86	45.45	1 229.18	20.05	46 288.78	506.91	337 199.49	4 759.69	0.94	0.20	114.87	1.56	0.74	0.09	322.86	12.94	1.13	0.27	4.59	0.46	336.29	4.26	27.15	0.31	0.00	0.00	1.70	0.05
425.44	2 713.97	32.50	1 206.18	9.13	45 329.39	399.35	332 140.19	3 381.29	1.20	0.12	114.80	3.25	0.70	0.14	295.00	6.81	1.76	0.59	4.09	0.41	329.48	3.01	26.65	0.20	0.00	0.00	1.50	0.06
427.56	2 753.44	52.33	1 194.26	15.34	44 711.18	481.19	326 996.86	3 287.65	1.06	0.18	116.55	3.44	0.88	0.22	253.64	4.96	1.17	0.32	4.34	0.61	319.27	4.85	25.69	0.32	0.00	0.00	1.28	0.06
429.69	2 945.10	92.51	1 205.23	15.49	44 978.74	845.05	328 784.03	6 356.53	0.59	0.18	116.99	2.71	1.18	0.12	230.76	7.02	0.90	0.36	5.09	0.68	318.15	7.08	26.02	0.60	0.00	0.00	1.23	0.08
431.82	3 082.72	85.51	1 218.58	13.20	45 743.32	750.75	332 591.27	6 211.40	0.27	0.09	116.38	2.54	1.65	0.15	222.15	6.43	1.23	0.62	6.33	0.52	322.18	6.16	26.59	0.70	0.00	0.00	1.21	0.09
433.94	2 998.97	60.99	1 227.92	14.81	46 209.27	468.84	331 126.42	4 449.89	0.34	0.09	116.27	2.29	1.66	0.18	224.74	7.84	1.08	0.41	8.21	0.66	322.99	4.13	25.75	0.78	0.00	0.00	1.16	0.06
436.07	2 929.46	64.92	1 249.69	11.69	46 637.99	565.23	332 492.51	3 909.57	0.49	0.09	115.07	3.13	0.93	0.10	232.89	7.05	1.32	0.47	9.05	0.80	324.27	3.38	24.39	0.65	0.00	0.00	1.13	0.03
438.20	2 958.40	75.36	1 280.73	11.12	46 927.00	510.00	337 317.73	3 440.66	0.56	0.08	113.84	3.25	0.37	0.05	240.10	3.99	1.52	0.52	8.17	0.80	326.12	3.41	23.58	0.35	0.00	0.00	1.20	0.03
440.33	2 940.49	64.54	1 260.34	7.40	46 233.57	389.73	332 578.47	2 788.12	0.60	0.11	111.55	2.39	0.53	0.08	244.39	2.38	0.72	0.21	6.58	0.83	320.82	3.64	23.50	0.30	0.00	0.00	1.30	0.09
442.45	2 886.75	42.24	1 210.40	11.52	45 527.62	365.89	325 444.83	2 686.23	0.64	0.15	107.89	2.35	1.24	0.14	252.71	6.37	0.13	0.04	6.80	0.69	311.10	3.55	23.73	0.44	0.00	0.00	1.34	0.11

444.58	2 884.41	59.77	1 206.98	20.26	45 887.89	584.93	326 705.59	3 367.99	0.66	0.17	108.58	1.43	1.53	0.10	264.42	9.77	0.01	0.00	8.83	0.79	306.00	3.93	24.78	0.50	0.00	0.00	1.28	0.04
446.71	2 997.75	64.93	1 259.98	34.91	47 006.56	776.55	335 128.72	5 105.87	0.57	0.14	112.03	1.84	1.19	0.19	262.03	8.22	0.00	0.00	9.82	0.50	309.14	4.79	25.95	0.44	0.00	0.00	1.19	0.04
448.84	3 034.43	40.18	1 262.35	28.83	47 477.16	712.97	338 956.35	4 724.74	0.52	0.13	118.00	3.44	0.80	0.21	243.76	5.91	0.00	0.00	8.89	0.41	310.74	3.31	25.58	0.36	0.00	0.00	1.09	0.07
450.96	2 951.45	30.50	1 198.94	19.82	46 764.21	567.74	336 520.20	4 181.59	0.60	0.13	127.39	5.46	0.79	0.22	223.47	6.29	0.00	0.00	7.75	0.53	307.03	3.15	24.72	0.27	0.00	0.00	1.01	0.07
453.09	2 969.10	31.61	1 187.70	29.85	46 487.92	452.22	337 935.68	3 471.77	0.65	0.09	131.90	5.79	1.08	0.24	219.80	8.15	0.00	0.00	6.93	0.82	309.21	3.50	24.96	0.26	0.00	0.00	1.01	0.06
455.22	3 040.10	27.68	1 214.03	28.19	47 046.14	422.86	341 600.18	2 806.67	0.58	0.09	129.55	4.77	1.18	0.25	226.38	7.24	0.01	0.01	6.24	0.85	313.42	1.46	24.81	0.44	0.00	0.00	1.06	0.07
457.34	3 100.31	28.61	1 233.49	14.27	47 840.65	475.73	345 180.48	3 464.51	0.39	0.05	123.53	2.71	0.82	0.15	222.94	6.43	0.01	0.01	7.77	0.81	315.02	1.99	24.55	0.53	0.00	0.00	1.09	0.06
459.47	3 085.92	25.94	1 236.28	8.68	47 331.63	403.80	342 773.60	3 038.17	0.36	0.06	118.16	3.42	0.66	0.09	220.75	7.08	0.01	0.01	10.33	1.07	309.21	2.34	24.82	0.45	0.00	0.00	1.07	0.06
461.60	3 024.22	44.05	1 230.38	9.48	46 458.72	376.02	338 061.44	2 540.02	0.57	0.14	115.77	4.29	0.87	0.15	228.73	8.81	0.01	0.00	10.84	1.11	300.98	2.53	24.88	0.38	0.00	0.00	1.06	0.06
463.73	2 981.87	23.46	1 230.11	9.79	46 469.26	273.09	336 332.85	1 773.97	0.77	0.12	116.45	4.00	0.85	0.17	246.27	8.05	0.01	0.01	7.93	0.65	298.06	2.60	24.38	0.38	0.00	0.00	1.12	0.04
465.85	3 011.25	14.47	1 232.37	11.78	47 103.23	159.54	339 312.51	1 451.28	0.83	0.15	116.99	3.37	0.58	0.12	272.39	9.37	0.03	0.03	5.42	0.35	300.75	1.72	23.72	0.49	0.00	0.00	1.24	0.04
467.98	3 032.26	25.32	1 226.18	18.08	47 622.90	329.16	343 851.03	2 045.57	0.81	0.12	116.99	2.61	0.27	0.08	287.39	13.21	0.04	0.03	5.17	0.67	307.51	3.18	23.80	0.55	0.00	0.00	1.43	0.04
470.11	2 992.46	39.30	1 238.73	17.64	48 235.91	467.88	348 744.51	2 821.02	0.81	0.16	115.32	2.09	0.07	0.03	306.70	16.75	0.02	0.01	5.10	0.79	318.07	4.94	24.62	0.53	0.00	0.00	1.73	0.06
472.23	2 866.60	26.61	1 242.44	19.04	48 043.31	295.62	346 916.77	2 258.02	0.63	0.16	117.35	1.63	0.08	0.04	340.12	13.41	0.05	0.02	6.51	0.94	324.48	3.64	26.11	0.70	0.00	0.00	2.14	0.07
474.36	2 803.75	45.13	1 251.71	16.91	48 016.83	454.07	345 441.93	2 955.45	0.46	0.08	126.34	1.83	0.50	0.28	382.80	11.90	0.26	0.11	7.79	0.83	330.51	4.43	27.94	0.71	0.00	0.00	2.50	0.05
476.49	2 919.21	68.19	1 281.34	15.17	49 489.87	784.25	352 895.35	3 898.88	0.66	0.14	135.10	1.82	1.27	0.62	426.49	9.43	0.56	0.26	6.59	0.66	341.53	5.98	29.76	0.71	0.00	0.00	2.72	0.05
478.62	2 999.03	72.06	1 275.81	15.96	50 334.69	847.53	355 663.94	3 966.03	0.95	0.20	134.46	3.40	1.38	0.55	437.22	9.34	0.61	0.28	5.31	0.48	345.84	6.23	29.67	0.68	0.00	0.00	2.57	0.05
480.74	2 931.13	56.04	1 230.98	13.81	49 122.94	796.97	347 330.93	3 077.25	0.87	0.11	129.15	3.62	0.95	0.33	407.96	13.06	0.55	0.34	6.00	0.68	336.41	5.06	27.53	0.68	0.00	0.00	2.17	0.09
482.87	2 932.44	48.70	1 229.24	13.80	48 181.47	593.66	343 701.57	2 547.06	0.70	0.08	128.77	3.37	0.65	0.15	369.69	10.45	0.34	0.24	7.48	0.96	325.29	4.21	26.17	0.42	0.00	0.00	1.79	0.08
485.00	2 983.44	27.97	1 242.41	17.17	47 894.29	221.50	344 327.44	1 446.63	0.80	0.14	136.93	3.40	0.74	0.19	346.14	7.26	0.13	0.08	7.36	0.84	317.18	3.39	25.51	0.33	0.00	0.00	1.42	0.05
487.12	2 993.94	48.49	1 248.58	16.02	47 354.01	264.46	341 396.35	1 956.60	0.84	0.09	137.18	2.43	0.78	0.25	337.34	8.44	0.43	0.33	6.39	0.79	312.20	4.06	24.75	0.35	0.00	0.00	1.11	0.06
489.25	3 051.30	81.54	1 238.57	16.86	47 071.18	548.68	338 389.71	4 013.23	0.87	0.14	130.00	2.51	0.63	0.13	333.80	5.53	0.98	0.68	5.10	0.88	314.22	5.39	23.99	0.68	0.00	0.00	1.02	0.08
491.38	3 177.73	63.26	1 224.60	8.14	47 221.59	568.13	339 316.84	3 413.50	1.12	0.26	125.53	4.73	1.01	0.20	319.57	6.48	0.75	0.44	4.34	0.49	322.06	4.61	23.20	0.66	0.00	0.00	1.06	0.04
493.51	3 205.18	34.44	1 218.23	6.07	47 049.92	347.12	339 444.99	1 959.05	1.25	0.15	121.18	4.91	2.18	0.39	293.87	6.66	0.35	0.10	5.96	0.59	325.04	2.34	22.71	0.59	0.00	0.00	1.08	0.05
495.63	3 001.26	46.43	1 179.66	6.75	45 058.10	317.67	327 426.24	1 629.17	1.18	0.15	119.36	3.13	3.42	0.64	275.12	9.18	0.72	0.32	7.00	1.15	309.91	1.52	22.61	0.52	0.00	0.00	0.95	0.05
497.76	2 780.68	57.65	1 148.15	8.41	43 309.54	353.03	315 542.34	1 670.26	1.00	0.17	120.94	2.07	3.40	0.69	267.42	11.74	1.26	0.66	5.90	1.11	291.89	1.59	22.81	0.47	0.00	0.00	0.82	0.03
499.89	2 732.15	50.86	1 129.91	13.41	42 837.75	423.07	311 552.27	3 290.03	0.80	0.06	120.93	2.05	2.58	0.55	252.99	9.38	0.89	0.47	4.65	0.86	282.98	2.26	22.59	0.34	0.00	0.00	0.76	0.03
502.01	2 705.40	47.52	1 111.78	15.56	41 739.22	432.35	304 261.37	4 113.06	0.70	0.19	121.95	1.41	1.84	0.38	232.02	3.52	0.63	0.16	4.50	0.66	275.78	1.53	21.82	0.28	0.00	0.00	0.68	0.03
504.14	2 710.29	76.58	1 120.70	26.35	41 205.30	575.67	301 120.79	5 054.06	0.54	0.17	127.12	1.82	1.70	0.44	217.03	8.13	0.91	0.29	4.96	0.62	272.47	3.48	21.68	0.22	0.00	0.00	0.61	0.03
506.27	2 809.77	64.59	1 162.15	27.53	42 725.11	419.89	310 485.19	4 093.12	0.52	0.10	127.74	1.81	1.72	0.46	215.09	6.92	0.88	0.20	5.89	0.68	279.33	6.00	22.36	0.46	0.00	0.00	0.65	0.02
508.40	2 911.24	70.64	1 181.04	31.35	44 589.66	720.07	321 615.27	5 060.00	0.69	0.07	124.40	2.33	1.67	0.36	221.73	9.96	1.09	0.41	7.45	0.82	291.31	8.36	22.50	0.71	0.00	0.00	0.71	0.04
510.52	2 939.22	65.83	1 141.28	35.54	44 933.63	844.23	323 613.89	5 614.14	0.98	0.10	122.03	1.64	1.78	0.28	226.06	13.69	1.30	0.58	8.33	0.82	293.09	7.95	22.03	0.48	0.00	0.00	0.70	0.04
512.65	2 888.66	61.63	1 095.93	31.27	43 609.10	680.99	316 464.81	4 402.77	1.25	0.12	123.02	2.84	1.53	0.32	225.96	13.27	0.82	0.29	7.95	0.66	285.17	4.82	21.32	0.41	0.00	0.00	0.63	0.03
514.78	2 807.01	54.55	1 078.76	22.66	42 147.96	537.01	307 491.44	3 781.05	1.20	0.16	125.80	2.62	1.14	0.29	220.09	8.80	0.69	0.34	6.41	0.89	278.10	2.61	20.10	0.40	0.00	0.00	0.56	0.04
516.90	2 807.37	40.92	1 081.60	7.52	42 170.76	550.10	305 442.43	4 024.58	0.87	0.13	125.18	3.34	0.97	0.23	206.41	7.17	0.77	0.42	4.31	0.60	276.39	2.79	19.83	0.40	0.00	0.00	0.56	0.02
519.03	2 877.98	31.12	1 094.28	14.43	43 100.93	473.82	308 809.26	3 427.69	0.79	0.06	121.70	4.72	0.87	0.19	204.00	5.73	0.38	0.17	3.81	0.59	276.64	3.42	20.22	0.18	0.00	0.00	0.60	0.02
521.16	2 881.59	46.48	1 103.21	14.63	43 179.14	327.11	307 418.21	2 954.94	0.78	0.06	121.12	3.62	1.28	0.27	206.76	7.47	0.39	0.16	5.05	0.91	272.63	4.35	20.00	0.46	0.00	0.00	0.60	0.04
523.29	2 926.04	47.72	1 122.13	24.14	42 947.68	616.61	307 777.90	2 820.08	0.81	0.12	123.56	4.35	1.61	0.40	199.96	12.92	0.87	0.39	5.33	0.72	271.95	4.09	20.33	0.55	0.00	0.00	0.67	0.05
525.41	2 969.12	20.58	1 107.42	33.07	42 996.72	688.50	312 380.28	2 927.87	1.19	0.20	125.78	5.01	1.33	0.27	190.79	10.10	0.92	0.38	4.59	0.47	275.02	3.48	21.02	0.33	0.00	0.00	0.72	0.04
527.54	2 885.95	14.03	1 067.79	21.74	42 742.12	533.42	312 563.68	2 006.85	1.16	0.15	126.58	2.75	1.07	0.22	190.52	5.30	0.89	0.30	3.87	0.47	275.07	3.92	21.22	0.30	0.00	0.00	0.69	0.05
529.67	2 754.91	20.79	1 038.90	12.39	42 220.00	490.30	308 606.92	1 217.35	0.76	0.10	123.80	1.90	0.91	0.26	182.87	5.89	1.79	0.66	4.27	0.53	271.67	3.75	21.05	0.16	0.00	0.00	0.69	0.06
531.80	2 733.90	27.39	1 038.79	6.14	42 304.64	411.49	307 649.77	1 704.35	0.54	0.08	118.43	3.53	0.91	0.30	171.52	5.78	2.34	0.66	5.50	0.57	269.05	3.52	21.32	0.20	0.00	0.00	0.67	0.05
533.92	2 815.26	27.14	1 072.05	11.06	43 117.19	320.05	310 932.84	3 172.20	0.48	0.15	120.11	2.53	1.11	0.38	187.96	5.81	1.52	0.28	6.35	0.71	273.48	3.43	22.39	0.25	0.00	0.00	0.62	0.04
536.05	2 909.55	31.06	1 115.52	12.57	44 545.09	374.87	318 351.45	3 248.95	0.49	0.21	126.05	1.61	1.14	0.44	222.32	7.16	0.51	0.12	7.20	0.93	282.37	3.32	23.85	0.36	0.00	0.00	0.59	0.04
538.18	2 887.75	23.20	1 127.68	6.16	45 114.95	323.70	322 989.88	2 619.30	0.44	0.18	123.35	3.10	0.88	0.35	227.06	5.06	0.09	0.02	6.61	0.88	285.49	1.77	24.47	0.32	0.00	0.00	0.60	0.03
540.30	2 809.50	26.37	1 112.92	11.04	44 922.14	445.29	323 820.17	2 793.78	0.47	0.16	117.45	4.10	0.98	0.32	220.29	6.22	0.04	0.02	4.53	0.71	287.17	2.94	24.93	0.58	0.00	0.00	0.64	0.05
542.43	2 839.63	57.09	1 107.04	18.06	45 553.98	536.40	326 708.49	3 425.89	0.64	0.18	120.02	2.47	1.73	0.43	226.29	7.58	0.20	0.08	3.86	0.65	294.85	5.61	25.68	0.85	0.00	0.00	0.72	0.05
544.56	2 867.82	70.00	1 106.78	17.84	46 327.34	533.02	327 908.27	2 645.04	0.63	0.15	122.24	3.13	2.18	0.40	232.76	7.02	0.73	0.30	4.66	0.73	298.87	5.66	25.62	0.86	0.00	0.00	0.88	0.05
546.69	2 795.27	64.08	1 128.36	20.49	46 528.67	427.84	327 047.96	2 100.57	0.55	0.15	122.20	3.52	2.17	0.36	230.62	3.83	1.52	0.64	5.27	0.67	299.02	3.84	25.16	0.89	0.00	0.00	1.06	0.08
548.81	2 725.82	50.63	1 177.77	24.33	46 291.36	420.74	325 984.99	2 502.11	0.60	0.13	123.35	4.27	2.06	0.37	228.10	5.00	1.59	0.40	4.86	0.48	299.68	2.47	24.79	0.87	0.00	0.00	1.18	0.08
550.94	2 831.43	52.75	1 221.22	23.20	46 175.58	409.07	327 631.88	3 135.53	0.84	0.16	129.87	4.29	1.90	0.40	228.97	3.59	1.33	0.42	4.80	0.51	300.06	2.20	24.60	0.52	0.00	0.00	1.19	0.04
553.07	3 003.24	54.18	1 249.62	18.73	46 335.72	535.54	330 872.05	3 505.60	0.92	0.17	131.81	4.10	1.89	0.56	220.81	4.64	0.78	0.32	6.06	0.90	299.19	3.46	24.96	0.33	0.00	0.00	1.16	0.06
555.19	3 107.51	45.30	1 258.49	15.55	47 195.17	623.34	335 697.90	3 379.54	0.67	0.11	124.80	3.63	1.61	0.63	208.42	5.47	0.22	0.09	7.12	0.94	298.06	4.97	25.27	0.51	0.00	0.00	1.20	0.08
557.32	3 149.93	63.60	1 251.16	27.11	48 323.07	923.57	339 570.56	5 209.91	0.41	0.05	121.94	3.42	0.97	0.45	209.08	8.74	0.04	0.01	7.01	0.97	295.96	6.28	24.40	0.83	0.00	0.00	1.21	0.09
559.45	3 048.08	89.48	1 213.46	28.23	47 671.63	1 073.06	335 641.26	6 707.94	0.51	0.07	116.92	3.19	0.97	0.29	200.51	11.61	0.15	0.09	7.18	1.37	290.70	6.66	22.85	0.88	0.00	0.00	1.07	0.08
561.58	2 903.64	80.16	1 159.08	16.14	45 563.46	892.46	326 995.85	5 747.50	0.67	0.12	113.32	2.69	1.58	0.41	176.50	8.41	0.42	0.22	6.72	0.89	286.39	5.02	21.90	0.69	0.00	0.00	0.97	0.09
563.70	2 866.18	43.38	1 140.26	15.07	44 434.57	626.65	323 521.11	3 876.25	0.56	0.09	118.60	2.91	1.61	0.36	165.94	5.28	0.39	0.18	6.23	0.46	289.59	2.97	21.79	0.65	0.00	0.00	0.91	0.10
565.83	2 873.52	40.89	1 151.32	14.72	44 094.30	467.70	320 515.46	3 902.16	0.49	0.07	119.72	3.31	1.46	0.25	163.08	4.38	0.14	0.07	7.12	0.61	291.20	2.25	21.50	0.64	0.00	0.00	0.86	0.09
567.96	2 866.27	38.74	1 169.00	14.27	43 855.34	355.96	318 099.19	3 389.41	0.64	0.14	119.39	2.33	1.65	0.33	163.48	4.50	0.02	0.01	8.11	0.48	287.80	3.16	20.84	0.49	0.00	0.00	0.84	0.07
570.08	2 833.08	30.04	1 202.56	14.70	43 885.87	259.40	316 659.89	2 981.81	0.82	0.16	125.60	2.35	1.64	0.27	165.28	4.15	0.00	0.00	7.79	0.63	281.90	3.90	21.17	0.46	0.00	0.00	0.82	0.04
572.21	2 803.09	34.99	1 214.31	16.37	43 812.23	395.09	313 141.03	2 654.13	0.92	0.13	130.25	2.79	1.42	0.25	171.56	3.50	0.02	0.01	6.41	0.98	278.12	2.94	21.85	0.40	0.00	0.00	0.82	0.05
574.34	2 797.49	34.05	1 177.81	19.38	43 460.60	354.47	311 547.67	2 235.60	0.87	0.15	133.43	1.94	0.94	0.21	186.12	3.09	0.22	0.10	4.65	0.91	275.98	2.09	22.17	0.48	0.00	0.00	0.84	0.08
576.47	2 803.12	36.35	1 161.24	24.42	43 251.98	267.04	312 902.02	2 565.64	0.87	0.18	133.78	3.43	0.53	0.12	209.48	3.53	0.67	0.30	4.09	0.74	272.88	3.21	21.84	0.45	0.00	0.00	0.91	0.07
578.59	2 855.14	44.90	1 176.81	26.64	43 310.54	257.00	312 727.35	2 799.07	0.86	0.18	127.51	3.57	0.53	0.10	231.11	4.19	0.76	0.35	4.92	0.71	273.36	2.69	20.67	0.51	0.00	0.00	1.05	0.05
580.72	2 915.53	34.11	1 170.24	19.81	43 395.77	193.31	311 861.67	2 374.73	0.63	0.15	124.78	2.25	0.96	0.14	228.41	3.44	0.34	0.15	7.30	0.56	275.65	1.37	19.71	0.39	0.00	0.00	1.13	0.03
582.85	2 914.86	32.16	1 148.09	8.88	43 325.48	278.53	311 593.06	2 494.76	0.54	0.11	123.18	3.41	1.62	0.25	206.47	2.22	0.06	0.03	9.29	0.66	274.21	1.75	19.91	0.42	0.00	0.00	1.08	0.03
584.97	2 880.89	42.95	1 148.57	7.02	43 356.61	285.75	308 659.98	3 014.76	0.67	0.18	119.72	2.49	2.11	0.29	186.77	3.28	0.00	0.00	9.70	0.91	272.04	2.77	19.96	0.44	0.00	0.00	1.02	0.05
587.10	2 868.90	34.57	1 182.76	8.16	43 455.96	433.67	304 152.92	3 336.84	0.49	0.19	119.47	3.14	2.22	0.30	169.99	4.27	0.01	0.00	9.37	0.95	270.05	3.57	19.48	0.42	0.00	0.00	0.97	0.05
589.23	2 906.30	37.36	1 211.13	8.02	43 456.55	593.56	302 699.70	3 565.57	0.25	0.08	120.76	2.38	1.91	0.28	156.67	5.17	0.11	0.05	8.27	0.82	269.13	4.69	19.27	0.29	0.00	0.00	0.84	0.03
591.36	2 912.42	27.88	1 197.45	10.84	42 851.80	486.87	299 549.17	2 971.36	0.37	0.10	124.19	1.74	1.44	0.21	147.57	4.38	0.52	0.23	8.72	1.13	265.07	3.72	19.29	0.25	0.00	0.00	0.67	0.02
593.48	2 853.35	28.57	1 141.76	16.40	41 559.20	414.09	293 402.85	2 566.84	0.60	0.17	129.59	1.60	1.03	0.20	148.68	3.29	0.98	0.44	10.27	1.00	257.61	2.65	18.90	0.41	0.00	0.00	0.57	0.03
595.61	2 857.92	84.10	1 106.74	36.56	40 540.50	760.76	289 349.98	5 134.55	0.56	0.16	130.79	3.46	0.82	0.21	159.92	2.97	0.73	0.32	10.44	0.58	252.00	3.73	18.19	0.56	0.00	0.00	0.56	0.03
597.74	2 867.90	136.81	1 097.99	45.28	39 955.64	1 031.02	287 410.34	7 141.07	0.44	0.12	125.82	4.28	1.15	0.31	160.20	6.34	0.25	0.09	8.97	0.85	246.90	5.34	18.17	0.60	0.00	0.00	0.55	0.04
599.86	2 869.77	126.32	1 093.96	35.76	39 822.70	846.82	288 416.53	5 815.27	0.53	0.15	122.91	3.26	1.40	0.34	159.10	7.48	0.45	0.19	7.09	1.11	244.50	5.46	18.49	0.55	0.00	0.00	0.56	0.05
601.99	2 871.52	108.84	1 089.12	35.59	40 234.20	794.52	291 239.80	4 733.96	0.57	0.09	124.57	2.99	1.04	0.32	164.30	8.10	1.29	0.59	5.53	1.08	247.34	5.39	18.12	0.47	0.00	0.00	0.62	0.03
604.12	2 888.96	107.43	1 098.84	31.31	40 981.35	1 034.20	294 518.16	6 348.01	0.48	0.05	123.21	3.85	0.54	0.14	169.39	8.31	1.41	0.64	4.54	0.70	254.97	5.97	17.91	0.32	0.00	0.00	0.66	0.03
606.25	2 879.71	77.56	1 103.79	20.97	41 343.12	1 041.65	297 182.82	6 626.09	0.33	0.11	116.21	5.71	0.60	0.05	173.60	9.07	0.61	0.28	4.78	0.93	259.54	5.37	18.82	0.24	0.00	0.00	0.63	0.04
608.37	2 747.21	29.72	1 074.54	9.70	40 080.71	548.17	291 747.20	3 040.48	0.24	0.10	107.82	3.35	1.35	0.12	171.42	7.09	0.10	0.05	5.59	1.40	251.87	2.91	19.24	0.40	0.00	0.00	0.54	0.03
610.50	2 617.74	25.59	1 036.00	9.31	38 650.61	219.27	280 885.23	1 790.58	0.35	0.09	103.89	3.15	1.97	0.38	170.79	4.28	0.02	0.01	6.01	1.67	242.10	2.83	18.64	0.64	0.00	0.00	0.50	0.04
612.63	2 599.98	50.74	1 022.18	13.97	38 077.37	233.87	271 179.50	2 213.24	0.61	0.12	107.23	3.21	1.66	0.43	172.71	6.13	0.20	0.07	5.24	1.40	238.75	3.27	17.85	0.50	0.00	0.00	0.52	0.03
614.76	2 656.13	70.91	1 032.47	19.17	37 921.83	221.88	266 948.49	3 220.11	0.71	0.13	113.79	3.01	0.99	0.19	166.58	8.41	0.90	0.33	3.98	0.81	239.78	3.00	17.19	0.34	0.00	0.00	0.55	0.04
616.88	2 785.81	80.75	1 084.86	15.28	38 630.80	430.85	272 206.92	4 685.83	0.58	0.11	121.56	3.88	0.76	0.21	173.18	8.77	1.62	0.59	3.35	0.45	245.00	5.16	17.08	0.44	0.00	0.00	0.60	0.06
619.01	2 807.77	78.33	1 129.74	11.58	39 092.01	659.39	276 155.19	5 462.69	0.41	0.10	127.02	3.35	0.59	0.14	184.36	6.41	1.13	0.40	4.18	0.65	246.42	5.76	16.86	0.40	0.00	0.00	0.67	0.05
621.14	2 756.72	64.97	1 137.85	11.76	39 200.74	768.90	278 288.66	5 657.78	0.25	0.07	122.61	3.57	0.57	0.15	182.90	4.73	0.30	0.11	4.71	0.62	247.57	5.62	16.49	0.30	0.00	0.00	0.81	0.07
623.26	2 779.74	52.09	1 178.33	11.67	39 776.16	513.33	283 808.42	4 022.55	0.21	0.05	116.94	5.84	0.68	0.17	179.40	4.38	0.03	0.01	4.32	0.17	253.01	3.36	16.31	0.35	0.00	0.00	0.94	0.07
625.39	2 755.83	54.85	1 222.51	14.16	39 885.46	414.16	286 126.28	3 042.76	0.28	0.06	123.11	7.50	0.87	0.24	181.88	4.25	0.00	0.00	4.04	0.26	256.30	3.46	16.08	0.69	0.00	0.00	0.92	0.06
627.52	2 709.31	63.04	1 234.20	17.42	39 317.56	577.67	284 845.12	3 673.06	0.34	0.07	131.25	7.65	1.19	0.38	180.08	3.68	0.00	0.00	4.47	0.73	255.13	5.28	15.88	0.90	0.00	0.00	0.82	0.06
629.65	2 691.04	47.13	1 232.31	18.33	38 602.91	471.73	282 664.62	3 341.22	0.31	0.08	138.74	6.39	1.00	0.28	170.86	1.89	0.00	0.00	5.61	0.86	252.77	4.98	16.02	0.62	0.00	0.00	0.71	0.04
631.77	2 718.46	29.50	1 238.48	15.21	37 959.63	347.94	280 355.05	3 387.21	0.29	0.06	149.94	4.08	0.47	0.14	165.75	4.01	0.00	0.00	6.57	0.82	249.46	3.84	15.40	0.20	0.00	0.00	0.60	0.02
633.90	2 841.87	28.87	1 276.38	10.41	37 875.64	280.53	281 720.28	2 960.62	0.34	0.13	155.09	3.25	0.29	0.11	164.17	4.16	0.00	0.00	5.84	1.02	246.60	2.18	14.05	0.36	0.00	0.00	0.55	0.02
636.03	2 942.14	33.63	1 314.12	17.82	38 126.20	315.87	282 597.33	2 342.40	0.30	0.11	147.19	2.25	0.54	0.22	163.02	5.16	0.00	0.00	5.00	0.95	245.66	3.33	13.24	0.37	0.00	0.00	0.54	0.03
638.15	2 976.26	29.70	1 335.78	20.07	38 635.20	416.39	282 252.53	2 768.22	0.21	0.05	139.13	1.25	0.90	0.31	160.26	6.73	0.00	0.00	5.25	0.60	247.89	4.39	13.04	0.24	0.00	0.00	0.54	0.03
640.28	2 997.91	49.35	1 354.74	21.09	38 930.41	571.41	282 935.90	4 256.67	0.27	0.09	137.79	1.60	1.31	0.32	156.04	6.74	0.00	0.00	6.37	0.66	248.43	4.77	13.20	0.59	0.00	0.00	0.55	0.03
642.41	2 927.46	47.44	1 336.37	28.14	38 005.20	413.35	278 733.04	3 377.63	0.46	0.20	136.55	1.99	1.18	0.25	150.89	3.13	0.00	0.00	8.03	0.97	241.25	3.67	12.99	0.48	0.00	0.00	0.56	0.04
644.54	2 958.59	43.49	1 351.24	34.63	38 365.97	491.91	281 667.59	2 914.01	0.49	0.21	134.69	3.38	0.64	0.13	152.21	3.02	0.00	0.00	9.12	1.09	240.29	3.82	12.49	0.25	0.00	0.00	0.61	0.05
646.66	3 014.53	41.53	1 379.14	29.01	39 528.29	488.51	287 569.90	3 315.94	0.34	0.12	132.60	2.69	0.64	0.21	156.15	2.95	0.00	0.00	9.65	0.73	243.03	4.00	12.17	0.24	0.00	0.00	0.70	0.04
648.79	3 027.91	59.06	1 393.94	25.88	39 737.84	604.05	288 762.62	4 103.03	0.41	0.15	127.83	2.39	0.95	0.39	152.78	4.35	0.00	0.00	9.28	0.67	243.35	4.65	12.00	0.23	0.00	0.00	0.79	0.04
650.92	3 034.41	67.88	1 396.28	24.49	39 263.11	668.54	287 395.82	4 849.35	0.62	0.15	123.55	0.91	0.72	0.22	151.60	5.29	0.04	0.04	8.75	0.81	242.46	4.83	11.80	0.36	0.00	0.00	0.84	0.04
653.04	3 056.02	42.62	1 411.57	20.30	39 197.51	488.53	288 859.82	4 558.08	0.68	0.10	129.93	2.48	0.59	0.16	153.41	5.84	0.17	0.15	8.08	0.58	242.56	4.24	12.01	0.51	0.00	0.00	0.82	0.04
655.17	3 122.83	39.64	1 450.81	18.27	40 221.65	389.76	295 222.69	3 543.72	0.71	0.15	143.12	2.33	0.62	0.17	164.86	7.48	0.23	0.19	7.15	0.40	246.61	3.22	12.62	0.34	0.00	0.00	0.82	0.03
657.30	3 121.25	27.86	1 460.53	18.34	40 827.07	317.35	296 850.37	2 381.08	0.62	0.14	148.22	2.55	0.86	0.22	182.08	8.33	0.11	0.05	6.93	0.34	250.50	2.03	13.02	0.13	0.00	0.00	0.85	0.03
659.43	3 070.17	27.94	1 470.33	19.88	40 827.74	148.66	295 125.89	2 461.68	0.47	0.09	145.19	2.05	1.06	0.28	196.19	8.68	0.25	0.11	8.24	0.64	251.36	2.24	13.21	0.25	0.00	0.00	0.88	0.05
661.55	3 093.01	45.09	1 530.62	22.23	41 128.31	268.53	298 765.07	2 761.12	0.36	0.05	142.94	3.29	0.91	0.25	201.82	7.93	0.51	0.23	10.09	0.97	251.93	3.59	13.05	0.22	0.00	0.00	0.97	0.09
663.68	3 193.45	50.94	1 597.69	18.00	41 850.16	376.83	305 734.23	2 597.39	0.28	0.06	137.74	4.06	0.82	0.21	203.03	5.57	0.44	0.20	10.79	0.64	254.98	3.88	12.43	0.30	0.00	0.00	1.20	0.07
665.81	3 239.79	46.39	1 640.95	12.75	42 339.06	364.74	307 614.86	1 333.00	0.22	0.02	131.46	3.70	1.38	0.25	215.79	4.37	0.29	0.13	11.05	0.53	256.98	2.12	12.08	0.23	0.00	0.00	1.61	0.06
667.93	3 231.70	45.65	1 664.19	19.89	42 317.50	465.21	306 328.71	2 280.20	0.31	0.05	132.50	3.72	1.81	0.23	244.35	9.71	0.23	0.10	10.77	0.52	257.40	1.79	12.63	0.31	0.00	0.00	1.96	0.09
670.06	3 148.49	38.65	1 666.08	20.60	41 728.26	517.07	303 777.02	2 841.84	0.44	0.10	140.16	3.27	1.28	0.20	259.70	13.72	0.10	0.05	9.11	0.86	254.78	2.37	13.08	0.43	0.00	0.00	2.01	0.09
672.19	3 021.01	32.73	1 680.33	18.03	40 861.45	397.27	301 645.80	1 882.29	0.43	0.11	144.14	4.78	0.98	0.16	248.28	11.28	0.02	0.01	7.60	0.77	251.05	2.88	12.88	0.35	0.00	0.00	2.01	0.03

674.32	2 931.76	53.06	1 697.25	31.85	40 637.73	581.07	299 805.88	3 247.55	0.48	0.08	148.80	5.76	1.44	0.31	236.65	6.24	0.00	0.00	7.02	0.61	250.58	4.81	12.47	0.32	0.00	0.00	1.98	0.08
676.44	2 878.09	65.96	1 683.82	23.93	40 971.47	669.36	296 499.25	3 609.96	0.63	0.14	150.15	4.84	1.76	0.32	231.39	5.52	0.00	0.00	6.49	0.55	251.34	4.91	11.96	0.38	0.00	0.00	1.82	0.11
678.57	2 846.99	73.21	1 645.88	22.95	41 131.68	575.78	295 319.65	2 699.49	0.51	0.12	143.71	2.88	1.68	0.37	218.01	4.88	0.00	0.00	6.19	0.45	251.39	3.07	11.42	0.22	0.00	0.00	1.56	0.10
680.70	2 851.77	56.07	1 617.65	24.60	41 262.11	459.13	297 607.44	3 057.71	0.30	0.08	136.61	2.06	1.46	0.35	207.37	2.58	0.00	0.00	7.82	0.58	253.01	4.32	11.36	0.14	0.00	0.00	1.39	0.06
682.82	2 891.25	50.63	1 650.86	32.68	42 230.16	455.13	303 432.57	3 193.86	0.38	0.11	135.51	2.64	1.34	0.20	211.71	5.02	0.01	0.01	9.77	1.03	259.48	4.73	11.94	0.30	0.00	0.00	1.29	0.05
684.95	2 903.99	70.72	1 715.01	39.76	43 161.38	529.37	308 497.88	3 689.81	0.52	0.15	136.39	2.52	0.95	0.14	226.65	6.30	0.11	0.08	9.94	1.62	265.71	4.32	12.55	0.31	0.00	0.00	1.20	0.05
687.08	2 912.98	70.38	1 772.32	35.34	43 513.25	675.93	312 222.61	4 930.83	0.51	0.16	133.36	2.81	0.49	0.11	237.45	5.82	0.36	0.22	7.92	1.12	268.45	4.41	12.81	0.35	0.00	0.00	1.10	0.07
689.21	2 941.25	67.83	1 788.14	28.67	43 194.99	681.89	312 859.07	4 369.03	0.35	0.09	129.84	2.16	0.26	0.11	239.02	5.27	0.40	0.21	7.59	1.14	267.79	4.37	12.77	0.24	0.00	0.00	1.05	0.07
691.33	2 930.23	72.15	1 795.24	32.40	42 720.13	745.74	311 480.52	4 022.55	0.23	0.04	129.23	1.88	0.27	0.18	244.01	3.84	0.15	0.07	9.42	1.35	266.79	5.32	12.63	0.22	0.00	0.00	1.07	0.06
693.46	2 887.93	69.49	1 842.12	39.97	43 110.32	807.92	312 344.55	4 303.03	0.17	0.02	138.13	2.15	0.29	0.15	260.02	4.01	0.02	0.01	8.74	0.52	267.10	5.73	12.77	0.28	0.00	0.00	1.18	0.06
695.59	2 757.78	72.73	1 807.74	40.63	42 702.27	709.13	304 916.18	4 479.92	0.17	0.03	143.32	1.98	0.33	0.11	262.06	4.42	0.00	0.00	7.34	0.83	260.47	3.78	12.86	0.32	0.00	0.00	1.32	0.07
697.72	2 570.87	72.23	1 661.85	31.42	40 939.54	759.54	287 990.10	5 591.92	0.16	0.04	137.26	3.46	0.37	0.08	241.70	8.05	0.00	0.00	6.72	1.06	247.23	2.67	12.03	0.32	0.00	0.00	1.36	0.08
699.84	2 366.92	114.47	1 507.90	51.02	38 268.45	1 346.73	267 241.71	10 147.69	0.10	0.02	130.71	3.01	0.27	0.09	222.02	12.38	0.00	0.00	6.03	0.54	229.92	6.50	10.96	0.56	0.00	0.00	1.29	0.06
701.97	2 169.12	135.98	1 386.74	66.96	35 229.23	1 719.81	246 390.13	12 836.94	0.10	0.02	133.66	2.17	0.10	0.04	217.12	9.46	0.01	0.01	6.73	0.59	209.65	10.02	10.04	0.76	0.00	0.00	1.15	0.02
704.10	2 014.45	134.60	1 317.43	68.96	32 760.99	1 861.10	230 925.53	13 953.03	0.17	0.06	142.24	3.30	0.04	0.01	213.43	7.08	0.08	0.07	8.67	0.91	192.77	11.75	9.30	0.63	0.00	0.00	0.99	0.03
706.22	1 887.37	141.33	1 257.65	84.50	30 549.64	2 069.61	217 051.91	15 512.11	0.14	0.05	143.07	3.91	0.16	0.04	191.95	10.44	0.22	0.16	9.79	0.84	180.88	13.64	8.55	0.52	0.00	0.00	0.89	0.07
708.35	1 887.32	123.20	1 227.78	95.45	29 563.73	2 088.22	209 275.48	15 335.79	0.06	0.02	136.27	3.99	0.34	0.11	174.23	12.56	0.21	0.13	9.58	0.68	175.91	13.41	8.26	0.66	0.00	0.00	0.88	0.10
710.48	2 020.40	154.76	1 271.44	128.02	30 728.39	2 697.76	216 676.46	20 017.89	0.09	0.02	132.20	5.86	0.28	0.11	184.73	16.47	0.07	0.04	8.22	0.32	182.95	16.08	8.69	0.87	0.00	0.00	0.90	0.13
712.61	2 179.18	176.19	1 368.17	140.37	33 518.35	2 968.28	236 652.91	21 898.65	0.30	0.06	134.91	5.02	0.20	0.06	214.23	18.70	0.11	0.07	7.00	0.53	201.84	17.43	9.32	0.87	0.00	0.00	0.86	0.12
714.73	2 381.68	143.93	1 549.51	115.98	37 880.65	2 437.63	266 985.59	17 606.85	0.47	0.08	143.32	3.40	0.37	0.16	252.00	17.19	0.59	0.23	7.69	0.98	230.87	13.81	10.25	0.67	0.00	0.00	0.82	0.07
716.86	2 601.60	113.31	1 725.41	77.51	41 675.24	1 649.05	293 186.03	12 174.70	0.46	0.06	147.20	3.12	0.42	0.18	278.21	14.69	1.41	0.36	9.08	1.72	253.54	9.09	10.92	0.46	0.00	0.00	0.82	0.05
718.99	2835.94	105.79	1801.21	53.08	43431.47	1201.97	305807.11	9087.12	0.47	0.10	143.68	3.31	0.26	0.06	284.62	13.38	1.73	0.48	8.80	1.84	259.79	6.47	10.88	0.53	0.00	0.00	0.82	0.04
721.11	3015.38	84.08	1827.79	47.38	44122.76	1152.58	310591.39	8065.33	0.40	0.10	140.86	3.94	0.31	0.08	273.66	10.89	1.29	0.30	8.89	0.98	256.14	6.66	10.48	0.66	0.00	0.00	0.76	0.04

Table S5. LA-ICP-TOFMS concentrations (in ppm) along a transect (in µm; See page 55 of Appendix A) in the cellular cementum of the Odense 533 M1.

Distance [µm]	23Na+	Uncertainty Mean (1s) [23Na]+ [ppm]	24Mg+	Uncertainty Mean (1s) [24Mg]+ [ppm]	31P+	Uncertainty Mean (1s) [31P]+ [ppm]	44Ca+	Uncertainty Mean (1s) [44Ca]+ [ppm]	55Mn+	Uncertainty Mean (1s) [55Mn]+ [ppm]	56Fe+	Uncertainty Mean (1s) [56Fe]+ [ppm]	63Cu+	Uncertainty Mean (1s) [63Cu]+ [ppm]	66Zn+	Uncertainty Mean (1s) [66Zn]+ [ppm]	75As+	Uncertainty Mean (1s) [75As]+ [ppm]	81Br+	Uncertainty Mean (1s) [81Br]+ [ppm]	88Sr+	Uncertainty Mean (1s) [88Sr]+ [ppm]	138Ba+	Uncertainty Mean (1s) [138Ba]+ [ppm]	202Hg+	Uncertainty Mean (1s) [202Hg]+ [ppm]	208Pb+	Uncertainty Mean (1s) [208Pb]+ [ppm]
0.00	746.56	74.74	1 197.64	72.28	14 581.08	2 392.31	115 621.46	18 775.79	23.06	4.59	2 955.87	347.85	20.24	1.17	391.66	57.11	5.09	2.02	59.46	5.25	166.70	17.88	32.27	0.89	0.00	0.00	43.54	6.70
2.00	1 165.82	108.67	1 302.02	60.46	24 040.89	3 048.41	187 817.03	23 963.85	16.19	1.36	2 443.24	233.43	23.30	2.66	519.12	62.99	3.36	0.95	70.90	4.95	231.70	20.63	36.54	1.13	0.00	0.00	55.76	4.75
4.00	1 592.27	114.11	1 366.73	49.25	33 711.33	3 210.18	261 944.44	24 275.36	13.17	1.58	1 997.47	242.30	22.42	2.07	642.56	52.78	3.07	1.73	72.51	4.55	295.16	18.56	40.25	1.36	0.00	0.00	56.28	1.63
6.00	1 903.22	96.12	1 394.25	28.51	41 713.58	2 745.12	323 492.81	19 400.17	11.13	1.69	1 514.68	207.44	17.00	1.54	772.35	41.48	1.82	1.06	65.22	3.07	341.58	14.60	42.05	0.81	0.00	0.00	45.76	4.13
8.00	2 072.94	75.42	1 358.23	20.79	46 247.72	1 938.28	356 153.86	14 005.82	9.04	0.81	1 136.19	130.58	10.57	2.05	879.40	41.65	0.82	0.34	52.59	2.96	372.16	12.44	42.16	0.75	0.00	0.00	30.66	5.05
10.00	2 147.31	54.71	1 382.46	31.81	48 923.25	901.53	368 912.15	8 368.77	7.68	0.85	928.13	61.36	5.84	1.26	889.13	29.06	1.16	0.79	49.72	3.90	390.04	10.52	41.53	1.00	0.00	0.00	17.90	3.45
12.00	2 221.47	26.76	1 419.86	30.21	50 964.77	232.21	378 136.34	3 047.34	7.97	1.37	850.72	26.85	6.04	1.52	884.99	15.03	1.27	0.91	57.76	3.61	395.24	8.36	40.90	1.00	0.00	0.00	10.80	1.64
14.00	2 258.03	43.89	1 355.58	32.54	51 342.21	408.61	383 398.71	5 760.95	8.86	1.41	845.39	19.90	6.59	1.10	908.60	31.33	0.50	0.37	57.82	4.30	393.97	9.22	41.14	1.18	0.00	0.00	7.61	0.91
16.00	2 195.98	89.93	1 286.50	29.96	50 077.12	933.29	379 032.99	9 327.95	9.42	0.81	831.42	13.77	4.96	0.57	901.60	34.44	0.06	0.04	51.82	4.22	391.44	11.60	39.96	1.28	0.00	0.00	5.88	0.70
18.00	2 050.70	125.94	1 260.14	41.95	47 278.15	1 738.10	359 778.79	14 257.70	9.18	0.86	776.73	23.87	3.98	0.57	874.24	35.85	0.00	0.00	56.04	4.68	374.16	13.23	36.39	1.84	0.00	0.00	4.60	0.57
20.00	1 882.87	135.71	1 234.67	57.35	44 182.65	1 988.06	338 919.34	15 007.72	7.99	1.13	739.65	28.37	6.98	1.01	770.65	34.46	0.00	0.00	61.92	6.64	347.34	13.00	32.97	2.78	0.00	0.00	3.55	0.34
22.00	1 809.50	143.48	1 217.65	74.98	42 106.98	2 047.42	328 485.77	13 872.08	7.36	0.78	704.06	22.91	10.28	1.52	674.83	36.91	0.00	0.00	56.49	5.63	330.46	13.85	31.98	3.05	0.00	0.00	3.24	0.19
24.00	1 840.63	151.72	1 185.05	81.03	40 707.99	2 108.05	320 622.56	14 470.54	7.31	0.80	687.51	19.25	9.41	1.04	701.91	58.29	0.00	0.00	44.75	2.92	326.99	14.91	31.53	3.09	0.00	0.00	3.38	0.22
26.00	1 988.62	153.59	1 244.44	81.25	40 768.85	2 337.03	318 739.45	15 852.36	7.22	0.72	692.98	13.58	9.01	0.56	733.34	58.65	0.03	0.01	36.65	4.46	342.05	18.00	30.76	2.85	0.00	0.00	3.36	0.29
28.00	2 164.92	142.41	1 317.93	82.00	41 286.04	2 427.50	319 294.51	16 158.26	7.29	0.56	684.38	10.23	10.04	0.74	712.99	41.43	0.49	0.18	39.39	2.22	356.66	21.09	30.66	2.01	0.00	0.00	2.95	0.26
30.00	2 211.88	111.97	1 341.79	70.26	41 117.44	1 935.56	316 005.33	13 529.82	8.19	0.89	687.20	5.65	11.39	0.75	694.67	28.11	2.93	0.93	52.85	3.73	356.08	23.26	30.48	1.36	0.00	0.00	2.57	0.13
32.00	2 245.73	70.18	1 425.41	63.75	41 137.67	1 083.53	311 354.18	9 720.95	11.12	1.57	709.23	6.43	10.92	1.04	678.32	21.80	6.49	2.03	66.68	4.93	361.76	23.21	30.41	1.51	0.00	0.00	2.62	0.09
34.00	2 248.59	157.54	1 469.89	38.05	40 565.14	1 125.98	304 955.20	9 992.16	14.40	1.83	733.96	13.46	9.40	1.15	667.83	18.00	5.41	1.65	66.76	4.32	367.13	16.17	31.84	1.16	0.00	0.00	2.48	0.18
36.00	2 087.96	241.52	1 405.73	25.57	38 836.74	1 936.18	291 893.36	15 800.77	15.79	1.44	736.26	13.57	8.80	1.53	644.87	30.29	1.72	0.54	60.56	2.02	364.04	11.24	32.40	0.46	0.00	0.00	1.99	0.23
38.00	1 911.20	253.03	1 326.21	42.24	36 824.72	2 240.26	276 811.01	18 890.82	14.02	1.09	715.24	10.54	9.01	1.92	599.48	32.44	0.51	0.17	52.62	2.00	349.13	9.83	30.39	1.13	0.00	0.00	1.45	0.17
40.00	1 936.74	246.57	1 269.68	47.55	35 874.46	2 578.16	274 185.26	21 135.68	11.42	1.03	699.43	14.42	9.00	2.47	564.04	20.74	1.72	0.72	44.93	2.66	325.16	6.98	28.28	1.64	0.00	0.00	1.13	0.12
42.00	2 052.76	223.43	1 280.54	66.70	36 743.98	2 763.87	280 377.09	22 153.08	10.73	0.98	668.89	16.93	8.98	2.31	573.72	9.60	3.37	1.44	42.56	2.50	315.94	3.87	27.91	1.56	0.00	0.00	1.10	0.16
44.00	2 154.56	150.43	1 326.55	71.02	38 694.25	2 113.05	291 097.80	17 293.61	10.38	0.70	640.39	9.72	8.63	1.81	620.78	10.82	2.38	0.96	41.42	2.59	324.07	6.63	28.08	1.26	0.00	0.00	1.20	0.11
46.00	2 390.54	81.98	1 376.03	49.85	41 009.71	1 250.11	315 328.58	10 614.87	10.10	1.17	668.52	4.33	6.06	1.09	666.60	5.52	0.83	0.23	40.52	2.85	340.93	6.54	29.23	1.39	0.00	0.00	1.39	0.02
48.00	2 600.46	55.52	1 400.38	48.64	41 979.46	1 014.95	334 651.79	7 783.46	11.40	1.43	736.13	5.20	3.66	0.91	676.68	12.96	0.98	0.34	47.61	5.00	348.53	6.87	31.07	1.51	0.00	0.00	1.64	0.06
50.00	2 664.08	37.12	1 432.70	51.09	42 552.94	901.70	342 450.96	5 383.47	13.32	1.62	764.72	7.47	4.01	1.49	678.74	15.90	2.90	1.21	57.88	4.84	351.40	7.39	33.38	1.22	0.00	0.00	1.89	0.10
52.00	2 646.76	31.95	1 486.44	43.61	43 472.34	1 035.52	341 415.35	5 944.75	12.96	1.49	731.25	12.98	5.02	1.64	715.66	24.66	4.13	1.73	64.41	1.90	356.12	8.39	34.14	0.72	0.00	0.00	1.83	0.10
54.00	2 670.06	69.63	1 505.55	31.57	44 096.97	1 030.09	337 278.67	6 140.18	10.88	1.39	710.27	17.02	4.43	1.14	730.00	29.32	2.41	0.99	63.66	4.40	352.72	9.02	33.85	0.51	0.00	0.00	1.58	0.10
56.00	2 604.94	96.75	1 485.44	29.49	43 640.18	957.98	331 790.05	4 846.80	8.47	0.77	721.19	9.38	3.91	0.81	684.22	21.16	0.47	0.21	49.33	1.36	346.20	9.54	32.71	0.55	0.00	0.00	1.44	0.11
58.00	2 486.45	85.38	1 451.82	44.87	43 162.93	788.12	328 497.64	3 418.00	6.86	0.38	712.90	6.88	5.40	1.02	645.18	20.66	0.05	0.01	38.94	2.36	347.01	9.44	31.35	0.62	0.00	0.00	1.40	0.13
60.00	2 546.12	88.03	1 455.73	41.60	43 104.32	326.73	332 115.42	4 032.44	6.92	0.59	691.63	10.96	7.32	0.77	648.78	21.22	0.17	0.07	36.00	3.20	348.70	7.17	31.58	0.44	0.00	0.00	1.25	0.12
62.00	2 656.22	107.83	1 486.22	27.94	42 151.53	690.43	333 777.30	7 483.33	7.74	0.97	688.26	16.49	6.72	0.40	609.29	19.40	1.21	0.53	34.70	2.59	342.59	6.40	31.97	0.52	0.00	0.00	1.14	0.04
64.00	2 747.09	81.76	1 535.62	25.48	41 423.23	1 009.43	333 548.06	7 116.69	9.54	1.41	702.41	14.86	5.36	0.39	536.13	23.84	2.78	1.26	36.45	2.91	337.65	6.99	30.73	0.59	0.00	0.00	1.15	0.07
66.00	2 827.80	52.49	1 611.96	43.44	41 528.92	907.11	332 108.74	4 944.48	10.39	1.18	709.35	8.90	5.68	0.95	503.11	16.37	2.41	1.05	41.93	5.17	340.30	6.69	29.66	0.42	0.00	0.00	1.01	0.06
68.00	2 770.52	56.69	1 604.09	72.25	40 532.83	767.22	320 281.40	4 699.96	10.70	0.69	707.46	10.95	6.42	1.85	480.22	5.93	0.75	0.34	49.50	5.04	331.53	5.00	28.24	0.44	0.00	0.00	0.90	0.06
70.00	2 637.11	65.49	1 467.05	76.86	39 139.82	819.28	307 759.24	6 741.59	11.82	0.74	702.83	14.26	6.67	2.18	446.91	11.24	0.10	0.04	55.99	4.81	311.53	4.11	24.47	0.60	0.00	0.00	0.94	0.06
72.00	2 607.91	66.05	1 282.74	59.13	38 377.03	683.12	300 094.26	7 373.45	9.37	0.64	673.93	23.03	6.50	1.78	415.56	20.17	0.15	0.06	49.76	4.12	296.83	3.43	21.36	0.72	0.00	0.00	0.99	0.07
74.00	2 575.45	87.49	1 194.30	65.59	37 233.93	518.15	289 134.87	4 859.29	6.11	0.31	642.53	30.05	6.76	1.32	402.48	23.09	0.78	0.34	43.97	3.09	297.27	3.86	20.67	0.85	0.00	0.00	0.94	0.08
76.00	2 493.41	149.59	1 203.43	88.51	35 682.98	1 152.82	278 594.86	8 235.69	6.75	0.45	638.22	23.10	7.10	0.96	390.68	27.46	1.58	0.69	43.72	3.20	298.88	4.26	19.25	0.61	0.00	0.00	0.80	0.08
78.00	2 382.56	173.58	1 208.80	83.90	34 217.34	1 486.32	267 944.30	10 633.56	8.04	0.75	635.27	12.95	5.91	0.96	389.98	28.43	1.21	0.51	48.24	2.81	280.92	6.24	18.50	0.33	0.00	0.00	0.62	0.07
80.00	2 244.95	159.58	1 163.30	70.68	32 976.32	1 641.09	258 190.00	10 953.55	7.44	0.58	632.58	9.43	4.47	1.00	393.07	23.96	0.57	0.27	61.98	2.73	257.67	8.05	19.47	0.61	0.00	0.00	0.57	0.06
82.00	2 202.69	135.12	1 093.29	44.47	32 639.41	1 538.18	257 603.08	10 463.53	7.66	0.61	641.44	7.99	4.92	1.11	367.85	22.09	0.59	0.42	65.71	3.92	253.24	8.20	20.02	0.76	0.00	0.00	0.63	0.07
84.00	2 322.90	98.31	1 086.12	33.38	33 221.95	1 207.98	260 390.54	8 380.14	8.88	0.71	650.93	8.71	6.13	1.36	342.95	22.19	0.55	0.43	53.37	5.65	255.93	5.75	19.38	0.58	0.00	0.00	0.78	0.07
86.00	2 854.37	107.70	1 198.71	20.02	34 530.84	763.33	267 034.78	5 556.75	8.59	0.58	662.66	8.05	7.65	1.21	380.58	20.88	0.24	0.13	44.95	5.41	261.93	3.25	30.05	4.53	0.00	0.00	1.00	0.08
88.00	5 198.23	1 107.31	1 347.32	18.84	35 566.98	315.51	273 889.45	3 905.18	7.14	0.38	679.04	14.57	9.53	1.26	474.65	21.93	0.56	0.36	43.18	3.66	274.33	7.11	117.73	42.50	0.00	0.00	1.23	0.10
90.00	8 711.52	2 750.69	1 508.58	16.74	35 019.52	312.13	270 363.83	3 824.92	7.83	0.75	728.49	20.34	10.33	2.21	530.44	21.43	1.93	1.19	42.40	4.05	290.72	6.41	324.94	126.98	0.00	0.00	1.47	0.13
92.00	7 960.55	2 466.04	1 957.34	80.83	34 276.35	611.85	267 210.25	7 273.91	9.83	1.23	798.84	16.26	10.60	2.79	509.63	22.06	2.61	1.67	46.70	4.94	324.69	7.02	341.55	132.73	0.00	0.00	1.58	0.13
94.00	4 187.98	745.19	3 158.10	435.96	34 275.04	933.64	267 340.84	9 262.55	10.93	1.25	848.92	7.63	11.21	2.15	470.09	20.57	1.20	0.73	52.50	5.09	392.65	24.10	151.18	53.51	0.00	0.00	1.48	0.09
96.00	2 366.16	89.51	4 305.23	863.17	32 922.71	1 324.78	257 163.37	11 553.34	11.61	0.85	865.08	9.10	14.82	1.41	439.49	30.25	0.44	0.12	54.53	4.89	441.85	42.99	46.33	8.00	0.00	0.00	1.40	0.07
98.00	1 950.32	182.92	3 601.89	636.76	30 498.80	1 654.20	240 264.10	13 372.08	10.87	1.09	822.90	10.65	19.10	1.25	426.62	35.16	1.12	0.42	57.31	7.80	407.17	31.40	26.14	0.90	0.00	0.00	1.61	0.10
100.00	1 815.70	194.70	2 406.24	229.86	29 177.44	1 693.26	238 372.03	11 030.54	11.40	1.28	760.12	7.13	19.68	1.20	458.88	33.53	1.89	0.75	60.29	7.58	400.92	18.07	24.67	0.56	0.00	0.00	1.96	0.12
102.00	1 740.20	142.32	2 126.76	152.91	29 251.77	1 236.10	255 756.12	9 083.35	12.86	1.65	728.39	9.20	18.10	1.33	529.82	46.56	1.11	0.41	63.25	1.27	506.02	69.83	24.60	0.48	0.00	0.00	2.04	0.11
104.00	1 724.73	88.66	1 920.36	144.13	30 105.57	886.56	260 826.27	10 069.33	12.49	1.37	723.57	11.45	14.58	1.68	608.85	74.29	0.22	0.09	57.51	2.98	507.79	75.22	23.99	1.14	0.00	0.00	1.72	0.16
106.00	1 911.39	79.64	1 538.45	97.86	32 293.58	836.10	256 449.45	4 304.83	11.14	1.58	714.15	17.57	11.61	1.22	595.12	58.70	0.02	0.01	48.04	3.30	388.04	27.21	24.56	1.37	0.00	0.00	1.32	0.23
108.00	2 221.84	73.25	1 321.94	79.14	35 567.19	695.89	269 834.48	5 716.69	8.69	1.24	701.78	23.56	11.08	1.23	538.88	23.65	0.00	0.00	49.72	2.84	320.75	9.17	24.71	1.09	0.00	0.00	1.09	0.12
110.00	2 442.06	63.60	1 277.62	52.41	38 690.73	415.21	294 149.11	3 507.20	6.65	0.95	692.25	21.59	10.93	0.96	547.80	18.43	0.00	0.00	54.37	2.18	309.16	9.37	24.89	0.88	0.00	0.00	1.10	0.07
112.00	2 560.11	29.46	1 274.45	30.40	39 897.06	244.76	308 046.43	1 882.44	6.06	0.60	682.52	13.31	9.95	1.06	555.71	13.51	0.06	0.03	53.86	2.03	303.26	7.62	26.22	0.59	0.00	0.00	1.04	0.11
114.00	2 672.25	19.43	1 237.45	25.44	40 363.14	388.25	312 235.39	3 133.31	6.76	0.80	659.35	9.26	8.70	1.17	532.96	12.39	0.75	0.32	52.42	2.49	296.17	4.18	26.74	0.69	0.00	0.00	0.88	0.10
116.00	2 738.17	37.01	1 209.39	34.30	40 507.74	574.64	313 058.33	3 648.59	6.11	0.91	646.36	8.76	6.39	0.75	535.76	12.11	3.37	1.40	56.80	3.25	286.38	2.99	26.48	0.98	0.00	0.00	0.87	0.08
118.00	2 745.72	56.58	1 247.00	35.50	39 797.61	816.57	311 665.29	4 446.34	4.53	0.34	662.09	9.15	4.55	0.87	551.09	13.35	6.16	2.43	58.78	4.18	277.33	2.87	26.96	1.20	0.00	0.00	1.01	0.08
120.00	2 748.07	52.33	1 286.27	31.39	39 317.64	788.63	309 950.62	3 595.93	4.86	0.44	672.21	13.99	4.05	0.82	569.85	12.71	5.39	1.06	54.58	4.25	275.35	4.23	26.69	0.75	0.00	0.00	0.97	0.06
122.00	2 750.38	47.02	1 296.84	18.84	38 685.55	528.98	303 666.97	2 318.86	6.41	0.73	654.82	13.40	3.33	0.36	568.01	8.90	4.78	1.61	47.76	3.55	275.93	4.99	25.11	0.42	0.00	0.00	0.85	0.09
124.00	2 774.88	55.35	1 277.31	23.24	39 036.09	338.60	303 757.17	3 080.92	6.67	1.00	637.32	11.05	4.11	0.69	554.90	14.03	3.02	1.33	46.36	3.34	278.70	3.61	25.07	0.81	0.00	0.00	0.75	0.07
126.00	2 700.28	41.02	1 248.03	24.95	39 704.16	479.76	310 552.65	2 772.66	5.73	0.89	632.22	13.05	5.58	1.09	529.93	18.90	0.74	0.37	50.26	3.09	282.59	3.72	26.75	1.68	0.00	0.00	0.80	0.06
128.00	2 624.46	63.59	1 283.05	15.96	40 097.05	709.27	316 203.96	4 907.68	5.64	0.88	639.98	10.68	5.05	0.88	506.89	22.99	0.07	0.03	55.48	2.85	284.94	5.42	28.80	2.34	0.00	0.00	0.95	0.07
130.00	2 650.91	61.20	1 330.65	24.75	41 015.91	606.79	318 515.99	5 145.60	7.20	0.62	643.19	7.28	4.23	1.06	498.47	15.57	0.02	0.01	62.62	3.72	290.46	3.03	29.11	1.88	0.00	0.00	1.05	0.08
132.00	2 625.00	51.39	1 311.15	21.70	41 478.70	401.97	314 719.45	4 435.27	8.66	0.52	629.71	4.29	3.70	1.22	518.77	12.10	0.20	0.08	66.22	6.56	296.73	1.83	28.53	1.25	0.00	0.00	0.97	0.09
134.00	2 512.49	45.30	1 218.44	20.97	40 945.05	256.89	308 232.93	2 506.99	7.18	0.66	611.78	7.32	2.45	0.83	564.49	13.17	1.06	0.47	58.68	5.26	290.98	4.70	28.20	0.87	0.00	0.00	0.84	0.03
136.00	2 452.09	32.80	1 125.30	32.22	40 399.63	340.88	307 071.86	2 876.89	4.56	0.60	625.42	14.64	2.12	0.23	582.05	13.65	2.10	0.91	47.09	4.03	281.51	6.59	28.62	0.73	0.00	0.00	0.83	0.08
138.00	2 473.18	33.28	1 090.99	42.33	40 008.25	516.48	304 791.87	5 826.43	3.85	0.36	672.40	13.62	4.53	0.93	543.58	16.71	1.54	0.65	47.59	2.68	281.10	4.83	29.67	0.91	0.00	0.00	0.94	0.08
140.00	2 558.85	60.04	1 125.10	41.96	39 819.01	653.98	298 715.41	6 830.91	4.30	0.45	694.12	12.89	5.87	1.08	520.76	16.86	0.42	0.16	53.52	3.03	281.33	4.69	30.46	0.81	0.00	0.00	1.02	0.03
142.00	2 706.26	65.85	1 179.24	29.11	39 423.27	594.05	294 528.46	5 915.40	4.21	0.31	675.55	7.93	4.14	0.73	544.34	16.19	0.59	0.21	54.04	3.42	279.77	6.79	29.24	0.79	0.00	0.00	0.93	0.03
144.00	2 760.68	49.34	1 193.72	21.34	38 059.68	420.59	289 503.25	4 555.46	3.71	0.28	648.31	4.27	1.89	0.37	543.31	9.22	3.16	1.35	54.04	3.35	279.03	6.25	27.70	0.63	0.00	0.00	0.69	0.05
146.00	2 706.47	45.77	1 163.94	26.42	36 886.31	481.19	285 524.09	4 738.70	5.22	0.94	641.93	9.10	0.91	0.26	483.93	7.54	6.53	2.77	50.86	2.20	275.82	5.38	26.19	0.68	0.00	0.00	0.67	0.07
148.00	2 569.31	50.96	1 124.92	29.57	36 847.99	229.34	282 565.92	2 695.15	6.83	1.33	639.06	13.36	1.01	0.28	414.05	9.44	4.94	2.04	45.39	2.37	267.54	3.91	24.26	0.52	0.00	0.00	0.83	0.09
150.00	2 563.79	37.12	1 150.35	22.08	37 867.78	215.97	286 218.04	1 710.25	6.27	0.94	638.35	10.11	2.25	0.63	406.72	10.38	2.24	0.97	40.85	2.17	267.80	2.59	24.64	0.77	0.00	0.00	0.90	0.08
152.00	2 638.68	20.18	1 222.67	32.26	38 914.63	321.25	294 021.91	2 924.43	5.58	0.85	661.04	6.23	2.74	0.71	486.43	13.22	3.75	1.59	42.69	1.94	274.97	2.37	26.17	1.05	0.00	0.00	0.74	0.06
154.00	2 623.70	31.03	1 288.28	41.42	39 798.21	463.41	303 565.63	4 410.20	6.53	1.00	698.70	9.52	2.28	0.40	551.52	21.40	4.82	2.06	49.68	2.91	277.93	5.53	27.07	1.13	0.00	0.00	0.59	0.03
156.00	2 552.64	16.22	1 241.69	35.55	38 972.57	684.43	300 723.01	4 743.55	7.08	0.76	730.39	7.98	2.60	0.55	522.06	25.61	2.35	1.02	52.22	3.44	266.39	8.57	26.74	0.99	0.00	0.00	0.63	0.06
158.00	2 529.46	25.28	1 120.12	29.75	36 730.41	682.84	285 380.72	4 596.38	6.63	0.71	720.98	5.86	2.52	0.51	475.35	30.48	0.44	0.18	51.97	3.46	250.80	8.62	25.90	0.80	0.00	0.00	0.59	0.06
160.00	2 571.21	19.33	1 074.69	40.88	35 301.25	622.83	275 897.87	4 434.75	7.19	1.00	686.32	11.81	2.40	0.35	462.77	34.75	0.07	0.02	48.61	3.91	243.94	6.56	24.44	0.70	0.00	0.00	0.58	0.05
162.00	2 616.56	39.74	1 131.94	40.31	35 038.30	492.94	272 789.55	3 077.14	7.51	0.60	680.32	9.70	3.41	0.65	450.56	30.43	0.52	0.21	40.90	3.86	244.23	4.97	22.79	0.27	0.00	0.00	0.70	0.06
164.00	2 610.97	52.99	1 234.20	45.74	35 157.19	650.63	275 635.28	4 780.75	7.52	0.42	699.72	7.36	4.47	0.65	436.03	24.85	1.98	0.70	37.22	3.97	251.42	3.26	23.17	0.45	0.00	0.00	0.77	0.07
166.00	2 627.11	62.63	1 303.91	30.98	35 749.67	866.50	285 165.59	6 919.40	9.02	0.59	696.07	13.85	5.29	0.34	408.65	24.11	3.44	0.93	37.72	3.01	261.55	4.17	24.64	0.54	0.00	0.00	0.73	0.08
168.00	2 588.93	28.35	1 283.41	19.28	37 000.10	713.63	291 716.77	6 432.13	8.51	0.57	674.86	17.25	6.00	0.54	382.05	15.66	3.47	1.35	41.74	4.16	265.69	4.91	26.55	0.41	0.00	0.00	0.60	0.05
170.00	2 529.90	37.01	1 220.19	16.33	38 309.08	435.52	298 279.57	4 003.44	6.62	0.60	682.49	14.66	6.95	0.81	390.88	7.44	1.85	0.96	45.89	7.03	273.22	3.83	28.62	0.41	0.00	0.00	0.47	0.02
172.00	2 543.48	42.11	1 190.14	23.97	38 842.31	444.26	304 461.51	2 381.42	5.93	0.58	707.47	10.62	8.17	1.17	417.93	10.51	0.51	0.28	40.62	5.28	287.36	6.68	29.68	0.48	0.00	0.00	0.49	0.04
174.00	2 609.64	24.38	1 186.57	26.80	39 676.29	626.54	310 130.86	4 053.95	5.43	0.43	712.62	6.80	8.97	1.29	454.22	13.72	0.75	0.37	41.94	2.23	300.92	6.89	29.34	0.58	0.00	0.00	0.64	0.07

176.00	2 664.12	42.97	1 190.06	24.53	40 889.29	705.24	315 853.50	3 167.33	5.28	0.48	704.13	4.63	7.39	1.13	493.35	17.30	2.43	1.27	53.72	2.75	310.48	6.19	28.66	0.45	0.00	0.00	0.77	0.06
178.00	2 656.15	42.22	1 217.86	15.90	41 646.65	445.35	317 124.32	3 504.16	6.36	0.79	675.40	5.61	3.76	0.57	520.80	13.36	3.39	1.70	68.23	3.87	310.90	5.28	28.66	0.88	0.00	0.00	0.81	0.06
180.00	2 605.34	63.38	1 308.05	20.25	41 848.32	432.31	315 211.24	3 371.20	8.18	0.51	658.12	10.24	3.15	1.08	544.76	11.08	2.80	1.06	74.82	3.75	304.76	4.10	27.55	0.92	0.00	0.00	0.92	0.06
182.00	2 538.04	62.27	1 333.09	25.96	41 578.25	865.31	314 046.68	4 727.33	9.75	0.57	687.07	20.50	5.85	2.37	573.02	15.63	3.05	1.23	62.86	4.02	299.51	3.93	25.52	0.62	0.00	0.00	1.04	0.07
184.00	2 518.03	39.04	1 253.72	27.58	40 262.63	729.54	308 089.08	4 076.96	8.70	0.75	703.64	19.09	5.55	1.92	581.92	13.99	1.96	0.80	51.19	6.33	290.66	4.02	25.78	0.75	0.00	0.00	0.98	0.08
186.00	2 603.50	52.85	1 243.38	28.10	39 219.05	916.84	303 268.67	4 357.26	6.74	0.50	694.18	12.63	3.21	0.83	544.52	14.42	0.46	0.20	53.86	6.74	285.10	3.71	27.76	1.56	0.00	0.00	0.81	0.07
188.00	2 692.70	54.81	1 241.45	25.33	38 340.61	902.83	298 459.43	4 653.24	6.57	0.73	689.97	16.16	4.09	0.45	487.87	12.92	0.05	0.02	58.33	6.30	278.71	4.21	27.05	1.77	0.00	0.00	0.72	0.06
190.00	2 745.29	64.49	1 197.50	24.44	37 172.58	291.60	291 781.18	1 846.21	6.75	0.86	674.44	16.21	7.08	0.63	456.35	18.26	0.00	0.00	53.69	6.12	269.85	2.77	24.42	1.17	0.00	0.00	0.72	0.08
192.00	2 731.62	70.92	1 172.43	29.92	36 403.46	339.76	287 699.87	2 769.80	5.85	0.83	644.44	14.93	6.83	0.56	443.49	11.37	0.04	0.02	46.62	6.29	268.03	2.48	23.34	0.62	0.00	0.00	0.80	0.08
194.00	2 663.33	88.26	1 163.07	27.03	36 834.23	637.30	289 252.20	4 163.81	4.36	0.48	624.60	15.95	5.67	1.28	444.91	14.07	0.49	0.22	44.80	3.81	272.22	2.42	24.30	0.31	0.00	0.00	0.85	0.08
196.00	2 609.54	75.07	1 165.44	32.38	38 230.49	850.88	295 866.86	5 766.19	4.50	0.57	632.95	23.13	5.72	1.93	496.78	19.80	2.34	0.95	53.92	2.82	278.38	5.66	25.41	0.86	0.00	0.00	0.94	0.07
198.00	2 582.37	39.42	1 210.72	38.68	40 341.02	817.80	309 258.18	6 142.46	5.27	0.56	633.70	26.39	4.51	1.73	571.88	15.81	3.79	1.52	59.65	2.65	285.23	8.78	26.35	1.07	0.00	0.00	1.10	0.05
200.00	2 577.01	20.18	1 227.41	37.75	41 967.08	584.97	324 139.73	4 191.62	5.38	0.78	618.93	19.68	2.69	0.97	614.33	7.41	2.41	0.93	53.97	1.72	292.72	6.58	27.36	0.73	0.00	0.00	1.07	0.06
202.00	2 583.09	13.67	1 172.01	43.12	42 187.08	394.17	328 241.71	2 125.89	5.29	1.18	620.89	15.21	2.96	0.39	626.42	13.67	0.68	0.28	47.50	0.92	300.73	4.38	27.17	0.92	0.00	0.00	0.89	0.06
204.00	2 542.29	32.08	1 128.25	35.17	40 800.14	247.70	317 876.27	3 143.97	5.07	1.07	643.38	14.85	5.57	0.60	576.76	22.98	0.11	0.05	48.00	1.74	291.16	4.39	24.76	1.20	0.00	0.00	0.71	0.08
206.00	2 500.82	71.57	1 159.08	11.90	39 459.02	866.09	306 739.18	8 371.04	5.36	0.90	666.40	8.28	8.30	1.07	511.27	23.69	0.20	0.07	50.03	2.26	273.94	8.40	22.32	1.11	0.00	0.00	0.76	0.10
208.00	2 489.49	107.71	1 190.29	13.99	38 131.62	1 569.99	298 775.47	13 129.10	5.25	0.75	665.41	3.76	8.71	1.21	489.49	27.61	1.12	0.35	52.12	4.03	265.52	10.34	20.49	1.02	0.00	0.00	0.85	0.09
210.00	2 492.17	127.03	1 166.00	28.94	37 314.95	1 738.41	292 904.16	13 669.33	3.38	0.46	655.65	6.29	8.87	0.83	481.80	28.07	2.65	0.91	50.45	6.23	262.35	7.73	19.28	1.03	0.00	0.00	0.72	0.06
212.00	2 504.48	135.13	1 103.88	31.82	36 764.62	1 447.96	284 073.70	10 925.69	2.36	0.32	651.68	8.43	11.03	1.04	477.47	22.50	2.69	1.07	44.71	3.56	262.69	2.99	19.50	0.90	0.00	0.00	0.52	0.03
214.00	2 433.05	106.48	1 090.77	37.54	35 167.81	1 055.56	270 021.83	8 238.65	2.98	0.47	650.89	8.68	13.96	1.25	449.27	22.38	1.03	0.42	45.03	4.21	257.28	6.53	20.92	0.87	0.00	0.00	0.45	0.05
216.00	2 271.67	91.91	1 249.46	76.19	33 931.35	1 415.51	258 497.24	9 720.93	3.86	0.44	654.77	15.72	15.23	1.22	400.70	31.11	0.19	0.06	49.13	5.58	238.75	10.80	21.26	1.02	0.00	0.00	0.91	0.26
218.00	2 157.28	144.14	1 517.43	152.84	34 238.57	2 271.00	256 602.46	15 204.38	4.96	0.66	686.80	18.22	13.89	1.46	384.66	42.93	0.37	0.29	52.90	5.11	230.87	15.03	20.75	1.62	0.00	0.00	1.92	0.65
220.00	2 091.64	158.67	1 460.32	126.41	33 476.01	2 511.55	251 574.75	17 609.87	5.89	0.67	707.99	13.08	10.99	1.23	392.56	40.25	0.52	0.41	53.27	2.93	235.52	14.55	19.20	1.71	0.00	0.00	1.87	0.54
222.00	2 097.76	142.67	1 202.23	57.29	33 266.68	2 519.34	252 381.72	18 007.11	6.12	0.61	701.51	8.68	10.30	1.05	400.47	33.63	0.35	0.27	51.18	2.98	242.43	12.95	18.34	1.58	0.00	0.00	1.10	0.19
224.00	2 195.61	149.10	1 137.78	30.85	35 298.71	2 613.29	268 127.14	19 342.38	5.47	0.35	699.56	8.80	10.57	1.05	391.77	28.20	0.11	0.08	48.82	3.15	251.37	14.80	19.74	1.51	0.00	0.00	0.77	0.06
226.00	2 297.78	153.92	1 173.02	30.37	37 181.24	2 182.19	284 201.46	17 184.68	5.04	0.50	686.47	14.04	10.96	0.87	395.99	27.09	0.01	0.01	44.70	3.58	261.71	14.34	21.91	1.53	0.00	0.00	0.69	0.08
228.00	2 374.33	121.19	1 200.82	17.46	37 567.56	1 265.06	292 011.71	10 554.44	4.77	0.46	659.46	12.46	10.46	1.09	421.80	27.95	0.01	0.01	33.92	2.70	271.64	9.91	23.20	1.25	0.00	0.00	0.67	0.08
230.00	2 442.67	75.05	1 209.47	16.51	37 406.30	554.94	293 815.43	5 328.66	4.86	0.76	639.25	19.24	8.66	1.73	443.40	24.61	0.01	0.01	32.45	4.68	281.80	6.62	23.83	0.56	0.00	0.00	0.71	0.06
232.00	2 506.15	64.11	1 197.15	22.85	37 767.99	242.53	295 115.69	3 596.15	4.86	0.68	639.78	25.40	7.28	1.36	441.69	13.60	0.08	0.05	50.50	5.79	291.78	4.43	23.63	0.22	0.00	0.00	0.75	0.06
234.00	2 534.19	57.20	1 164.86	28.84	39 054.11	419.26	302 533.85	3 914.13	5.58	0.35	628.30	20.76	6.73	1.06	464.50	8.36	0.80	0.46	57.45	4.12	296.07	3.29	22.96	0.20	0.00	0.00	0.83	0.06
236.00	2 522.60	42.40	1 125.31	30.86	39 492.53	338.34	306 555.98	2 301.97	6.48	0.29	601.43	17.85	5.46	0.77	501.50	7.32	2.68	1.55	50.28	1.77	288.62	4.12	23.66	0.33	0.00	0.00	0.90	0.04
238.00	2 518.37	26.32	1 135.70	30.63	38 889.57	260.69	304 358.89	1 916.73	6.67	0.80	594.04	15.42	4.83	0.99	490.71	8.89	3.59	2.09	56.33	3.52	276.46	5.30	25.26	0.21	0.00	0.00	0.90	0.05
240.00	2 500.02	26.62	1 191.39	27.22	38 995.61	380.89	307 041.76	3 431.75	6.84	1.27	607.78	11.97	5.47	1.36	467.46	11.66	1.70	0.97	57.10	3.48	272.73	4.15	25.97	0.54	0.00	0.00	0.80	0.06
242.00	2 496.32	42.60	1 243.52	21.64	39 754.50	265.47	312 970.81	1 930.36	6.52	1.07	623.53	10.96	6.57	1.32	476.84	22.61	0.29	0.17	48.50	3.20	278.15	4.32	25.97	0.72	0.00	0.00	0.82	0.06
244.00	2 459.62	43.49	1 198.21	13.05	39 575.08	303.50	307 629.14	1 514.59	5.16	1.00	633.95	9.21	5.99	1.12	480.72	29.98	0.04	0.01	55.36	3.18	277.00	5.83	25.02	0.71	0.00	0.00	1.00	0.04
246.00	2 567.16	60.34	1 197.71	17.19	39 474.78	515.50	302 030.16	1 943.86	3.75	0.93	633.26	9.84	4.36	0.75	458.49	32.44	0.48	0.21	70.93	2.71	276.18	5.26	24.61	0.35	0.00	0.00	1.13	0.05
248.00	2 817.61	69.47	1 272.23	18.79	40 360.99	636.68	305 642.10	3 379.29	4.16	0.83	627.65	12.01	3.97	0.53	418.33	23.47	2.73	1.13	66.01	2.04	290.74	4.24	24.81	0.37	0.00	0.00	1.08	0.06
250.00	2 912.09	65.85	1 278.30	11.36	40 663.40	603.09	311 051.00	3 559.50	5.50	0.70	627.35	12.49	5.00	0.67	434.91	13.47	5.68	2.27	54.00	2.16	304.92	4.52	25.48	0.58	0.00	0.00	1.01	0.06
252.00	2 861.09	58.48	1 263.78	13.29	39 967.46	452.13	312 468.94	2 431.20	6.30	0.68	644.82	14.72	6.48	0.97	482.06	12.13	6.16	1.47	56.33	6.57	304.50	5.79	25.85	0.69	0.00	0.00	1.10	0.11
254.00	2 829.63	40.61	1 281.89	13.11	39 464.49	462.77	311 366.66	3 233.20	7.70	0.64	672.86	18.29	7.28	0.72	507.71	20.79	8.11	1.96	62.91	8.59	298.27	6.56	24.69	0.83	0.00	0.00	1.21	0.15
256.00	2 824.00	42.60	1 332.33	37.46	39 277.90	511.57	312 806.07	5 030.79	9.25	1.22	679.76	21.71	7.02	0.45	522.70	33.81	7.86	2.28	60.53	7.16	300.54	5.65	23.20	1.01	0.00	0.00	1.22	0.13
258.00	2 850.02	75.40	1 404.51	55.12	40 017.21	626.43	319 539.33	6 444.71	9.13	0.71	662.08	19.36	5.08	0.52	531.09	35.56	3.35	1.01	53.14	5.48	312.76	6.66	23.65	0.49	0.00	0.00	1.20	0.15
260.00	2 853.09	63.52	1 409.33	49.71	40 914.91	689.25	324 959.10	5 936.98	8.52	1.00	627.45	18.70	3.96	0.53	547.92	16.72	0.50	0.18	52.57	3.68	321.16	9.83	25.09	0.64	0.00	0.00	1.12	0.11
262.00	2 786.80	41.24	1 361.08	39.98	41 681.82	812.29	333 058.92	4 804.83	7.06	1.03	603.01	20.56	5.38	0.43	596.37	6.31	0.11	0.04	55.11	2.32	327.27	10.01	26.74	1.29	0.00	0.00	0.98	0.08
264.00	2 694.42	33.57	1 364.05	46.82	42 206.08	829.20	337 903.25	4 652.30	5.69	0.75	596.10	12.87	6.19	0.64	631.98	4.42	0.65	0.27	49.53	3.56	327.15	8.44	26.62	1.19	0.00	0.00	0.96	0.08
266.00	2 702.76	51.33	1 378.78	65.83	42 339.30	769.90	336 308.01	5 555.52	6.20	0.69	593.70	7.56	4.80	0.99	631.77	17.11	2.34	0.88	39.14	2.42	325.70	7.96	24.71	0.81	0.00	0.00	1.01	0.09
268.00	2 792.12	51.59	1 355.27	67.61	42 181.42	712.63	331 785.79	5 886.47	7.09	0.89	595.85	6.64	4.36	1.20	635.50	36.51	4.52	1.58	40.74	2.84	325.58	7.43	23.62	0.68	0.00	0.00	1.14	0.13
270.00	2 933.27	51.48	1 379.88	63.08	42 920.87	647.15	335 709.42	6 177.86	6.59	0.88	633.79	6.91	5.03	0.95	634.29	46.79	6.16	2.38	44.64	4.75	323.53	6.91	24.81	0.78	0.00	0.00	1.15	0.13
272.00	2 971.09	66.77	1 409.88	63.69	42 952.15	669.90	334 532.44	7 167.92	5.33	0.96	695.99	11.50	4.90	0.41	589.12	38.58	5.15	1.92	43.57	3.44	317.50	6.47	26.18	0.83	0.00	0.00	0.96	0.08
274.00	2 917.14	54.39	1 392.33	65.11	42 021.74	673.54	325 282.98	6 813.78	4.53	0.57	722.30	10.16	4.24	0.90	542.80	31.17	3.21	0.65	43.41	1.31	311.18	4.87	26.19	1.06	0.00	0.00	0.81	0.07
276.00	2 962.43	51.08	1 389.62	55.11	42 327.80	707.02	324 482.74	5 356.31	5.43	0.43	726.87	9.28	4.48	1.06	533.19	25.90	4.62	1.34	45.51	2.34	301.72	3.64	25.31	1.09	0.00	0.00	0.79	0.05
278.00	3 083.76	40.73	1 388.86	41.21	43 151.24	530.28	333 599.73	4 866.50	7.19	0.56	719.89	10.90	5.66	0.79	519.83	17.67	7.23	2.71	54.55	4.91	298.68	5.39	24.87	0.80	0.00	0.00	0.82	0.03
280.00	3 133.85	52.11	1 391.82	43.75	43 570.63	427.51	345 948.70	5 057.19	7.16	0.44	700.75	14.00	6.84	0.74	509.00	15.83	4.82	1.95	68.07	4.79	306.75	4.64	24.83	0.44	0.00	0.00	0.78	0.03
282.00	3 072.68	81.91	1 401.37	49.76	43 789.68	505.97	350 633.75	5 727.44	6.41	0.48	676.88	12.63	9.16	0.81	562.01	21.78	1.30	0.54	73.67	4.19	316.87	6.03	24.49	0.42	0.00	0.00	0.79	0.05
284.00	3 008.14	76.60	1 428.95	28.12	44 018.16	437.34	350 815.31	4 400.88	6.52	0.33	681.26	10.75	11.30	0.93	640.22	23.82	0.10	0.05	69.34	5.84	327.74	4.61	25.19	0.75	0.00	0.00	0.89	0.08
286.00	2 982.24	53.10	1 434.24	19.57	44 397.99	410.06	352 676.13	3 720.57	7.97	0.82	700.90	14.72	11.22	1.02	651.00	26.22	0.01	0.00	59.19	4.95	335.43	3.56	26.86	0.69	0.00	0.00	0.96	0.06
288.00	2 941.63	50.58	1 420.37	36.22	44 452.90	390.34	351 740.31	3 049.39	9.30	1.18	695.32	14.96	11.68	0.83	591.70	27.50	0.01	0.01	53.81	1.79	334.99	6.23	27.72	0.48	0.00	0.00	1.05	0.05
290.00	2 834.75	60.07	1 494.09	37.50	43 819.97	551.22	345 405.23	3 247.74	8.87	1.16	664.85	15.10	12.33	0.90	542.69	25.87	0.16	0.14	51.71	3.20	336.09	10.40	26.43	0.47	0.00	0.00	1.18	0.04
292.00	2 726.39	57.00	1 579.40	42.51	42 306.01	746.98	332 371.59	3 822.43	8.07	0.95	629.94	12.87	12.61	1.10	497.32	24.87	0.35	0.29	51.20	2.61	349.40	13.12	24.65	0.45	0.00	0.00	1.19	0.10
294.00	2 683.90	30.00	1 646.75	49.56	41 713.07	462.87	324 382.85	3 589.72	7.99	0.78	632.68	13.69	16.39	2.89	466.38	23.36	0.31	0.27	56.79	4.17	377.09	17.09	25.41	0.82	0.00	0.00	1.20	0.10
296.00	2 668.44	46.24	1 709.87	49.64	41 732.89	722.36	321 494.52	5 514.77	8.99	0.56	660.93	17.09	22.30	4.35	498.57	28.88	0.10	0.09	55.70	4.72	411.65	25.19	27.42	1.38	0.00	0.00	1.30	0.07
298.00	2 636.45	87.99	1 729.88	33.40	40 472.53	1 220.33	311 464.92	9 282.13	9.97	1.27	672.60	11.28	28.15	4.75	532.39	28.82	0.01	0.01	43.37	2.83	430.23	28.19	27.88	1.59	0.00	0.00	1.45	0.13
300.00	2 588.81	112.04	1 751.32	15.77	38 714.40	1 374.64	296 665.47	9 689.05	8.78	1.12	667.63	7.32	31.30	4.31	493.62	15.45	0.02	0.01	39.81	2.64	422.92	22.56	27.07	1.10	0.00	0.00	1.43	0.17
302.00	2 546.69	147.15	1 693.48	36.27	37 080.55	1 599.86	284 776.82	10 866.31	8.20	0.82	670.31	14.68	27.00	3.60	458.57	9.07	0.30	0.12	44.88	3.77	394.44	17.23	27.00	0.97	0.00	0.00	1.24	0.10
304.00	2 394.45	159.23	1 506.58	68.73	34 259.33	1 740.27	265 399.32	12 774.26	9.66	0.94	680.18	16.89	19.93	2.05	427.83	6.34	1.61	0.67	45.74	3.87	342.61	14.14	26.48	1.20	0.00	0.00	1.00	0.04
306.00	2 188.27	137.71	1 345.14	81.72	30 842.79	1 600.78	242 804.08	11 848.97	9.43	0.69	686.79	20.45	18.83	1.64	380.58	6.71	3.24	1.35	41.54	2.56	286.15	7.38	23.59	1.09	0.00	0.00	0.81	0.10
308.00	2 168.47	89.07	1 246.34	80.32	30 020.06	1 133.57	237 093.84	8 217.61	8.34	0.77	673.44	25.96	18.92	2.55	376.33	14.72	2.43	1.00	39.34	3.14	256.08	3.81	21.55	1.30	0.00	0.00	0.71	0.08
310.00	2 424.68	57.47	1 200.84	63.56	33 202.56	725.89	255 423.92	5 945.35	8.47	0.68	666.12	22.49	15.16	2.05	443.10	18.19	0.67	0.28	38.49	3.40	267.93	3.18	28.26	5.73	0.00	0.00	0.74	0.03
312.00	2 787.56	37.38	1 237.28	48.08	37 515.81	489.67	281 936.71	3 621.43	6.99	0.39	673.19	18.43	10.20	1.26	526.22	18.99	0.26	0.10	36.58	2.45	293.17	3.44	32.89	7.26	0.00	0.00	0.95	0.06
314.00	3 043.01	33.59	1 321.61	50.70	40 067.82	475.93	301 077.39	2 541.12	4.97	0.31	658.76	13.97	9.24	0.61	557.36	20.36	1.18	0.59	39.67	1.88	309.29	4.63	30.02	3.95	0.00	0.00	1.30	0.06
316.00	3 075.06	34.89	1 336.30	32.40	40 503.98	536.46	312 975.94	3 433.08	5.82	0.72	615.74	6.88	11.68	0.57	541.06	25.26	2.30	1.16	47.51	1.19	311.03	4.21	28.06	1.13	0.00	0.00	1.45	0.11
318.00	2 981.06	30.66	1 348.57	22.65	40 810.39	711.44	324 300.33	4 809.87	8.54	1.01	576.38	8.28	12.24	1.14	542.48	36.38	2.08	1.07	49.86	1.49	309.07	6.42	27.69	1.08	0.00	0.00	1.27	0.13
320.00	2 912.41	56.32	1 395.01	34.13	41 254.34	865.97	330 523.47	6 016.44	8.55	0.84	574.27	12.50	10.97	1.33	605.20	35.46	2.29	1.29	46.00	1.68	318.62	8.39	27.08	1.41	0.00	0.00	1.10	0.13
322.00	2 809.13	47.84	1 353.66	24.82	40 948.51	607.34	325 016.49	4 113.56	6.85	0.67	610.37	19.01	8.33	1.26	657.20	26.45	3.33	1.97	40.03	1.11	322.24	7.00	26.65	0.87	0.00	0.00	1.07	0.12
324.00	2 682.31	44.03	1 308.92	21.14	41 158.08	520.57	322 925.42	3 778.88	8.20	0.85	639.26	19.32	7.84	1.21	681.22	17.61	1.85	1.02	39.38	2.08	318.43	3.74	27.86	0.58	0.00	0.00	1.16	0.08
326.00	2 648.63	58.48	1 301.57	22.72	41 827.33	488.98	332 269.48	3 578.02	10.32	1.07	642.67	14.93	11.40	0.89	666.98	23.49	1.04	0.47	39.62	2.49	315.91	1.98	29.13	0.34	0.00	0.00	1.21	0.05
328.00	2 591.40	50.75	1 223.61	13.43	41 029.06	284.09	333 732.62	2 559.27	9.35	1.04	625.55	10.62	16.55	1.77	611.74	16.64	1.39	0.93	39.25	3.92	310.02	2.17	27.18	0.48	0.00	0.00	1.10	0.06
330.00	2 535.22	24.61	1 148.36	17.89	40 639.54	454.02	331 076.23	2 287.76	7.90	1.02	617.67	11.52	19.16	2.57	592.08	16.52	1.53	0.96	40.32	4.28	301.88	4.48	24.83	0.45	0.00	0.00	1.01	0.06
332.00	2 633.71	26.34	1 184.79	26.56	41 470.85	358.21	334 057.94	2 817.60	6.38	0.83	629.92	10.58	21.38	2.75	620.80	14.60	1.36	0.41	45.09	2.52	294.63	3.29	23.47	0.52	0.00	0.00	1.07	0.07
334.00	2 753.18	39.44	1 315.96	29.92	41 725.63	342.06	331 296.78	2 260.31	4.19	0.63	628.00	11.19	25.18	2.88	635.87	14.57	1.65	0.70	47.98	2.17	291.46	2.81	22.70	0.92	0.00	0.00	1.13	0.07
336.00	2 763.74	40.59	1 397.25	18.37	41 571.69	415.60	325 224.75	2 093.59	3.76	0.78	601.32	8.42	32.08	2.82	638.52	19.06	1.07	0.39	44.82	2.82	294.91	4.56	23.10	0.78	0.00	0.00	1.03	0.05
338.00	2 671.94	49.27	1 364.04	15.15	41 326.37	433.39	323 039.03	2 427.10	5.37	0.96	577.98	7.48	42.19	3.48	629.86	22.13	1.05	0.63	39.97	3.66	299.03	6.06	24.83	0.62	0.00	0.00	0.89	0.08
340.00	2 615.60	57.88	1 314.64	33.79	40 933.24	268.24	324 302.58	3 354.83	7.11	0.78	581.51	13.06	47.33	4.63	601.79	15.55	1.80	1.24	38.25	3.38	294.37	5.91	26.11	1.37	0.00	0.00	0.87	0.11
342.00	2 753.98	48.68	1 315.06	30.61	41 098.95	631.74	330 067.01	3 875.12	8.57	0.74	601.77	11.83	47.13	4.71	566.87	9.45	1.41	1.00	40.33	1.98	295.19	5.48	25.71	1.44	0.00	0.00	0.92	0.12
344.00	2 896.06	48.32	1 354.10	28.45	41 581.84	688.19	333 664.42	7 176.61	11.03	0.81	609.59	12.82	48.51	4.10	563.18	10.64	0.37	0.26	48.89	1.87	298.42	6.34	24.51	0.88	0.00	0.00	0.93	0.09
346.00	3 034.12	30.57	1 392.60	14.52	42 342.68	513.31	335 447.18	7 039.22	12.05	1.42	613.59	14.65	48.53	3.00	581.73	13.94	0.08	0.07	59.39	5.72	301.57	6.82	24.09	0.98	0.00	0.00	0.94	0.03
348.00	3 150.05	49.92	1 321.77	26.17	42 603.68	565.50	332 258.50	4 423.44	9.73	1.19	601.73	12.70	43.68	1.72	593.96	12.25	0.08	0.07	59.52	7.96	303.39	5.37	24.27	1.46	0.00	0.00	0.99	0.08
350.00	3 109.59	20.62	1 211.72	28.43	42 010.77	547.63	329 123.86	2 992.22	6.42	0.81	575.33	9.32	37.54	1.74	616.99	13.23	0.15	0.13	50.28	5.98	299.09	3.62	24.22	1.09	0.00	0.00	1.19	0.15
352.00	2 982.88	20.96	1 222.90	30.35	42 704.43	621.83	336 386.79	3 279.75	5.51	0.72	573.74	7.57	37.79	2.31	658.59	15.58	0.06	0.05	44.39	4.25	292.95	2.41	24.56	0.76	0.00	0.00	1.46	0.22
354.00	2 934.28	41.05	1 239.21	38.23	43 320.69	581.61	343 369.60	3 335.91	5.02	0.63	581.65	9.44	45.00	5.30	653.85	17.66	0.02	0.01	48.85	3.76	289.56	4.72	25.25	0.86	0.00	0.00	1.62	0.27
356.00	2 997.66	65.13	1 219.73	30.13	43 237.35	407.96	346 387.77	2 841.85	3.99	0.23	596.80	7.83	48.59	7.36	607.13	10.23	0.11	0.05	54.32	3.16	296.90	4.95	25.09	0.79	0.00	0.00	1.62	0.29
358.00	2 998.04	72.68	1 247.78	22.54	42 875.33	368.56	345 016.42	2 870.17	3.56	0.24	617.94	9.05	53.56	6.39	589.94	8.78	0.94	0.43	49.10	3.81	311.33	4.17	24.81	0.57	0.00	0.00	1.63	0.24
360.00	2 906.88	66.74	1 283.64	22.70	42 336.83	355.11	338 711.80	3 683.13	3.40	0.51	629.47	11.24	64.59	6.39	600.31	14.11	3.14	1.28	41.32	3.14	314.99	4.76	23.88	0.74	0.00	0.00	1.73	0.17
362.00	2 894.14	49.29	1 296.25	13.90	42 648.74	322.77	336 035.48	3 705.87	4.01	0.56	634.50	9.07	75.89	6.19	609.08	20.17	4.92	1.48	45.47	4.66	308.21	3.02	22.70	0.48	0.00	0.00	1.99	0.19
364.00	2 930.65	56.50	1 285.39	29.21	43 711.11	408.41	339 913.39	2 565.41	4.93	0.63	641.06	7.03	83.45	4.18	619.72	20.82	5.84	1.85	50.62	5.53	305.50	2.74	23.18	0.55	0.00	0.00	2.15	0.23

366.00	2 941.14	57.24	1 286.31	22.11	44 325.12	258.43	346 321.73	3 039.22	5.56	0.44	641.14	6.21	86.07	4.62	632.47	18.82	4.34	1.70	52.29	2.66	309.34	2.62	25.25	0.70	0.00	0.00	2.06	0.20
368.00	2 915.04	47.17	1 268.04	15.92	43 736.51	425.87	343 577.19	4 538.37	5.88	0.58	641.86	10.34	78.27	6.71	650.52	16.42	1.32	0.56	56.35	1.64	312.77	3.41	24.61	0.60	0.00	0.00	2.35	0.21
370.00	2 917.42	31.02	1 322.32	11.68	43 209.90	259.47	338 231.62	3 225.75	5.97	0.53	658.51	9.73	73.90	7.72	646.90	9.80	0.15	0.06	56.30	2.81	318.72	4.32	22.38	0.44	0.00	0.00	3.01	0.35
372.00	2 887.45	36.65	1 394.63	19.69	42 278.71	298.56	332 323.90	3 198.54	5.56	0.63	665.98	7.75	83.61	8.58	623.82	13.02	0.01	0.00	53.57	2.63	316.84	5.96	21.56	0.42	0.00	0.00	3.11	0.49
374.00	2 786.99	48.93	1 375.03	26.15	40 889.49	287.23	319 928.95	3 662.04	5.82	0.47	641.72	7.82	103.50	9.89	623.90	22.46	0.00	0.00	61.02	2.73	303.12	6.72	22.95	0.62	0.00	0.00	2.83	0.51
376.00	2 777.58	51.99	1 369.08	24.73	40 228.15	318.59	310 802.60	2 072.13	7.52	0.55	623.50	7.71	134.94	12.89	634.81	23.58	0.00	0.00	62.20	2.95	289.39	5.88	25.51	1.05	0.00	0.00	2.84	0.53
378.00	2 860.88	64.76	1 466.53	25.64	40 128.29	434.46	312 566.20	3 222.16	9.84	0.89	623.54	15.95	164.75	18.06	606.88	21.24	0.01	0.00	58.58	2.03	282.63	6.50	26.38	0.96	0.00	0.00	3.03	0.60
380.00	3 024.99	54.04	1 592.01	22.11	40 499.92	294.93	323 841.24	2 581.67	10.39	0.71	634.53	9.60	177.11	21.88	575.69	11.74	0.14	0.08	67.23	1.58	285.14	6.70	25.75	0.49	0.00	0.00	3.38	0.80
382.00	3 175.15	45.45	1 568.43	18.25	40 506.13	451.47	325 090.19	3 166.52	7.96	0.53	659.03	6.85	168.04	24.37	572.08	6.74	1.01	0.42	73.90	1.93	288.91	6.22	25.04	0.45	0.00	0.00	4.00	1.05
384.00	3 267.71	24.25	1 443.16	40.44	40 695.21	682.63	321 474.08	2 811.42	7.06	0.70	677.05	9.55	150.43	26.29	595.51	19.14	3.81	1.21	62.63	2.78	297.38	5.85	24.82	0.58	0.00	0.00	4.24	1.08
386.00	3 262.46	40.89	1 389.93	49.85	40 759.40	488.31	319 148.08	2 988.28	7.85	1.06	665.78	11.38	135.16	22.72	626.10	20.26	7.00	2.18	40.24	2.07	302.76	6.98	24.37	0.57	0.00	0.00	3.78	0.96
388.00	3 179.52	51.73	1 400.39	35.45	41 174.67	321.53	319 176.23	3 783.41	6.55	0.86	636.24	10.39	120.83	17.08	655.75	16.88	5.70	2.15	28.38	3.08	301.71	7.26	23.02	0.76	0.00	0.00	3.37	0.89
390.00	3 122.64	48.83	1 432.07	19.38	41 648.30	439.79	322 989.25	4 628.01	6.27	0.52	630.96	7.14	108.32	13.49	664.23	22.33	2.62	1.12	28.24	3.11	303.70	7.91	21.80	0.44	0.00	0.00	2.94	0.78
392.00	3 070.96	55.43	1 440.34	25.54	40 584.97	572.49	318 234.65	4 235.95	9.67	1.37	639.03	10.00	100.90	12.24	630.32	21.02	2.71	1.34	35.35	2.90	300.11	7.28	21.72	0.40	0.00	0.00	2.81	0.68
394.00	3 187.55	91.85	1 468.26	15.17	40 177.92	509.43	313 312.76	3 452.88	11.80	1.58	631.75	8.87	92.83	12.22	600.64	14.69	2.36	1.20	45.29	1.68	289.61	6.62	21.86	0.43	0.00	0.00	2.79	0.54
396.00	3 398.33	133.67	1 515.14	10.87	40 680.65	519.45	315 987.10	4 242.79	10.39	1.25	626.39	7.82	90.42	10.91	581.76	17.54	0.77	0.40	51.25	2.34	287.18	5.48	21.88	0.33	0.00	0.00	2.44	0.40
398.00	3 621.53	237.97	1 505.11	22.05	41 031.47	622.13	322 441.39	4 013.51	8.14	1.19	630.14	7.94	94.40	10.86	553.62	19.11	0.36	0.09	52.93	4.42	290.89	6.19	22.16	0.32	0.00	0.00	1.96	0.29
400.00	3 700.38	350.64	1 452.66	32.40	41 028.78	491.09	324 216.13	3 034.20	6.94	1.06	611.23	8.81	92.63	10.01	516.89	11.63	1.68	0.74	47.71	3.48	291.88	7.49	22.50	0.58	0.00	0.00	1.63	0.18
402.00	3 552.01	297.56	1 469.13	44.01	40 883.75	569.38	321 758.10	4 187.48	5.47	0.72	592.31	10.47	81.08	8.34	493.89	10.31	4.52	1.82	40.17	1.85	290.33	6.19	22.55	1.17	0.00	0.00	1.30	0.10
404.00	3 295.35	64.38	1 503.46	51.73	41 056.18	738.98	321 922.96	5 208.82	4.22	0.67	599.29	9.01	67.26	6.65	511.50	18.30	5.55	1.70	39.45	3.30	291.55	4.09	22.03	0.62	0.00	0.00	1.13	0.06
406.00	3 201.56	33.55	1 464.21	41.30	40 537.71	737.59	318 397.39	5 934.14	4.40	0.62	589.31	6.09	56.80	5.22	508.69	16.63	6.87	2.19	44.57	3.16	290.21	3.89	20.86	0.26	0.00	0.00	1.11	0.06
408.00	3 069.24	29.35	1 438.34	25.03	39 568.03	513.75	312 522.34	4 893.35	4.12	0.60	562.51	8.87	50.81	5.53	481.31	12.09	7.89	2.93	47.24	3.73	286.76	4.09	19.15	0.67	0.00	0.00	1.25	0.09
410.00	3 009.70	25.64	1 490.68	17.39	40 055.72	311.03	318 530.03	2 601.89	4.15	0.62	557.34	14.91	50.03	7.46	482.38	12.58	3.90	1.39	48.49	4.40	286.74	3.45	18.68	1.22	0.00	0.00	1.37	0.10
412.00	3 060.27	33.02	1 566.26	30.13	41 390.52	522.78	331 357.59	3 266.21	6.29	1.09	573.52	13.36	47.43	6.92	507.59	16.49	0.74	0.26	48.99	4.02	300.41	3.02	20.00	1.24	0.00	0.00	1.25	0.07
414.01	3 043.14	49.24	1 578.12	22.75	41 143.55	719.14	324 484.53	4 752.71	8.55	1.26	596.39	8.37	44.72	4.47	545.64	18.35	0.10	0.03	50.36	3.47	310.64	3.85	21.74	0.76	0.00	0.00	1.18	0.05
416.01	3 019.44	77.92	1 603.00	27.79	40 188.09	947.52	310 523.64	6 911.50	10.02	0.84	641.78	18.50	45.73	2.65	584.82	13.17	0.64	0.28	52.22	2.54	315.15	6.55	22.33	0.83	0.00	0.00	1.16	0.07
418.01	2 998.27	100.39	1 582.43	37.01	39 729.72	1 306.88	304 220.91	10 606.98	10.50	0.84	664.71	27.55	37.20	1.57	559.30	10.13	2.24	0.99	44.85	3.30	307.42	7.07	22.59	0.91	0.00	0.00	1.11	0.08
420.01	3 058.23	107.18	1 532.85	38.94	40 483.08	1 500.67	312 423.91	13 530.11	9.45	0.93	657.64	31.43	27.12	1.88	521.09	9.31	2.97	1.33	34.23	3.22	301.08	6.79	23.67	0.97	0.00	0.00	1.15	0.07
422.01	3 206.35	76.70	1 548.40	51.54	42 195.57	1 345.85	332 476.09	12 107.60	8.01	0.75	658.10	32.52	25.60	2.57	512.48	6.12	1.42	0.63	32.42	3.42	309.95	5.05	23.60	0.74	0.00	0.00	1.30	0.07
424.01	3 326.58	77.68	1 540.83	52.61	44 058.57	1 266.24	351 889.48	9 963.77	7.07	0.86	658.32	27.89	29.53	4.09	544.34	17.35	0.26	0.12	34.26	1.33	331.95	7.18	23.03	0.73	0.00	0.00	1.39	0.11
426.01	3 295.96	90.48	1 507.13	39.88	45 247.59	1 136.67	359 057.97	8 087.76	6.67	1.00	648.26	12.24	29.94	5.18	592.37	29.58	0.07	0.05	37.40	1.42	349.44	10.30	23.00	0.93	0.00	0.00	1.33	0.17
428.01	3 218.80	76.80	1 566.36	39.92	45 987.72	851.58	357 634.65	5 835.04	6.55	0.90	664.87	5.94	20.42	2.82	575.82	22.22	0.40	0.31	42.13	3.94	355.55	11.33	24.26	0.94	0.00	0.00	1.46	0.15
430.01	3 111.86	77.10	1 733.89	54.21	45 911.63	565.21	353 708.74	4 838.58	6.39	1.00	709.84	13.29	10.58	0.98	550.60	14.88	0.70	0.53	42.37	3.98	370.28	10.34	25.72	0.73	0.00	0.00	1.78	0.10
432.01	3 067.91	92.80	1 930.41	61.51	45 895.92	1 122.17	356 259.57	6 787.21	7.24	0.78	731.63	15.15	8.70	1.25	584.84	24.87	0.52	0.40	39.41	2.36	407.55	9.80	27.00	0.31	0.00	0.00	2.03	0.08
434.01	2 975.63	87.20	2 037.38	95.98	45 545.50	1 268.48	356 487.93	7 860.10	8.64	0.56	709.03	9.06	10.45	1.49	627.81	22.66	0.16	0.08	42.18	2.99	432.90	14.82	28.51	0.53	0.00	0.00	1.95	0.07
436.01	2 757.67	86.94	1 942.69	99.30	43 669.98	1 224.85	340 050.26	7 654.72	7.98	0.35	679.52	10.12	9.67	1.41	614.76	25.04	0.69	0.28	47.42	5.24	419.08	15.41	28.01	0.75	0.00	0.00	1.66	0.07
438.01	2 511.87	120.35	1 630.52	53.73	40 135.58	1 263.95	310 350.05	9 506.23	6.89	0.65	672.49	15.47	6.63	1.12	523.04	12.18	3.02	1.24	52.32	3.51	372.05	9.23	24.46	0.74	0.00	0.00	1.57	0.08
440.01	2 461.27	131.55	1 372.45	18.15	39 335.45	1 267.74	299 145.81	11 605.46	5.47	0.68	667.70	12.47	4.03	0.77	476.18	16.13	4.71	1.97	50.92	1.43	331.75	1.88	21.86	0.51	0.00	0.00	1.57	0.09
442.01	2 571.92	93.53	1 267.91	35.19	40 693.63	1 146.08	305 292.15	10 545.88	4.64	0.49	660.02	9.95	3.88	0.45	495.98	24.73	2.86	1.17	48.85	3.88	311.76	9.22	20.86	0.45	0.00	0.00	1.47	0.10
444.01	2 630.04	36.94	1 245.14	28.35	41 630.99	714.25	315 314.21	4 858.84	5.87	0.70	635.49	10.41	5.64	0.70	497.67	27.03	0.62	0.26	49.45	3.50	298.31	8.64	19.83	0.48	0.00	0.00	1.25	0.07
446.01	2 620.87	30.56	1 300.24	26.36	42 330.10	475.58	326 501.90	2 815.14	6.43	0.57	586.96	13.30	4.58	0.58	486.93	22.67	0.05	0.03	48.49	4.22	292.88	3.37	19.37	0.39	0.00	0.00	1.16	0.09
448.01	2 591.30	29.65	1 277.79	25.85	41 766.03	540.61	327 335.79	2 514.88	5.30	0.40	561.85	12.22	2.30	0.38	497.32	14.79	0.16	0.06	45.58	4.33	291.06	2.87	20.23	0.51	0.00	0.00	1.43	0.09
450.01	2 576.13	28.58	1 225.84	25.62	40 125.28	512.46	320 072.64	2 613.01	5.83	0.69	577.02	9.90	1.90	0.47	525.61	11.81	1.21	0.51	39.52	2.84	282.66	3.48	20.91	0.85	0.00	0.00	1.61	0.07
452.01	2 624.41	24.77	1 195.83	12.24	38 870.91	424.08	311 693.64	2 588.94	6.93	1.01	589.69	10.15	1.68	0.35	530.71	15.28	3.03	1.27	39.91	1.90	265.66	1.92	20.12	0.50	0.00	0.00	1.44	0.06
454.01	2 720.48	13.71	1 176.83	14.01	38 666.01	521.58	306 982.55	3 869.37	5.40	0.63	592.34	6.99	2.07	0.18	479.61	8.04	2.83	1.16	46.67	1.99	254.30	3.25	18.47	0.39	0.00	0.00	1.11	0.08
456.01	2 835.16	16.15	1 182.47	17.62	39 312.78	393.57	310 335.68	3 722.39	3.75	0.27	592.00	6.79	3.64	0.89	438.28	12.50	2.30	0.95	50.59	4.79	250.05	4.19	17.51	0.35	0.00	0.00	0.96	0.10
458.01	2 908.86	15.77	1 194.52	31.02	39 862.14	299.35	318 535.35	2 457.46	3.17	0.64	591.50	7.65	4.00	1.18	440.35	8.52	3.03	1.30	51.57	6.00	246.36	3.52	16.96	0.35	0.00	0.00	0.97	0.08
460.01	2 875.30	49.24	1 192.83	38.47	39 283.09	476.87	319 051.89	2 341.98	2.73	0.58	586.61	11.30	2.61	0.56	458.11	9.58	2.04	0.86	54.81	3.77	239.40	3.71	16.57	0.76	0.00	0.00	0.90	0.05
462.01	2 852.56	53.43	1 215.26	30.52	38 557.29	516.32	315 827.27	2 550.87	3.40	0.54	575.37	12.02	2.58	0.34	446.59	18.06	0.59	0.23	61.86	1.66	236.27	4.72	16.88	0.85	0.00	0.00	0.91	0.08
464.01	2 896.71	36.30	1 235.32	23.95	38 569.16	242.69	317 507.74	2 883.62	4.24	0.64	562.20	7.75	4.60	0.93	401.38	21.17	0.06	0.03	62.08	1.29	244.70	4.93	17.36	0.48	0.00	0.00	1.06	0.11
466.01	2 929.28	24.48	1 260.76	30.98	39 240.39	458.78	317 760.01	3 094.21	5.03	0.65	561.15	8.87	5.35	0.72	380.42	16.37	0.01	0.00	51.88	3.38	253.85	3.71	17.65	0.44	0.00	0.00	1.21	0.08
468.01	2 895.43	23.82	1 274.13	26.63	39 904.38	239.79	315 231.57	2 517.64	5.46	0.40	585.59	12.99	3.79	0.63	400.92	13.51	0.04	0.04	44.59	3.81	256.90	4.13	18.61	0.23	0.00	0.00	1.28	0.04
470.01	2 837.58	30.50	1 224.66	21.95	39 478.47	311.21	307 777.34	3 003.74	5.38	0.49	599.63	13.82	2.33	0.50	423.11	8.98	0.11	0.10	47.33	3.45	250.15	2.68	17.69	0.47	0.00	0.00	1.18	0.04
472.01	2 759.46	37.75	1 165.20	22.13	38 031.50	458.31	299 100.57	3 395.75	5.11	0.75	582.97	7.93	2.57	0.67	423.55	10.19	0.07	0.06	56.83	3.09	239.37	1.07	14.65	0.55	0.00	0.00	1.01	0.06
474.01	2 687.64	54.28	1 161.85	30.13	36 697.31	452.29	295 151.14	3 033.10	4.31	0.61	574.73	10.94	3.85	0.70	403.35	15.54	0.06	0.04	60.87	2.09	233.89	1.20	13.90	0.38	0.00	0.00	0.82	0.07
476.01	2 602.42	64.84	1 144.93	33.46	36 624.11	616.59	292 016.48	4 052.37	3.59	0.43	580.90	14.07	5.13	0.65	389.66	13.66	0.27	0.10	58.77	1.76	238.92	2.76	15.04	0.46	0.00	0.00	0.83	0.05
478.01	2 614.50	73.90	1 141.26	36.19	38 335.60	827.93	297 870.29	5 588.21	3.53	0.41	592.16	8.00	5.60	0.76	417.21	16.26	2.33	0.82	68.11	2.52	255.53	4.73	16.15	0.44	0.00	0.00	1.09	0.09
480.01	2 671.59	59.01	1 180.95	20.13	38 845.39	682.89	304 714.47	5 050.10	4.29	0.46	596.72	8.82	4.80	0.87	437.44	13.69	6.82	2.21	75.26	4.27	263.79	4.92	17.86	0.30	0.00	0.00	1.39	0.07
482.01	2 658.93	41.47	1 218.09	39.38	38 149.44	327.54	305 477.45	1 812.01	5.40	0.73	598.48	19.14	4.18	0.87	434.70	5.66	7.72	2.67	60.41	4.17	261.59	3.51	19.98	0.76	0.00	0.00	1.61	0.08
484.01	2 563.09	65.11	1 248.99	57.91	38 119.90	436.06	307 127.56	3 406.73	5.84	1.05	593.29	17.36	4.62	0.45	457.09	10.87	3.19	1.18	40.96	3.23	260.81	5.69	21.05	1.40	0.00	0.00	1.78	0.11
486.01	2 490.98	54.03	1 220.12	31.61	37 760.05	427.59	307 174.76	3 701.17	5.52	0.92	567.41	8.36	6.17	0.95	480.90	7.51	0.50	0.21	33.60	1.65	259.26	4.11	19.75	1.44	0.00	0.00	1.70	0.07
488.01	2 531.92	43.63	1 219.48	43.62	37 838.13	789.80	305 775.39	3 734.12	5.02	0.39	548.94	11.55	6.39	1.33	477.70	13.24	0.21	0.12	34.28	2.23	254.92	4.11	17.51	1.21	0.00	0.00	1.64	0.09
490.01	2 497.77	58.54	1 242.57	54.61	38 362.73	843.65	304 558.80	4 165.42	4.74	0.63	553.20	10.34	3.88	0.99	477.86	21.12	0.79	0.48	37.09	2.65	251.66	5.44	16.61	0.88	0.00	0.00	1.97	0.14
492.01	2 486.93	58.24	1 283.15	39.82	38 455.25	521.39	306 241.62	3 309.68	4.96	0.85	560.16	6.71	1.53	0.41	461.08	18.63	1.70	0.71	42.43	2.68	255.45	5.33	17.21	0.80	0.00	0.00	2.39	0.12
494.01	2 537.01	59.29	1 294.21	26.62	38 716.04	338.42	310 465.86	1 935.47	4.90	0.84	556.99	12.14	0.68	0.12	430.92	15.58	2.08	0.77	49.56	3.20	262.77	5.43	18.72	0.46	0.00	0.00	2.45	0.14
496.01	2 567.69	45.89	1 233.59	26.07	39 799.45	320.71	317 762.86	1 185.55	4.88	0.74	550.24	13.48	1.22	0.28	422.74	7.65	1.34	0.61	51.29	2.23	270.89	3.11	21.32	0.71	0.00	0.00	2.13	0.19
498.01	2 564.35	52.11	1 187.72	35.90	40 513.64	512.55	319 510.73	2 324.71	5.91	0.32	535.59	14.17	3.49	0.68	419.03	13.78	1.24	0.58	46.19	3.53	270.14	1.86	21.49	1.21	0.00	0.00	1.70	0.20
500.01	2 540.57	54.81	1 178.31	41.73	39 645.28	518.30	307 960.43	4 423.95	7.10	0.45	535.58	9.48	5.09	0.73	434.46	21.24	1.65	0.77	43.50	3.66	260.08	2.21	19.71	1.01	0.00	0.00	1.57	0.13
502.01	2 519.05	24.26	1 123.42	38.88	38 308.03	311.73	295 811.22	3 774.92	6.07	0.35	566.47	3.62	4.73	0.65	470.57	17.64	1.47	0.50	48.30	3.27	253.41	2.41	19.00	0.44	0.00	0.00	1.70	0.09
504.01	2 468.56	29.80	1 093.75	26.27	37 496.89	466.78	290 658.71	3 022.05	4.80	0.43	590.16	13.10	4.24	0.75	478.53	14.30	1.67	0.52	59.58	6.40	250.38	1.95	19.06	0.54	0.00	0.00	1.82	0.11
506.01	2 517.03	35.47	1 148.30	14.99	37 896.24	466.24	295 365.63	3 971.57	3.93	0.48	587.85	26.13	5.22	1.08	467.44	16.05	1.99	0.54	68.06	8.31	249.03	3.43	19.18	0.47	0.00	0.00	1.85	0.10
508.01	2 675.94	67.39	1 230.61	19.52	39 109.19	441.71	306 031.70	4 299.64	2.63	0.62	578.26	30.17	7.96	1.89	458.95	11.93	1.95	0.84	63.48	5.06	258.38	1.95	19.53	0.55	0.00	0.00	1.96	0.12
510.01	2 770.23	80.82	1 247.70	35.90	40 059.36	573.39	311 434.93	4 443.57	1.65	0.34	545.47	24.43	7.76	2.22	471.89	13.92	2.59	1.66	53.78	3.59	271.89	3.94	19.02	0.72	0.00	0.00	2.26	0.22
512.01	2 773.51	66.51	1 222.82	29.30	41 071.55	585.92	315 250.89	4 188.07	2.02	0.28	501.10	13.48	4.83	1.24	504.86	14.50	1.92	1.29	44.45	1.58	278.78	5.67	17.61	0.68	0.00	0.00	2.75	0.18
514.01	2 682.84	41.42	1 218.20	12.05	41 362.14	622.62	316 872.11	4 866.70	2.63	0.47	482.38	10.56	2.90	0.72	529.49	9.08	0.59	0.38	38.89	1.73	274.38	5.02	17.04	0.33	0.00	0.00	3.60	0.15
516.01	2 565.11	37.90	1 236.72	15.47	40 489.33	630.91	313 605.67	5 628.78	2.17	0.35	483.75	10.00	2.86	0.51	533.61	12.64	0.45	0.20	38.92	2.17	263.23	4.11	18.11	0.40	0.00	0.00	4.70	0.23
518.01	2 601.78	64.37	1 274.36	18.76	40 028.44	720.66	312 156.11	5 757.72	1.80	0.22	497.39	6.25	4.14	0.84	506.15	15.22	1.54	0.72	43.14	2.93	258.67	4.15	19.65	0.41	0.00	0.00	5.28	0.33
520.01	2 716.24	53.36	1 278.96	12.60	39 868.28	756.09	309 285.69	4 420.10	3.20	0.23	519.61	7.66	4.89	0.79	433.79	13.81	2.08	0.96	47.84	2.91	260.15	4.97	20.30	0.38	0.00	0.00	5.33	0.23
522.01	2 736.53	40.55	1 250.19	12.87	38 494.69	904.30	302 432.15	4 306.97	5.66	0.30	541.80	5.28	5.10	0.35	375.95	8.27	1.24	0.44	45.87	2.38	259.85	6.51	20.08	1.03	0.00	0.00	5.29	0.19
524.01	2 700.85	45.49	1 249.05	19.65	36 366.57	747.12	292 648.62	3 756.12	6.76	0.49	562.25	11.30	6.12	0.55	373.35	9.63	0.88	0.44	41.53	2.29	247.01	3.24	18.83	1.08	0.00	0.00	4.93	0.34
526.01	2 734.53	81.54	1 258.43	20.82	35 300.28	671.94	285 321.33	4 479.03	5.83	0.31	563.62	10.56	6.91	1.17	403.99	20.47	1.27	0.63	40.08	2.77	233.68	2.83	17.54	0.76	0.00	0.00	4.17	0.45
528.01	2 785.33	95.86	1 252.95	17.44	35 191.44	681.70	279 412.93	3 776.71	5.03	0.68	572.43	11.64	8.13	1.26	388.41	24.38	1.23	0.60	40.97	4.15	228.48	4.01	17.16	0.72	0.00	0.00	3.10	0.40
530.01	2 764.17	72.54	1 210.39	24.57	35 014.89	642.32	269 962.15	3 054.90	5.18	1.09	591.33	13.61	8.63	0.97	323.09	18.26	0.50	0.23	45.81	4.26	228.22	3.45	16.40	0.49	0.00	0.00	2.06	0.25
532.01	2 639.86	45.46	1 162.96	35.89	34 352.72	590.13	258 743.98	3 116.61	4.57	0.81	583.27	12.65	6.32	0.69	293.26	14.08	0.46	0.15	47.33	3.14	224.87	4.35	14.58	0.30	0.00	0.00	1.33	0.15
534.01	2 530.22	31.04	1 186.13	33.89	33 666.02	438.05	253 709.39	1 715.37	4.74	0.77	560.32	13.08	4.01	0.64	307.27	14.19	2.14	0.90	43.03	1.41	218.27	3.86	13.14	0.35	0.00	0.00	1.03	0.07
536.01	2 557.94	24.95	1 233.77	28.18	33 693.19	420.62	259 009.58	1 529.24	5.50	0.60	541.24	9.93	3.74	0.89	315.09	14.30	4.35	1.80	42.17	1.19	219.28	2.36	12.51	0.40	0.00	0.00	1.11	0.07
538.01	2 668.04	33.27	1 262.43	45.92	34 451.45	532.23	269 507.25	2 868.46	7.00	0.42	532.70	7.87	3.42	0.92	311.20	9.77	3.28	1.35	44.05	1.25	229.20	1.60	13.30	0.29	0.00	0.00	1.24	0.07
540.01	2 723.04	37.45	1 225.10	54.09	34 990.24	551.30	277 054.99	3 759.29	8.59	0.87	536.76	8.55	3.81	1.23	326.11	7.88	0.86	0.37	42.09	2.27	233.80	4.91	15.27	0.44	0.00	0.00	1.15	0.05
542.01	2 741.90	26.84	1 178.53	35.78	35 333.62	387.30	279 898.74	3 458.09	7.26	1.00	557.03	9.31	4.33	1.33	337.49	12.80	0.10	0.03	41.81	4.05	234.18	7.12	16.39	0.49	0.00	0.00	1.04	0.01
544.01	2 798.46	32.38	1 139.65	12.70	35 829.42	376.21	278 800.04	4 624.05	5.49	0.81	592.36	7.07	4.40	1.28	332.75	8.20	0.02	0.01	43.77	4.93	236.62	5.38	16.32	0.44	0.00	0.00	1.11	0.04
546.01	2 933.37	66.22	1 154.24	20.23	37 124.31	539.34	287 706.52	5 709.56	5.15	0.61	617.24	11.71	4.00	0.80	336.16	6.65	0.00	0.00	48.50	3.70	239.65	2.82	17.42	0.47	0.00	0.00	1.28	0.06
548.01	2 939.33	54.44	1 211.98	28.37	37 724.00	450.56	295 384.55	4 536.17	4.61	0.60	611.27	12.64	3.68	0.68	347.37	8.91	0.00	0.00	45.93	4.36	238.75	2.83	17.70	0.40	0.00	0.00	1.26	0.09
550.01	2 947.92	52.26	1 295.96	48.88	38 538.29	594.73	300 715.27	5 661.30	4.58	0.88	577.70	9.51	2.88	0.57	385.40	6.10	0.00	0.00	38.74	5.16	241.07	5.06	16.44	0.37	0.00	0.00	1.14	0.10
552.01	2 986.26	64.35	1 291.60	54.44	39 292.35	625.10	303 661.67	6 328.66	4.73	0.73	557.59	6.51	2.57	0.33	414.80	5.73	0.00	0.00	35.65	3.09	242.46	5.70	16.00	0.41	0.00	0.00	1.07	0.12
554.01	3 006.18	65.63	1 247.87	47.40	39 001.99	534.46	304 633.90	5 099.61	4.59	0.52	552.68	3.42	2.74	0.48	418.15	6.41	0.06	0.03	37.81	2.30	239.72	4.04	17.41	0.51	0.00	0.00	0.98	0.06

556.01	3 053.05	56.30	1 252.68	29.43	39 263.98	466.18	307 755.83	3 555.74	4.32	0.51	552.60	9.67	2.98	0.70	406.08	17.06	0.69	0.30	41.01	3.61	241.23	3.55	20.06	0.96	0.00	0.00	0.99	0.07
558.01	3 189.03	62.79	1 247.71	25.82	40 491.68	896.16	316 776.43	5 625.03	4.48	0.50	542.83	8.05	5.37	0.61	397.33	11.62	2.64	1.08	46.93	4.62	251.30	6.93	22.25	1.03	0.00	0.00	1.06	0.08
560.01	3 324.18	61.80	1 273.60	34.13	42 155.38	1 055.67	332 522.18	6 109.31	5.36	0.52	535.23	7.08	8.16	1.09	417.86	18.25	3.50	1.43	57.80	4.78	256.86	5.09	21.15	0.95	0.00	0.00	1.09	0.05
562.01	3 335.64	31.22	1 335.43	36.76	43 113.06	912.15	344 145.36	5 512.61	5.66	0.71	530.06	6.60	7.02	1.38	434.85	24.44	2.14	0.67	61.75	2.95	256.42	1.23	18.54	0.93	0.00	0.00	1.09	0.06
564.01	3 252.85	62.95	1 374.42	28.42	43 006.98	632.67	346 258.74	5 171.25	5.04	0.70	532.91	6.55	4.20	0.76	467.34	24.93	2.53	0.83	61.93	2.46	255.45	3.66	17.36	0.60	0.00	0.00	1.19	0.11
566.01	3 241.38	80.64	1 430.02	24.13	44 196.26	482.27	353 414.05	5 441.27	4.55	0.40	535.73	8.61	3.66	0.43	513.38	20.12	4.68	1.46	61.42	6.59	268.05	3.38	19.40	0.69	0.00	0.00	1.40	0.15
568.01	3 203.64	70.72	1 415.25	26.08	45 627.58	585.84	359 057.45	5 902.60	5.10	0.25	528.42	12.51	5.66	0.81	539.00	13.33	5.91	1.51	54.67	7.91	283.53	3.63	21.31	0.80	0.00	0.00	1.63	0.20
570.01	3 089.90	65.57	1 317.97	30.12	45 032.63	641.64	350 935.30	6 991.70	5.99	0.69	516.20	10.58	8.40	1.12	540.96	14.83	5.55	2.07	46.01	5.35	286.09	4.41	21.01	0.50	0.00	0.00	1.76	0.18
572.01	2 963.15	60.52	1 275.73	23.61	44 085.70	515.64	344 007.30	6 317.20	6.27	0.79	511.19	13.42	9.91	1.01	526.35	18.61	2.54	1.05	45.28	3.04	286.59	4.61	19.57	0.26	0.00	0.00	1.68	0.08
574.01	2 880.57	38.99	1 296.47	20.30	43 836.57	517.22	344 130.11	4 964.36	5.89	0.19	497.94	14.38	10.44	1.26	502.77	17.87	0.46	0.18	53.20	1.68	295.38	4.89	19.86	0.68	0.00	0.00	1.59	0.12
576.01	2 865.94	32.96	1 304.88	17.71	42 863.06	523.77	339 662.62	4 433.69	4.82	0.54	496.03	14.75	8.65	1.14	471.12	21.12	0.19	0.06	53.57	2.87	298.82	6.67	21.80	0.84	0.00	0.00	1.40	0.13
578.01	2 871.95	37.40	1 308.62	23.13	41 582.99	483.53	330 171.61	4 589.88	4.29	0.66	498.99	11.02	6.17	1.03	430.30	24.46	1.41	0.60	47.00	3.56	294.57	7.92	22.28	0.62	0.00	0.00	1.01	0.08
580.01	2 883.99	36.54	1 326.65	27.19	41 150.43	464.26	325 911.35	5 365.49	4.72	0.81	500.96	9.02	4.44	0.79	382.27	22.10	4.10	1.75	42.25	3.56	292.11	7.03	21.04	0.41	0.00	0.00	0.80	0.09
582.01	2 931.33	52.00	1 328.26	25.64	41 748.80	432.06	326 810.51	4 479.24	4.01	0.73	503.34	17.58	4.17	0.59	349.47	14.01	5.16	2.17	40.90	2.48	291.94	5.50	20.37	0.55	0.00	0.00	0.84	0.12
584.01	2 957.04	77.12	1 305.86	25.74	41 809.59	596.94	325 464.33	5 429.04	3.03	0.27	510.70	14.99	4.42	0.44	349.20	11.21	4.96	2.00	47.21	1.89	280.94	5.34	19.75	0.79	0.00	0.00	0.88	0.12
586.01	2 934.56	72.72	1 312.59	40.22	41 184.23	639.18	320 432.64	5 923.82	3.62	0.84	514.04	10.40	4.52	0.72	381.23	13.62	5.18	2.10	56.69	1.72	263.71	4.46	19.27	0.89	0.00	0.00	0.85	0.09
588.01	2 957.18	62.31	1 311.68	46.11	40 717.24	523.85	314 413.26	4 449.78	4.15	0.93	511.97	7.52	3.25	0.65	403.65	14.86	3.68	1.63	59.83	2.70	258.72	3.58	18.81	0.79	0.00	0.00	0.76	0.10
590.01	3 052.33	60.75	1 263.76	47.44	39 932.43	600.75	310 543.48	2 971.52	3.43	0.58	520.65	8.95	2.41	0.27	393.29	9.46	1.33	0.70	56.84	3.49	261.21	3.50	17.32	0.34	0.00	0.00	0.71	0.09
592.01	3 050.80	74.69	1 181.32	53.77	38 537.08	731.27	305 510.34	4 265.42	2.79	0.43	528.12	11.54	3.22	0.31	378.21	17.18	0.24	0.14	45.05	1.35	250.90	3.03	15.15	0.39	0.00	0.00	0.68	0.03
594.01	3 034.50	65.53	1 173.65	34.72	38 390.08	774.28	306 481.05	5 378.83	4.02	0.65	519.83	17.22	3.58	0.40	372.85	19.80	0.02	0.02	42.65	4.61	237.21	4.43	14.86	0.56	0.00	0.00	0.72	0.06
596.01	2 990.98	46.96	1 231.59	21.28	38 211.44	600.70	306 346.64	4 492.62	5.14	0.99	496.62	15.82	3.37	0.54	357.70	14.14	0.03	0.03	47.17	7.16	233.30	4.97	15.43	0.53	0.00	0.00	0.77	0.09
598.01	2 885.59	76.67	1 254.35	27.36	37 099.62	615.95	298 179.09	4 800.38	4.47	0.98	499.81	14.22	4.12	0.60	350.32	12.79	0.06	0.06	53.04	7.81	234.05	4.06	15.77	0.53	0.00	0.00	0.70	0.08
600.01	2 731.37	88.39	1 187.01	25.88	35 400.15	603.49	280 288.66	5 631.05	3.55	0.56	514.19	8.61	4.60	0.91	332.83	9.31	0.10	0.09	58.85	5.26	228.83	3.07	15.64	0.42	0.00	0.00	0.57	0.08
602.01	2 636.87	75.97	1 134.39	26.09	34 356.49	494.33	266 517.04	5 517.37	2.93	0.23	521.27	9.19	4.09	1.34	286.34	8.53	0.10	0.06	58.00	3.12	221.10	3.08	15.09	0.19	0.00	0.00	0.55	0.03
604.01	2 606.18	70.91	1 121.96	31.24	33 753.45	448.41	261 650.64	6 322.59	2.22	0.21	536.96	9.31	2.81	0.96	247.13	7.44	0.49	0.18	58.01	4.29	214.82	5.36	14.38	0.36	0.00	0.00	0.67	0.07
606.01	2 556.97	61.67	1 099.62	34.42	33 607.58	436.79	261 058.67	6 072.67	1.84	0.35	570.56	11.08	1.38	0.42	238.46	7.03	2.37	0.63	60.57	3.57	212.40	6.19	14.14	0.60	0.00	0.00	0.75	0.07
608.01	2 540.35	66.96	1 117.18	40.73	34 327.67	467.80	267 251.21	4 775.26	2.63	0.39	612.35	12.42	0.95	0.36	254.66	9.16	4.45	1.25	63.11	2.45	216.58	6.12	14.44	0.73	0.00	0.00	0.70	0.04
610.01	2 613.54	81.30	1 166.85	45.92	35 104.63	488.78	274 153.42	4 633.60	4.20	0.47	621.80	17.93	1.39	0.63	279.88	8.11	2.97	0.79	59.63	1.58	225.65	7.65	14.91	0.60	0.00	0.00	0.70	0.05
612.01	2 704.98	53.77	1 223.08	23.07	35 741.80	404.58	278 352.59	3 509.42	5.28	0.70	587.68	18.84	2.01	0.92	301.25	4.58	0.77	0.23	55.16	2.59	236.12	6.23	16.60	1.10	0.00	0.00	0.73	0.05
614.01	2 666.67	39.24	1 279.19	19.20	35 680.05	388.18	278 976.36	3 103.46	5.33	0.78	541.82	11.62	2.00	0.53	308.71	9.98	0.60	0.25	56.45	4.59	237.43	6.52	17.20	1.29	0.00	0.00	0.78	0.07
616.01	2 577.59	34.41	1 241.13	18.22	34 619.58	356.26	271 231.41	2 094.02	4.46	0.54	515.55	12.39	3.21	0.76	305.68	12.75	1.64	0.71	49.65	3.78	230.55	7.62	15.19	1.19	0.00	0.00	0.87	0.10
618.01	2 613.83	48.52	1 188.83	20.14	33 827.55	221.96	264 264.42	1 504.65	3.00	0.29	527.27	16.81	5.21	1.25	299.97	14.77	1.95	0.85	40.86	3.07	227.88	8.50	14.30	1.08	0.00	0.00	0.90	0.10
620.01	2 605.69	63.20	1 165.05	22.05	33 378.20	220.71	261 737.19	3 181.44	2.47	0.53	558.15	11.88	5.51	1.28	294.98	14.47	0.85	0.37	37.45	3.17	224.20	7.86	15.53	1.06	0.00	0.00	0.81	0.06
622.01	2 537.22	54.36	1 152.24	19.12	33 456.84	201.03	263 578.92	2 957.52	3.01	0.61	578.45	13.37	3.94	0.69	297.54	13.46	0.13	0.06	32.92	2.46	227.00	6.21	16.20	0.84	0.00	0.00	0.77	0.07
624.01	2 581.15	40.20	1 171.11	22.21	33 746.20	162.71	265 618.98	2 103.85	4.45	0.56	574.94	15.21	3.95	0.93	313.11	8.14	0.01	0.00	36.26	2.27	231.37	4.35	15.47	0.26	0.00	0.00	0.71	0.05
626.01	2 716.47	34.05	1 185.65	27.07	34 329.49	376.04	271 805.66	2 165.54	6.17	0.79	554.67	10.51	4.83	1.16	334.43	6.71	0.00	0.00	44.76	3.25	231.64	2.26	14.85	0.22	0.00	0.00	0.65	0.02
628.01	2 788.68	37.78	1 203.19	21.96	34 268.67	368.91	276 599.35	1 769.15	6.71	1.08	555.67	5.54	4.62	1.10	349.57	8.52	0.00	0.00	46.41	4.24	224.56	1.92	14.98	0.13	0.00	0.00	0.64	0.04
630.01	2 740.00	46.13	1 211.68	21.38	32 824.47	191.91	273 576.16	1 683.15	6.30	1.07	568.94	11.35	4.78	0.67	340.81	8.21	0.00	0.00	46.94	4.28	214.53	3.60	14.95	0.19	0.00	0.00	0.65	0.03
632.01	2 779.49	39.58	1 220.81	27.65	32 765.60	399.45	276 299.52	3 271.86	6.05	0.87	562.27	15.04	5.27	0.51	324.48	10.83	0.00	0.00	43.03	3.17	216.84	3.76	15.37	0.43	0.00	0.00	0.64	0.04
634.01	2 810.46	41.03	1 238.74	28.25	33 552.37	405.59	278 777.60	3 955.05	4.86	0.31	545.89	8.27	5.01	0.64	322.35	16.83	0.00	0.00	37.85	4.14	226.01	2.60	16.28	0.36	0.00	0.00	0.54	0.05
636.01	2 696.67	50.33	1 231.99	29.11	33 434.00	267.86	275 285.07	3 404.78	3.95	0.52	553.28	8.47	5.67	0.66	318.93	11.11	0.00	0.00	38.45	4.31	226.71	4.50	16.54	0.24	0.00	0.00	0.47	0.03
638.01	2 594.78	59.01	1 238.96	25.57	33 768.56	166.21	273 915.92	3 297.60	4.62	0.72	576.55	11.48	6.08	0.77	324.78	9.26	0.00	0.00	44.88	3.00	224.14	3.78	16.71	0.30	0.00	0.00	0.50	0.02
640.01	2 671.43	45.01	1 232.31	24.33	35 296.03	400.53	279 893.23	2 187.94	6.41	0.94	562.01	15.22	4.19	0.60	331.43	9.44	0.00	0.00	54.16	2.70	227.04	0.79	16.94	0.33	0.00	0.00	0.66	0.06
642.01	2 772.58	23.33	1 183.91	31.44	36 563.26	717.45	283 704.19	2 193.93	7.41	1.05	519.32	14.47	3.14	0.26	319.65	6.26	0.00	0.00	51.15	4.21	230.61	4.25	16.17	0.79	0.00	0.00	0.81	0.07
644.01	2 746.71	17.31	1 151.54	26.43	36 444.41	790.02	279 264.92	3 426.93	7.41	1.52	523.75	6.72	5.36	0.76	321.65	12.38	0.04	0.04	39.56	3.15	231.27	6.09	16.17	0.78	0.00	0.00	0.81	0.03
646.01	2 612.48	32.12	1 148.22	8.50	35 926.08	799.93	275 135.66	4 025.36	6.25	1.24	558.74	6.40	6.45	0.88	310.93	17.67	0.16	0.13	38.04	2.05	233.52	5.07	16.93	0.50	0.00	0.00	0.79	0.01
648.01	2 545.06	65.89	1 147.02	21.85	36 265.36	731.83	279 892.45	4 389.76	6.02	0.59	553.60	7.42	5.13	0.64	292.37	15.79	0.28	0.23	41.75	1.21	241.74	5.18	16.17	0.36	0.00	0.00	0.80	0.02
650.01	2 633.06	58.07	1 132.28	29.71	36 869.49	606.02	287 193.73	4 640.28	7.57	0.59	505.97	11.02	4.41	0.37	323.72	12.56	0.18	0.15	46.83	2.19	246.82	5.88	15.73	0.26	0.00	0.00	0.92	0.08
652.01	2 839.76	66.94	1 131.75	21.17	37 919.10	531.02	297 102.31	4 539.48	7.85	0.80	483.52	13.60	4.65	0.61	373.85	14.34	0.04	0.03	52.65	2.57	251.22	4.46	18.21	0.73	0.00	0.00	1.22	0.18
654.01	3 038.81	95.65	1 164.88	13.89	39 946.30	358.69	311 851.17	4 517.53	7.20	0.80	507.82	13.55	3.63	0.55	399.37	16.02	0.00	0.00	55.40	1.58	263.11	2.52	21.10	1.18	0.00	0.00	1.49	0.26
656.01	3 099.88	82.80	1 221.17	12.86	41 280.48	278.10	322 912.05	3 026.02	6.85	1.09	548.68	12.57	1.46	0.20	391.03	13.52	0.00	0.00	56.64	4.91	271.82	3.45	20.36	0.64	0.00	0.00	1.70	0.26
658.01	3 022.50	75.25	1 291.25	29.26	41 594.66	347.84	327 303.54	3 820.38	6.27	1.02	568.62	14.39	1.17	0.26	397.19	12.28	0.00	0.00	53.74	7.33	276.97	3.80	19.71	0.50	0.00	0.00	2.00	0.22
660.01	2 834.02	51.30	1 336.85	44.27	41 306.17	331.42	323 777.30	4 248.64	6.09	0.77	582.57	25.77	3.52	0.90	429.02	16.19	0.00	0.00	43.20	3.28	282.66	2.60	20.42	0.38	0.00	0.00	2.24	0.13
662.01	2 696.01	31.80	1 360.24	27.25	41 063.33	378.75	320 541.44	4 222.34	6.38	0.80	575.75	28.96	5.93	1.11	437.15	19.09	0.01	0.00	40.11	3.40	287.14	3.26	21.06	0.39	0.00	0.00	2.30	0.15
664.01	2 626.79	25.99	1 364.47	20.63	40 542.31	354.13	315 241.69	3 153.21	6.13	0.69	538.44	18.69	6.13	0.67	430.53	12.96	0.08	0.04	43.14	2.16	284.87	3.15	20.61	0.41	0.00	0.00	1.88	0.14
666.01	2 550.42	25.12	1 344.65	21.69	40 208.12	578.67	309 972.48	2 052.72	4.78	0.49	505.79	10.34	5.59	0.51	433.77	19.25	0.67	0.32	40.27	1.03	278.75	2.90	19.20	0.38	0.00	0.00	1.37	0.07
668.01	2 576.97	48.70	1 342.10	19.72	40 935.36	651.69	317 949.81	2 194.13	5.03	0.27	488.27	7.44	6.69	1.06	467.97	30.90	1.72	0.82	40.59	2.04	277.02	5.03	18.97	0.60	0.00	0.00	1.06	0.04
670.01	2 698.08	50.67	1 363.66	15.54	42 368.12	682.59	331 563.30	3 012.46	6.66	0.30	469.55	16.16	8.30	1.29	500.30	36.61	1.51	0.71	44.79	1.50	279.38	3.73	20.56	0.73	0.00	0.00	0.89	0.07
672.01	2 786.79	25.94	1 374.95	23.88	43 394.08	793.02	339 752.48	4 589.07	7.40	0.40	465.69	19.31	7.57	1.16	547.76	29.68	0.54	0.26	44.11	2.93	290.72	3.49	21.66	0.41	0.00	0.00	0.77	0.03
674.01	2 819.78	18.26	1 391.02	30.12	43 563.63	612.84	344 397.99	3 971.21	6.19	0.28	477.40	10.50	4.13	0.66	591.14	18.95	0.39	0.22	40.46	6.05	306.95	3.68	21.20	0.40	0.00	0.00	0.79	0.06
676.01	2 855.58	30.40	1 423.39	19.59	43 827.06	518.42	352 442.18	3 046.11	4.72	0.24	503.62	3.70	1.84	0.29	620.88	20.54	1.25	0.69	40.54	7.33	319.90	5.62	21.43	0.70	0.00	0.00	0.93	0.07
678.01	2 894.83	57.99	1 429.16	25.74	44 101.72	773.95	359 441.46	5 769.20	4.24	0.80	517.04	2.48	2.64	0.74	672.29	27.13	2.23	1.02	45.65	6.15	323.60	6.49	23.11	0.78	0.00	0.00	1.09	0.07
680.01	2 843.07	68.42	1 399.54	31.95	43 658.46	831.38	355 976.66	7 940.04	3.50	0.95	498.39	5.97	3.65	1.12	680.21	24.69	2.48	0.51	48.46	4.37	316.82	6.73	23.07	0.86	0.00	0.00	1.19	0.08
682.01	2 708.16	42.71	1 349.04	13.85	43 980.52	755.75	351 244.20	6 429.40	3.36	0.84	485.49	6.78	3.03	0.64	663.60	19.60	2.87	0.79	42.96	3.30	314.51	6.54	22.35	0.85	0.00	0.00	1.17	0.10
684.01	2 621.77	14.05	1 313.90	17.41	44 249.83	385.09	349 229.30	1 977.00	3.76	0.79	465.65	8.86	3.00	0.79	646.00	10.89	3.74	1.03	35.63	2.48	311.67	3.24	22.64	1.07	0.00	0.00	1.10	0.09
686.01	2 573.84	32.18	1 285.41	38.84	43 288.97	342.76	342 925.55	2 866.90	3.94	0.76	454.44	15.39	3.32	0.93	620.33	13.89	5.83	2.07	33.72	3.40	299.79	4.19	23.56	0.85	0.00	0.00	1.04	0.11
688.01	2 615.89	34.97	1 294.62	36.60	43 080.12	784.61	342 815.53	5 070.06	4.23	0.31	480.45	14.24	3.72	0.88	617.98	26.09	5.30	1.56	38.17	5.71	294.44	4.75	24.03	0.77	0.00	0.00	1.05	0.12
690.01	2 742.27	44.53	1 333.30	10.58	43 456.69	855.86	349 761.34	5 329.60	4.46	0.36	505.80	13.24	3.48	0.41	588.55	32.50	4.63	1.17	42.71	5.91	292.45	3.90	23.83	0.78	0.00	0.00	0.98	0.10
692.01	2 851.84	57.61	1 346.56	23.44	42 563.42	658.49	348 653.85	5 447.08	4.50	0.52	502.87	10.42	2.80	0.62	536.52	34.72	6.56	2.48	44.91	4.51	282.97	6.29	23.86	0.80	0.00	0.00	0.87	0.06
694.01	2 889.83	52.29	1 358.18	31.61	41 113.60	430.08	338 416.75	4 970.43	4.37	0.60	493.74	12.63	2.76	0.48	491.11	25.57	5.96	2.43	42.27	2.79	275.78	6.39	24.08	0.76	0.00	0.00	0.82	0.03

Table S6. LA-ICP-TOFMS concentrations (in ppm) along a transect (in µm; See page 30 of Appendix A) in the acellular cementum of the Odense 533 M1.

Distance [µm]	23Na+	Uncertainty Mean (1s) [23Na]+ [ppm]	24Mg+	Uncertainty Mean (1s) [24Mg]+ [ppm]	31P+	Uncertainty Mean (1s) [31P]+ [ppm]	44Ca+	Uncertainty Mean (1s) [44Ca]+ [ppm]	55Mn+	Uncertainty Mean (1s) [55Mn]+ [ppm]	56Fe+	Uncertainty Mean (1s) [56Fe]+ [ppm]	63Cu+	Uncertainty Mean (1s) [63Cu]+ [ppm]	66Zn+	Uncertainty Mean (1s) [66Zn]+ [ppm]	75As+	Uncertainty Mean (1s) [75As]+ [ppm]	81Br+	Uncertainty Mean (1s) [81Br]+ [ppm]	88Sr+	Uncertainty Mean (1s) [88Sr]+ [ppm]	138Ba+	Uncertainty Mean (1s) [138Ba]+ [ppm]	202Hg+	Uncertainty Mean (1s) [202Hg]+ [ppm]	208Pb+	Uncertainty Mean (1s) [208Pb]+ [ppm]
0.00	62.34	15.69	390.44	3.87	446.90	20.89	2 757.15	14.40	8.32	0.58	476.40	21.23	5.12	0.07	36.24	2.63	0.00	0.00	4.70	0.05	9.09	0.80	4.73	0.42	0.00	0.00	1.15	0.13
2.00	88.19	1.95	799.80	21.49	805.04	14.18	4 733.94	23.47	12.51	1.18	874.57	0.14	8.12	0.43	57.61	0.03	0.01	0.00	6.33	0.42	19.21	0.77	9.53	1.06	0.00	0.00	2.78	0.19
3.99	191.28	12.79	1 720.06	47.50	1 713.04	11.99	10 020.86	156.23	21.40	2.27	1 797.21	30.96	15.00	1.22	109.00	4.27	0.20	0.03	7.51	0.17	41.13	0.84	18.82	1.20	0.00	0.00	6.25	0.26
5.99	298.71	21.53	2 759.89	40.02	3 012.31	14.49	18 347.33	148.66	35.75	0.27	2 914.16	4.66	20.45	1.17	157.56	4.87	1.15	0.27	8.36	0.08	67.38	0.25	30.67	0.15	0.00	0.00	10.26	0.25
7.99	355.99	17.04	3 293.21	48.19	4 734.34	1.37	29 819.74	137.77	47.40	0.79	3 496.19	116.21	21.65	0.04	196.23	1.75	2.10	0.60	6.79	0.62	90.68	0.90	38.45	1.67	0.00	0.00	15.54	0.09
9.98	552.00	22.61	3 211.31	123.37	9 650.21	142.74	63 840.82	761.63	47.14	0.67	3 288.19	126.48	27.12	0.49	313.71	3.32	0.93	0.27	5.63	0.13	132.99	0.20	45.00	1.25	0.00	0.00	33.35	0.65
11.98	979.29	18.66	2 292.04	77.31	20 477.90	96.01	134 831.54	476.37	39.35	2.05	2 558.44	85.32	36.93	0.04	541.81	7.37	0.12	0.02	4.21	0.19	209.69	1.05	61.48	1.29	0.00	0.00	69.47	0.24
13.97	1 435.21	20.94	1 555.37	34.72	32 317.39	220.29	212 148.44	1 563.49	32.04	1.47	1 555.81	58.77	32.62	0.26	730.67	4.06	0.41	0.09	6.11	0.51	280.23	1.10	65.19	1.29	0.00	0.00	91.85	0.29
15.97	1 827.95	31.35	1 416.21	20.20	41 791.76	632.66	280 052.42	3 998.16	24.42	0.62	641.28	17.40	22.12	0.25	876.18	11.00	2.16	0.24	7.87	0.76	320.01	6.39	51.93	0.36	0.00	0.00	77.97	1.57
17.97	1 928.97	17.98	1 415.40	33.01	46 635.00	389.35	314 633.99	3 086.75	15.57	0.54	195.97	2.65	14.48	0.64	947.93	4.93	3.74	0.21	6.16	0.31	315.20	4.80	40.09	0.18	0.00	0.00	44.57	1.38
19.96	1 878.09	12.11	1 433.60	1.28	47 558.74	92.22	320 312.90	420.82	8.23	0.24	87.77	5.50	11.63	0.86	885.22	6.27	1.65	0.05	3.11	0.07	288.48	0.56	35.74	0.53	0.00	0.00	21.37	0.48
21.96	1 899.98	28.72	1 435.02	20.93	47 491.23	43.64	320 356.05	1 579.04	5.47	0.14	78.36	4.04	10.97	1.09	788.39	0.63	0.51	0.01	2.82	0.14	281.23	1.15	33.92	0.35	0.00	0.00	13.63	0.05
23.96	1 958.09	31.92	1 480.49	16.00	47 122.18	230.61	315 894.04	1 388.49	5.85	0.31	73.03	2.28	8.91	1.45	745.97	8.29	1.93	0.21	4.41	0.15	297.09	0.90	32.58	0.16	0.00	0.00	12.62	0.28
25.95	2 074.21	9.84	1 598.69	5.70	46 455.71	201.91	311 603.54	58.20	6.97	0.62	61.49	1.52	3.95	0.84	689.33	4.91	3.45	0.53	5.82	0.13	294.43	0.35	31.02	0.22	0.00	0.00	10.76	0.12
27.95	2 178.06	13.38	1 677.74	0.34	45 902.84	47.82	310 732.35	1 477.06	6.91	0.52	51.34	1.66	1.80	0.51	632.95	12.12	1.50	0.23	6.06	0.33	273.01	1.59	30.77	0.20	0.00	0.00	7.39	0.03
29.94	2 218.62	28.63	1 702.79	0.93	45 751.91	119.16	315 167.25	4 055.60	6.75	0.21	47.22	5.44	1.92	0.57	647.39	25.21	0.15	0.01	5.72	0.72	262.09	0.53	33.23	0.54	0.00	0.00	5.54	0.02
31.94	2 129.35	1.57	1 777.87	12.18	46 527.72	32.82	322 709.58	2 637.97	7.65	0.06	60.39	4.37	1.50	0.28	681.94	19.66	0.15	0.09	4.37	1.24	260.91	2.85	33.05	0.07	0.00	0.00	5.40	0.07
33.94	2 122.50	10.26	1 821.02	30.07	47 603.55	298.08	321 213.50	2 739.04	6.55	0.36	78.05	2.10	2.02	0.05	706.22	20.61	0.69	0.41	2.93	0.72	251.86	0.87	31.01	0.32	0.00	0.00	4.92	0.03
35.93	2 242.57	16.58	1 797.34	21.14	47 536.33	247.26	314 973.02	2 651.50	5.99	0.40	81.60	2.54	2.76	0.14	710.36	16.81	1.09	0.63	3.67	0.30	246.28	0.80	30.79	0.56	0.00	0.00	3.82	0.06
37.93	2 307.81	5.39	1 797.74	6.92	46 661.42	73.53	311 747.49	1 067.32	4.22	0.12	73.71	4.63	2.42	0.21	686.41	6.76	0.55	0.24	4.10	0.39	237.88	1.32	30.51	0.15	0.00	0.00	3.07	0.04
39.93	2 379.32	7.04	1 805.05	19.02	46 510.10	59.79	315 656.53	185.16	3.01	0.19	75.15	6.42	1.27	0.02	702.01	3.01	1.11	0.03	5.03	1.29	236.41	2.20	30.51	0.53	0.00	0.00	2.84	0.13
41.92	2 399.46	20.69	1 826.68	48.27	46 981.02	229.36	320 599.09	1 629.08	4.24	0.05	63.99	2.67	1.82	0.26	708.15	1.20	4.42	0.01	6.04	1.39	236.19	0.15	31.20	0.58	0.00	0.00	2.71	0.17
43.92	2 379.55	33.62	1 868.59	70.87	46 326.82	439.13	318 770.97	2 604.85	5.10	0.05	54.75	1.08	3.12	0.54	644.56	0.49	6.73	0.17	5.65	0.24	233.90	3.07	28.62	0.65	0.00	0.00	2.60	0.09
45.91	2 258.66	18.09	1 796.67	63.23	44 489.56	215.17	307 356.56	1 101.61	4.63	0.05	68.97	0.58	3.05	0.67	615.51	10.19	2.83	0.07	6.84	0.38	233.05	2.17	25.32	0.31	0.00	0.00	1.98	0.04
47.91	2 208.43	0.07	1 750.71	35.86	44 374.31	168.74	300 134.36	644.64	4.76	0.11	81.32	2.63	2.84	0.32	633.98	18.58	0.29	0.01	7.87	0.22	222.69	0.27	24.18	0.14	0.00	0.00	1.46	0.02
49.91	2 314.71	20.76	1 810.45	5.64	45 519.25	492.38	305 865.82	1 487.86	4.41	0.18	75.49	2.70	2.82	0.10	644.29	6.35	0.07	0.03	4.58	0.34	219.95	2.58	24.23	0.30	0.00	0.00	1.48	0.06
51.90	2 345.93	30.45	1 827.37	10.73	45 410.04	437.01	309 159.35	1 701.16	3.87	0.04	65.37	0.45	2.06	0.00	679.10	0.63	0.41	0.21	3.60	0.35	218.60	1.27	24.66	0.24	0.00	0.00	1.40	0.07
53.90	2 355.13	22.61	1 787.64	11.58	44 570.04	218.19	309 876.59	1 518.14	3.89	0.33	73.80	0.79	1.06	0.08	707.27	10.93	1.01	0.48	6.99	0.93	213.59	0.70	23.44	0.33	0.00	0.00	1.21	0.05
55.90	2 374.93	6.09	1 801.83	24.06	44 707.45	126.67	316 082.36	1 960.81	3.62	0.46	66.74	0.41	1.30	0.02	688.93	18.84	1.82	0.60	10.50	0.82	213.90	0.90	22.45	0.02	0.00	0.00	1.09	0.01
57.89	2 367.13	13.54	1 856.05	25.89	45 900.13	21.64	323 050.26	371.50	4.14	0.34	54.07	1.67	1.63	0.29	686.77	15.49	3.09	0.75	11.34	0.35	215.62	0.48	23.89	0.30	0.00	0.00	1.15	0.03
59.89	2 402.29	49.72	1 976.69	5.47	45 597.66	522.67	324 573.16	3 364.72	4.96	0.47	67.18	0.22	0.97	0.32	714.54	9.12	2.86	0.28	7.87	0.60	217.42	2.34	24.48	0.00	0.00	0.00	1.33	0.01
61.89	2 490.49	55.02	2 093.04	7.89	45 443.76	407.49	327 412.27	3 733.91	5.66	0.31	92.08	0.62	0.67	0.20	729.35	5.19	2.83	1.03	5.16	0.98	219.43	2.99	22.78	0.24	0.00	0.00	1.22	0.01
63.88	2 595.74	40.00	1 998.09	24.08	45 277.48	99.76	324 408.64	2 469.13	5.32	0.25	78.88	2.42	1.00	0.23	704.93	6.09	1.46	0.61	5.07	1.37	204.02	1.75	20.96	0.25	0.00	0.00	0.95	0.01
65.88	2 629.54	9.59	1 919.46	36.18	45 073.90	34.29	316 655.29	1 062.48	3.73	0.35	58.80	3.31	0.96	0.30	663.26	1.71	1.74	0.78	3.25	0.28	197.16	2.14	21.47	0.30	0.00	0.00	0.98	0.02
67.87	2 564.83	6.80	1 907.54	16.33	45 163.52	12.93	307 759.15	553.11	3.70	0.65	58.85	0.95	0.99	0.24	621.39	8.65	2.67	1.15	4.30	0.81	203.37	0.44	21.16	0.01	0.00	0.00	1.08	0.06
69.87	2 431.24	16.54	1 822.24	1.26	44 530.16	296.71	297 154.65	1 141.74	2.79	0.08	62.39	0.47	1.41	0.25	584.50	0.60	1.12	0.49	6.74	1.19	194.79	0.19	18.28	0.13	0.00	0.00	1.14	0.01
71.87	2 331.66	35.26	1 779.19	4.00	43 435.20	137.54	293 361.98	74.19	1.37	0.29	68.78	0.98	1.35	0.30	627.06	11.48	0.13	0.07	4.93	0.43	183.25	1.80	17.63	0.04	0.00	0.00	1.26	0.07
73.86	2 434.84	32.78	1 793.90	4.11	44 467.29	85.57	305 218.52	633.92	1.18	0.22	67.84	1.09	2.57	0.09	657.87	4.57	0.14	0.08	1.90	0.03	194.55	1.58	17.76	0.19	0.00	0.00	1.33	0.01
75.86	2 514.35	18.64	1 814.92	3.36	46 100.24	115.79	314 346.64	2 068.07	1.46	0.04	58.49	1.00	3.76	0.44	647.99	6.72	0.57	0.30	2.97	0.06	206.06	1.57	17.52	0.23	0.00	0.00	1.35	0.06
77.86	2 539.35	26.28	1 853.70	1.05	46 498.06	72.73	319 616.28	2 751.55	1.10	0.01	59.02	8.00	2.08	0.02	690.95	17.00	0.93	0.46	6.90	0.50	202.69	1.12	18.25	0.23	0.00	0.00	1.41	0.03
79.85	2 625.87	7.64	1 899.25	13.43	47 094.08	10.41	329 292.11	1 145.20	1.57	0.16	60.90	5.81	0.45	0.10	765.40	1.70	0.65	0.15	6.94	0.68	208.76	0.48	18.87	0.14	0.00	0.00	1.60	0.03
81.85	2 667.64	17.43	1 931.22	38.62	47 375.32	445.14	331 836.70	2 186.49	2.49	0.03	52.15	2.51	0.07	0.00	836.58	11.09	1.72	0.41	3.30	0.39	219.67	1.44	18.32	0.03	0.00	0.00	1.94	0.02
83.84	2 639.73	23.50	1 938.87	41.02	46 817.38	709.38	329 957.51	3 163.53	1.77	0.20	59.54	3.78	0.21	0.06	818.11	2.87	3.18	0.96	2.00	0.34	221.66	1.13	18.55	0.09	0.00	0.00	2.25	0.00
85.84	2 560.70	15.13	1 901.48	11.89	46 931.76	94.06	320 701.93	854.60	1.05	0.17	57.91	2.45	0.63	0.26	790.54	7.56	1.42	0.44	1.12	0.01	214.16	3.09	19.78	0.13	0.00	0.00	2.39	0.05
87.84	2 450.50	11.46	1 889.67	8.78	46 150.60	49.54	309 915.22	1 032.43	1.85	0.10	51.05	1.37	0.85	0.41	750.80	12.72	0.17	0.04	0.95	0.22	202.67	0.81	19.38	0.24	0.00	0.00	3.06	0.05
89.83	2 382.39	23.11	1 891.57	16.97	44 992.58	170.32	304 702.72	1 261.95	3.42	0.07	48.13	3.81	0.86	0.36	676.77	6.96	0.59	0.06	1.92	0.11	199.66	5.23	16.31	0.09	0.00	0.00	4.50	0.07
91.83	2 363.11	31.63	1 834.81	28.70	44 030.47	242.15	304 777.29	2 515.27	2.98	0.08	36.64	4.58	1.86	0.58	663.93	4.19	3.67	0.64	2.59	0.13	200.76	5.77	15.23	0.14	0.00	0.00	6.26	0.12
93.83	2 357.04	23.52	1 822.98	2.32	44 538.95	286.46	305 493.20	2 289.58	2.08	0.01	48.32	1.74	2.44	0.65	723.49	4.84	9.09	1.99	2.27	0.14	203.30	5.74	16.06	0.45	0.00	0.00	6.70	0.15
95.82	2 341.60	25.27	1 886.56	30.17	46 291.32	152.73	314 400.64	1 277.78	2.25	0.04	71.45	0.70	1.13	0.31	773.96	6.96	10.10	2.64	1.61	0.08	215.01	2.37	16.36	0.63	0.00	0.00	5.68	0.25
97.82	2 397.12	12.68	1 907.46	35.54	47 131.08	325.00	322 978.96	1 655.62	2.48	0.14	66.33	0.86	0.20	0.06	773.09	1.12	7.31	2.14	3.11	0.75	220.22	0.16	16.85	0.59	0.00	0.00	4.44	0.32
99.81	2 411.60	16.31	1 856.77	39.71	45 756.27	309.31	320 482.62	1 010.81	1.46	0.09	51.55	0.84	0.03	0.00	767.63	6.65	5.20	1.35	4.93	1.20	219.81	0.04	16.51	0.48	0.00	0.00	2.91	0.22
101.81	2 474.79	15.72	1 837.78	22.47	45 790.04	35.66	319 202.12	315.50	1.36	0.02	59.75	1.81	0.02	0.01	747.80	1.60	2.31	0.63	4.28	1.08	226.65	1.10	15.31	0.01	0.00	0.00	2.06	0.15
103.81	2 515.98	8.85	1 927.28	12.04	47 022.50	247.98	323 058.57	3 303.75	2.26	0.17	66.54	4.59	0.17	0.07	756.75	6.07	0.75	0.01	4.30	0.14	229.49	2.53	15.01	0.14	0.00	0.00	2.14	0.12
105.80	2 471.08	6.59	1 920.45	10.30	46 532.33	145.67	315 432.59	3 273.50	2.33	0.24	68.79	2.93	0.87	0.29	761.47	5.98	1.35	0.74	5.18	0.52	219.25	3.05	14.00	0.24	0.00	0.00	2.28	0.07
107.80	2 410.08	37.02	1 913.97	20.60	46 152.07	396.06	309 181.35	958.20	1.90	0.10	65.61	0.99	1.49	0.42	726.60	8.16	2.70	1.35	3.14	0.42	207.76	0.49	12.99	0.47	0.00	0.00	2.40	0.08
109.80	2 409.58	14.51	1 899.85	12.06	45 657.02	454.97	304 831.60	1 402.34	1.21	0.06	56.73	1.90	0.68	0.14	696.72	1.50	2.26	0.88	4.31	0.38	205.99	2.60	13.18	0.23	0.00	0.00	3.00	0.07
111.79	2 487.94	8.63	1 915.11	5.27	45 824.08	163.34	310 696.98	518.74	1.29	0.04	54.43	1.09	0.16	0.05	656.03	5.35	0.80	0.28	6.58	0.23	211.65	1.27	13.80	0.24	0.00	0.00	4.01	0.11
113.79	2 475.83	27.88	1 970.95	8.94	47 032.94	135.17	317 818.67	283.53	1.80	0.03	61.49	0.41	0.06	0.03	607.26	10.18	0.53	0.30	4.74	0.17	221.63	1.34	13.67	0.28	0.00	0.00	4.86	0.12
115.79	2 486.18	40.40	2 018.41	17.04	47 682.08	129.11	322 222.04	937.80	1.68	0.15	73.74	2.91	0.04	0.00	551.44	1.69	0.76	0.44	6.84	0.13	224.52	1.36	13.87	0.15	0.00	0.00	3.86	0.14
117.78	2 604.99	53.59	1 978.33	4.04	46 498.52	231.06	315 649.33	891.90	1.56	0.24	77.82	3.84	0.25	0.00	498.52	3.76	0.31	0.18	12.68	0.89	215.55	0.71	14.16	0.37	0.00	0.00	2.27	0.10
119.78	2 769.21	74.16	1 908.98	16.08	46 442.39	426.25	317 436.20	2 455.18	2.84	0.34	81.99	1.08	0.98	0.13	416.22	2.75	0.03	0.02	12.92	2.28	210.07	0.66	13.95	0.59	0.00	0.00	1.29	0.01
121.77	2 860.01	47.20	1 778.96	29.14	45 220.98	9.88	307 419.15	675.13	5.02	0.24	76.04	4.85	1.77	0.20	323.51	1.90	0.00	0.00	11.45	2.26	195.33	2.46	12.94	0.37	0.00	0.00	0.90	0.07

Table S7. LA-ICP-TOFMS concentrations (in ppm) along a transect (in µm; See page 77 of Appendix A) in the secondary dentine of the Odense 533 M1.

Distance [µm]	23Na+	Uncertainty Mean (1s) [23Na]+ [ppm]	24Mg+	Uncertainty Mean (1s) [24Mg]+ [ppm]	31P+	Uncertainty Mean (1s) [31P]+ [ppm]	44Ca+	Uncertainty Mean (1s) [44Ca]+ [ppm]	55Mn+	Uncertainty Mean (1s) [55Mn]+ [ppm]	56Fe+	Uncertainty Mean (1s) [56Fe]+ [ppm]	63Cu+	Uncertainty Mean (1s) [63Cu]+ [ppm]	66Zn+	Uncertainty Mean (1s) [66Zn]+ [ppm]	75As+	Uncertainty Mean (1s) [75As]+ [ppm]	81Br+	Uncertainty Mean (1s) [81Br]+ [ppm]	88Sr+	Uncertainty Mean (1s) [88Sr]+ [ppm]	138Ba+	Uncertainty Mean (1s) [138Ba]+ [ppm]	202Hg+	Uncertainty Mean (1s) [202Hg]+ [ppm]	208Pb+	Uncertainty Mean (1s) [208Pb]+ [ppm]
0.00	108.59	6.31	124.57	2.48	4 488.27	173.68	25 987.20	1 081.82	0.25	0.09	184.17	2.81	1.50	0.13	86.93	3.07	0.01	0.01	8.47	0.86	17.65	1.05	1.17	0.05	0.00	0.00	1.26	0.09
2.10	247.37	9.84	255.79	9.73	8 688.08	264.47	56 487.32	1 781.07	0.29	0.04	192.30	0.80	3.01	0.28	133.22	6.35	0.01	0.01	6.74	0.37	39.72	2.80	2.53	0.13	0.00	0.00	3.15	0.22
4.19	493.56	13.45	444.14	21.18	14 608.73	274.41	101 080.79	1 228.85	0.91	0.23	197.07	1.14	4.41	0.20	190.35	8.67	0.00	0.00	6.31	0.44	70.04	3.69	4.19	0.21	0.00	0.00	5.82	0.28
6.29	763.19	11.94	614.37	21.22	19 988.77	124.17	141 022.14	673.76	1.83	0.36	198.85	2.92	5.54	0.53	228.98	9.36	0.01	0.01	7.21	0.90	92.28	2.32	5.18	0.12	0.00	0.00	7.34	0.23
8.38	935.78	14.12	676.43	17.56	22 476.81	448.28	158 822.17	2 160.31	2.05	0.33	189.60	4.72	5.36	0.56	235.50	8.50	0.05	0.05	6.52	0.59	95.30	1.22	4.81	0.21	0.00	0.00	6.29	0.36
10.48	990.38	21.04	648.95	17.46	22 001.41	926.92	153 815.84	4 615.29	1.30	0.15	174.63	3.38	3.95	0.20	225.32	8.93	0.12	0.10	5.83	0.44	86.39	2.99	3.80	0.36	0.00	0.00	3.77	0.36
12.57	1 001.53	20.66	609.48	13.12	20 869.67	938.96	144 539.05	5 235.32	0.48	0.04	167.15	1.38	2.48	0.31	215.73	5.44	0.17	0.07	6.23	0.82	79.34	2.78	3.35	0.22	0.00	0.00	2.11	0.17
14.67	1 022.77	13.99	614.50	5.19	20 548.81	539.36	142 444.79	2 983.25	0.22	0.05	170.11	0.50	1.75	0.26	216.55	4.14	0.85	0.15	5.47	0.52	77.25	1.37	3.50	0.08	0.00	0.00	1.59	0.06
16.76	1 101.01	32.59	642.36	16.44	21 567.68	511.94	147 768.41	2 859.85	0.22	0.06	176.27	2.79	1.61	0.22	234.10	3.20	2.78	0.31	5.80	0.38	79.71	2.72	3.84	0.24	0.00	0.00	1.37	0.03
18.86	1 244.50	47.11	659.83	24.32	23 447.00	764.18	157 674.50	4 685.22	0.52	0.23	180.22	2.83	1.68	0.21	255.72	5.05	3.60	0.44	6.85	0.57	85.20	4.06	4.19	0.36	0.00	0.00	1.22	0.02
20.95	1 309.30	60.90	673.57	40.26	24 394.21	1 088.41	161 728.80	5 768.89	1.08	0.37	184.08	1.15	1.58	0.18	258.95	5.60	1.84	0.20	6.41	0.77	89.61	5.36	4.36	0.45	0.00	0.00	0.98	0.05
23.05	1 205.56	72.50	681.43	66.79	23 615.07	1 376.94	148 856.33	5 403.10	1.63	0.43	191.12	1.86	1.87	0.27	244.28	16.13	0.51	0.11	6.55	0.65	91.35	6.12	4.36	0.47	0.00	0.00	0.69	0.08
25.14	1 001.21	34.00	623.59	53.80	20 659.78	772.65	123 957.63	1 410.25	2.02	0.44	194.31	2.75	1.53	0.12	221.71	16.54	0.10	0.04	6.94	1.41	87.21	3.74	3.81	0.33	0.00	0.00	0.56	0.09
27.24	762.52	18.95	538.95	30.01	16 878.78	441.80	101 641.70	2 717.85	2.32	0.45	193.94	3.76	0.80	0.06	199.33	6.70	0.01	0.00	6.07	1.70	81.70	2.87	3.04	0.22	0.00	0.00	0.58	0.11
29.33	694.05	39.89	562.67	29.91	16 391.10	966.22	97 683.98	5 253.07	2.69	0.47	197.22	3.58	0.76	0.11	205.84	9.14	0.01	0.01	4.91	1.16	87.11	5.00	3.18	0.26	0.00	0.00	0.76	0.15
31.43	805.77	80.05	648.56	38.26	18 641.55	1 673.64	109 546.13	10 169.13	2.76	0.28	199.34	4.85	0.81	0.11	227.67	17.43	0.03	0.01	4.38	0.64	99.76	8.90	3.92	0.40	0.00	0.00	0.97	0.16
33.52	1 063.76	118.12	757.36	50.42	22 652.81	2 194.89	135 681.75	13 965.90	2.23	0.25	192.81	4.74	0.61	0.07	257.93	18.77	0.28	0.12	4.69	0.54	118.74	12.04	4.85	0.47	0.00	0.00	1.14	0.15
35.62	1 465.40	141.78	855.92	50.99	28 180.45	2 305.77	176 791.89	15 282.69	1.58	0.33	184.77	2.62	0.59	0.05	297.33	15.50	1.26	0.49	6.11	0.51	145.24	12.48	5.87	0.53	0.00	0.00	1.29	0.11
37.71	1 884.98	124.00	935.72	40.74	33 265.56	1 812.38	218 293.70	12 844.06	1.07	0.31	185.39	1.31	0.72	0.15	322.99	10.59	2.20	0.95	9.29	0.43	166.59	9.14	6.51	0.47	0.00	0.00	1.28	0.04
39.81	2 243.56	80.14	984.89	25.85	37 012.43	1 223.10	247 813.99	8 042.40	0.88	0.13	194.26	2.88	0.73	0.27	321.07	6.10	1.70	0.35	10.31	1.15	177.19	5.52	6.95	0.32	0.00	0.00	1.13	0.02
41.90	2 531.67	58.04	998.96	15.41	40 018.33	913.54	269 333.97	5 092.74	0.84	0.11	198.27	4.86	0.53	0.14	328.77	8.08	2.12	0.38	8.22	0.81	186.86	4.10	7.76	0.20	0.00	0.00	1.03	0.01
44.00	2 614.32	106.78	1 008.62	23.12	41 348.37	1 097.33	278 327.78	6 932.96	0.79	0.12	198.46	5.25	0.64	0.19	357.19	10.02	3.03	0.67	7.77	0.34	194.23	5.29	8.82	0.19	0.00	0.00	0.99	0.03
46.09	2 480.56	192.47	945.34	49.60	40 012.68	1 993.64	267 858.23	13 129.82	0.82	0.11	194.81	2.69	1.16	0.17	366.39	17.59	2.33	0.50	8.06	0.53	188.96	10.53	8.88	0.38	0.00	0.00	0.95	0.05
48.19	2 305.66	276.68	869.34	74.98	37 025.17	3 308.33	249 413.90	21 844.50	1.02	0.11	185.92	3.07	1.88	0.31	364.12	35.87	1.59	0.27	6.06	0.48	176.13	16.88	8.49	0.86	0.00	0.00	0.90	0.07
50.28	2 164.86	309.14	855.79	71.85	34 764.31	3 705.23	235 770.43	25 482.50	1.14	0.19	183.04	4.43	2.30	0.43	356.44	40.50	1.72	0.66	3.83	0.17	164.25	17.07	8.45	1.09	0.00	0.00	0.94	0.08
52.38	2 076.64	264.76	897.82	47.20	34 308.71	2 862.89	232 045.48	21 358.84	1.21	0.28	186.17	3.59	2.13	0.26	347.56	26.41	1.06	0.33	3.62	0.65	161.44	12.31	8.67	0.99	0.00	0.00	1.12	0.05
54.47	2 085.77	193.93	931.03	33.15	35 089.43	2 031.79	238 184.69	15 386.87	1.43	0.33	188.63	1.37	1.72	0.24	358.44	16.26	0.46	0.10	4.92	0.86	166.90	8.54	8.69	0.87	0.00	0.00	1.53	0.06
56.57	2 216.73	153.20	962.26	38.90	36 962.33	1 915.24	253 382.99	13 732.36	1.26	0.12	192.39	3.23	1.25	0.23	385.79	20.23	1.01	0.50	6.37	0.83	178.41	9.27	8.98	0.81	0.00	0.00	2.38	0.08
58.66	2 453.84	118.61	1 006.62	35.49	40 051.47	1 723.42	277 561.90	11 629.17	0.83	0.15	199.98	3.01	0.79	0.15	416.75	24.34	1.90	0.55	7.06	1.28	194.99	10.78	9.91	0.87	0.00	0.00	3.73	0.22
60.76	2 682.47	50.68	1 046.80	18.16	42 493.51	946.60	298 784.45	5 341.03	0.59	0.18	200.79	2.88	0.46	0.08	420.56	15.21	2.08	0.30	5.92	1.63	206.74	8.34	10.58	0.64	0.00	0.00	4.97	0.31
62.85	2 891.30	25.23	1 099.32	25.20	45 225.47	363.26	318 171.44	1 761.35	0.62	0.18	198.97	2.18	0.46	0.08	429.30	3.20	1.42	0.39	3.46	1.16	219.19	3.85	11.17	0.32	0.00	0.00	5.53	0.20
64.95	3 011.02	6.82	1 112.87	16.15	46 772.28	198.22	327 980.11	1 150.45	0.58	0.05	206.38	2.45	0.73	0.13	438.32	5.81	0.82	0.37	2.52	0.58	230.62	1.60	11.90	0.29	0.00	0.00	4.98	0.22
67.04	3 000.72	33.14	1 065.05	4.88	46 284.39	440.58	324 485.76	3 305.47	0.80	0.17	214.75	3.40	0.61	0.18	430.11	7.80	0.46	0.18	3.16	0.43	229.05	2.43	11.66	0.29	0.00	0.00	3.35	0.19
69.14	2 908.97	50.13	1 027.33	16.35	45 090.28	492.77	315 560.72	4 761.48	0.96	0.20	216.16	1.84	0.26	0.12	418.42	11.06	0.54	0.20	4.22	0.58	219.51	2.95	10.93	0.22	0.00	0.00	2.02	0.12
71.23	2 768.67	62.80	1 045.35	16.29	43 952.12	408.20	307 611.47	5 333.88	0.61	0.09	215.47	2.36	0.31	0.09	404.78	14.34	1.07	0.24	6.06	1.04	211.16	2.75	10.42	0.08	0.00	0.00	1.65	0.04
73.33	2 599.80	65.18	1 049.78	13.77	42 869.93	504.10	296 569.64	6 969.73	0.31	0.05	211.04	3.02	0.85	0.20	399.36	14.73	2.36	0.21	7.84	1.35	201.56	3.47	9.66	0.13	0.00	0.00	1.55	0.05
75.42	2 395.54	67.70	1 029.16	6.69	41 667.73	667.32	279 282.73	7 173.54	0.43	0.05	206.76	3.52	1.62	0.51	397.57	12.32	4.59	0.40	8.25	0.91	191.98	4.89	8.72	0.26	0.00	0.00	1.37	0.02
77.52	2 172.72	61.78	1 028.02	12.71	39 960.42	493.59	264 300.05	4 372.95	0.73	0.10	212.11	2.72	2.42	0.67	378.62	6.07	5.17	0.86	8.72	0.90	184.64	4.59	8.79	0.40	0.00	0.00	1.22	0.03
79.61	2 109.52	52.19	1 059.96	26.71	39 366.72	642.12	264 454.71	3 965.94	0.88	0.05	218.24	2.79	2.92	0.76	357.62	5.62	3.37	0.91	9.73	0.91	182.46	4.04	9.50	0.41	0.00	0.00	1.25	0.08
81.71	2 299.94	58.77	1 116.95	30.22	41 618.00	1 224.52	281 829.54	7 972.45	0.83	0.15	212.00	3.55	2.75	0.84	376.82	13.24	1.38	0.41	7.76	0.90	193.11	6.94	10.15	0.40	0.00	0.00	1.35	0.13
83.80	2 598.91	55.32	1 131.17	20.59	44 042.01	1 006.57	297 155.80	6 018.98	0.53	0.14	205.03	5.90	2.07	0.76	425.44	17.21	0.62	0.25	5.41	0.66	209.26	7.02	11.04	0.49	0.00	0.00	1.32	0.10
85.90	2 853.16	33.46	1 135.43	6.07	45 696.80	277.23	307 500.55	846.26	0.35	0.07	205.34	5.20	1.66	0.46	465.02	9.41	0.38	0.21	5.91	0.38	225.60	2.38	11.71	0.36	0.00	0.00	1.30	0.07
87.99	2 994.54	34.02	1 154.43	19.56	47 192.04	540.39	318 331.87	1 762.76	0.36	0.09	202.97	5.77	1.51	0.11	491.62	7.73	1.32	0.81	7.35	0.68	235.75	2.28	11.85	0.17	0.00	0.00	1.52	0.02
90.09	3 028.76	46.19	1 177.17	20.04	48 664.40	383.17	327 450.39	1 709.11	0.29	0.07	199.19	7.89	1.14	0.17	505.84	6.33	3.06	1.49	8.57	0.79	242.23	2.22	11.87	0.20	0.00	0.00	1.82	0.08
92.18	3 047.40	41.96	1 206.72	15.49	49 625.12	251.99	334 373.87	2 633.50	0.25	0.06	203.12	8.18	1.29	0.14	509.55	8.19	2.78	0.43	8.28	0.83	246.44	2.64	12.52	0.21	0.00	0.00	2.20	0.16
94.28	3 024.55	27.29	1 192.00	5.31	48 738.61	289.51	329 565.70	1 846.14	0.25	0.04	209.39	4.83	1.59	0.23	496.29	12.25	2.40	0.58	5.38	0.68	237.90	3.06	12.39	0.18	0.00	0.00	2.76	0.27
96.37	2 946.59	26.58	1 147.81	11.26	46 499.87	337.43	313 905.56	736.98	0.40	0.09	210.45	3.39	1.38	0.29	460.57	12.21	2.17	0.81	5.37	0.30	219.84	2.12	11.15	0.09	0.00	0.00	3.26	0.31
98.47	2 849.92	43.21	1 112.63	19.49	44 865.44	329.04	301 589.15	1 614.01	0.60	0.09	203.98	5.10	1.26	0.36	420.74	10.50	1.86	0.51	8.39	0.78	209.64	1.25	10.00	0.14	0.00	0.00	3.59	0.26
100.56	2 802.25	71.21	1 089.09	15.70	44 216.93	488.76	297 572.44	3 253.36	0.65	0.05	192.80	2.61	1.33	0.32	401.07	9.21	2.82	0.54	8.67	0.83	206.84	3.36	9.53	0.25	0.00	0.00	3.87	0.19
102.66	2 842.26	80.93	1 099.74	14.56	44 463.22	683.06	300 761.26	3 950.64	0.71	0.07	190.61	4.94	1.41	0.25	390.79	9.65	3.54	0.94	8.30	1.41	207.88	4.54	9.85	0.33	0.00	0.00	4.06	0.14
104.75	2 901.95	60.84	1 118.48	21.91	44 698.45	742.04	304 666.97	3 008.76	0.69	0.04	202.89	6.39	1.06	0.15	371.09	10.45	2.24	0.38	8.65	1.18	210.87	4.66	10.28	0.35	0.00	0.00	3.79	0.10
106.85	2 938.17	36.04	1 131.41	25.66	44 537.06	674.19	309 126.81	2 237.77	0.63	0.07	216.91	4.34	0.56	0.13	360.26	11.02	1.00	0.21	7.74	0.73	214.40	3.46	10.66	0.29	0.00	0.00	2.90	0.10
108.94	2 956.62	19.42	1 143.74	36.25	44 929.76	922.06	315 000.63	4 493.61	0.56	0.15	215.11	1.67	0.18	0.07	366.41	12.98	1.29	0.45	5.91	1.23	219.66	2.54	10.93	0.42	0.00	0.00	1.87	0.08
111.04	2 973.78	27.19	1 153.31	33.92	45 893.03	1 083.59	321 124.89	5 778.88	0.36	0.13	203.90	1.89	0.08	0.04	399.63	12.73	2.53	0.69	4.44	0.97	226.24	2.74	11.06	0.58	0.00	0.00	1.11	0.06
113.13	2 929.23	65.56	1 142.54	18.46	45 836.77	1 204.17	319 132.15	6 695.59	0.25	0.08	195.57	2.03	0.18	0.10	417.94	14.44	2.88	0.77	4.52	0.34	226.72	4.43	11.42	0.42	0.00	0.00	0.71	0.04
115.23	2 807.63	49.85	1 118.03	8.80	44 447.88	1 103.93	307 862.97	5 743.20	0.23	0.04	198.32	2.03	0.37	0.15	407.94	9.91	1.92	0.66	5.41	0.77	223.20	4.16	11.19	0.16	0.00	0.00	0.54	0.02
117.32	2 697.35	45.13	1 093.97	21.46	43 345.50	968.93	299 871.74	6 089.38	0.33	0.06	207.95	0.97	0.88	0.11	395.99	2.79	0.98	0.54	5.72	0.85	223.43	3.55	10.55	0.18	0.00	0.00	0.45	0.02
119.42	2 636.17	53.03	1 074.45	28.55	42 356.93	754.90	292 407.71	5 752.90	0.52	0.10	210.92	0.39	1.65	0.28	381.71	14.62	0.56	0.27	5.67	0.77	221.43	4.27	10.01	0.26	0.00	0.00	0.43	0.02
121.51	2 369.46	70.26	1 025.54	25.68	38 741.01	691.41	267 031.11	4 667.75	0.75	0.12	206.93	1.90	2.18	0.50	347.62	22.40	0.71	0.24	6.25	1.22	206.01	6.33	9.15	0.26	0.00	0.00	0.43	0.01
123.61	1 942.48	97.77	954.43	37.47	34 046.51	1 035.94	232 458.77	6 437.38	1.13	0.20	206.98	2.90	2.75	0.59	304.57	20.22	0.62	0.20	7.70	0.99	186.77	7.20	8.09	0.49	0.00	0.00	0.39	0.02
125.70	1 765.50	86.57	995.66	49.15	33 504.83	1 212.44	223 520.88	7 051.85	1.95	0.36	214.59	2.83	3.14	0.56	286.08	12.59	0.50	0.19	7.43	0.61	187.19	7.82	8.35	0.72	0.00	0.00	0.44	0.03
127.80	1 892.55	52.30	1 106.63	34.42	36 608.30	920.60	241 021.94	5 175.44	2.36	0.36	222.35	1.60	3.38	0.59	302.28	9.69	1.34	0.39	5.65	0.56	201.81	6.28	9.81	0.71	0.00	0.00	0.60	0.03
129.89	2 102.34	38.97	1 116.98	14.67	39 043.66	666.59	257 584.29	4 123.63	1.81	0.18	225.72	3.03	3.86	0.64	334.51	11.38	2.21	0.30	4.39	0.34	206.15	3.91	10.87	0.59	0.00	0.00	0.69	0.02
131.99	2 337.53	33.88	1 063.48	11.73	40 511.98	418.44	269 670.07	3 360.23	1.17	0.17	223.34	1.79	4.17	0.40	368.21	9.90	1.72	0.29	3.57	0.12	205.95	1.59	11.44	0.46	0.00	0.00	0.63	0.01
134.08	2 591.06	35.86	1 069.63	15.02	42 251.74	363.89	281 970.03	1 925.11	1.29	0.19	215.51	2.43	3.50	0.25	384.56	11.07	1.33	0.31	4.13	0.18	213.57	1.94	12.28	0.57	0.00	0.00	0.54	0.01
136.18	2 754.62	33.94	1 095.19	18.40	43 022.75	471.34	290 299.55	1 671.20	1.97	0.23	208.40	1.42	2.37	0.15	368.09	14.96	1.41	0.24	5.05	0.19	215.32	2.23	11.79	0.44	0.00	0.00	0.49	0.02
138.27	2 723.50	30.61	1 062.86	17.50	41 630.72	345.17	287 256.89	2 094.83	2.30	0.44	206.18	2.05	1.77	0.10	343.58	15.09	1.10	0.16	5.31	0.20	205.05	1.67	10.38	0.22	0.00	0.00	0.43	0.01
140.37	2 582.54	34.45	1 020.30	13.04	40 283.12	374.99	279 931.42	3 402.46	1.93	0.45	205.58	2.36	1.33	0.06	327.38	12.92	0.82	0.24	5.88	0.48	199.03	1.48	9.25	0.18	0.00	0.00	0.35	0.01
142.46	2 385.02	36.79	977.24	13.06	38 795.02	392.30	266 697.96	2 630.34	1.08	0.23	205.29	4.17	1.41	0.17	301.37	10.64	0.50	0.17	7.73	1.08	194.90	2.76	8.18	0.21	0.00	0.00	0.35	0.01
144.56	2 127.51	31.81	915.40	27.20	35 596.63	579.05	243 497.68	3 820.95	0.63	0.04	195.56	2.98	1.77	0.14	274.14	3.71	0.72	0.42	8.86	1.34	176.91	3.43	7.08	0.09	0.00	0.00	0.37	0.01
146.65	1 963.12	62.44	875.67	30.36	33 177.25	1 039.87	230 279.30	6 101.21	0.98	0.20	188.73	1.16	1.77	0.20	259.57	4.59	1.77	0.99	8.78	1.27	160.07	4.14	6.39	0.05	0.00	0.00	0.34	0.01
148.75	2 059.94	105.51	880.47	34.18	34 019.66	1 410.31	240 241.06	9 828.64	1.60	0.31	199.04	4.02	1.47	0.33	268.34	7.11	2.19	0.93	8.83	1.02	164.45	5.71	6.58	0.10	0.00	0.00	0.36	0.02
150.84	2 264.48	144.66	906.31	37.90	35 891.50	1 538.26	254 774.10	12 625.99	1.42	0.20	211.83	5.51	1.28	0.39	284.85	8.66	1.35	0.32	8.71	0.81	177.50	7.07	7.42	0.25	0.00	0.00	0.39	0.03
152.94	2 398.16	127.77	913.10	30.31	36 777.63	1 263.82	260 781.65	11 446.80	0.82	0.06	217.41	4.88	1.23	0.31	285.80	5.94	0.93	0.33	7.11	0.40	182.04	6.11	8.24	0.24	0.00	0.00	0.37	0.02
155.03	2 489.04	55.34	921.83	22.96	37 376.24	685.07	264 033.11	6 919.65	0.58	0.06	210.23	4.05	0.92	0.24	276.61	1.86	1.13	0.43	5.80	0.32	182.99	3.48	8.62	0.07	0.00	0.00	0.32	0.01
157.13	2 569.46	6.00	930.22	11.95	38 646.11	211.12	271 105.58	1 874.42	0.54	0.08	202.96	2.90	0.62	0.18	276.06	2.93	1.86	0.76	6.27	0.42	185.47	1.11	8.93	0.12	0.00	0.00	0.25	0.01
159.23	2 647.42	22.81	917.70	6.90	39 680.72	181.70	278 943.44	2 480.73	0.33	0.07	201.85	1.35	0.73	0.17	282.42	4.66	2.21	0.84	6.68	1.10	189.02	2.53	9.11	0.14	0.00	0.00	0.22	0.02
161.32	2 655.54	16.52	899.84	11.08	39 642.77	298.72	279 427.15	3 262.22	0.13	0.02	198.73	1.60	0.75	0.09	271.17	4.89	1.36	0.45	6.77	0.75	191.03	2.77	8.99	0.11	0.00	0.00	0.22	0.03
163.42	2 620.26	22.19	914.98	12.22	39 748.72	389.50	279 308.43	3 142.91	0.16	0.04	201.33	2.39	0.64	0.05	267.56	6.03	0.35	0.12	7.55	0.16	193.72	2.75	8.64	0.19	0.00	0.00	0.22	0.03
165.51	2 675.12	35.03	991.22	11.40	40 725.12	347.01	285 876.11	2 471.23	0.32	0.06	211.49	4.11	0.78	0.09	291.63	3.00	0.03	0.01	9.29	0.44	197.85	4.09	8.52	0.40	0.00	0.00	0.21	0.01
167.61	2 780.97	43.55	1 058.28	6.35	41 834.67	271.12	293 908.90	828.85	0.38	0.04	215.18	5.90	0.83	0.11	314.03	8.26	0.00	0.00	10.66	0.83	205.55	3.86	9.05	0.49	0.00	0.00	0.21	0.01
169.70	2 816.16	18.44	1 082.53	6.34	42 715.11	197.61	299 060.26	714.69	0.27	0.05	213.32	4.25	0.87	0.14	334.66	7.94	0.00	0.00	9.59	1.08	213.66	2.48	9.68	0.40	0.00	0.00	0.26	0.03
171.80	2 812.38	15.20	1 122.30	19.29	43 412.08	299.21	301 053.07	1 410.46	0.24	0.09	209.58	3.94	1.08	0.14	351.74	4.09	0.01	0.00	6.70	0.75	216.46	3.40	10.24	0.25	0.00	0.00	0.43	0.06
173.89	2 856.17	13.84	1 149.48	14.91	43 920.45	275.36	303 966.34	2 585.10	0.22	0.08	203.00	1.72	1.34	0.23	360.88	4.37	0.06	0.04	6.32	0.58	216.63	3.82	10.68	0.26	0.00	0.00	0.59	0.05
175.99	2 902.26	18.78	1 138.50	14.95	44 012.14	322.16	304 905.02	3 490.88	0.31	0.07	192.75	2.42	1.23	0.18	365.05	3.53	0.17	0.10	7.66	0.56	213.96	3.98	10.64	0.41	0.00	0.00	0.65	0.02
178.08	2 885.90	37.67	1 118.17	17.67	43 734.30	463.51	301 727.34	4 648.50	0.53	0.13	191.38	2.39	0.71	0.15	360.99	2.86	0.19	0.11	9.79	1.01	214.68	3.27	10.63	0.35	0.00	0.00	0.59	0.01
180.18	2 871.73	21.73	1 092.73	13.04	43 920.86	225.17	301 429.66	1 973.75	0.59	0.15	199.07	5.15	0.27	0.10	359.50	1.92	0.35	0.15	10.37	1.99	219.13	1.04	10.58	0.17	0.00	0.00	0.54	0.02
182.27	2 851.17	15.90	1 062.92	16.15	44 004.22	164.31	299 018.60	977.20	0.50	0.10	206.65	4.73	0.17	0.09	350.93	2.88	0.87	0.33	8.51	1.11	220.47	0.98	9.60	0.13	0.00	0.00	0.48	0.03

184.37	2 813.14	18.23	1 039.76	15.72	43 499.74	313.10	292 883.11	1 284.03	0.57	0.12	207.67	2.17	0.22	0.06	329.27	3.21	1.15	0.35	8.68	0.23	215.86	2.95	8.60	0.26	0.00	0.00	0.38	0.02
186.46	2 789.13	12.12	1 011.33	18.11	42 469.85	398.17	285 521.23	2 720.76	0.69	0.18	205.04	2.39	0.39	0.14	303.44	5.51	1.38	0.28	9.71	0.48	207.68	3.55	8.59	0.10	0.00	0.00	0.28	0.01
188.56	2 817.55	7.62	977.27	19.35	41 772.29	409.32	281 121.44	2 422.28	0.67	0.23	206.36	0.75	0.41	0.13	283.59	7.78	1.98	0.21	11.09	0.81	202.87	3.11	8.57	0.36	0.00	0.00	0.25	0.01
190.65	2 865.90	8.95	939.72	19.03	41 481.10	313.57	280 162.48	1 094.77	0.65	0.21	203.15	1.20	0.34	0.08	271.54	7.61	1.90	0.33	11.24	1.25	199.59	2.88	8.11	0.21	0.00	0.00	0.24	0.01
192.75	2 882.11	28.85	939.94	19.17	41 982.40	492.74	287 289.90	2 815.44	0.74	0.20	199.16	1.82	0.53	0.04	277.58	5.47	0.71	0.25	10.62	0.72	198.71	3.46	8.25	0.10	0.00	0.00	0.22	0.01
194.84	2 862.13	16.12	940.51	13.11	42 160.34	304.55	294 375.42	1 179.24	0.98	0.26	206.53	1.86	0.87	0.09	284.94	3.11	0.33	0.07	9.13	0.29	199.74	1.89	8.40	0.20	0.00	0.00	0.22	0.02
196.94	2 796.63	33.16	955.26	12.12	41 517.70	436.11	294 460.91	3 231.95	1.01	0.22	214.47	2.51	0.98	0.17	277.89	6.54	1.01	0.20	7.09	0.37	196.66	2.15	7.70	0.20	0.00	0.00	0.24	0.03
199.03	2 783.81	60.89	992.65	21.61	41 792.57	767.63	295 899.45	5 204.76	0.69	0.12	222.57	2.44	0.90	0.12	274.47	4.63	1.54	0.46	6.14	0.38	200.73	3.88	7.44	0.48	0.00	0.00	0.20	0.01
201.13	2 811.52	63.08	996.96	17.73	42 344.62	733.22	297 611.26	4 940.51	0.52	0.16	224.84	1.25	0.95	0.13	293.83	7.37	1.17	0.28	4.80	0.48	205.98	3.00	8.13	0.49	0.00	0.00	0.19	0.01
203.22	2 823.82	34.12	1 007.18	18.05	42 865.91	616.08	299 758.61	4 657.48	0.76	0.32	219.37	3.87	1.14	0.35	312.96	10.53	1.64	0.46	4.59	0.25	206.80	2.63	8.58	0.35	0.00	0.00	0.24	0.02
205.32	2 811.00	11.05	1 014.62	12.66	43 456.10	320.31	302 939.69	3 550.06	0.83	0.22	210.98	1.40	1.23	0.54	320.11	5.39	2.27	0.83	6.21	0.37	209.69	2.20	8.40	0.16	0.00	0.00	0.30	0.01
207.41	2 827.58	9.33	1 022.40	16.89	44 192.34	232.19	306 691.05	2 357.58	0.73	0.13	207.79	1.33	0.70	0.29	328.15	9.50	1.95	0.45	6.62	0.32	213.66	1.57	8.72	0.16	0.00	0.00	0.40	0.02
209.51	2 888.42	18.57	1 041.62	18.70	44 499.83	368.25	309 529.62	3 724.54	0.57	0.12	205.72	3.89	0.47	0.14	311.60	12.48	2.40	0.89	5.84	0.59	215.59	1.62	9.37	0.32	0.00	0.00	0.42	0.02
211.60	2 879.30	5.85	1 049.42	16.40	43 675.30	552.30	306 591.79	5 056.25	0.48	0.08	208.53	5.11	0.92	0.17	281.22	8.22	2.87	0.78	7.09	0.52	212.18	3.62	9.45	0.42	0.00	0.00	0.33	0.02
213.70	2 779.27	14.30	1 064.84	15.99	42 405.21	404.90	300 110.39	3 659.25	0.54	0.06	210.97	4.41	1.01	0.11	268.61	4.20	2.48	0.32	8.75	0.51	206.86	2.95	8.97	0.41	0.00	0.00	0.26	0.01
215.79	2 677.82	24.71	1 048.91	14.00	41 016.39	211.89	291 551.71	3 352.49	0.57	0.06	212.57	2.17	0.57	0.09	257.75	7.13	1.31	0.18	8.28	0.52	201.93	2.76	8.29	0.54	0.00	0.00	0.22	0.03
217.89	2 623.15	32.76	1 000.08	17.36	39 982.19	534.44	282 495.67	4 783.70	0.49	0.05	209.75	5.80	0.52	0.18	231.23	11.37	0.65	0.21	7.75	0.39	196.22	3.13	7.71	0.66	0.00	0.00	0.20	0.02
219.98	2 640.32	23.96	981.23	12.51	39 874.91	489.01	279 927.11	3 282.57	0.49	0.08	210.13	5.02	0.74	0.13	208.42	9.21	1.00	0.40	8.47	0.56	194.70	0.76	7.72	0.46	0.00	0.00	0.20	0.01
222.08	2 651.21	26.61	975.01	7.24	40 149.61	398.37	280 606.47	1 744.77	0.41	0.07	217.78	1.52	0.80	0.13	212.21	3.87	1.82	0.13	9.32	0.82	195.29	1.50	7.71	0.33	0.00	0.00	0.19	0.01
224.17	2 672.09	32.41	957.70	6.46	40 316.94	371.49	282 611.31	713.46	0.50	0.08	219.16	2.14	0.52	0.13	227.28	4.36	3.41	0.52	10.04	1.45	193.55	3.30	7.34	0.34	0.00	0.00	0.17	0.02
226.27	2 694.52	14.43	930.90	8.71	39 906.09	309.79	281 643.93	657.73	0.68	0.07	211.17	1.79	0.62	0.22	226.76	4.91	3.17	0.49	9.48	0.98	187.73	3.03	7.11	0.37	0.00	0.00	0.20	0.02
228.36	2 724.63	21.64	907.70	9.73	39 325.85	304.36	278 881.39	2 236.34	0.74	0.07	205.39	3.44	0.88	0.10	207.56	3.48	1.36	0.26	8.70	0.69	183.78	0.95	6.81	0.47	0.00	0.00	0.23	0.02
230.46	2 799.07	57.54	917.02	25.83	39 583.13	741.24	281 306.82	5 736.07	0.52	0.12	205.04	5.07	1.06	0.08	198.29	3.87	0.53	0.11	6.55	0.36	187.56	3.39	6.61	0.30	0.00	0.00	0.19	0.02
232.55	2 762.64	75.46	949.88	38.25	39 728.29	839.94	282 469.27	6 153.31	0.21	0.07	215.12	4.34	1.36	0.14	203.69	2.28	1.05	0.34	6.39	0.59	191.39	4.40	6.97	0.24	0.00	0.00	0.17	0.01
234.65	2 704.43	41.04	974.31	29.31	40 469.12	589.37	282 824.39	3 410.82	0.08	0.04	228.56	1.89	1.61	0.25	207.40	4.86	2.01	0.43	8.31	1.38	193.56	2.67	7.49	0.18	0.00	0.00	0.18	0.01
236.74	2 653.53	37.51	982.89	12.44	41 090.71	228.48	280 581.80	2 405.00	0.04	0.03	232.01	2.92	1.36	0.16	214.60	7.06	2.29	0.65	7.14	0.89	196.13	1.05	7.92	0.08	0.00	0.00	0.16	0.02
238.84	2 630.03	35.75	1 006.90	12.59	41 403.35	145.18	281 184.68	1 092.49	0.03	0.01	223.54	1.93	1.24	0.08	233.39	11.05	1.45	0.43	5.74	0.46	202.16	1.53	8.48	0.12	0.00	0.00	0.16	0.02
240.93	2 654.71	16.24	1 041.20	21.39	42 423.95	799.35	287 571.32	4 330.23	0.07	0.04	213.22	2.02	0.91	0.09	255.82	13.38	1.05	0.21	5.10	0.27	213.29	5.79	9.16	0.42	0.00	0.00	0.23	0.01
243.03	2 694.80	31.81	1 064.29	21.10	43 267.92	825.08	293 512.42	5 365.00	0.10	0.05	211.82	2.99	0.60	0.10	273.77	13.37	0.91	0.20	5.08	0.25	219.51	6.33	9.99	0.53	0.00	0.00	0.36	0.03
245.12	2 696.04	44.65	1 051.25	14.87	42 443.57	554.77	292 100.82	4 155.74	0.16	0.04	213.29	1.55	0.95	0.21	288.91	8.47	0.51	0.06	5.92	0.58	213.56	4.12	9.86	0.37	0.00	0.00	0.44	0.04
247.22	2 683.58	30.69	1 010.67	5.56	41 548.95	448.54	288 737.05	3 044.82	0.45	0.04	208.04	1.66	1.45	0.50	296.76	6.14	1.11	0.12	5.42	0.65	206.40	3.26	9.24	0.29	0.00	0.00	0.39	0.04
249.31	2 669.87	22.23	1 013.50	12.66	41 638.43	485.44	290 709.06	2 600.50	0.78	0.02	207.61	4.02	1.13	0.28	302.99	4.34	2.39	0.59	4.83	0.32	208.32	3.78	9.15	0.20	0.00	0.00	0.33	0.02
251.41	2 628.22	10.06	1 026.00	11.57	41 263.95	562.07	290 115.76	2 400.08	0.82	0.03	214.92	5.07	0.91	0.20	309.66	8.34	1.82	0.62	6.50	0.23	211.24	3.31	9.39	0.21	0.00	0.00	0.36	0.02
253.50	2 620.61	24.67	1 009.34	11.83	40 967.04	782.69	288 358.53	3 236.06	0.72	0.09	218.78	4.19	1.10	0.42	315.12	9.24	1.02	0.22	8.44	0.51	209.92	3.17	9.32	0.19	0.00	0.00	0.40	0.03
255.60	2 632.93	26.90	983.87	9.72	40 640.32	647.96	285 914.03	3 151.04	0.58	0.12	212.64	2.09	1.11	0.37	294.25	4.20	2.13	0.92	7.90	0.61	207.99	3.93	8.97	0.22	0.00	0.00	0.38	0.02
257.69	2 656.69	17.33	968.54	10.23	40 176.28	405.95	281 976.43	2 329.47	0.38	0.09	204.11	3.10	1.12	0.20	266.55	4.34	3.10	1.14	4.88	0.42	211.36	3.69	8.83	0.25	0.00	0.00	0.36	0.03
259.79	2 656.16	3.86	956.81	14.10	40 080.53	277.61	278 900.03	1 390.66	0.35	0.09	202.00	3.06	1.18	0.13	266.39	8.43	2.84	0.47	2.88	0.44	209.61	2.05	8.72	0.30	0.00	0.00	0.35	0.04
261.88	2 609.07	12.44	955.21	19.85	40 415.75	373.59	277 874.67	1 974.42	0.31	0.04	206.36	2.66	0.97	0.19	275.98	8.62	3.26	0.33	3.99	0.65	202.12	1.64	8.84	0.35	0.00	0.00	0.31	0.02
263.98	2 583.05	23.66	992.06	14.02	40 729.52	540.51	278 722.48	2 964.72	0.25	0.07	215.95	3.50	0.53	0.15	266.27	9.50	3.48	0.48	5.97	0.74	199.50	1.51	9.09	0.29	0.00	0.00	0.32	0.02
266.07	2 642.33	34.98	1 029.79	6.35	40 994.13	516.60	281 489.98	2 072.18	0.28	0.04	222.07	4.87	0.24	0.04	252.69	11.89	2.79	0.58	5.08	0.19	202.24	2.05	9.22	0.13	0.00	0.00	0.36	0.02
268.17	2 742.03	33.82	1 045.14	3.45	41 583.50	317.45	284 964.02	921.71	0.51	0.07	221.53	4.24	0.34	0.06	249.40	12.94	1.75	0.75	4.10	0.51	205.31	1.53	9.07	0.09	0.00	0.00	0.33	0.03
270.26	2 813.13	23.81	1 060.95	15.88	41 883.77	169.29	287 893.47	778.75	0.67	0.15	221.67	2.44	0.76	0.08	252.92	14.18	1.19	0.73	5.36	0.51	205.98	1.36	8.87	0.27	0.00	0.00	0.28	0.02
272.36	2 827.80	18.48	1 092.48	28.16	41 962.03	225.94	290 318.32	1 169.20	0.61	0.05	225.74	1.58	1.09	0.32	264.98	12.80	0.81	0.35	6.66	0.09	206.53	1.93	8.82	0.29	0.00	0.00	0.27	0.01
274.45	2 790.98	14.99	1 088.77	21.81	42 239.16	181.15	290 374.13	2 046.27	0.65	0.07	229.62	3.17	1.14	0.24	271.46	9.77	0.79	0.42	7.70	0.13	206.07	1.89	8.62	0.21	0.00	0.00	0.27	0.00
276.55	2 759.50	9.54	1 037.37	14.13	42 217.04	259.34	284 959.65	2 233.96	0.58	0.06	229.01	4.50	1.21	0.34	272.15	12.72	1.11	0.49	8.42	0.16	201.23	1.95	8.24	0.16	0.00	0.00	0.27	0.01
278.64	2 718.89	18.62	999.82	6.44	41 453.51	560.19	277 695.79	2 982.45	0.37	0.06	221.29	3.11	1.14	0.38	268.91	14.16	1.29	0.51	8.15	0.45	194.90	2.13	8.08	0.11	0.00	0.00	0.28	0.02
280.74	2 675.30	16.83	1 003.00	11.55	40 128.70	356.19	272 728.05	2 785.67	0.21	0.06	211.66	1.26	0.91	0.25	260.52	8.23	0.95	0.28	6.20	0.35	191.48	1.71	8.03	0.08	0.00	0.00	0.28	0.02
282.83	2 668.56	22.01	1 010.87	14.58	39 770.71	211.67	275 020.49	986.59	0.12	0.03	208.50	1.21	0.71	0.14	261.18	2.11	1.45	0.29	6.03	0.39	193.36	1.39	7.82	0.17	0.00	0.00	0.28	0.01
284.93	2 705.69	20.46	1 004.71	1.72	40 367.24	276.32	280 937.96	2 045.01	0.25	0.09	208.71	2.40	0.57	0.17	265.59	7.62	2.43	0.45	7.48	0.51	197.34	2.14	7.49	0.20	0.00	0.00	0.27	0.01
287.02	2 767.51	17.43	1 004.83	12.78	40 909.10	153.04	285 668.13	990.33	0.72	0.29	209.81	3.09	0.36	0.07	273.83	5.55	2.40	0.17	8.52	0.46	201.41	0.63	7.39	0.18	0.00	0.00	0.27	0.02
289.12	2 795.50	31.78	1 028.74	12.91	41 449.19	275.11	291 633.25	2 306.62	1.00	0.33	217.14	3.57	0.53	0.19	285.05	1.20	2.66	0.39	9.58	0.33	206.06	2.98	7.89	0.27	0.00	0.00	0.28	0.01
291.21	2 790.69	30.20	1 050.61	8.12	42 142.22	395.52	296 034.39	3 129.90	0.70	0.17	220.36	2.17	1.06	0.42	286.10	3.96	2.68	0.82	8.85	0.67	210.43	3.60	8.46	0.19	0.00	0.00	0.28	0.02
293.31	2 813.79	12.85	1 055.37	4.76	42 830.14	335.24	298 034.40	3 847.61	0.25	0.04	216.66	3.10	1.12	0.33	275.09	3.81	1.40	0.41	6.62	0.79	212.81	2.09	8.50	0.14	0.00	0.00	0.29	0.01
295.40	2 875.01	36.05	1 032.16	14.49	43 219.84	626.82	298 743.93	6 002.96	0.18	0.06	216.72	4.56	0.89	0.12	275.97	3.02	1.40	0.44	5.90	0.46	210.88	2.38	8.27	0.27	0.00	0.00	0.32	0.02
297.50	2 859.58	45.76	973.33	23.71	42 333.61	894.22	291 472.85	6 342.10	0.45	0.16	217.49	2.58	1.01	0.14	288.69	5.85	2.18	0.73	6.80	0.34	198.98	3.88	7.86	0.47	0.00	0.00	0.35	0.02
299.59	2 791.99	31.06	919.67	19.31	40 741.33	596.73	281 754.69	3 430.85	0.66	0.19	213.75	2.05	1.25	0.10	280.72	8.48	1.58	0.44	7.02	0.38	185.22	3.20	7.72	0.37	0.00	0.00	0.35	0.01
301.69	2 724.49	32.66	901.03	19.06	39 369.90	216.50	275 853.38	767.68	0.62	0.12	214.21	0.54	1.07	0.16	243.63	4.92	0.74	0.23	7.91	0.63	180.39	1.15	7.98	0.18	0.00	0.00	0.30	0.03
303.78	2 700.58	36.97	912.98	22.24	38 478.75	175.26	273 012.71	1 747.41	0.53	0.03	211.52	3.72	0.80	0.21	210.11	6.37	1.36	0.51	8.52	0.36	178.29	2.04	7.89	0.05	0.00	0.00	0.24	0.02
305.88	2 744.89	24.79	913.74	19.76	38 672.23	106.22	274 981.11	598.18	0.75	0.15	207.15	3.33	0.55	0.08	205.78	5.74	3.20	0.51	6.51	0.26	178.18	0.99	7.71	0.05	0.00	0.00	0.20	0.01
307.97	2 799.55	43.54	897.33	13.89	39 031.94	348.97	275 386.76	2 417.31	1.13	0.26	202.01	1.42	0.52	0.09	211.53	4.00	4.05	0.58	3.78	0.40	177.81	1.91	7.55	0.07	0.00	0.00	0.20	0.01
310.07	2 764.86	58.39	899.99	6.05	38 926.83	461.01	271 867.49	3 262.31	1.02	0.25	196.94	3.93	1.12	0.27	219.63	12.62	2.90	0.81	3.50	0.73	175.87	2.73	7.42	0.17	0.00	0.00	0.24	0.02
312.17	2 671.42	31.60	910.94	5.23	38 349.86	238.63	266 235.61	1 240.08	0.73	0.15	199.88	2.04	2.56	0.55	216.69	14.20	1.53	0.82	5.91	1.08	173.47	1.96	7.30	0.19	0.00	0.00	0.28	0.02
314.26	2 686.14	47.15	949.41	15.61	38 793.98	202.71	268 565.75	3 194.20	0.72	0.18	213.93	2.89	4.37	1.28	203.77	7.66	0.62	0.36	7.72	0.90	178.43	1.13	7.60	0.24	0.00	0.00	0.29	0.01
316.36	2 755.32	67.22	1 011.40	20.38	40 307.29	435.68	277 331.63	5 253.47	0.82	0.24	224.78	2.24	5.42	1.89	199.83	4.39	0.64	0.11	7.16	0.79	188.91	3.55	8.16	0.36	0.00	0.00	0.28	0.00
318.45	2 619.99	84.14	978.01	9.66	39 107.11	774.14	269 198.27	5 995.87	0.66	0.18	222.75	2.15	4.00	1.32	188.65	5.37	2.13	0.38	6.66	0.77	184.45	3.26	8.14	0.26	0.00	0.00	0.22	0.01
320.55	2 503.21	76.65	908.28	15.24	37 142.94	755.77	255 589.71	5 001.59	0.35	0.11	215.84	2.87	2.73	1.04	179.96	4.91	3.18	0.92	7.19	0.98	173.40	3.45	8.06	0.14	0.00	0.00	0.17	0.02
322.64	2 521.30	54.12	899.47	20.67	36 657.24	483.41	251 289.00	3 089.84	0.15	0.07	209.25	2.94	2.86	1.33	179.05	7.61	1.81	0.61	6.91	1.04	168.65	3.99	7.89	0.08	0.00	0.00	0.19	0.02
324.74	2 540.88	41.89	913.47	15.86	36 839.41	397.51	254 426.98	1 736.87	0.12	0.04	209.09	1.70	2.85	1.08	182.31	6.11	0.88	0.43	6.36	0.96	165.26	2.31	7.47	0.19	0.00	0.00	0.22	0.01
326.83	2 588.58	38.18	888.53	8.91	37 595.47	335.53	262 355.32	1 242.40	0.18	0.06	214.90	2.22	2.27	0.56	186.54	3.97	0.64	0.21	6.99	1.09	165.29	0.97	7.29	0.12	0.00	0.00	0.25	0.01
328.93	2 663.34	21.95	873.52	17.65	38 330.46	329.24	268 976.95	1 470.26	0.25	0.09	213.30	2.79	1.98	0.47	180.52	1.88	0.80	0.13	8.00	1.13	168.73	0.87	7.46	0.08	0.00	0.00	0.25	0.01
331.02	2 686.33	19.58	902.58	33.84	38 356.52	393.51	269 240.90	3 539.49	0.43	0.18	204.12	5.87	1.33	0.34	179.18	5.80	0.71	0.15	7.78	0.78	168.66	1.92	7.53	0.06	0.00	0.00	0.21	0.01
333.12	2 677.40	63.13	918.58	37.71	38 246.52	627.41	270 880.94	6 666.59	0.45	0.15	200.92	7.39	0.95	0.28	188.05	4.21	0.23	0.07	6.33	0.67	167.82	4.40	7.33	0.13	0.00	0.00	0.24	0.02
335.21	2 641.98	59.82	898.07	28.72	38 206.21	778.88	273 755.78	7 104.67	0.32	0.09	205.00	5.96	0.81	0.28	189.33	5.04	0.06	0.02	5.39	1.03	167.17	5.37	6.94	0.18	0.00	0.00	0.25	0.03
337.31	2 543.39	46.36	848.01	26.36	37 387.38	789.79	267 284.17	6 178.56	0.32	0.09	211.89	3.35	0.60	0.15	179.03	6.30	0.18	0.14	5.53	0.66	164.47	4.05	6.25	0.10	0.00	0.00	0.23	0.03
339.40	2 522.81	45.73	844.26	34.54	36 967.91	638.64	265 096.17	5 844.71	0.41	0.12	221.88	4.26	0.41	0.04	167.26	7.29	0.62	0.39	6.09	0.33	164.31	2.94	5.95	0.15	0.00	0.00	0.20	0.01
341.50	2 517.95	31.93	871.65	34.00	36 116.53	462.23	261 913.61	4 997.73	0.49	0.08	228.27	4.78	0.45	0.13	155.96	5.47	1.47	0.72	7.08	0.65	159.94	2.49	6.33	0.16	0.00	0.00	0.19	0.02
343.59	2 431.59	40.24	878.35	36.26	34 894.15	724.49	252 808.12	6 452.72	0.80	0.27	223.46	3.60	0.57	0.27	152.64	5.50	2.45	0.70	8.04	0.27	155.80	3.81	6.68	0.21	0.00	0.00	0.19	0.02
345.69	2 367.32	70.29	876.73	42.00	34 783.18	1 182.40	249 043.31	9 694.75	0.93	0.23	216.94	4.04	0.45	0.15	157.48	4.67	3.29	0.51	9.08	0.72	160.54	6.55	6.61	0.28	0.00	0.00	0.19	0.01
347.78	2 411.34	87.80	909.13	47.59	36 073.40	1 410.65	256 537.97	11 637.86	0.83	0.10	219.00	3.78	0.59	0.15	167.12	5.21	3.80	1.19	10.17	0.87	171.86	7.45	7.06	0.34	0.00	0.00	0.21	0.02
349.88	2 447.80	92.34	960.93	58.34	37 514.70	1 581.47	263 709.73	11 735.16	0.69	0.08	217.53	1.95	0.89	0.17	184.83	8.75	3.48	1.24	10.54	1.61	181.10	7.60	7.99	0.45	0.00	0.00	0.23	0.02
351.97	2 425.16	93.94	1 005.28	60.93	38 192.94	1 598.55	265 233.19	10 147.27	0.73	0.09	215.22	2.22	1.31	0.19	224.41	10.64	3.08	1.19	8.60	1.93	186.45	5.81	9.40	0.62	0.00	0.00	0.21	0.02
354.07	2 326.71	85.79	1 019.83	42.00	37 866.26	1 194.33	261 687.71	6 806.81	0.73	0.07	215.92	2.20	1.68	0.40	261.92	5.33	2.36	1.03	7.52	1.61	185.48	3.19	10.00	0.56	0.00	0.00	0.21	0.02
356.16	2 339.26	52.32	1 047.07	24.45	38 140.20	703.52	260 954.55	3 584.54	0.60	0.09	214.84	1.35	1.50	0.38	285.65	1.73	1.62	0.81	7.01	1.31	184.39	1.48	9.26	0.42	0.00	0.00	0.24	0.03
358.26	2 435.98	28.67	1 096.82	21.12	39 540.03	624.09	266 198.40	4 334.54	0.71	0.22	219.08	6.02	1.30	0.30	298.87	4.62	0.70	0.39	5.84	0.97	189.68	2.21	8.48	0.35	0.00	0.00	0.30	0.03
360.35	2 544.29	62.12	1 125.33	21.07	41 190.12	809.34	278 584.14	6 487.21	0.95	0.32	227.71	7.32	1.20	0.24	294.25	4.54	0.25	0.11	5.94	0.70	199.05	4.35	8.77	0.15	0.00	0.00	0.39	0.04
362.45	2 626.50	79.59	1 156.20	17.34	42 653.23	985.82	289 603.14	6 200.87	0.89	0.28	236.78	4.71	1.20	0.30	283.46	2.45	0.24	0.18	7.25	0.53	206.52	2.99	9.26	0.08	0.00	0.00	0.42	0.04
364.54	2 670.71	68.55	1 174.78	19.10	43 518.76	896.27	292 537.20	5 202.02	0.69	0.17	241.40	2.68	1.38	0.27	278.50	2.49	0.13	0.07	8.15	0.30	208.71	1.61	9.36	0.25	0.00	0.00	0.38	0.03
366.64	2 663.94	60.61	1 141.11	41.10	43 017.32	750.54	287 430.28	5 188.40	0.70	0.18	237.15	0.50	1.75	0.26	263.14	6.30	0.06	0.03	7.50	0.74	205.25	3.34	8.83	0.29	0.00	0.00	0.34	0.02
368.73	2 625.95	60.52	1 071.17	45.24	41 743.71	743.56	280 545.08	5 555.63	0.99	0.13	227.49	2.66	1.91	0.17	243.83	6.68	0.03	0.03	6.13	0.35	196.51	3.51	8.15	0.22	0.00	0.00	0.29	0.02
370.83	2 659.70	56.81	1 020.10	37.39	40 976.95	658.94	279 597.41	5 000.95	1.02	0.15	223.43	3.13	1.56	0.14	231.59	6.17	0.09	0.05	5.53	0.53	191.31	2.38	8.36	0.22	0.00	0.00	0.28	0.02
372.92	2 716.37	42.46	994.81	18.64	40 564.72	631.94	281 598.47	4 204.98	0.79	0.08	222.42	2.03	1.31	0.13	222.73	4.80	0.43	0.16	5.94	0.88	188.30	2.76	8.68	0.26	0.00	0.00	0.30	0.02
375.02	2 747.79	40.77	966.18	14.30	40 659.95	765.49	282 011.51	4 928.33	0.99	0.25	227.58	2.43	1.05	0.15	228.50	2.00	1.10	0.30	7.12	0.83	186.92	3.83	8.33	0.14	0.00	0.00	0.28	0.02
377.11	2 763.07	50.97	986.33	17.97	41 466.66	773.79	284 349.39	5 798.21	0.97	0.24	237.46	1.72	0.54	0.07	239.38	2.23	1.29	0.47	7.85	0.63	189.81	3.66	7.57	0.18	0.00	0.00	0.24	0.00
379.21	2 784.81	46.86	1 073.87	22.21	43 028.58	608.36	294 025.52	5 479.70	0.58	0.09	237.76	0.95	0.68	0.13	252.63	4.29	0.65	0.26	7.13	0.67	197.38	2.05	7.85	0.33	0.00	0.00	0.27	0.01
381.30	2 809.21	18.09	1 150.57	23.37	44 355.95	256.01	302 186.50	2 657.71	0.57	0.12	233.92	1.43	1.23	0.21	257.51	7.65	0.32	0.19	4.95	0.67	205.50	1.39	9.06	0.38	0.00	0.00	0.28	0.01

383.40	2 863.03	3.77	1 141.98	13.79	43 935.24	264.10	300 284.73	1 291.03	0.62	0.15	229.15	1.40	1.04	0.15	239.56	10.30	0.39	0.22	4.47	0.67	203.12	1.33	9.06	0.46	0.00	0.00	0.24	0.02
385.49	2 935.73	19.57	1 073.50	6.46	42 250.43	251.25	294 728.67	2 245.33	0.65	0.20	220.23	1.05	0.39	0.04	212.36	9.81	0.44	0.22	6.04	0.94	194.65	0.46	8.00	0.36	0.00	0.00	0.19	0.02
387.59	2 962.13	27.92	1 035.35	7.09	41 505.41	169.55	293 534.06	3 279.68	0.58	0.22	214.49	1.31	0.15	0.08	200.30	6.35	0.58	0.12	7.45	1.24	192.95	1.48	7.55	0.16	0.00	0.00	0.17	0.02
389.68	2 915.61	29.91	1 040.06	6.71	41 727.04	175.24	294 424.43	3 565.34	0.52	0.19	218.48	1.46	0.37	0.22	200.55	2.86	1.07	0.34	7.07	0.98	198.23	1.85	7.92	0.14	0.00	0.00	0.20	0.02
391.78	2 856.57	32.90	1 068.80	21.22	42 001.02	111.48	292 175.47	2 429.20	0.44	0.13	228.98	1.04	1.08	0.32	202.52	3.92	1.43	0.39	5.68	0.61	201.45	1.96	8.33	0.05	0.00	0.00	0.20	0.00
393.87	2 834.26	29.95	1 115.36	17.70	42 433.30	132.68	290 349.91	978.09	0.49	0.08	236.92	5.18	2.00	0.15	196.70	1.46	1.49	0.46	5.52	0.42	206.52	0.98	8.58	0.24	0.00	0.00	0.18	0.02
395.97	2 849.68	8.10	1 130.76	19.83	42 915.38	268.10	292 503.09	1 420.74	0.57	0.09	237.49	6.61	2.24	0.18	192.83	5.34	1.32	0.47	7.25	0.84	208.90	2.55	8.68	0.25	0.00	0.00	0.16	0.03