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The Greeks' geographical view of the Taman Peninsula – geoarchaeology solves old problems and gives new perspectives

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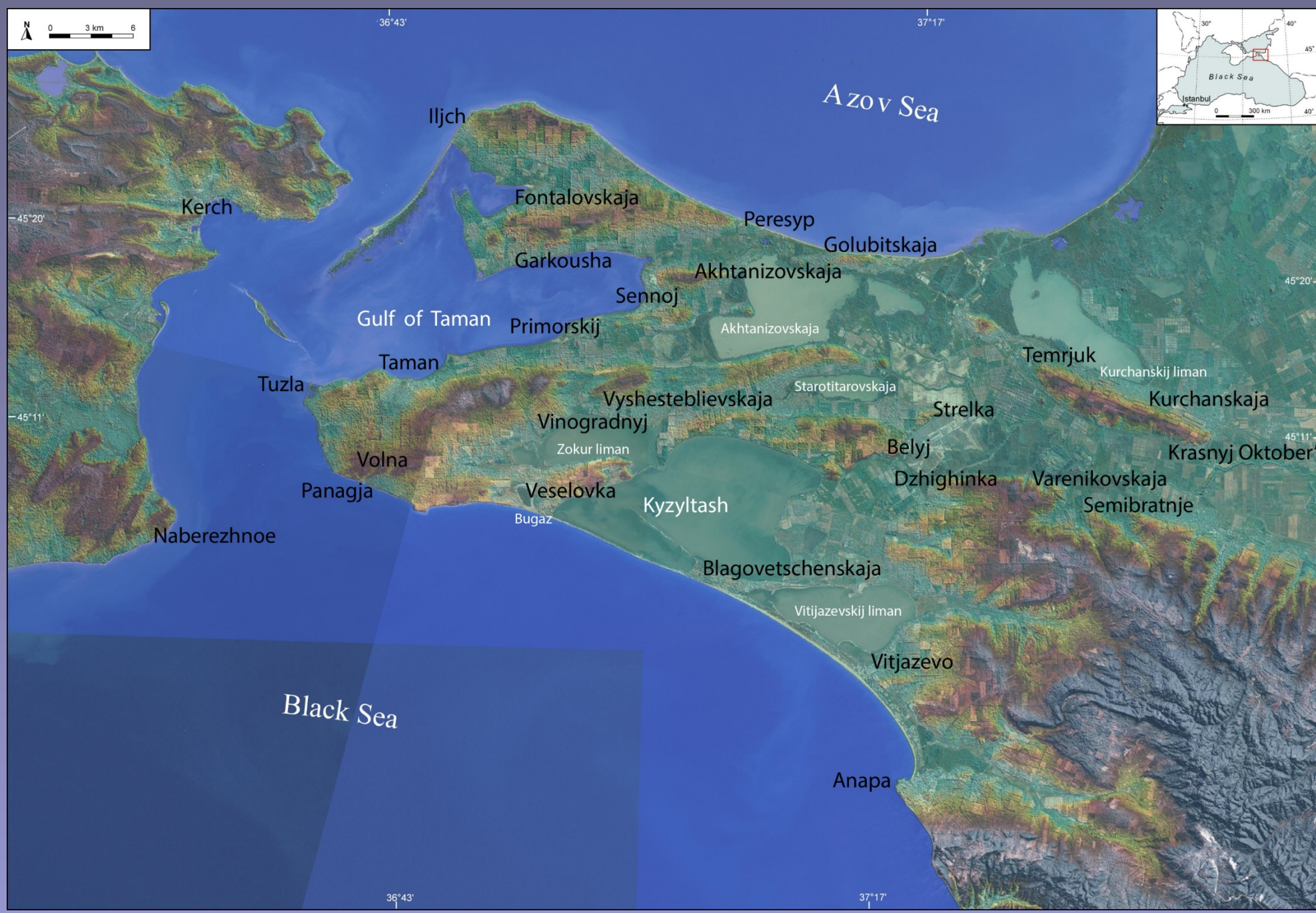


Fig. 1: The Taman Peninsula (SW Russia) with modern toponyms.
Source: Compilation of satellite images from Landsat Channel 2 and SRTM, in Dan et al. 2020.

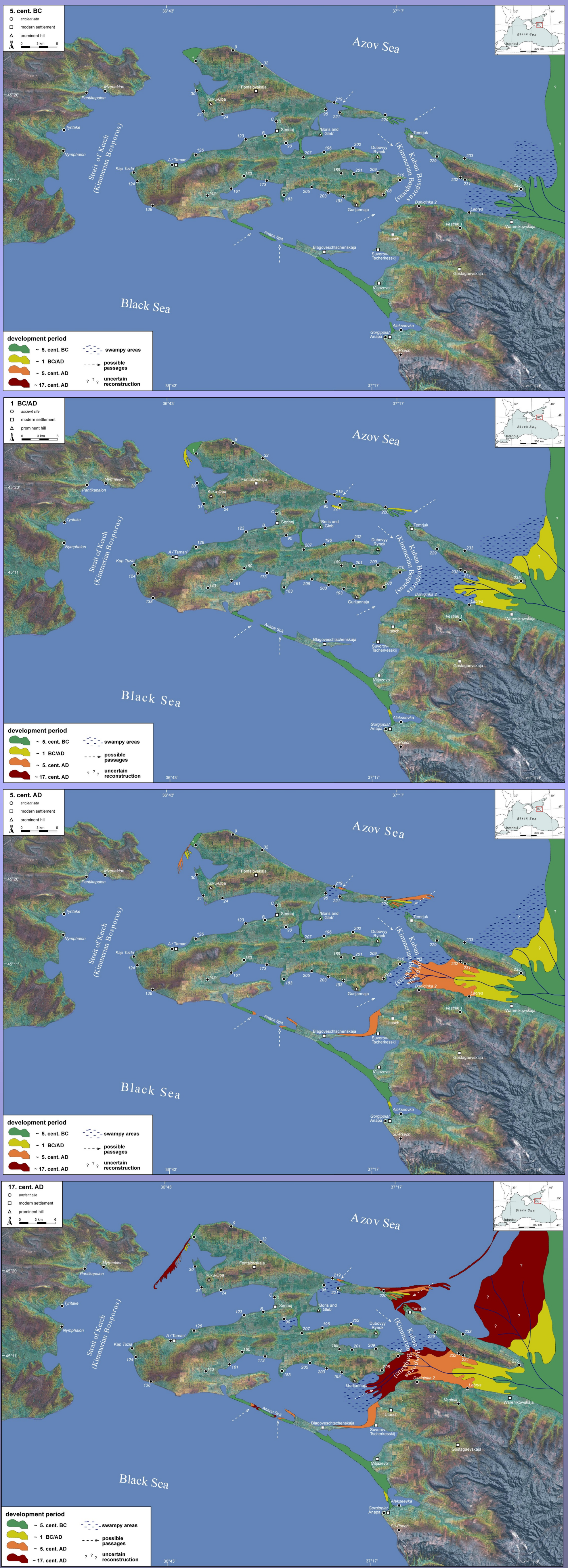


Fig. 3-6: The progradation of the Kuban Delta and the evolution of the Taman Peninsula.
Source: Dan et al. 2020.

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1 Why geoarchaeology?

According to Latin sources of the 1st century AD, the Milesians had established 75 (Sen. *Helv.* 7.2) or 90 (Plin. *NH* 5.112) colonies across the seas. If modern scholars agree that most of these cities must have been situated around the Black Sea, they always considered the numbers as pure fictions of authors who lived centuries after the migrations and who had no direct knowledge of the sites. Yet, recent geoarchaeological research in river deltas show that the number of the Greek archaic settlements is much higher than the previous estimations and that the identifications of toponyms and hydronyms based on empiric observations made during the last two centuries and must be reviewed. Due to the significant environmental changes which occurred during the last millennia, in particular at river mouths, many ancient sites were silted up and then forgotten. When epigraphic and numismatic evidence is lacking (due to natural factors – as the lack of stones – or to local political conditions – on sites which lost their autonomy or identity), it is difficult to make sense of the literary texts, which were not written for people like us, completely separated from the ancient realities. However, through the collaboration of geomorphologists, archaeologists and ancient historians, on the present day Taman peninsula, on the Asiatic side of the Kerch Strait (in the ancient Cimmerian Bosphorus, fig. 1), it was possible to reconstruct the ancient landscapes, to identify several archaeological sites, to make sense of this region's descriptions by Strabo, Pliny the Elder, Dionysius Periegetes, Claudius Ptolemy or Ammianus Marcellinus, and even to understand how non-Greek populations living in this region designated their homeland.

2 Taman project & methodology

In 2007, the Eurasia Department of the Deutsches Archäologisches Institut initiated an international and interdisciplinary research project on the Taman Peninsula, with geophysical surveys and archaeological excavations (in Golubitskaja, Strelka, Semebratnee, Red October) as well as with geomorphological corings (Zhuravlev & Schlotzhauer 2016). Geo-bio-archives were studied with geological and geoarchaeological methods (Brückner & Gerlach 2020). More than 100 sediment cores were taken by means of a percussion-coring device, followed by sedimentological, petrological and geochemical analyses in the laboratories (fig. 2). In addition, a geomorphological map was drawn. ¹⁴C dating paralic peat layers allowed for the establishment of a chronostratigraphy. The altitude of the coring sites were determined by the use of a tacheometer and GPS. The synopsis of the results made it possible to establish stratigraphic cross sections and therefore to identify the morphology and the evolution of the ancient Cimmerian Strait. By taking into consideration the archaeological findings and the historical tradition, it was possible to draw a series of maps, corresponding to the main historical epochs – Greek, Roman, Late Roman-Byzantine, Russian (fig. 3-6). Furthermore, the archaeological excavations in Golubitskaja and Strelka (fig. 2) brought to light Greek fortified sites (6th-1st century BC), which took advantage of their insular setting in the archaic period but which were abandoned after the progradation of the Kuban delta, in late Hellenistic times. Finally, the evaluation of the literary evidence allowed us to identify the whole area as a multiple strait and the major island in its centre with the *nēsos* of the royal Bosporan inscriptions and with the Cimmerian island of the literary texts (Dan et al. 2020).

3 Black sea level curve, erosion and tectonics

The Black Sea and the Mediterranean had been connected since 7,500 BP via the Thracian Bosphorus. At least since that time, the water levels of both seas must have reacted simultaneously on global sea level fluctuations, without any major rapid re- and transgressional stages (fig. 7. Cf. Brückner et al. 2010). Yet, the presence of submerged structures on several archaeological sites on the Taman Peninsula – in particular the site of Sennoj, identified with the ancient Phanagoria – inspired the wrong hypothesis of a Phanagorean regression, during which the Greeks would have been able to found cities on sites now underwater. In reality, this is due to the general rise of the sea level during the Holocene as well as to local tectonics and erosion (fig. 7-8).

4 Palaeogeography of the former Taman archipelago

Fig. 9 shows the sediment record of coring SEM 4. The drilling site is situated c. 20 km from the present Kuban River mouth into the Sea of Azov near Temjuk. Sedimentological hints of former marine conditions in this area are present. Next to paralic swamp deposits (peat) macrofaunistic elements like *Cerastoderma glaucum* appears. The ¹⁴C-dated peats help to establish a chronostratigraphy and the palaeogeographic scenario. An archipelago existed in the middle of the strait, formed by the today Kerch strait but also by a second, Eastern Bosphorus channel, that we called the "Kuban Bosphorus" (fig. 10). In the 6th century BC, this second channel corresponds to Hipponax' "Sindian crack" (*Sindikon diasfagma*, fr. 2 Diehl = fr. 2 Masson = fr. 2 West ap. Tzetzes, *Chiliades* 10.370-374 & Schol. Apoll. Rhod. Arg. 4.321) and is included in Scylax' estimation of the Cimmerian Bosphorus as equal to the one where Hercules raised his Columns (Gibraltar: *FGH Hist* 709 F 8 ap. Avienus, *Ora* 367-369). When the Achaemenids included the northern Caucasus in their empire, the closest river mouth (corresponding for us to the Kuban basin) was identified as *Phasis*, the river which separated Europe from Asia before for the *Tanais* (modern Don, flowing into the Azov Sea and through the Kerch strait into the Black Sea; Dan 2008). The progradation of the Kuban Delta and the evolution of sand spits induced the formation of lagoons, followed by a strong land aggradation. As proven by the profile SEM 4, a semi-enclosed embayment existed up to the 3rd century BC in the area around Semebratnee – thus, the Eastern Bosphorus must have been navigable with big ships until Hellenistic times. Growing difficulties in sailing and the noxious setting of the lagoons (mentioned by modern travellers up to the 20th century) determined the Bosporan kings to abandon settlements like Strelka in the 1st century BC.

5 Cimmerian landscapes

The confrontation of the maps reconstructed for the Greek and Roman times with the main literary sources about the Cimmerian lands allows us to identify the island (*nēsos*) in the middle of the ancient Cimmerian Bosphorus with the mythical island of the Cimmerians, echoed by Homer (*Od.* 11.13-20). The ancient *Kimmerikon* should be identified with the archaeological site at the north-eastern extremity of this island – Akhtanizovskaja 4. The legendary fortifications of the Cimmerians, described by Strabo (11.2.5), could correspond to a mix between the historical fortifications of the ancient city on the Akhtanizovskaja 4 site and the Bosporan defensive system in the European hinterland of *Pantikapaion/Bosporus*. Yet, the Cimmerian ditch could also be a projection into legend of the ancient Eastern channel of the Cimmerian strait. If the Greeks associated the Cimmerians with the darkness of the northern extremity of their world and with the (mud-)volcanism, the "Cimmerians" themselves – Bronze and Iron Age inhabitants of the strait, speakers of an Iranian or Caucasian languages – called the strait "throat" (*Coracanda*, Mela 1.112) and one of their Barbarian settlements *Korokondamé*, "the obstacle on the throat": a good description of the landscape reconstructed by geoarchaeology.



Fig. 2: Corings in the Taman Peninsula.

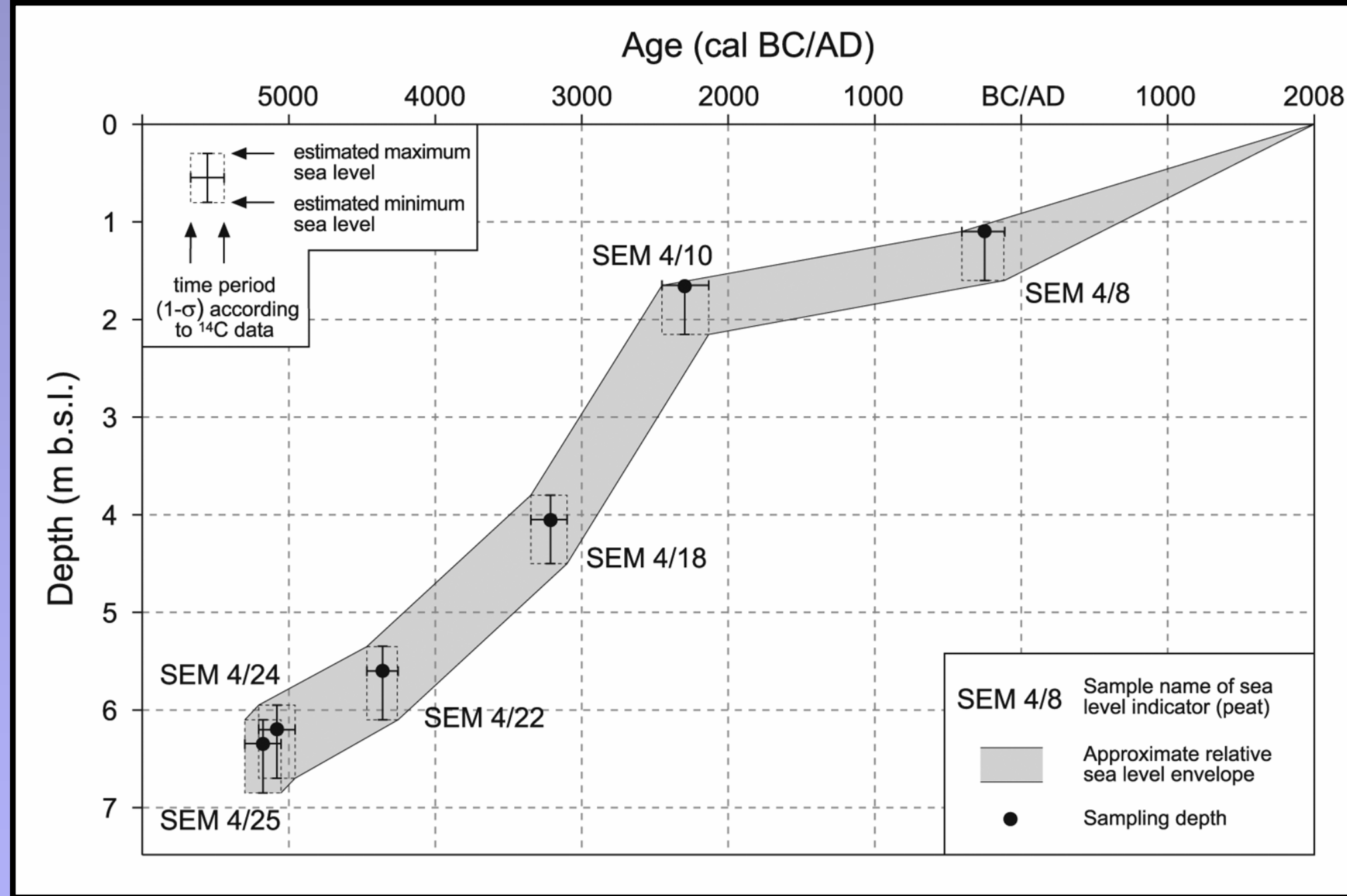


Fig. 7: Local sea level curve for the Kuban River plain near Semebratnee, based on ¹⁴C dated peat layers of coring SEM 4.
Source: Brückner et al. 2010.



Fig. 8: Strong cliff erosion in the loess sediments of the Taman Peninsula.
(a) Erosion at the south western headland of Taman Peninsula with retreat rates of more than 10 cm/a. (b) View onto the excavated ruins of the Greek colony of Hermonassa which are under erosional pressure of the Gulf of Taman. Photos: D. Kelterbaum (09/2007; a), H. Brückner (04/2006; b).

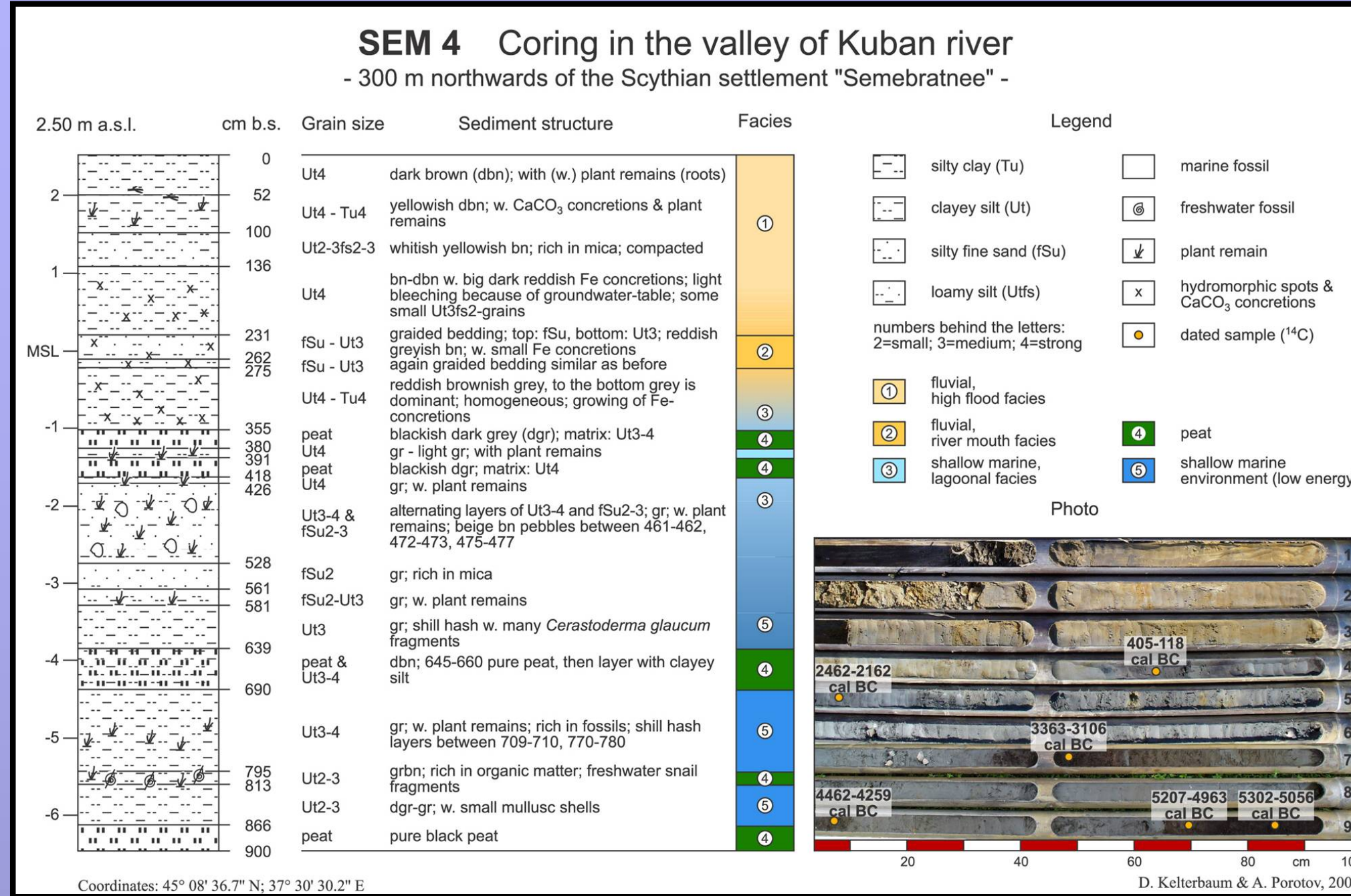


Fig. 9: Profile of coring SEM 4 in the Kuban River valley near Semebratnee.
Source: Brückner et al. 2010.

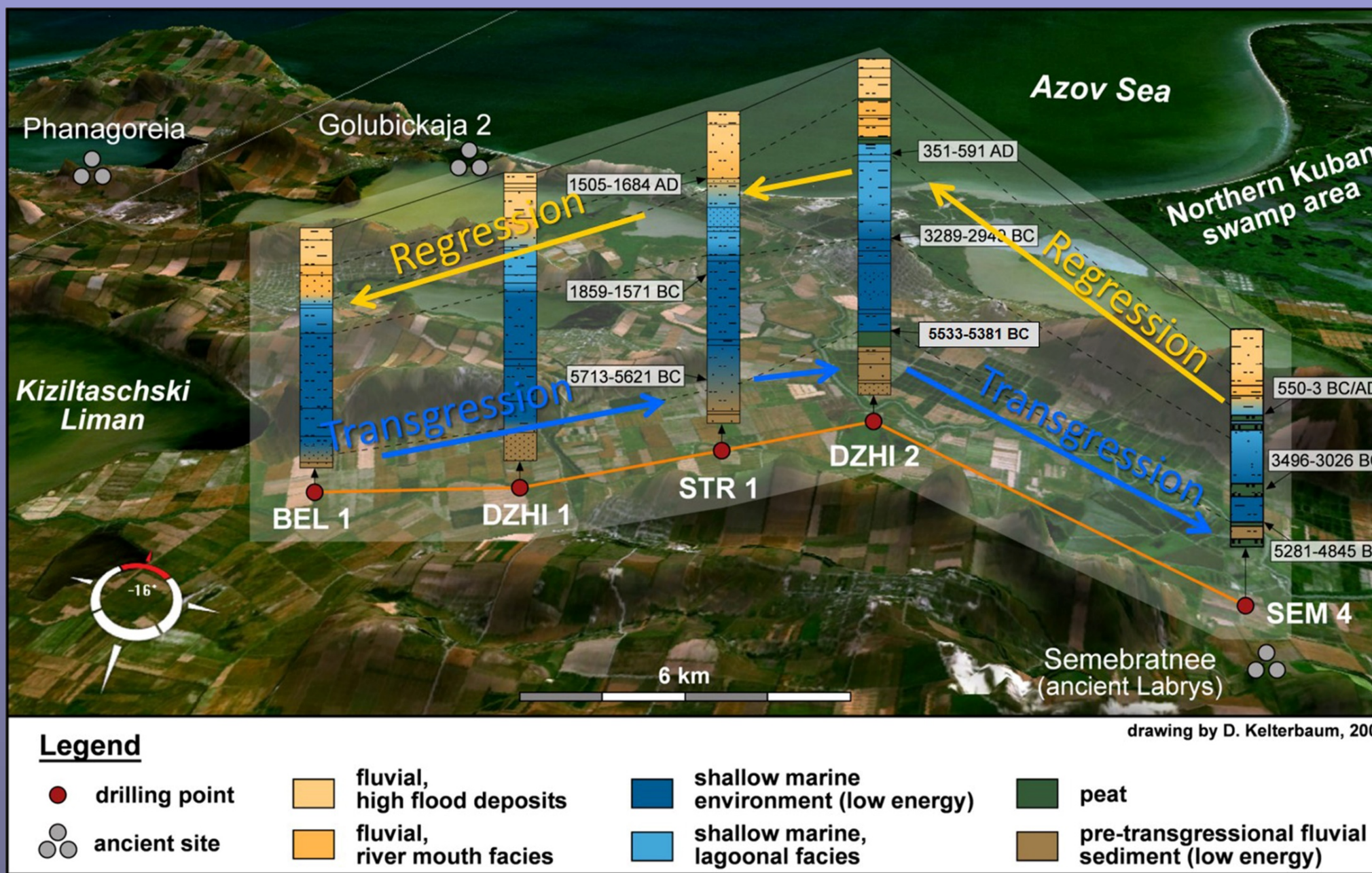


Fig. 10: Synoptical sequence of sediment cores perpendicular to the Kuban Bosphorus, in the lower Kuban Delta plain. Source: Dan et al. 2020.