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► **To cite this version:**

Guillaume Michel, Sophie Le Bot, Sandric Lesourd, Magalie Legrain, Romain Levaillant, et al.. Data from marine grab samples collected during the AUPASED surveys. 2020, 10.17882/74515 . hal-02877303

HAL Id: hal-02877303

<https://hal.science/hal-02877303>

Submitted on 10 Sep 2020

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Michel Guillaume, Le Bot Sophie, Lesourd Sandric, Legrain Magalie, Levallant Romain, Simon Michel, Lafite Robert (2020). **Data from marine grab samples collected during the AUPASED surveys**. SEANOE. <https://doi.org/10.17882/74515>

Data from marine grab samples collected during the AUPASED surveys

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Keywords: Sediment, Estuaries, Marine habitats, Granulometric analyses

Abstract :

Ground truth data are considered as highly valuable inputs for seabed sediment mapping. The AUPASED project (Faisabilité de la détermination automatique de paramètres sédimentaires dans le contexte de domaines estuariens - CNRS/OFB - France) aims to test and explore cartographic methods to map estuarine domains. These domains are considered as transitions between the continent and the marine domain. It implies a complex processes and high physical, hydrodynamic, sedimentary and biologic gradient which influence the sediment and morphological variations of the seabed. Cartography of three systems, Orne estuary, Somme Bay and the Belon estuary (Atlantic and English Channel coast of France) has been performed with acoustic mapping tools. The interpretation of the seabed backscatter for seabed sediment mapping requires ground truth data and especially sediment samples.

During the three AUPASED surveys (<https://doi.org/10.17600/18000956>), a total of 196 sediment samples were collected with a 50 kg Shipek grab (operated from the R/V "Haliotis", 15 samples) and with a 25 kg Van Veen grab (operated from the R/V "Monod"¹, 161 samples). Once aboard, supernatant was removed after a short period of decantation. Then, each sediment samples were transferred into a plastic bag stored into attached lid containers. The 20 remaining samples have been collected at low tide and directly transferred into plastic bags.

Granulometric analyses of sediment samples have been performed at Caen University, in M2C laboratory. The first granulometric analysis is a mechanical sieving of the sediments performed with a Retsch AS300 Control². Before the mechanical sieving, sediment samples were washed to separate the sediment fraction smaller than 63 µm from the bulk sample. Then both fractions were dried, weighted and stored. Sediment fractions coarser than 63 µm were sifted by using a column

¹ <http://presen.normandie-univ.fr/plateau-mobile-et-equipement-des-sites-ateliers-27837.kjsp?RH=1398253990720&RF=1398256343400>

² <http://presen.normandie-univ.fr/plateau-d-analyses-physiques-de-matrices-environnementales-27821.kjsp?RH=1398253990720&RF=1398256133570>

of 26 sieves with mesh size ranging from 20 mm to 63 μm (full list is: 20 mm – 16 mm – 12.5 mm – 10 mm – 8 mm – 6.3 mm – 5 mm – 4 mm – 3.150 mm – 2.5 mm – 2 mm – 1.6 mm – 1.250 mm – 1 mm – 0.800 mm – 0.630 mm – 0.500 mm – 0.400 mm – 0.315 mm – 0.250 mm – 0.200 mm – 0.160 mm – 0.125 mm – 0.100 mm – 0.080 mm – 0.063 mm). For each sieve, the sieve residual was weighted and stored. The sediment fraction smaller than 2 mm was also analysed by Laser Granulometry with a particle size analyser LS13320 and the Aqueous Liquid Module (ALM) from Beckman Coulter. Calcimetric analyses have been performed on bulk sample using a Bernard Calcimeter.

All granulometry results from mechanical sieving and Laser Granulometry have been processed with GRADISTAT v8.0 (Blott & Pye, 2001). Data processing have been performed by using the 'Single Sample Data Input'. All 'Single Sample Statistics' results produced were exported as PDF and have been synthesized within this published database.

The present CSV files corresponds each to one sediment sample database associated to one survey. All CSV database includes the same following information ; *Survey name, Sample ID, Longitude, Latitude, X, Y, Sampling tool, Analysis method (mechanical sieving or laser), Total sample weight sieved (g), % of weight for each sieve mesh size (mm) listed above and % in volume for Laser analysis, Textural group, Sediment Name, Gravel content (%), Sand content (%), Mud content (%), Lithoclastic content (%) for sediment fraction larger than 2mm, Shell content (%) for sediment fraction larger than 2mm and total bulk carbonate (%)*. Samples with label starting at 100 correspond to those collected by the R/V 'Haliotis' during the AUPASED2 and AUPASED3 surveys. Samples with label starting at 200 are those sampled at low tide during the AUPASED3 survey. Samples collected at low tide during AUPASED1 are included in the global list. All *D50, D90, Mean grain size, Sorting and Skewness* parameters are included in both geometric (μm) and logarithmic (ϕ) units. Gravel, Sand and Mud are defined in GRADISTAT v8.0 by following the sediment size scale modified from Udden (1914) and Wentworth (1922). *Textural group* and *Sediment Name* are defined in GRADISTAT v8.0 according to Folk (1954). Coordinates are expressed in World Mercator WGS84 decimal degrees for Latitude and Longitude and in meters for X and Y with Lambert-93 RFG93 projection. CSV cells filled with *n.a.* corresponds to samples without information in the specified column.

References

- Blott, S. J., & Pye, K. (2001). GRADISTAT: a grain size distribution and statistics package for the analysis of unconsolidated sediments. *Earth Surface Processes and Landforms*, 26(11), 1237–1248.
- Folk, R. L. (1954). The distinction between grain size and mineral composition in sedimentary-rock nomenclature. *The Journal of Geology*, 62(4), 344–359.
- Udden, J. A. (1914). Mechanical composition of clastic sediments. *Bulletin of the Geological Society of America*, 25(1), 655–744.
- Wentworth, C. K. (1922). A scale of grade and class terms for clastic sediments. *The Journal of Geology*, 30(5), 377–392.