

Borsbeek Member (Diest Formation)

Unit name: Borsbeek Member

Hierarchical unit name: Diest Formation

Type: Member

Code: DiBo

Author(s): Goolaerts Stijn

Alternative names: /

Origin of the name: Town of Borsbeek, east of the city of Antwerp

Status: Formal

Date: 01/05/2022

How to refer: Goolaerts, S., 2023. The Borsbeek Member, 01/09/2023. National Commission for Stratigraphy Belgium. <http://ncs.naturalsciences.be/lithostratigraphy/Borsbeek-Member>

Characterizing description

The Borsbeek Member as introduced by Goolaerts et al. (2020) is characterised by greenish-coloured, intensely bioturbated, heterogenous glauconiferous, fine-grained sand with an important clay-silt-very fine sand fraction (<125 µm) (28–46%, 62% at base) and variable amounts of median and coarse sand (>250 µm, high and variable (11–36%) in the lower half, small and stable (7-8%) in the upper half). It has a glauconite content of 30% throughout, except for a much higher content (45–60%) in the basal part. A basal gravel with reworked phosphorites and different types of flint and flint pebbles residing in the sandy matrix occurs in the lowermost meter. Large-scale sedimentary structures are absent, except for horizontal bedding. The sediment may have a mottled appearance on mechanically dug vertical walls. An anomalously high concentration of marine mammal fossils may occur both in the lower and the upper half of the deposit. The invertebrate fauna is relatively poorly diverse, with pycnodontids and pectinids occurring in beds, while disciniscid (lower part) and lingulid (upper part) brachiopods are generally found dispersed. Terebratulid brachiopods are locally abundant.

Type section, type locality, type borehole, or type geophysical borehole

Temporary excavations near Antwerp International Airport (AIA), section LP1-A as described by Goolaerts et al. (2020).

Description upper boundary

The Borsbeek Member is erosively overlain by the Deurne Member, and may locally be completely eroded and reduced to a lag deposit at the base of the overlying Deurne Member.

Description lower boundary

The Borsbeek Member is the lowest member of the Diest Formation in the Antwerp area. Its lower boundary is an erosive contact with the Berchem Formation. In all yet documented sites, the Borsbeek Member overlays the Antwerpen Member of the Berchem Formation.

Thickness

The Borsbeek Member has an observed maximal thickness of 4.5-5 m. Due to the erosive nature of the base with the overlying Deurne Member, the member may be locally reduced to zero.

Occurrence

The Borsbeek Member is currently identified in a small number of temporary outcrops in the Antwerp area, located to the S and SE of Antwerp city, mostly in the municipalities of Borsbeek, Mortsels and Deurne. In many localities, it may have been partially or even completely removed by erosion with only a lag deposit with reworked bones, pebbles and sandstone remaining at the base of the overlying Deurne Member (e.g. Rivierenhof gravel).

Regional correlations

The Borsbeek Member is thought to be a lateral and more nearshore equivalent of the (lower part of the) Dessel Member.

Age

The age of the Borsbeek Member is middle Tortonian (upper Miocene). Dinoflagellates indicate the *Amiculosphaera umbraculum* Zone of Dybkjær & Piasecki (2010) and the DN8 Zone of de Verteuil & Norris (1996). Most probably, the base falls also within the *Bolboforma metzmacheri* Zone, which allows to situate it in the time interval between 9.54 and 8.8 Ma (Goolaerts et al., 2020).

Dataset

Data in the LIS are part of the DOV-Neogene data collection, including links to the GSB-collection data sheets: <https://www.dov.vlaanderen.be/data/opdracht/2020-023222>

Subset of the Diest Formation: <https://www.dov.vlaanderen.be/data/opdracht/2020-021774>

References

- de Verteuil, L. & Norris, G., 1996. Miocene dinoflagellate stratigraphy and systematics of Maryland and Virginia. *Micropaleontology*, 42, Supplement, 1–172. <https://doi.org/10.2307/1485926>
- Dybkjær, K. & Piasecki, S., 2010. Neogene dinocyst zonation for the eastern North Sea Basin, Denmark. *Review of Palaeobotany and Palynology*, 161/1-2, 1–29. <https://doi.org/10.1016/j.revpalbo.2010.02.005>
- Goolaerts, S., De Ceuster, J., Mollen, F., Gijzen, B., Bosselaers, M., Lambert, O., Uchman, A., Adriaens, R., Van Herck, M., Houthuys, R., Louwye, S., Bruneel, Y., Elsen, J., Hoedemaekers, K., 2020. The Upper Miocene Deurne Member of the Diest Formation revisited: unexpected results from the study of a large temporary outcrop near Antwerp International Airport, Belgium. *Geologica Belgica*, 23/3-4, 219-252. <https://doi.org/10.20341/gb.2020.011>
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Annexes

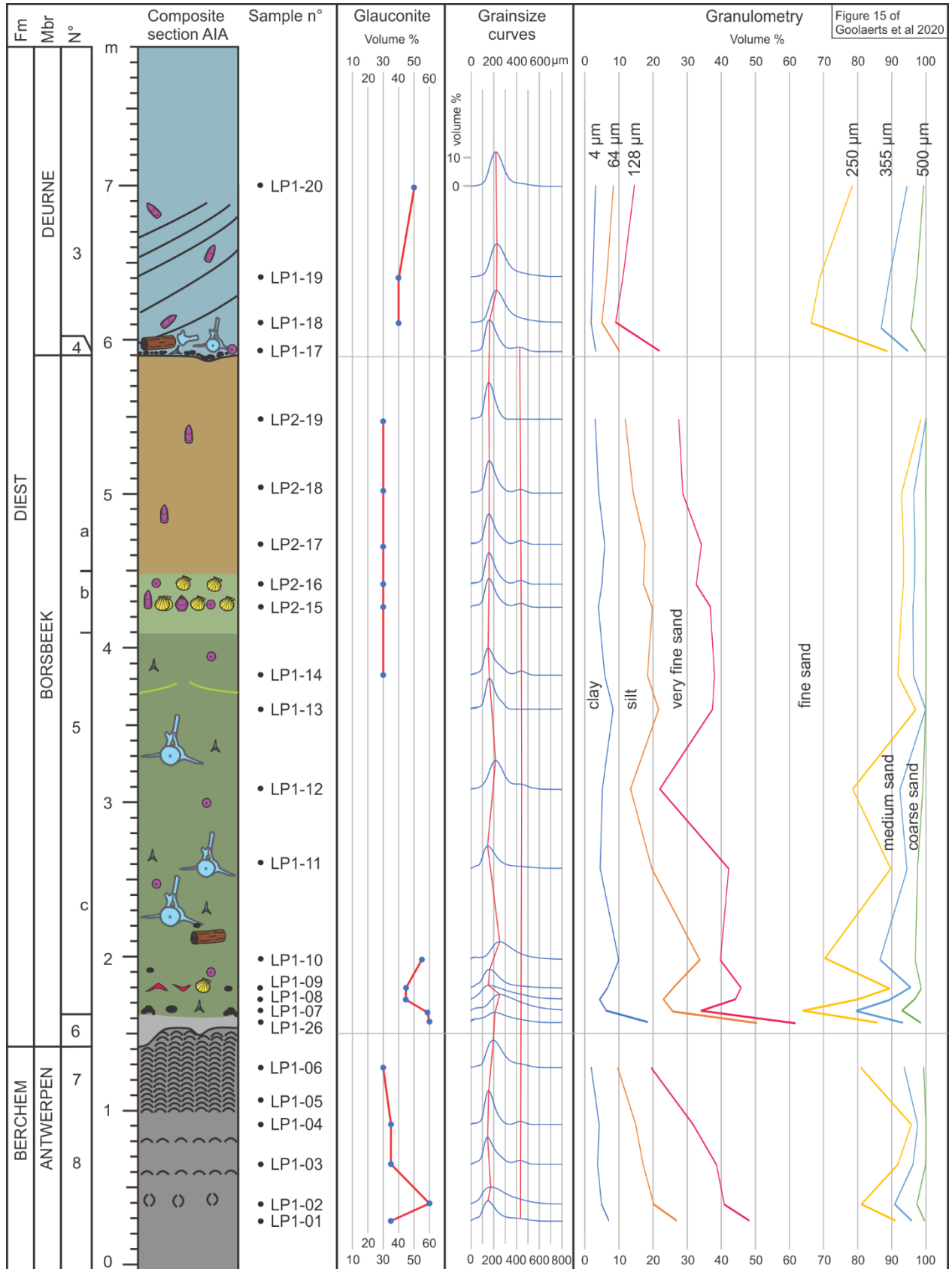


Figure 0-1. Glauconite content, grain-size frequency distribution curves and granulometry plotted against a (hypothetical) Antwerp International Airport composite. (from Goolaerts et al., 2020)