

Rees Facies

Unit name: Rees Facies

Hierarchical unit name: Although occurring geometrically between the Mol Formation and the Merksplas Formation, its stratigraphic hierarchy with respect to both is at present uncertain and therefore the Rees Facies is not formally attributed to either of both. Note that earlier on the geological map 8/2 Turnhout-Meerle (Buffel et al., 2002) the Rees Facies was included as a member in the Formation of Mol.

Type: Facies

Code: Re

Author(s):

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Alternative names:

Origin of the name: Buffel et al. (2001)

Status: Formal

Date: 07/03/2023

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Characterizing description

The Rees Facies consists of pale grey to white structureless quartz sand. No carbonate is present. Neither macro nor micro fossils such as including dinoflagellate cysts, are present. The basal half of the Rees Facies consists almost entirely of grains 250-500 µm in size and even some gravel whilst in its upper part the sand is finer grained and well sorted and traces of bioturbation and lamination are reported in the Rees borehole (017E0399/kb8d17e-B495). The Rees Facies could be considered as a westward evolution of the Mol Formation's Donk Member to the Merksplas Formation; compared to the Donk Member the Rees Facies contains some more glauconite grains and muscovite flakes but it is less heterogeneous compared to the Merksplas Formation (see LIS Merksplas Formation).

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

The reference for the Rees Facies is the Rees unit in the Rees borehole (017E0399/kb8d17e-B495) between 8.6 and 17.3 m, presented in Buffel et al. (2001) with grain-size data and the stratigraphic context.

Description upper boundary

In the Rees borehole (017E0399/kb8d17e-B495) the Quaternary Vosselaar Sand Member overlies the Rees Facies. The Vosselaar Sand is finer grained than the Rees Facies and the contact between both is located at a marked increase in the 63-125 µm size fraction at the base of the Vosselaar Sand (Buffel et al., 2001).

Description lower boundary

In the Rees borehole (017E0399/kb8d17e-B495) the Rees Facies is underlain by the glauconite bearing Poederlee Member; the contact is marked by a grain-size shift from almost entirely 125-250 µm in the

Poederlee Member to an almost entirely 250-500 µm size fraction in the Rees Facies (Buffel et al., 2001; the Poederlee Formation is now ranked as Poederlee Member, see Lithostratigraphic Information Sheet Lillo Formation – Poederlee Member).

Thickness

The thickness is about 8 m.

Occurrence

The Rees Facies is occurring at the south-eastern end of the Merksplas Formation. It is bordered to the east by the finer-grained Donk Member of the Mol Formation. Geometrically the Mol Formation seems to occur laterally of the relatively coarse Merksplas Formation (Laga, 1976 – profiles 76/106/2 and 75/104/1) (see also Lithostratigraphic Identification sheet Merksplas Formation).

The Rees Facies was mapped on the 8/2 Turnhout Meerle geological map (Buffel et al., 2002) as part of the Mol Formation (see above). To the west of the Rees Facies occur the Schorvoort, Hemeldonk and Malle facies discussed in Buffel et al. (2001) and mapped as Brasschaat Formation on the 8/2 Turnhout Meerle geological map (Buffel et al., 2002). To the north in the subsurface of the Antwerp province, the identification of the Brasschaat Formation in general is not obvious (Laga, 1976 –profile PGL76/106/3) . In the Geologica Belgica Neogene Volume 2020 (Louwye et al. (2020) and Vandenberghe and Louwye (2020)), the Pliocene quartz sand in the west have been named the Merksplas Formation and not Brasschaat Member as this last name is reserved in the NCS for Pleistocene fine-sized sand.

Regional correlations

Based on geometry and on the common strongly quartz-enriched sand composition, a grouping seems obvious of the Rees Facies together with the Merksplas Formation in the west and northwest and at least part of the Mol Formation with the Kieseloolite Formation in the east.

Age

In a dinoflagellate study of the Rees borehole, Al-Silwadi (2017) found mid- to late Pliocene age dinoflagellate cysts above and below the Rees Facies but all samples in the Rees Facies itself are barren.

Dataset

Data in the LIS are part of the [DOV-Neogene data collection](#), including links to the GSB-collection data sheets.

| Name | GSB name | DOV name | GSB Collections URL | DOV URL |
|------------------|----------|--------------|---|---|
| Borehole Rees | 017E0399 | kb8d17e-B495 | http://collections.naturalsciences.be/ssh-geology-archives/arch/017e/017e0399.txt | https://www.dov.vlaanderen.be/data/boring/1998-083222 |

References

Al-Silwadi, S., 2017. Dinoflagellate cyst stratigraphy and paleoecology of the Upper Miocene and Pliocene, Rees Borehole, Northern Belgium. Unpublished MSc thesis Earth Science, Brock University, Ontario, Canada, 128 p.

Buffel, P., Vandenberghe, N., Goolaerts, S. & Laga, P., 2001. The Pliocene in four boreholes in the Turnhout area (North-Belgium): the relation with the Lillo and Mol Formations. *Aardkundige Mededelingen* 11, 1–9.

Buffel, Ph., Van Barel, L. & Gullentops, F., 2002. Geologische kaart van België, Vlaams Gewest: Turnhout - Meerle, kaartblad 8 - 2. 1/50 000. Belgische Geologische Dienst en Afdeling Natuurlijke Rijkdommen en Energie, Brussel.

Louwye, S., Deckers, J. & Vandenberghe N., 2020. The Pliocene Lillo, Poederlee, Merksplas, Mol and Kieseloolite Formations in northern Belgium: a synthesis. *Geologica Belgica* [En ligne], Volume 23 (2020), number 3-4 - The Neogene stratigraphy of northern Belgium, 297-313 URL : <https://popups.uliege.be/1374-8505/index.php?id=6841>.