

# 3D MODELLING OF EOCENE CLAY DEPOSITS NEAR FRIEDLAND, NE GERMANY

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Numerous glacial rafts of early Eocene clay (Marnitz Formation) occur in the area of Friedland (Mecklenburg). The plastic clay has been exploited for more than two hundred years. The illite/smectite rich clay of the Marnitz Formation was traditionally used for various products, e.g. floor tiles and acid resistant ceramics. Nowadays, it becomes more and more a unique raw material in the field of agriculture and healthy food production (Zwahr et al. 2002; Granitzki 2012; Obst et al. 2022).

An intense drilling campaign to 150 m depth was carried out in 1979/1980. Based on this, Bauss et al. (1982) suggested that the glacial raft complex of Friedland comprises five major rafts. These rafts show an imbricate structure and form a bow open to NE, thus, towards the direction of the glacial advance responsible for their dislocation. The clay rafts are inlayered in deformed Saalian till, sand and silt deposits. The younger cover consists of Weichselian sand and till. Depth and vertical thickness of each glacial raft varies considerably.

Economic quarrying of the clay deposit depends on the knowledge about the orientation, depth and thickness of the glacial rafts. 200 wells, numerous sections and isopach maps of the clay body representing the so-called Töpfergrubenscholle and Siedlungsscholle could be used to develop a first three dimensional model of one of these glacial rafts and its Pleistocene cover sediments. The results may not only be used to visualize the complex structure but also to recognise efficient extraction strategies.

Bauss, R., Mey, R., Schwalbe, W., Gessner, P. & Ketzler, P. (1982): Vorratsberechnung Großraumerkundung Salow 1–3. – Report [unpublished], 168 p; VEB GFE Halle/S., BT Berlin.

Granitzki, K. (2012): Der Friedländer Ton in Mecklenburg-Vorpommern. Von der traditionellen Nutzung zu neuen Perspektiven. (Exkursion B am 10. April 2012). – Jber. Mitt. oberrhein. geol. Ver., N.F. 94: 159-175.

Obst, K., Arthur, K. & Deutschmann, A. (2022): Die untereozäne Tonlagerstätte Friedland – vom Aufschluss zum 3D-Modell. – EDGG 267: 31-42.

Zwahr, H., Dommaschk, S., Gerber, R. & Bauerhorst, H. (2002): Die Tonlagerstätte Friedland in Mecklenburg. Geschichte, Gegenwart und Zukunft. – Geohistorische Blätter, Beiheft 1: 1-85.