

PRELIMINARY RESULTS OF MAGNETIC MINERALOGY INVESTIGATIONS OF UPPER JURASSIC AND LOWER CRETACEOUS SEDIMENTS FROM NUTZHOF, AUSTRIA

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The rockmagnetic studies help to distinguish magnetic minerals, therefore they support the high resolution magnetostratigraphic research of the J/K boundary at Nutzhof. This profile is compound of limestone-, marly limestone- and marl succession. The outcrop is part of the Pieniny Klippenbelt of Lower Austria, which is surrounded by the Rhenodanubian Flysch Zone. The sediments contain rich spectra of Tithonian to Berriasian macro- and microfaunal elements.

METHODS

Isothermal remanent magnetization (IRM) to saturation was measured to identify coercivity spectra. Every mineral and his magnetic granulometry have the coercivity spectra different. Magnetite has the IRM saturated between 100 and 200 mT, by contrast hematite saturates over 3000mT. The whole rock samples were magnetized on the Pulse Magnetizer MMPM 10, demagnetized on LDA-3 AF Demagnetizer and measured on JR6a magnetometer. The used field range was 10 to 2900 mT.

Determination of Curie point is another method used to distinguish the magnetic minerals. The Curie point of hematite is at 675°C and of pure Fe magnetite is at 580°C. The samples were demagnetized in MAVASC (Magnetic Vacuum

Control System) and measured on 755R Superconducting Rock Magnetometer.

MAIN MAGNETIC MINERALS

Magnetite can be found in all limestone layers on the Nutzhof J/K boundary. Due to its extremely high magnetic susceptibility (MS) and natural remanent magnetisation (NRM) is the most important magnetic mineral on the profile. Its' Curie point is at 470°C, which means that there is high titanium content in the magnetite lattice. The most probable explanation is that the magnetite has detrital origin and it contain primary NRM component. Hematite has smaller MS and NRM than magnetite. The high amount of hematite was proved in the samples N0170, N1310 and N1790. Between layers N1350 and N1630 was determined minor amount of hematite, that has no effect on magnetostratigraphic results.

MAGNETOSTRATIGRAPHIC APPLICATION

MS ranges from -5.9 to 94.9×10^{-6} SI and the intensity of NRM varies between 0.31 and 6.15×10^{-4} A/m. All samples with normal or reverse polarity contain primary NRM component. In conclusion, the Nutzhof profile is convenient for magnetostratigraphic investigation. The next step of magnetostratigraphic investigation will be determination of temperature dependent

variations of MS that can also identify some paramagnetic minerals.

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