

## Palaeomagnetism of the Czajakowa Radiolarite Formation and the Czorsztyń Limestone Formation: An Example from the Stare Bystre Succession (Pieniny Klippen Belt) – Preliminary Results

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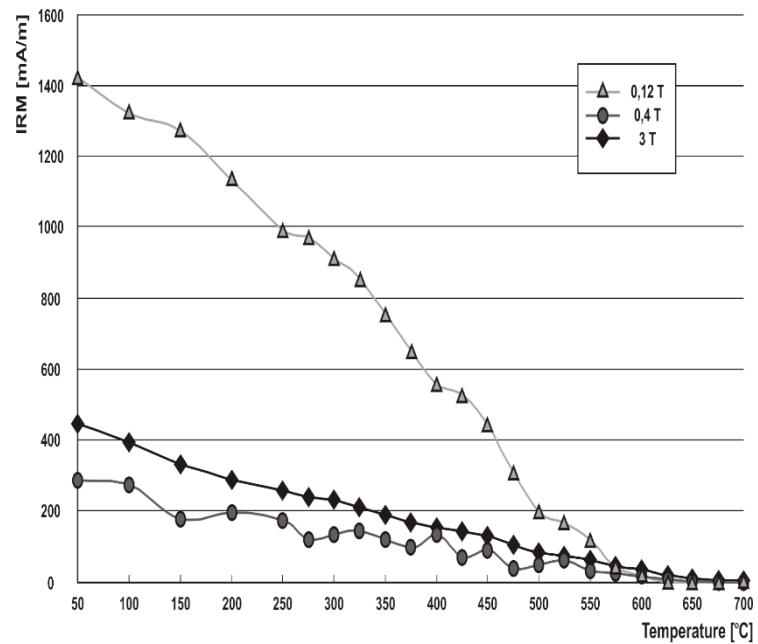
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### Abstract

Palaeomagnetic studies of the Upper Jurassic rocks were performed in the Polish part of the western fragment of the Pieniny Klippen Belt (PKB). Red and green radiolarites of the Czajakowa Radiolarite Formation and red nodular limestones of the Czorsztyń Limestone Formation represent the Grajcarek succession. More than 80 oriented cores were collected from the 20-m-thick Stare Bystre succession. Laboratory work was focused on recognizing the natural remanent magnetization (NRM) structure and magnetic carriers, involving thermal and alternating field demagnetization, analysis of magnetic susceptibility and its anisotropy, and the Lowrie (Lowrie and Heller 1982) and S-ratio (Bloemendal *et al.* 1992) tests. Thermal demagnetization revealed two main components of natural remanent magnetization (NRM). A low-blocking temperature component S of normal polarity is considered of post-tectonic origin. A stable, high-blocking temperature NRM component P shows dual-polarity distribution and is considered as primary. Unfortunately, only some of the samples from the base and top of the succession show the primary magnetization component – their number is insufficient for Fisher statistics. This requires more sampling for further studies. IRM saturation curves show a rapid saturation up to 100 mT and then a slower pace until reaching the maximum value of 1 T, which suggests the presence of magnetite and hematite. These results are confirmed by the thermal demagnetization of the IRM saturated samples (Fig. 1) – the low coercivity component shows a blocking temperature of ca. 575°C, while the high coercivity component shows the blocking temperature of ca. 675°C. Furthermore, the S-ratio analysis ( $S_{0.3T}$ ) gives most values close to zero, which suggests a significant contribution of hematite. Magnetic susceptibility values ( $2.11 \times 10^{-5}$  [SI] to  $1.27 \times 10^{-4}$  [SI]) during thermal demagnetization are stable over the entire temperature range with the exception of slightly lower values near 320°C, which may suggest a low content of iron sulfides.

**Keywords:** Pieniny Klippen Belt, Carpathian, Jurassic, palaeomagnetism, Stare Bystre.



**Fig. 1.** Thermal demagnetization of the IRM saturated sample (Lowrie test) from the Stare Bystre succession.

#### References

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