

## **Preliminary results of the new magnetic survey carried out in the NE of the Czech Republic**

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Rather poor and obsolete magnetic data have been at geophysicists' and geologists' disposal in the NE corner of the Czech Republic till the end of 1990s. Only infrequent magnetic data were, thus, collected by the airborne /permaloy/ magnetic survey in 1950s and partially by the ground magnetic survey measuring only the vertical  $I_Z$  component of the field here, in the area surrounded by Poland (N) and by Slovakia (E). The mean density of the collected data of the both mentioned surveys did not exceed one measured point per 2 square kilometers. These facts led to the decision to apply here a medium-scale ground proton magnetic survey using about 5 measured points per 1 square kilometer. The realization of this project is supported by the Ministry of the Environment of the CR. The western part of the area projected laying between the towns of Opava and Bohumín (in the N) and of Hranice and Kopřivnice (in the S) was realized during 2000.

Three different types of the  $\Delta T$  magnetic anomalies were obtained in the resulting map of anomalies in the area studied. The northern part of it shows positive and relatively monotonous magnetic field reaching up to 80 nT, the central part, in general, displays a magnetic low (minimum) irregularly diversified by local positive and sharp anomalies and the southern part demonstrates predominantly positive field (exceeding 100 nT) again.

Since no expressive magnetic rocks have been found within the outcropping rocks in the northern part of the area - neither in Tertiary sediments of the Opava Depression nor in Lower Carboniferous Culm facies sequences of the Nízky Jeseník Mts. - the crystalline basement complex is considered to be the main source of this positive

anomaly. Significant magnetic properties of this basement complex were already found in previous years. According to the wave-length of the magnetic anomaly and in the accordance with rare bore holes the basement complex belonging to the Proterozoic Unit called Brunovistulicum is estimated to be in the depth about 4 km.

The southern part of the area showing less monotonous positive field indicates, first of all, some details of the basement structure in the Piedmont of the Moravskoslezské Beskydy Mts. Predominant part of this anomalous field is interpreted as the response of the Brunovistulic basement again which is here situated in relatively shallower depth of 1.5 to 2.5 km. Besides the substantial effect of the basement rock complex the anomalous field is also influenced here by magnetic responses of Mesozoic volcanic rocks of the teschenite association involved in the Subsilesic Nappe of the Beskydy part of the Outer Carpathians.

The magnetic low developed in the central part of the surveyed area is closely bound with the positive anomalies. It contributes to specify the northern margin of a huge magnetically anomalous South Moravian - Beskydy block of the Brunovistulic basement, the anomalies of which can be followed along the whole Flysch Belt of the Outer West Carpathians. Considerable part of the magnetic low is also diversified by many short-wave anomalies caused by the volcanics which are partly outcropping but partly also covered. A possibility to determine some buried magnetically anomalous volcanic rocks of the teschenite association seems to be next advantage of this magnetic survey.