

## MAGNETIC CRUST CONCEPT AND MAGNETIC ANOMALIES OF SLOVAKIA

Kamil Rozimant<sup>1</sup>, Aydin Buyuksarac<sup>2</sup>, OZCAN BEKTAS<sup>3</sup>

1. Department of Applied and Environmental Geophysics, Comenius University, Faculty of Natural Sciences, Bratislava, Slovakia, e-mail: [rozimant@fns.uniba.sk](mailto:rozimant@fns.uniba.sk)
2. Department of Geophysical Engineering, Cumhuriyet University, Faculty of Engineering, Sivas TR-58140, Turkey, e-mail: [absarac@cumhuriyet.edu.tr](mailto:absarac@cumhuriyet.edu.tr)
3. Department of Geophysical Engineering, Ankara University, Besevler TR-06100, Ankara, Turkey, e-mail: [obektas@eng.ankara.edu.tr](mailto:obektas@eng.ankara.edu.tr)

The magnetic map of Slovakia was compiled as part of a project titled Atlas of Geophysical maps and profiles in 2001. Reduction to pole transformation (RTP) was applied to the magnetic anomalies using the magnetization angle of the induced magnetization to remove distortion of magnetic anomalies caused by the Earth's magnetic field. The reduced to the pole anomalies have good correlations with tectonic structures. To remove effects of topography, 3 km upward continuation was applied to RTP anomalies. Curie point depth (CPD) map was produced using 3 km upward continuation aeromagnetic anomalies. The depth to the tops and centroid of the magnetic anomalies were calculated by azimuthally averaged power spectrum method for the whole area. Such estimates can be indicative of temperatures in the crust; because magnetic minerals lose their spontaneous magnetization at the Curie temperature of the dominant magnetic minerals in the rocks. The Curie point depths of Slovakia vary from 15.2 km and 20.9 km. Higher heat-flow areas ( $>100 \text{ mWm}^{-2}$ ) are around at the central volcanics and eastern part of Slovakia. CPD values are shallow in these areas. Two cross sections of E-W direction were produced for determining to correlation between CPD, heat flow and crustal thickness. There is a good correlation between CPD and heat flow values, however a better correlation between CPD and crust depth. The Curie point isotherm also separates the magnetic and non-magnetic level in the crust which investigated for two cross sections. In this correlation, shallow CPD is supported by high heat flow and shallow crust depth except Central Volcanics. In the Central Volcanics, the correlation is different from other sides due to intensive magnetized rocks and isostasy.

Magnetic-anomalies,magnetic-crust,curie- point-depth

Ozcan Bektas, Department of Geophysical Engineering, Ankara University, Besevler TR-06100, Ankara, Turkey, e-mail: [obektas@eng.ankara.edu.tr](mailto:obektas@eng.ankara.edu.tr)