



Geophysical Investigations on a Suspected Quarternary Volcanic Structure in North Eastern Bavaria, Germany

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Recent geophysical studies on a small scale morphological depression northwest of the Zelezná hurka scoria cone (Eisenbühl, 49.99°N/12.45°E) near the village of Mytina (Czech Republic) revealed the presence of a maar-diatreme, filled with volcanic material and covered by alluvium. Reported Ar/Ar ages of 288 ± 17 ka imply that formation of the Mytina maar and emplacement of the Zelezná hurka might represent the youngest volcanic event in Central Europe, east of the volcanic Eifel province. If the interpretation that both the Mytina maar and the Zelezná hurka scoria cone are situated on the NW-SE striking Tachov Fault Zone south of the Cheb basin is correct, similar volcanic structures can be assumed to the west of the Czech-German border only a couple of km away from Mytina. Here we report the results of a combined gravity, magnetic, geoelectric and seismic survey carried out across a topographic depression situated along strike of the Tachov Fault Zone near the town of Neualbenreuth, eastern Bavaria.

The local gravity field was determined at 120 data points covering roughly 10 square km. The Bouguer and topographically corrected gravity data show a very distinct isometric low of -2.84 mgals in an area of $\sim 300 \times 400$ m which coincides with the topographic depression in the center of the studied area. The resulting model of the density distribution in the underground is consistent with a maar-diatreme with rather low density rocks in the central vent. The structure has been modelled in 3D using IGMAS software. Geoelectrical measurements indicate low resistivity in the vent and higher porosity in the vent filling. However, magnetic data and seismic profiles across the postulated maar-diatreme do not strengthen our hypothesis and are inconclusive.