



Geophysical exploration in vicinity of the Unicorn Cave, South Harz Mountains, Germany

Georg Kaufmann (1), Douchko Romanov (1), and Ralf Nielbock (2)

(1) Free University of Berlin, Institute of Geological Sciences, Geophysics Section, Malteserstr. 74-100, Haus D, 12249 Berlin, Germany (georg.kaufmann@fu-berlin.de, +49 (0)30 838-70729), (2) GeoPark Unicorn Cave, OT Scharzfeld, 37412 Herzberg am Harz, Germany

The Unicorn Cave in the southern Harz Mountains in Germany is located in an outcrop of dolomite from the Zechstein formation, which is underlain by Grauwacke rocks. The cave, about 600 meters long, consists of several large chambers, which are connected by a gallery following the main fault alignments in E/W, NE/SW, and NW/SE direction. The overburden of the cave is shallow, between 10 and 30 m. We have used this cave site to perform a sensitivity test for both gravimetric and geoelectric methods above the cave. Additionally, geoelectric mapping has been used to assess the thickness of the cave sediments in one of the chambers. Our results show a clear signal in the Bouguer anomaly, which can only be explained by a combined model of the void space and the sediment filling. Geoelectric results are less clear, but support the gravimetry.