Partners

TU BERGAKADEMIE FREIBERG

BGR Bundesanstalt für Geowissenschaften und Rohstoffe

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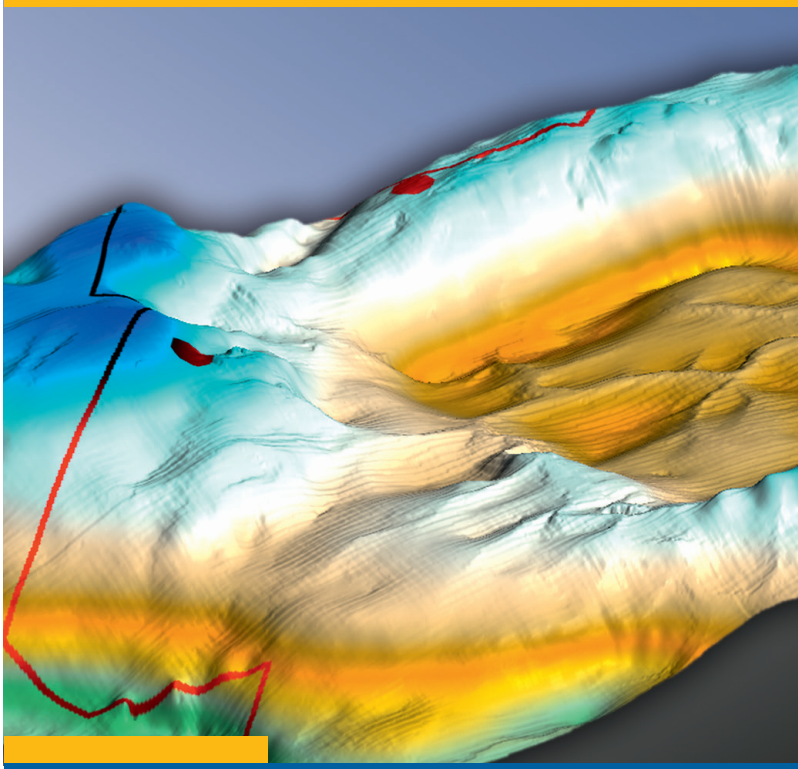
Geophysical Exploration of Mineral Resources



RESOURCES . RESEARCH . TECHNOLOGIES

Helmholtz Institute Freiberg for Resource Technology

HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF

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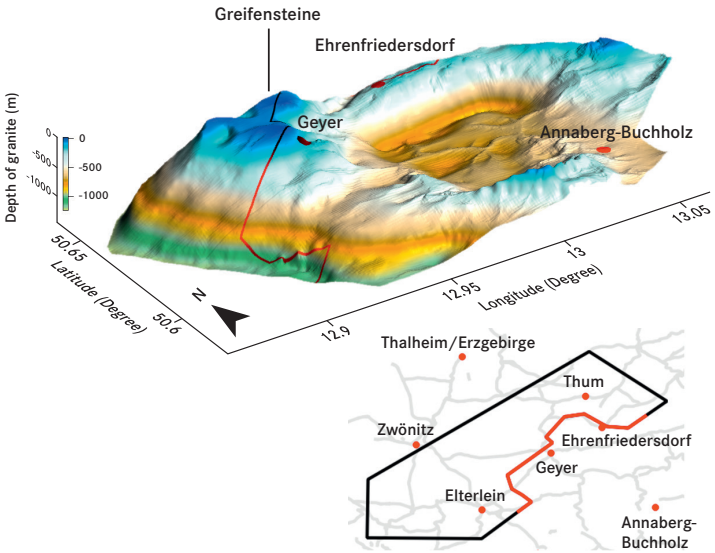
BACKGROUND

Gentle Methods

The strongly export-oriented German industry currently has to buy most of its mineral resources from abroad. However, such resources may well be available in Germany and should be explored anew. Geophysical exploration is environmentally friendly as it does not require any disturbance of the Earth's surface. Additionally, airborne geophysical techniques can provide very precise images of the subsurface. The Helmholtz Institute Freiberg for Resource Technology (HIF) and its partners are therefore using these methods in order to explore the potential of discovering new ore deposits within Germany – at a depth of 100 – 500 m below the present-day land surface.

Experts are currently exploring an area of approximately 100 square kilometers around the city of Geyer, an old mining region in the Erzgebirge, a low mountain range located in Eastern Germany. Extensive historical exploration and mining activities suggest that mineral resources including tin, zinc, tungsten as well as indium and other high tech metals occur in this region.



3D model of the contact between granite and surrounding rocks in the region "Geyerscher Wald", which are rich in a number of mineral resources.

THE GOAL

Reexploring Raw Materials Potentials

The research project aims at testing and developing modern techniques further in order to track down mineral resources at depths reaching 500 meters below today's land surface. Scientists are combining geological data with airborne geophysical measurements. A helicopter records electromagnetic signals, which can provide information about the potential occurrence and size of ore bodies at depth. In order to determine their exact location, the propagation and reflection of seismic waves is also measured. This information will ultimately be included in a high resolution three-dimensional geological model of the subsurface.

Our Strengths

// We are working together in a network of key institutions from science and public administration:
_Helmholtz Institute Freiberg for Resource Technology,
_Federal Institute for Geosciences and Natural Resources (BGR),
_TU Bergakademie Freiberg,
_Saxon State Office for Environment, Agriculture, and Geology.

// Together with our partners, we provide a broad spectrum of methods, technologies as well as – based on the results of past exploration – a geological model, which can be used for the verification of our geophysical studies.

// With our research project, we aim to turn the region "Geyerscher Wald", located in Eastern Germany, into a reference area for geophysical exploration methods. We hold the exploration rights for this area and we invite research institutions and industries to test their own exploration methods at this location.

Interested in working with us? Get in touch!