

FloodRisk

Earthquakes, uplift, eternity loads – Minimizing of risks during flooding of mines

Key Facts



Funding Agency

German Federal Ministry of Education and Research (BMBF)



Duration

01/2020 - 12/2022



Coordinator

Karlsruher Institut für Technologie – KIT Institut für Angewandte Geowissenschaften Strukturgeologie & Tektonik (SGT)



Partners

- Deutsche Montan Technologie GmbH & Co. KG
- Geodätisches Institut, Karlsruher Institut für Technologie KIT-GIK
- Geologischer Dienst Nordrhein-Westfalen
- Ruhr-Universität Bochum, Lehrstuhl für Geophysik
- Technische Petrophysik, Karlsruher Institut für Technologie KIT-TP
- Piewak & Partner GmbH
- Alber Geomechanik



Website

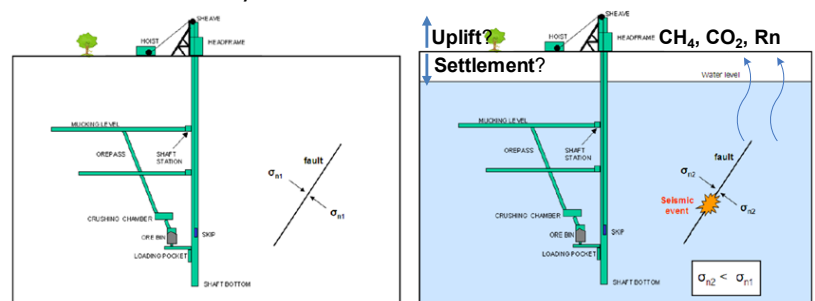
<https://www.gik.kit.edu/FloodRisk.php>

Part of the funding measure “Early detection of earthquakes and their consequences” of the BMBF program “GEO: N” (part of the “Research for Sustainable Development” (FONA) framework program).

Project Objectives

The hard coal mining areas are among the best documented areas worldwide. The gradual end of coal mining in the various German coal mining areas until 2018 shows different stages of mine water rise with associated heterogeneous soil uplift and induced seismicity.

Objective of the project is to improve the process understanding for the development of the observed seismicity initially during the mine water rise in the bedrock. Based on data collection and modelling seismicity and differential uplift during mine water rise will be quantified to be able to assess hazards such as mining damage and induced seismicity at critical disturbances.



Changed after Dr. Fritschen, project partner DMT

EIFER's Contribution

The measurement of soil gas can support the detection of active movements in the underground. During refilling and flooding of old coal mine such movements (seismic events) can be initiated and lead to gas anomalies at the surface.

- Field soil gas mapping to detect gas anomalies in the Saar (Germany) coal mine area.
- Based on preliminary work, development of a low-cost multiple gas sensor system to measure gas leakage.
- Installation of gas measuring sensors
- Field application of the new sensors: Evaluation and Optimization

Contact

Roman Zorn
+49 (0) 721 6105 1412
roman.zorn@eifer.org

EIFER - Europäisches Institut für
Energieforschung EDF-KIT EWIV
Emmy-Noether-Straße 11
76131 Karlsruhe, Germany
www.eifer.org