

EGU2020-21709

<https://doi.org/10.5194/egusphere-egu2020-21709>

EGU General Assembly 2020

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Helmholtz Innovation Lab 3D-Underground Seismic Lab

Katrin Jaksch and Rüdiger Giese

Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences, Germany (kawi@gfz-potsdam.de)

Since 20 years the GFZ (German Research Centre for Geosciences) operates in an underground lab in the research and education mine Reiche Zeche at Freiberg in eastern Germany. This underground lab is used as testing lab for newly developed geophysical equipment and methods for 3D seismics. Therefore, in the underground space several galleries and boreholes can be used for seismic exploration in 2D and 3D approaches and for testing and validation of seismic acquisition equipment.

Now, a Helmholtz Innovation Lab will be established at the GFZ in Potsdam. The Helmholtz Innovation Lab 3D-Underground Seismic Lab (3D-US Lab) is a place where scientific expertise and the needs of industry and its customers will meet together. By involving partners from mining and tunnelling in joint development projects on a long-term basis and transferring approaches from research into commercially successful applications a sustainable 3D-US Lab will be established.

The 3D-US Lab bundles the seismic methods developed at the GFZ in a single technology platform, standardizes and modularizes them. It combines the technological and methodological developments in tunnel and borehole seismics for 3D seismic exploration of underground structures. The technology platform and the GFZ underground laboratory in Freiberg are of great interest for various partners from mining and tunnelling. In the long term the Helmholtz Innovation Lab aims to establish 3D underground seismics as a key technology for the effective and safe construction and use of underground buildings.