



I-EDDA test centre for core-drilling and downhole investigations

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Innovative Exploration Drilling and Data Acquisition (I-EDDA) is a Network of Infrastructures in the European Institute of Innovation & Technology (EIT) Knowledge and Innovation Community (KIC) "Raw Materials". It unites partners from academia and industry to jointly address challenges that are expected to increase the value of (ore) exploration operations.

The development and testing of innovative drilling tools and downhole sensors are a central part of I-EDDA. Of particular importance in this context are the interdependent parameters: quality, performance and costs of diamond core-drilling operations. Despite increasingly advanced modelling and workshop testing, real-world test drilling is ultimately required to verify improved and new technologies and provide critical feedback to the engineers. Similar is the situation for downhole sensors. Improved or newly developed technology needs to be tested under real world conditions and in an operational setting. However, a dedicated and well-characterised test site for diamond core-drilling from the surface and with realistic conditions is still missing.

To amend this situation, a group of I-EDDA partners has started to create a concept for a dedicated and comprehensive test centre for diamond core-drilling and downhole tool testing. The test centre is being developed together with the industry partner Epiroc and will include excellent access to infrastructure, workshop facilities and proximity to expertise. The planned location in Örebro (south-central Sweden) has good communications and is situated in Paleoproterozoic bedrock (gneisses and metasediments) similar to the bedrock of many mining districts that are located in crystalline rock.

The test site is planned to cover an area of approximately 6000 m². Superb characterisation of the physical and chemical parameters in the subsurface will allow for an integrated interpretation of technical and geoscientific test results. Geophysical investigations will be combined with a suite of fully-cored exploration boreholes of varying depth, amongst which one will be deep (≥ 1.0 km, possibly 2.5 km), and downhole and laboratory investigations. Subject to the availability of funds, the preliminary plan is to establish and commission the test centre from 2019 to 2021. A long-term utilization of the test facility will be the ultimate goal including an invitation to the community to partake.

I-EDDA is also developing an information system that will allow users to discover and get information about test sites and equipment for subsurface investigations. It will become available through the I-EDDA website during the first half of 2018.