



FUGRO

BOREHOLE GEOPHYSICS

Boreholes are one of the most important methods for subsurface site investigation. Wireline Logging and Borehole Seismic are a suite of methods providing valuable and unique in-situ information about the subsurface that has become a substantial element of small to complex site investigation programs.

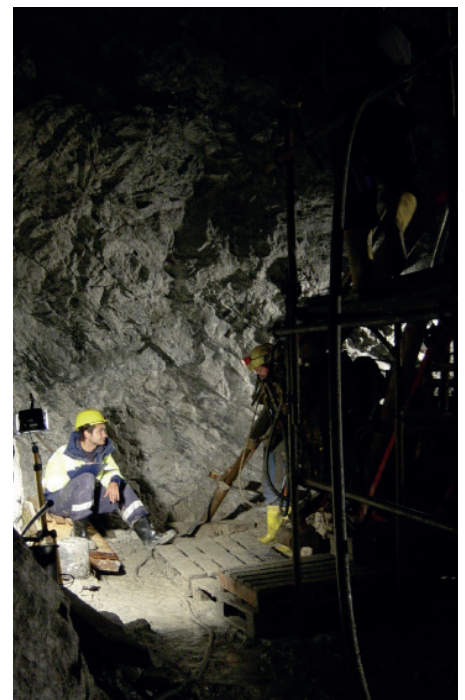
YOUR PROJECTS

- Oil and gas infrastructure
- Transportation (rail, road, tunnels)
- Foundations and underground construction
- Power plants
- Water supply
- Mining
- Environmental
- Ground water monitoring
- Waste deposits
- Geothermal wells

OUR SERVICES

Fugro offers borehole geophysical services from planning over field work to data processing and interpretation. Our equipment is highly mobile and the downhole tools are applicable in slim diameter boreholes.

The results of our logging are petrophysical, geotechnical or hydrogeological ground parameters but the methods provide also information about the technical condition of the borehole itself.



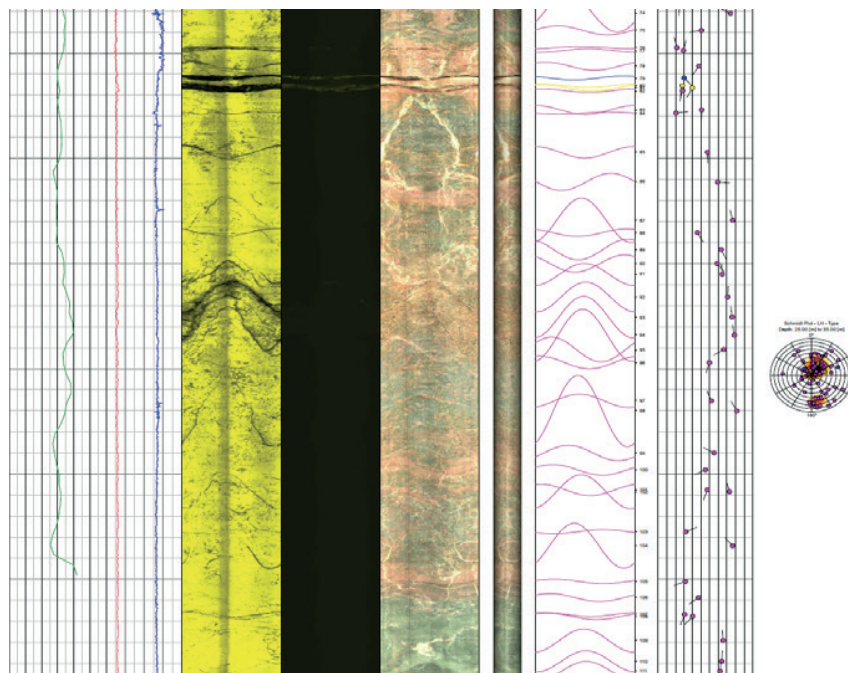
Wireline logging operation in an inclined exploration borehole in a mine

OUR SOLUTIONS

- Lithological profiles and crosshole correlation
- Oriented analysis of discontinuity planes
- Density and porosity logging
- Velocity logging (p- and s- waves)
- Evaluation of elastic rock parameters
- Borehole parameters
- 3D-cavity survey
- Mineral exploration
- Identification and evaluation of aquifers
- Measurement of vertical or horizontal groundwater flow
- Detection of aquifer shortcuts in boreholes or wells
- Input parameters for groundwater modelling
- Vertical profiles of groundwater quality
- Water sampling
- Design of new water wells
- Technical check of existing water wells (casing, annular space or hydraulics)
- Check of water well cleaning or rehabilitation procedures

OUR EQUIPMENT

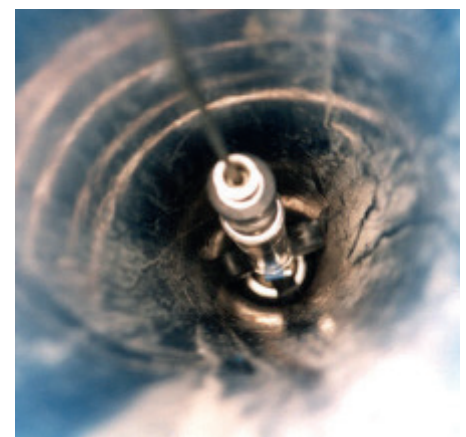
- ABI - Acoustic Borehole Imager
- OBI - Optical Borehole Imager
- CCTV - Borehole Camera
- R1664 - Resistivity 16"-, 64"-Normal
- DFEL - Dual Focused Electric Log
- DIEL - Dual Induction Electric Log
- SP - Self Potential Log
- MSUS - Magnetic Susceptibility Log
- NGR - Natural Gamma Ray
- GGD - Gamma Gamma Density
- DNL - Dual Neutron Log
- FWS - Full Wave Sonic
- CBL - Cement Bond Log
- PSL - PS-Wave Log
- DHS - Downhole Seismic
- CHS - Crosshole Seismic
- CHT - Crosshole Seismic Tomography
- CAL - Mechanical 3- or 4-Arm Caliper
- CALABI - Acoustic Caliper
- CLS - Cavity Laser Scanner
- CSS - Cavity Sonar Scanner
- MDEV - Magnetic Borehole Deviation
- GDEV - Gyroscope Borehole Deviation
- MAXIBOR - Optical Borehole Deviation
- FC - Fluid Conductivity
- FT - Fluid Temperature
- DO - Dissolved Oxygen
- PH - pH-Value
- IPFL - Impeller Flowmeter
- EMFL - Electromagnetic Flowmeter
- HPFL - Heat Pulse Flowmeter
- CFL - Colloidal Flow Log
- TRL - Tracer Log
- SAM - Water Sampler



Processed log of Optical and Acoustic Borehole Imager



Off-site calibration of 4-arm-caliper tool



Head of downhole tool in a cased water well

