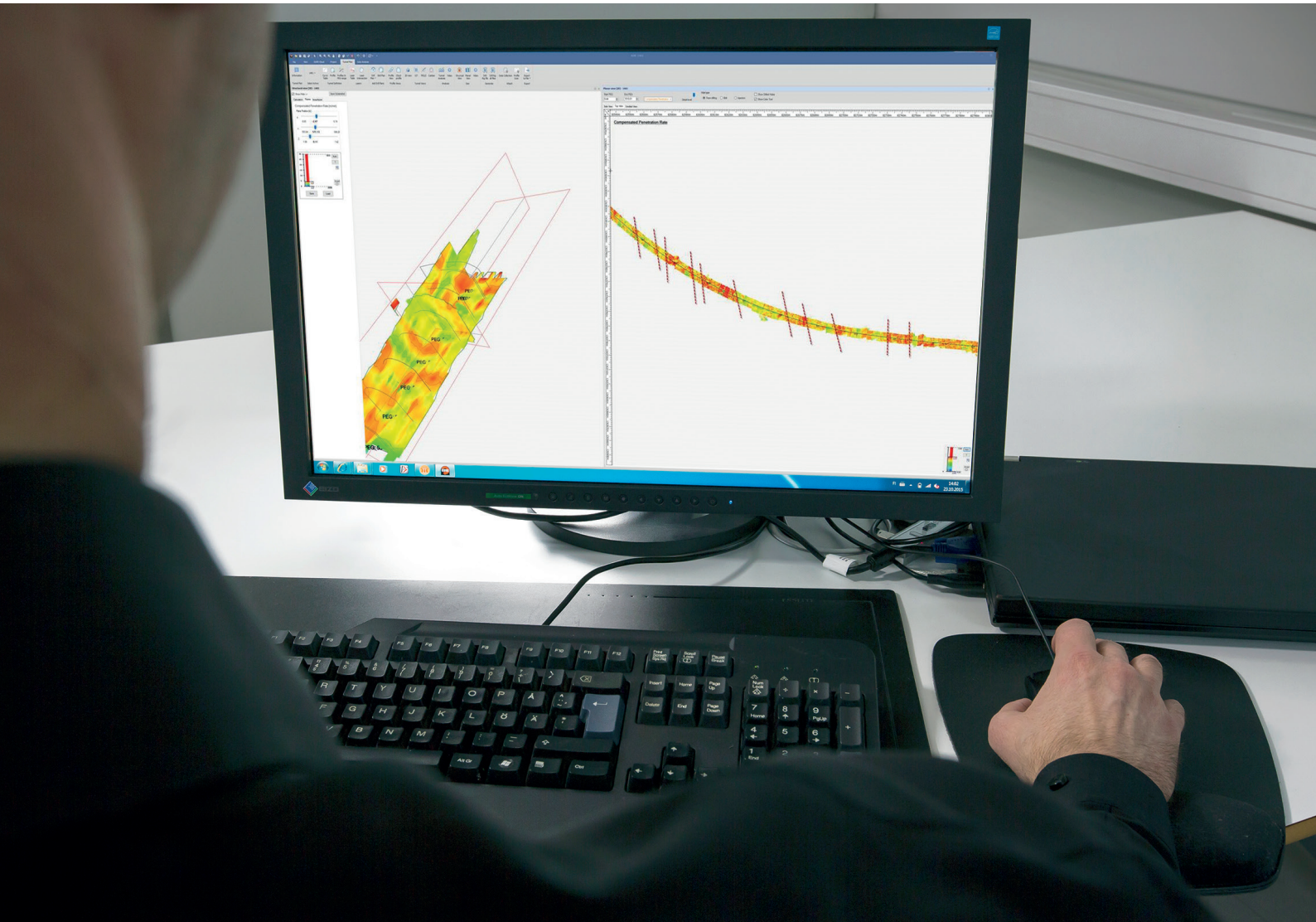
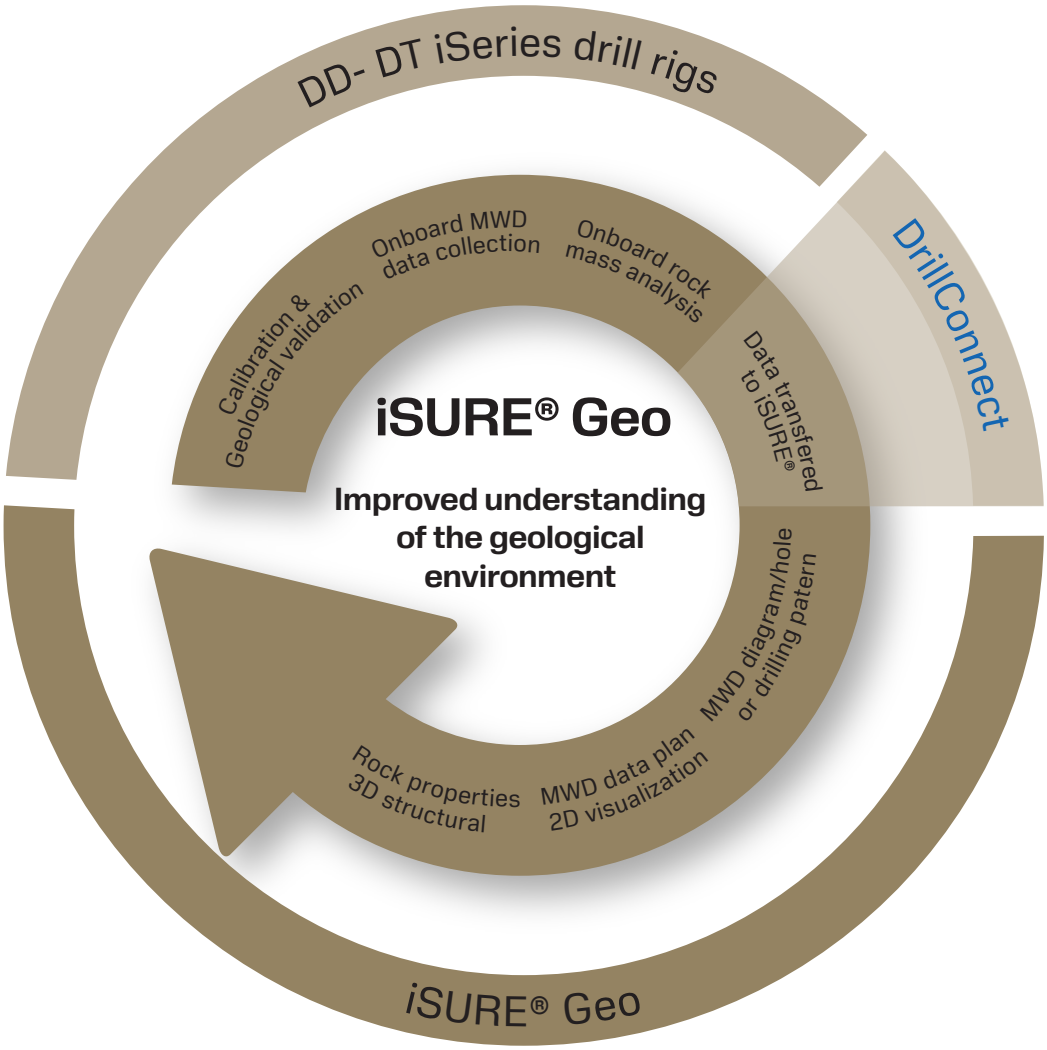
SANDVIK

iSURE® Geo

Optimize your excavation process





Rock mass analysis is fully integrated into iSURE® software

Designed to be used with Sandvik iSeries development and tunneling drills, iSURE® Geo delivers real-time onboard analysis of the rock mass using information gathered from every drilled hole.

iSURE® Geo takes full advantage of the drilling information through a rig-integrated onboard calculation. iSURE® software ensures extrapolation, visualization and export of data to produce geological mapping information.

2D or 3D visualizations, interpolations provide an overall view of the tunnel section.

iSURE® Geo offers an easy-to-use solution to optimize the excavation process, anticipate potential problems and improve safety through accurate geological information.

It delivers improved understanding of the local geological environment for optimized development mining and tunneling underground operations.

Onboard analysis:

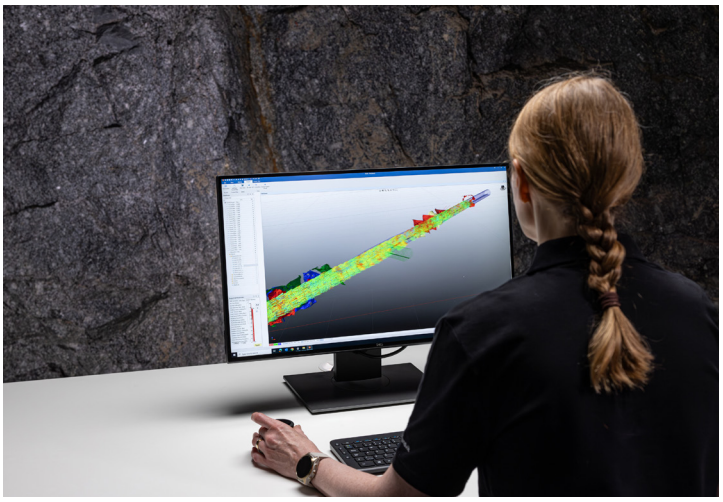
- Fracture indication: percent value describing the length of an encountered fracture
- SDR rock strength indication: indicating the rock's resistance to the drilling system
- Analysis validity: estimated validity of the analysis results

Extended analysis in iSURE®

- Rock classification
- Rock quality number
- Rock quality classification

This data is used to:

Create a geological mapping of the area
Locate ore bodies in mining
Identify weakness zones to assess the need for rock reinforcement or injection requirements
Know the rock structure and strength more accurately to assist the charging and blasting control and optimize the use of explosives
Plan optimal location for stope openings
Reduce overbreak and underbreak
Improve grade control
Provide comprehensive reporting, documentation to fulfill contracting requirements



MWD data analysis and visualization in iSURE®

MWD data and MWD analysis can be visualized in structural and planar views:

3D structural views are presenting:
- Geo data interpretation
- x/y/z plane intersections
- Iso-curves
- Iso-surfaces
- 3D visualization in project scope

2D planar views
- 2D interpolation
- Side and top views
- Unrolled views

The analysis can also be displayed in MWD diagram views for one hole and basic 3D-view for one drilling pattern.

iSURE® Geo allows the viewing and extrapolation of data in 3D. The data can be stored and transferred to a third party system.

Importing known geological structures data into iSURE® is also possible in .obj or AutoCAD-formats.

Navigation

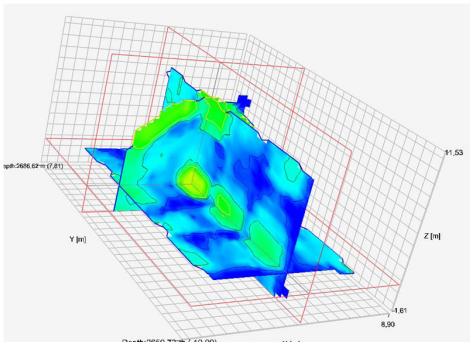
iSURE Geo uses accurate equipment navigation data to enable optimal use of georeferenced data, for example, from a Total Station. This ensures the validity and accuracy of measured points within the project's coordinate system.

Calibration

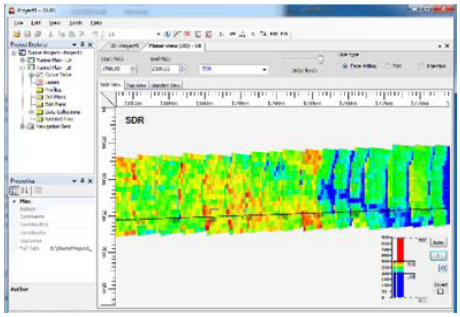
To ensure the validity of the collected data, the calibration and geological validation of the onboard system should be performed as a dedicated rig- and site-specific calibration process, requiring a geological reference from the drilled area.

These mandatory steps are performed during the first set of rounds, i.e. when the tunneling process starts. It is recommended to have the onboard system calibrated by qualified personnel using appropriate calibration tools.

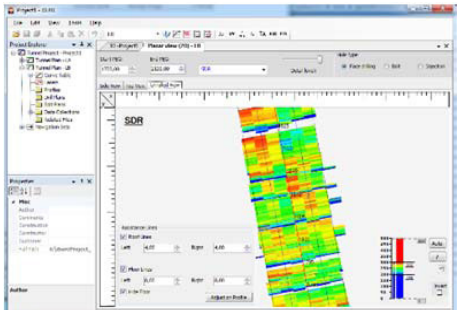
Structural view (3D)



Planar view (2D)



Side view



Unrolled view

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*Test results and calculations are to be considered as results reached under certain and controlled conditions. These test results and calculations should not be treated as specifications and Sandvik does not guarantee, warrant or represent the outcome of test results or calculations in any or all circumstances.