



Where does this borehole go?

... we can tell you precisely!

Gyro-Services is specialized in high quality borehole surveying using MEMS-based gyro tools (MEMS = Micro Electro Mechanical System). They allow borehole mapping inside drill pipes, in cased and open holes or in magnetically disturbed ground where magnetic probes cannot be used. The robust gyro probes are based on MEMS-sensors and enable surveying of boreholes drilled in any direction – vertical, horizontal, inclined, upward.

The gyro tools contain three accelerometers and three MEMS gyro sensors which, based on inertia measurement, record the angular rate of the tool when it moves along the borehole. This allows measuring any deviation from a straight course. Together with the inclination measurement made with the accelerometers, the borehole path can be surveyed with high precision.

Gyro tools equipped with MEMS sensors are extremely robust but nevertheless reliable and precise. They are immediately ready to be run without preliminary lead time which helps to decrease the stand-by time of drill-rigs during the surveys.

Accuracy:

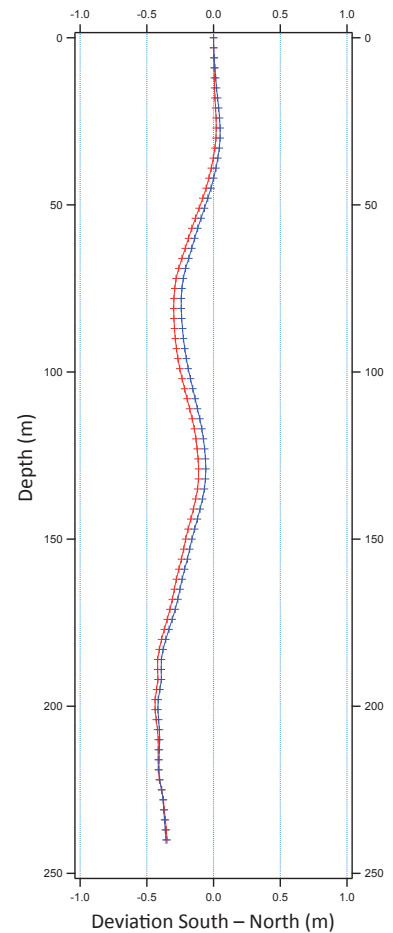
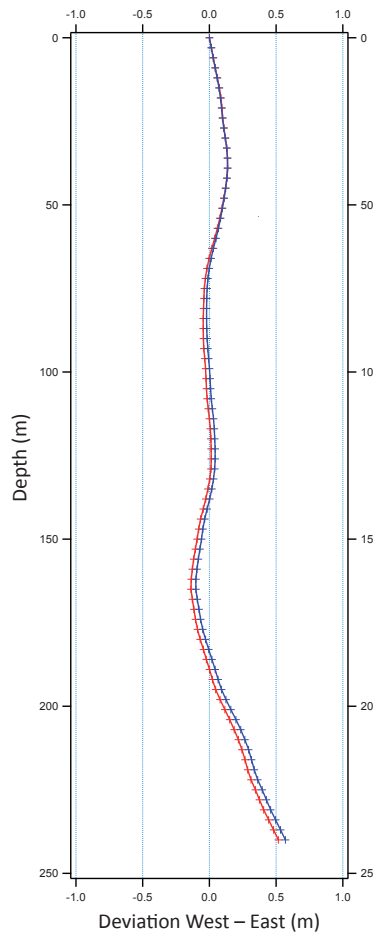
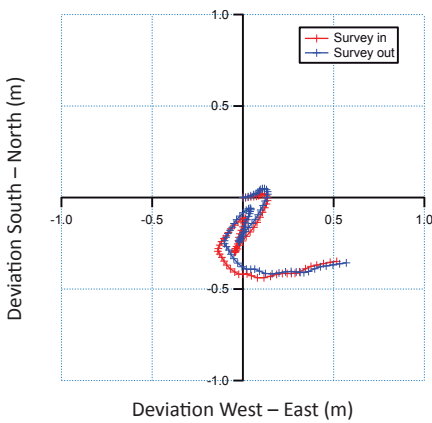
- Inclination: $\pm 0.2^\circ$
- Azimuth: $\pm 0.5^\circ$
- Position: better than 0.5% (0.5/100 m)

Quality control:

Boreholes are surveyed while running in and while retrieving the probe which results in two independent measurements. The misclosure of the two measurements is a measure for the quality of the survey. In addition, the control and analysis software provides a unique function for quality check.

Presentation of results:

The borehole path is presented in three diagrams (plan view, west-east and south-north profiles) and in a table (station, inclination, azimuth und X-, Y-, Z-coordinates).



Example:

Survey of a cased borehole drilled with directional drilling technique.