

Most Accurate Position (MAP)



Optimize use of survey information through the weighted average of magnetic and gyroscopic surveys for reduced positional uncertainty

Applications

- Anticollision
- Extended-reach drilling
- Infill drilling
- Mature fields
- Onshore and offshore
- Small reservoir targets
- Unconventional oil and gas

Benefits

- Reduces the risk of collisions with existing wells
- Optimizes resource extraction and minimizes waste
- Lowers drilling costs by avoiding unnecessary deviations
- Minimizes environmental impact by reducing drilling errors
- Enhances reservoir targeting, increasing yield
- Provides reliable data for future drilling and operations

Features

- Industry-first smaller-than-gyro ellipse of uncertainty (EOU) is available to hit otherwise impossible targets in the most challenging well construction scenarios
- Wellbore position estimates improved by using the weighted average of multiple surveys taken over the same wellbore section
- Combined MWD and gyroscopic surveys deliver precise well placement with an up to 30% reduction in the EOU, depending on the tools, wellbore profile, and location

The Most Accurate Position (MAP) solution combines the unique technologies and expertise of magnetic and gyroscopic surveying technologies to optimize well design and improve wellbore position. The MAP solution can be tailored to meet the individual needs of the most demanding projects. It also plays a key role in enabling the future of the energy industry: in traditional applications such as brownfield development and plug and abandonment campaigns; and in the new energy space, such as geothermal or CCS.

How it improves performance

Wellbore position estimates are improved by the weighted averaging of multiple surveys taken over the same wellbore section. The averaging procedure also reduces the uncertainties on these positions. Until recently, only one survey, magnetic or gyroscopic, was stored in the database and the second survey was discarded.

The MAP solution improves the placement of current wells and facilitates the design of future ones, while also optimizing the well design process and enabling more confident decisions. The MAP solution is available in real time with definitive dynamic magnetic and definitive gyro-while-drilling surveys, and for existing sections by reprocessing existing MWD and gyro data sets. For the first time in the industry, a smaller-than-gyro EOU is available to hit otherwise impossible targets in the most challenging well construction scenarios.

How it works

The MAP solution combines multiple magnetic and gyroscopic surveys to obtain a single and more accurate well position. This is made possible by statistically combining the wellbore positions obtained from the different survey tools present in the well. This statistically optimized combination results in a smaller EOU than either magnetic or gyroscopic technologies when considered separately.

A typical MAP solution workflow begins with the acquisition of both magnetic (TruLink™ definitive dynamic survey-while-drilling service) and gyroscopic (GyroLink™ definitive gyro-while-drilling service) surveys. Surveys from each tool are QC based on the relevant error models where they need to pass their field acceptance criteria as the first step. Surveys from both tools are then statistically tested by defined chi-square and relative instrument performance (RIP) tests before the wellbore position is statistically combined to deliver the MAP. The novel MAP survey tool code in standard instrument performance model (IPM) is assigned to MAP surveys in the definitive survey database.

The MAP solution enhances the results of the current standard gyroscopic surveying data with magnetic MWD information. By using the best of both surveying technologies, delivery of unprecedented positional accuracy is enabled.