

# Operator Continues Drilling Despite Magnetic Storm

## INTERPOLATED IN-FIELD REFERENCING (IFR2) CONFIRMS ACCURACY OF MEASUREMENT-WHILE-DRILLING DATA

NORTH SLOPE, ALASKA

### CHALLENGE

- » Continue drilling, using measurement-while-drilling data during severe magnetic storm

### SOLUTION

- » Utilize IFR2 service to provide quality assurance and quality control (QA/QC) during magnetic storm

### RESULT

- » Customer was able to continue drilling despite the magnetic field fluctuations, saving a potential 12 hours of operation or an estimated US\$15,000

### OVERVIEW

When an oncoming magnetic storm capable of causing errors in survey calculations was approaching, an operator's drilling engineer for a rig on Alaska's North Slope asked Halliburton Sperry Drilling to provide the interpolated In-Field Referencing (IFR2) service for the storm's duration.

Survey tool measurements are normally compared to static values generated from a theoretical main field magnetic model of the earth, known as the British Geologic Society (BGS) Global Geomagnetic Model (BGGM). During this storm, fluctuations in the magnetic field were almost 1,300 nT in  $B_{total}$ , 2.4 degrees in dip, and 9.9 degrees of declination – approximately double the allowable quality check limits for what is considered a good survey. These fluctuations caused the measurement-while-drilling (MWD) tool measurements to appear to read outside of drilling acceptance criteria.



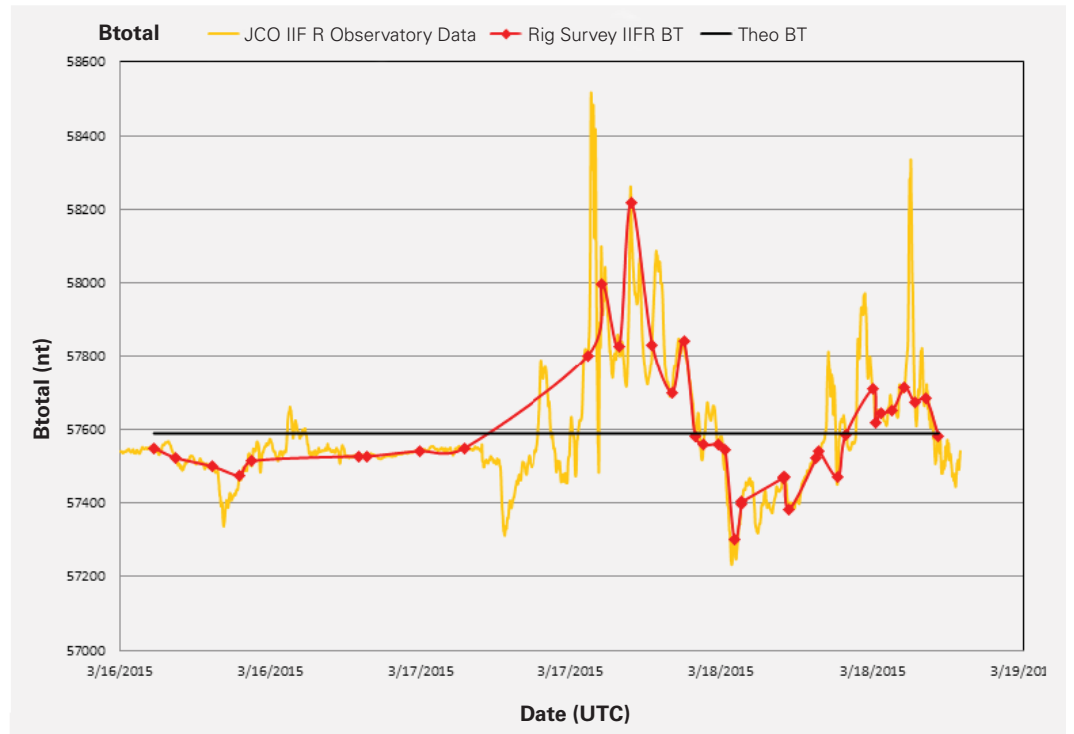
*The IFR2 service enabled an oil rig on the North Slope of Alaska to continue operations during a 12-hour magnetic storm.*

### SURVEY MANAGEMENT SERVICES HELP MAXIMIZE ASSET VALUE

By comparing real-time actual magnetic values from the IFR2 data to those measured by the survey tool, the MWD engineers on the rig were able to perform a quality check and confirm that the survey tool was operating within acceptable tolerances. More importantly, the MWD engineer used the IFR2 data to confirm that the operator did not have a failing survey tool, allowing the rig to continue drilling despite magnetic field fluctuations caused by the storm.

With the IFR2 service, the operator was able to continue drilling during the 12-hour magnetic storm, potentially saving an estimated US\$15,000 that would have been lost had drilling stopped due to inaccurate data.

By using the real-time IFR2 service, the customer was able to continue drilling despite magnetic field fluctuations. The operator was also able to verify that the MWD survey tools was operating within specifications, increase the accuracy of survey measurements; and eliminate nonproductive time with a quality check of data received from the MWD survey tool.



Data from interpolated In-Field Reference (IFR2) service (yellow) confirms that MWD data from the rig falls within operating specifications during a magnetic storm that produced magnetic field fluctuations of almost 1,300 nT in Btotal.

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