

# The Application of Fullbore Formation MicroImager (FMI) in Geology

Hui Zhao

## Abstract

The Fullbore Formation MicroImager (FMI) provides microresistivity formation images in the drilling wellbore filled with water-base mud. The FMI tool generates an electrical image of the borehole from 192 microresistivity measurements. Special focusing circuitry ensures that the FMI tool can receive both low-frequency signals rich with petrophysical and lithological information and a high-resolution component that provides the microresistivity data used for imaging and dip interpretation. The physics of the FMI measurement makes it a geological and reservoir characterization tool that produces complete and reliable answer products. These real-time answers are used to characterize the structural dip and faults, identify and evaluate sedimentary features, measure the rock texture and complement the information obtained from coring programs. FMI data are also used in geomechanical reservoir analysis to identify drilling-induced features such as breakouts. Stress field analysis of FMI data provides critical information for controlling wellbore stability problems in the engineering of drilling.