
RECENT ADVANCES IN BOREHOLD IMAGING BASED ON THE CIRCUMFERENTIAL BOREHOLD IMAGING LOG (CBIL)

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Abstract

The recently introduced Circumferential Borehold Imaging Log (CBIL) is recorded by an acoustic borehole imaging device which utilizes a rotatin pulse-echo transducer to scan and provide an image of the entire (360 degree) circumference of the borehole wall. A transducer rotates at the rate of six times per second and acquires 250 measurements per revolution.

Two key parameters are being measured: the amplitude of the reflected acoustic wave (which corresponds to variations in the rock properties) and the acoustic travel time (which is indicative of the distance from the transducer to the wellbore wall).

The CBIL provides a complete, detailed 360° borehole image in fresh, salt, *and* oilbased drilling fluids. Applications are manifold and include: detection and orientation of fractures, vugs, and borehole breakouts (washouts); orientation and correlation of whole cores; sand/shale ratios in thin-bedded intervals; recognition of depositional features (e.g., highly laminated and/or crossbedded intervals); borehole geometry via high-resolution acoustic caliper data; generation of borehole cross sections and synthetic cores; bed orientation, etc.

Field examples illustrate these various applications in detailed reservoir description.

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