



FRACTURE DETECTION AND ANALYSIS

The detection, location, orientation, and size of fractures are important in most geotechnical, hydrogeological and geological investigations. Acoustic and optical imaging is a convenient and cost effective way of obtaining detailed structural information. The Acoustic image has the ability to detect fractures less than 0.1mm.

The Optical Imager contains a precision machined prism and high definition digital camera assembly which permits high quality images of the borehole wall to be recorded .

The Acoustic Imager produces an image of the borehole wall using the travel time and amplitude of an acoustic signal transmitted and received by the tool. The variance of the acoustic properties of the formation and associated features enable the nature of fractures, fissures, veins, bedding planes and lithological changes to be determined.

PROCESSING AND PRESENTATION OF IMAGER RESULTS

Detailed logs of the imager data can be produced at any vertical scale. The image of the borehole wall is presented in an unwrapped form with a horizontal scale marked 0°, 90°, 180°, 270° and back to 0°.

Structural features and discontinuities are picked from the images in the form of colour coded sinusoidal projections blue - fractures, red - bedding/fabric features, green -veins). This structural log is presented as 'Discontinuities' with a horizontal scale as the image data.

Using the borehole diameter, dip and azimuth along with the geometric parameters of the sinusoids the true azimuth and dip of the discontinuities are calculated and presented as a "tadpole" plot. The true dip data can then be used.

