

SIPES Luncheon Meeting

This abstract, though not received in time for inclusion in the February issue of the HGS Bulletin, is published here in the March Bulletin as a service to our membership. The actual presentation was made Thursday, February 16, 2012.

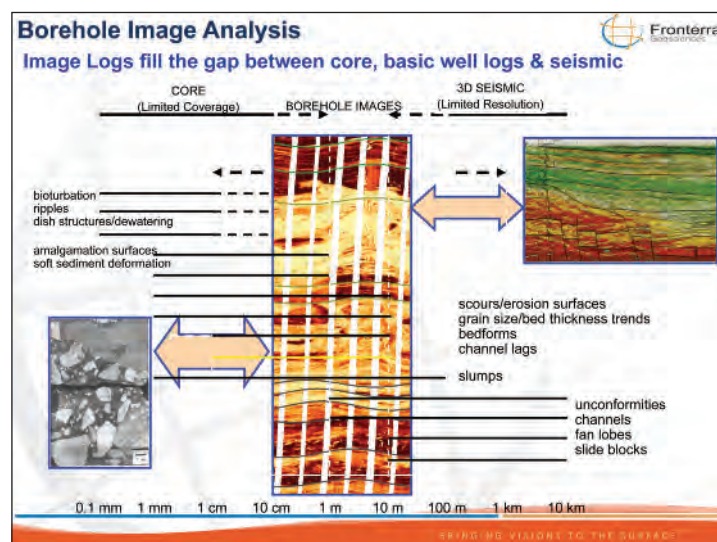
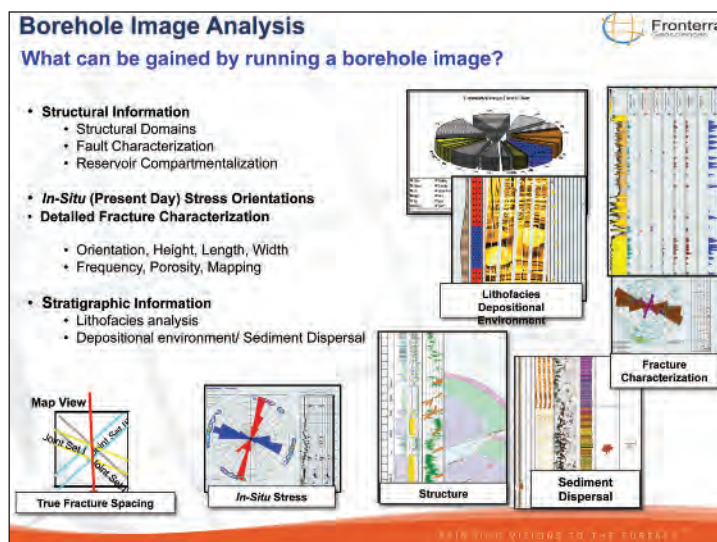
Borehole Image Logs — A Useful Tool for Earth Scientists

Roger Reinmiller, Western Region Manager, Fronterra Geosciences

Borehole image logs have been around since the mid-1990s; they represent a well-understood technology. Recent technological advances have greatly expanded acquisition capabilities, data sensitivity, and the ability to apply borehole image data to complex reservoir systems. Borehole image logs have sub-centimeter-scale resolution that can bring clarity to the structural and stratigraphic complexities of a field. As a result of the quantity of useful data collected by this technique, borehole imaging is becoming a more frequent component of standard logging runs on exploration and development wells.

The strength of borehole image data is that they reveal the spatial geometry of features such as bedding, channels, folds, faults, lithologic changes, and fracture networks. A borehole image provides data similar to that derived from a core without the time, expense, or other issues of coring.

There are four main components of borehole image analyses: **Structural Bedding** determination is used to identify changes in the spatial geometry of rock masses due to tectonic deformation and the presence of unconformities and sequence boundaries. **In-situ Present Day Stress** determination derives the spatial geometry of maximum and minimum horizontal compressive stress trajectories – a crucial element in designing effective well stimulations. **Fracture/ Fault Characterization** is necessary for understanding a dominant permeability element in a reservoir. Finally, **Stratigraphic Analysis** is used to reconstruct depositional environments and sediment dispersal patterns which govern the spatial distribution of sand bodies. An example of fluvial and shoreface environments will demonstrate the utility of core / image facies comparisons. Using the analysis of multiple image logs in a field improves understanding of sand body geometry and facies distribution which will deliver better well placement and more efficient field development. ■



Biographical Sketch

Roger Reinmiller joined Fronterra Geosciences in 2005 as Western Region Manager. He has worked on the service side of the energy industry for 33 years. During this time he has gained extensive knowledge in wireline data acquisition, interpretation, and data integration. Most recently his emphasis has been the geological interpretation of borehole image logs. In his career Mr. Reinmiller has worked in all areas of North America and the Middle East. He has a degree in industrial engineering from Northern Arizona University.