

RMS-SEPM Luncheon Talk, August 30th, 2016

Rocky Flats re-visited: TTI PSDM Case Study in Complex Overthrust Geology

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Speaker: Morgan Brown

ABSTRACT:

The US Department of Energy acquired a 2D seismic line near the Rocky Flats nuclear facility in Colorado in 1983. The line was designed to image shallow faults that might connect buried contaminants to groundwater. However, it extends west into Coal Creek Canyon, and provides perhaps the best view of sub-thrust geology of any available survey. The data were “lost” by DOE, but “found” by Ned Sterne in 2013 and reprocessed in 2014 by 3D Imaging Technology Inc (in time) and Tenax Geoscience (in depth). Sterne, who teaches a well-known “Geology of the Front Range” field course, updated his interpretation based on the 2014 Prestack Depth Migration (PSDM) image and presented it at the RMAG luncheon. Brown presented the PSDM results in more detail at the 2014 RMS-AAPG meeting. In 2016, NEOS Seismic Imaging Group resurrected the Rocky Flats line, to demonstrate how TTI reflection tomography improve over Brown’s 2014 velocity model. The 2016 processing provides the easiest-yet data to interpret and more clearly confirms Sterne’s earlier interpretations.



Speaker Biography:

Dr. Morgan Brown holds degrees in applied mathematics (BA, 1997) from Rice University and in geophysics (PhD, 2004) from Stanford University. He worked in geophysical R&D at Hess Oil and 3DGeo, before joining a depth imaging startup, Wave Imaging Technology Inc.. He served as CEO from 2008 to the company's sale in 2013 to GeoCenter. After consulting for two years, he recently joined the NEOS Seismic Imaging Group in Denver as a Subject Matter Expert in Depth Imaging.

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