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**3-D Digital Characterization and Visualization of the Solitary Channel Complex, Tabernas Basin, Southern Spain**

Conventional field geology approaches were integrated with a high-resolution digital terrain model to create a 3-D geologic model of the Solitary Channel system. The feature sits on the proximal part of the deep-marine Tabernas Basin and has been the subject of lively debate in the literature and during field excursions. The fill of the system is a complex mixture of conglomerate, coarse sandstone and mudstone (marlstone). Post-depositional faulting and differential tilting on separated fault blocks has further challenged earlier attempts at correlating lithology and their time-significant bounding surfaces. In addition, parts of the fill contain inclined sandy beds that appear to accrete laterally (toward the axis) and toward the upslope direction. In addition, modern stream erosion dissects the system and, together with the block faulting, allows for 3-D examination along nearly 2 km of exposure.

The combination of stratigraphic and structural complexity and the 3-D exposures provide an ideal application of the 3-D outcrop modeling approach that relies on high-resolution laser scanning technology. The 2 km long exposure was scanned, merged, and visualized in three workdays by two geologists. The results give geologists the ability to position themselves in an infinite number of "virtual" vantage points and to interrogate the outcrop dataset similar to 3-D seismic data. In addition, structural reconstruction enables more confident stratigraphic correlations of time-significant bounding surfaces in the fill and new insight is gained into the origin of laterally accreting depositional elements.