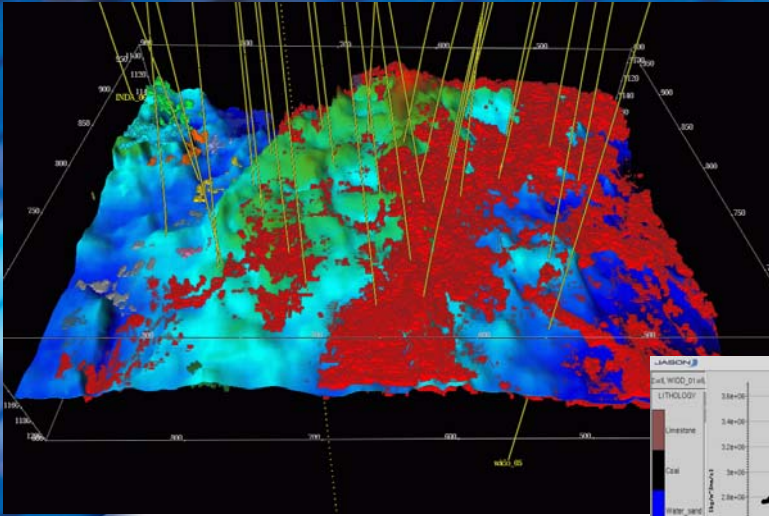
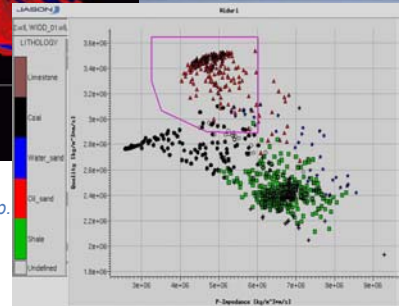


3DiQ information from Time-Lapse data



Lithologies differentiated by color. The polygon in the right cross plot isolates the (red) oil-bearing sands in the main map.



Problem

The Widuri field, offshore SE Sumatra, has been developed very successfully over the past 13 years despite complex lithology. In 2000 a monitor 3D seismic data set was acquired in order to observe pressure depletion around a water-flooding project, improve the characterization of the reservoir and develop a better understanding of fluid movement over time.

Action

CNOOC SES Ltd. contracted Jason Geosystems to demonstrate the power of 3DiQ Simultaneous AVO Inversion™ in developing superior subsurface information. From well log information it was demonstrated that in a P-Impedance versus S-Impedance cross plot, sands separate from coals and oil sands separate from water-wet sands.

Multiple seismic angle stacks were inverted simultaneously to produce a 3D cube of P-Impedance and S-Impedance. 4D fluid effects were investigated and characterized using a Time-Lapse workflow utilizing the unique features of Jason 3DiQ Simultaneous AVO Inversion.

Result

As a result of the study it is shown that with **3DiQ Simultaneous AVO Inversion** technology a clear delineation of the reservoir lithology is now possible. The Time-Lapse information was instrumental in understanding the flow within the water-drive reservoir and highlighting pockets of oil left behind.

Two out of two wells, drilled following the study, came in with reservoir lithology and hydrocarbon content as predicted by the Jason 3DiQ subsurface information.



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