

Working With 2D Horizon Amplitude Maps

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Abstract

2D horizon amplitude maps are best created from stacked seismic data with common acquisition and processing histories. Due to budget and time constraints interpreters often work with non-ideal situations of varying acquisition and processing vintages.

Given the uncertainties of mapping 2D seismic amplitudes, proposed drilling locations should be risked both with and without consideration of amplitude anomalies. Caution is advised when considering seismic amplitude anomalies lacking appropriate geological context. But, given the appropriate lithology, seismic amplitude can be a valuable direct hydrocarbon indicator.

In this study amplitude grids are computed from horizons picked across a mixed vintage of 540 km of 2D seismic data covering approximately 700 sq. km. Starting with the original, mostly 1980's vintage data, amplitudes are balanced and normalized on line and trace by trace basis. Similar grids are created after all data in the study area was reprocessed in 2005.

The gridded amplitude maps from the older stacked data are compared with similar maps created from the recently reprocessed data.

Of course, the most reliable maps are created from the recently reprocessed data, but suggestions are made on how to compare amplitude variations on multiple 2D lines of various acquisition and processing vintages.