

An attempt to integrate 3D seismic and borehole datasets: construction of a 3D geomechanical model at the Nankai Trough, SW Japan.

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Data integration is vital to explore subsurface. One of the reasons is that a variety of different geophysical methods are used to acquire data from subsurface and the reality can hardly be expressed by a single data source. The sparsity of the subsurface data and limited quality, because of the indirect measurement, may also be included in the reasons as well. Once we can drill a borehole, then we could get much more data. Such borehole data, however, have a huge scale gap to the exploration geophysics data and the integration is a key technique to fill the gap by all means.

As one of such initiatives, we used 3D seismic data and well data acquired at the Nankai Trough offshore Kii Peninsula, Japan, where extensive scientific drilling and geophysical surveys performed by the International Ocean Drilling Programme (IODP) and JAMSTEC, to construct a geomechanical model. The technique has been utilized for commercial purpose by the oil and gas industry to optimize production / well placement in the existing fields and to avoid borehole failure, but rarely used for scientific purposes. In this presentation, we are going to report some updates of the modelling, and discuss how such approach is useful for future scientific drilling.

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