
Haban Gas Field: Oman's First Amplitude-Supported Play

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Gas was discovered in the Cretaceous carbonate Natih formation, in the Haban field in 1985. The field is characterized by an elongated north dipping structure and a major E-W trending fault with large vertical displacement. The field is penetrated by 5 wells in different fault blocks. Mapping and delineation of the field was performed on 2D seismic. In 2004 the first 3D survey was acquired to improve the field delineation and supporting the field's development plan.

The Haban 3D data is one of the best 3D data sets in the PDO inventory.

Volume interpretation over the field identified bright amplitude zones. Delineation of the extent of the amplitude anomalies indicated strong correspondence in time and depth. Seismic modelling of the Top Natih reservoir showed that high amplitudes are associated with gas zones transitioning into a dimmer response in the water leg. The modeled amplitude behavior corresponds with the signal response as seen in the 3D volume. Constrained sparse spike inversion (CSSI) conducted over the field allowed better definition of the different reservoir units and the distribution of the gas zones.

Based on the seismic analysis results, two appraisal wells are planned targeting gas accumulation in high amplitude zones in 2005.

Further work is ongoing in the down thrown side of the main fault, to calibrate the bright amplitudes anomalies observed, to unlock and de risk the exploration potential
