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ORAL PRESENTATION

Exploring the "Undeformed" Bengal Fan and What Lies Below: Deepwater Rakhine Basin

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Ophir Energy and partner Parami Energy signed the deepwater Myanmar AD-3 PSC in December 2014 and quickly covered the whole block with 10,000 km^2 of broadband 3D seismic data.

Processing centres provided the team with high quality time-processed products, which brought great improvement and deepening of the imaging available in this part of the deepwater basin: the "undeformed" Bengal Fan, located west of the Rakhine deformation front.

This permitted the joint venture partners to consider drilling an exploration well ahead of their PSC commitments; however, plans had to change when it became evident that some of the best prospectivity was located in areas where shallow gas and Mass Transport Complexes were inducing large structural anomalies on the time structure of the data and attenuating important amplitude information, hindering the exploration task.

As the exact causes of the image degradation were not clear, a subset PreSDM was run, before Ophir asked contractors for feasibility studies to investigate possible solutions such as Q tomography and Q migration. A full-block depth processing project was finally designed from these learnings and regional processing experience.

This talk will present the geology of the block, the exploration challenges and discuss how the various 3D datasets have provided new insights into the understanding of the basin. Having deep, good quality seismic available over a large area helped us develop a consistent geological model at the scale of this tectonically active margin. New imaging of the basement brought a few unexpected surprises regarding the nature of the crust and its early history, well before it was hidden in Neogene times below a thick deepwater sediment fan sourced from the Bengal Delta with large-scale channel systems.

The complete dataset now available to Ophir shows conditions prone to the establishment of a prolific biogenic gas charge as well as potential for a deeper thermogenic petroleum system. Volcanic basement highs are large enough to induce differential compaction of the fan sediments deposited on top of them which provides migration focus and structural components to the traps.

Ophir Energy managed to maintain a workflow able to ensure operational readiness, involving simultaneous progress of interpretation and well design work: for example, geohazards, pore pressure and fracture gradient studies were conducted early on a block scale to anticipate the contingencies needed.