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POSTER PRESENTATION

Creating a 3D Image from 2D Data, a Case Study from Hera Sub-Basin, Offshore Indonesia

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The area of the study is located in Hera Sub-basin, western Asri Basin, and northwest Java Basin. The subsurface setting is a relatively uniform half-graben structure that formed due to a rifting phase during the Eocene – Oligocene and is overlain by a conformable passive margin sequence which dominated the entire area until recent times. The seismic vintage varies from 1967 to 1993 with three main azimuth orientations: northeast/southwest, northwest/southeast, and north/south. The quality of the seismic ranges from poor (vectorized data) to fair. The main objective of the study is to generate a 3D seismic volume with more reasonable structure and an improved image compared to the 2D results. We use TGS's proprietary technology called 'structurally conformable interpolation', also known as 2D^{cubed}. Input data to the project is the available 2D migrated stacks and velocities from three different vintages, one of which only has vectorized data. The workflow includes survey matching of different vintages, data-driven geological model building to interpolate large distances between existing data and a 3D poststack migration to minimize the 2D migration artefacts. The method successfully creates a 3D migrated image from legacy 2D data with better structure and continuity, which increases confidence in its interpretation. Interpretation of a 3D volume is much more efficient than for 2D data and is free from 2D artefacts. Positive results from this project show that the 2D^{cubed} method gives new life to existing 2D data and maximises its potential by providing a 3D image in an area where 3D data is not available.

Keywords: uniform, 2D^{cubed}, efficient