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TECHNOLOGY SESSION PRESENTATION

Broadening your Geological Perspective

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In recent years there have been substantial improvements in a variety of seismic acquisition, processing and imaging technologies. In such an ever-evolving environment, legacy data is often overlooked as inferior input data compared to newer recording systems and advanced survey programs. However, when retrieved and enhanced with modern re-processing it can be of significant value. Moreover, geological information obtained from old surveys can be used to identify areas of interest and optimize acquisition parameters for new seismic surveys.

This can be of particular benefit when multiple legacy 3D surveys are reprocessed together to output a uniform dataset that can cover entire basins. Individual surveys are often optimized for particular objectives with little regard for the regional outlook and suffer from under migration at the survey edges. Hence it can be difficult to build a regional geological interpretation. After reprocessing the datasets are seamlessly matched with full migration aperture at the survey edges and horizons can be tracked across a single contiguous dataset.

Case studies from offshore Australia are used to illustrate the benefit.

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Figure 1 shows the survey outlines for the Olympus 3D. The surveys were acquired between 1992 and 2011 with a wide range of source and streamer configurations. Streamer depths varied from 6 to 9 m, streamer count ranged from three to fourteen, cable lengths from 3800 to 7500 m, and inline near-offsets from 52 to 307 m.

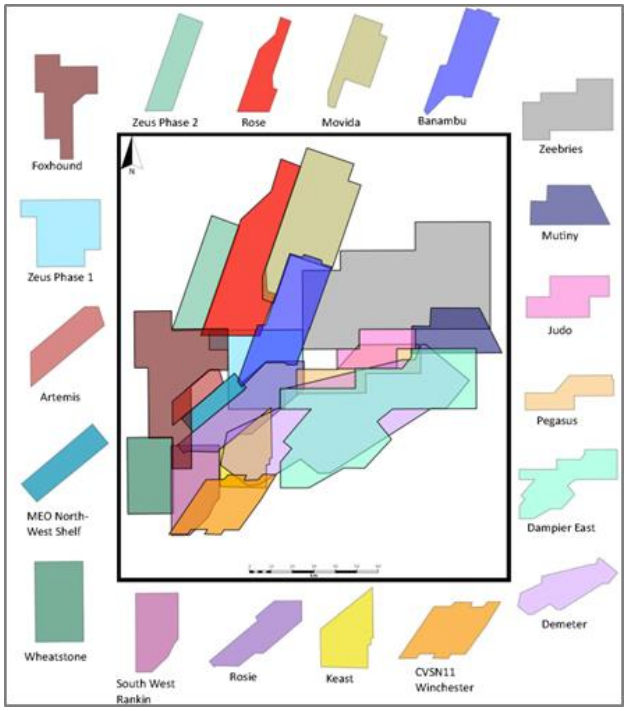

Figure 1. Olympus Survey Outline

Figure 2 shows an arbitrary line before and after re-processing. The survey merge points are clearly visible in the legacy dataset. Reprocessing has created a high-quality seamless broadband dataset suitable for regional and detailed stratigraphic exploration in the area, for targets such as Mungaroo channel sands and the Lower Keraudren Sandstones.

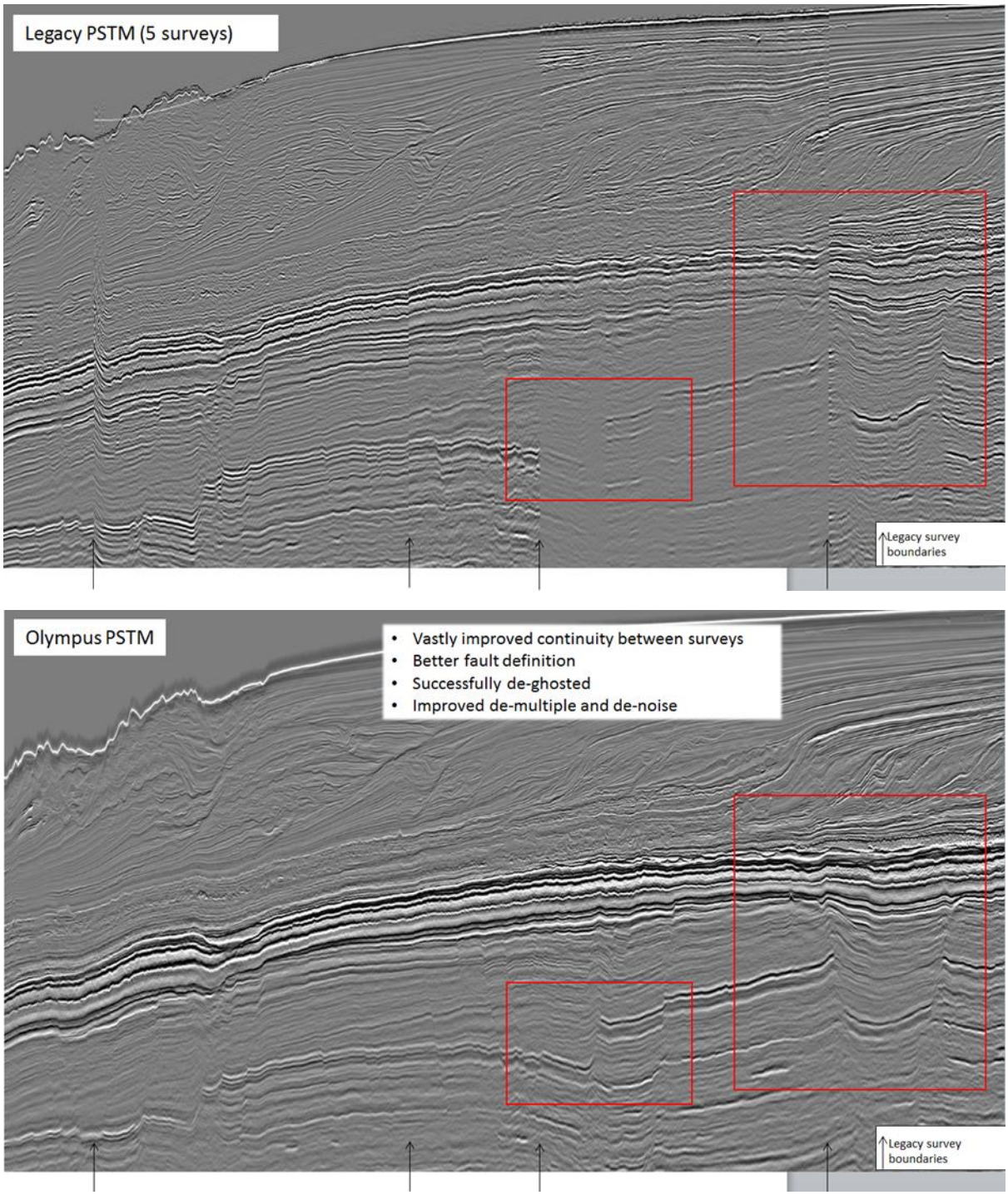

Figure 2. Arbitrary line before (top) and after (bottom) reprocessing