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OBN FAN vs Conventional Streamer Surveys

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Summary

Statistics derived from full azimuth ocean bottom nodal surveys (OBN FAN) are contrasted with other available azimuthal streamer configurations, including narrow, wide and multiple methods (NAZ, WAZ, and MWAZ).

Introduction

The seabed referenced, full azimuth nodal field (OBN FAN) method, as employed in the Gulf of Mexico, has provided enhanced salt and structural interpretation, improved spatial and temporal resolution, and improved illumination for depth imaging. This presentation discusses the configuration and advantages of ocean bottom nodal (OBN) acquisition technologies for full azimuth surveys (FAN). Challenges in streamer recording configurations include azimuthal bias in recording / cable direction, merging multiple orientation data sets, infill at diagonal directions introducing poor statistics, and data gaps due to obstructions.

Theory and/or Method

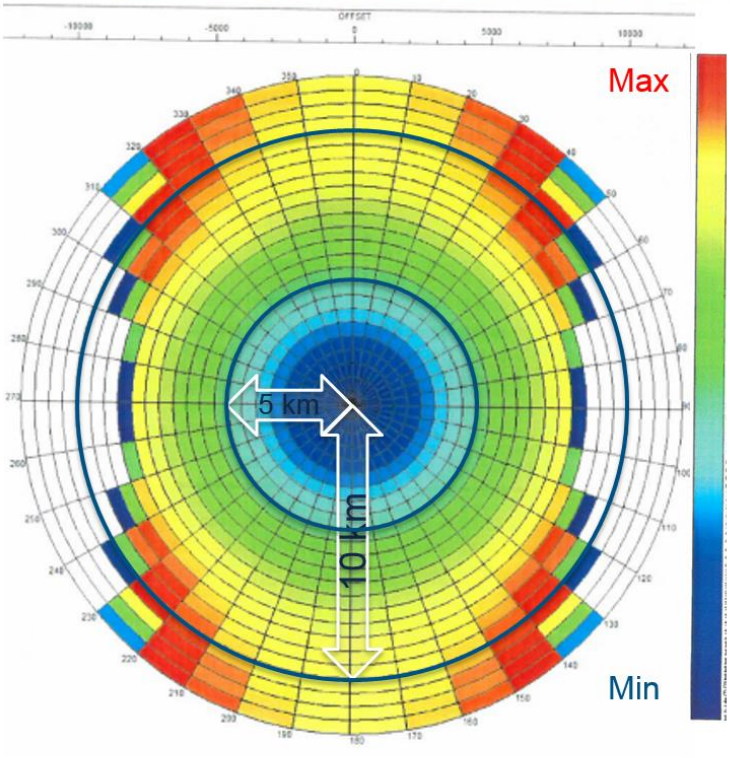
Midpoint populations (rose diagrams) are generated to validate illumination statistics generated during the acquition of the various survey methods. Processed and raw seismic data is used to compare the image generated with the various survey methods.

Examples

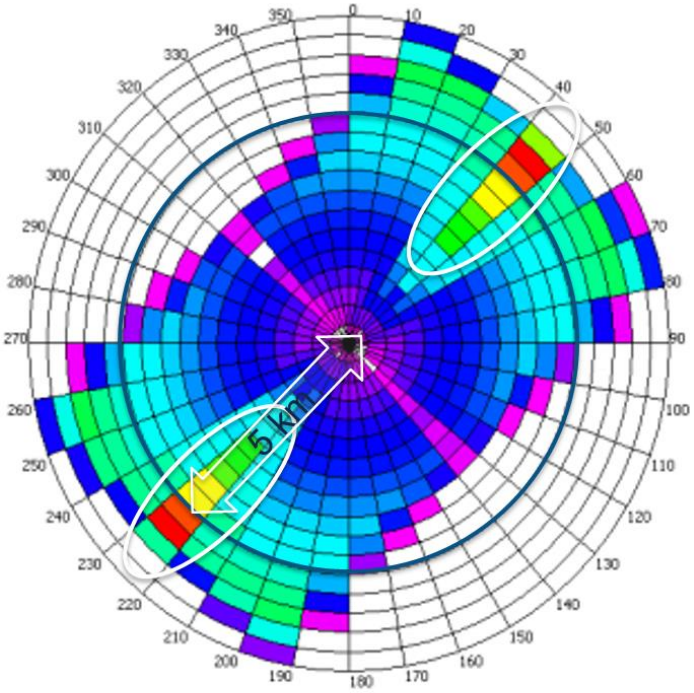
Fold maps, seismic, and midpoint populations (rose diagrams) are the main examples that illustrate the similarties and differences between the various acquistion methods.

OBN FAN **Sample WAZ 2 Streamer Vessel, 4 Sources**

Differences: Broad and even fold distribution vs. High fold concentrations down streamer paths



90 degree Azimuthal coverage at 5km offset



35 degree Azimuthal coverage at 5km offset

Example OBN FAN vs. WAZ

Conclusions

Full azimuth nodal configurations located on the seabed offer a robust alternative to imaging complex, deep structures. This is seen primarly in the Miocene to Jurassic intervals of the Gulf of Mexico study area.

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