Exercise 13: Qualitative Seismic Attributes

Objective

Identify areas where good-quality seal rocks overlay good-quality reservoir rocks.

Materials

- 3 seismic attribute maps
- Orange time structure map
- Depositional model and seismic response (on screen)
- Transparency overlays and pens

Introduction

Seismic data in this area has been converted to quadrature phase. This means that the interface between two units occurs at the zero crossing. The loop above the zero crossing is affected by the overlying rocks; the loop below the zero crossing is affected by the overlying rocks

For this zone of interest there is a good correlation between reservoir quality and the trough below the orange horizon. Similarly there is a good correlation between seal quality and the peak above the orange horizon.

By extract amplitude values for the trough and peak, we can qualitatively predict where a good reservoir rock is capped by a good sealing facies.

Step	Action
1	Place the transparency on the 'Above-Orange Peak Amplitude" map and register the corners.
2	Draw polygons around areas with moderate- to strong-amplitude responses (yellow-green-blue). Inside these polygons, draw a few diagonal lines (e.g., / / / /).

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Step	Action
3	Register the transparency on the 'Below-Orange Peak Amplitude" map. Draw polygons around areas with moderate- to strong-amplitude responses (green-yellow). Inside these polygons, draw a few diagonal lines with a different orientation (e.g., \ \ \ \ ).
4	Look for areas where the response both above and below the orange horizon has moderate- to strong-amplitude responses. These will be on your transparency where both diagonal patterns occur. Draw polygons encloses the coincidence of both diagonal patterns and shade these areas. These areas, at least based on our model, will have a good reservoir rock capped by a good sealing facies.
5	Register the transparency on the 'Orange Time Structure" map. Do any of your shaded areas lie on top of a structural high? These would be drilling targets.