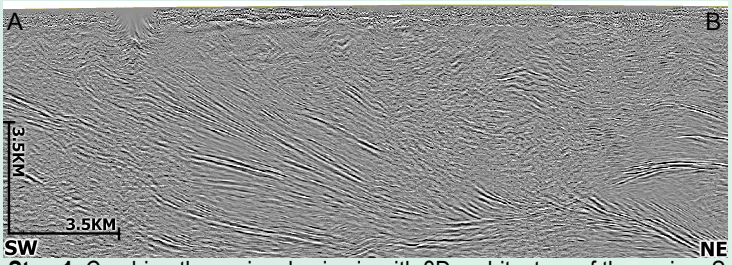
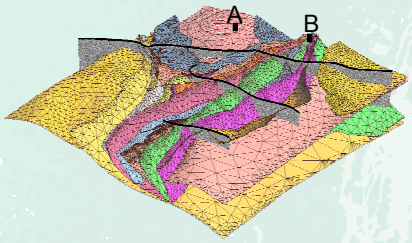
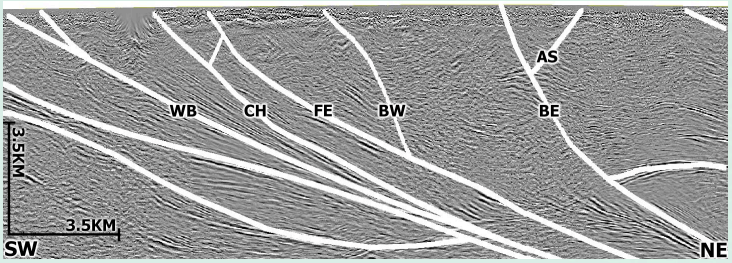
A3 – Geophysical signatures of alteration and architecture

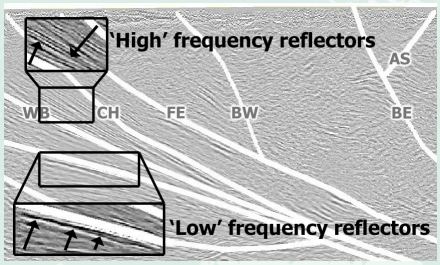
Using regional seismic data to map potential fluid-flow zones: Laverton region



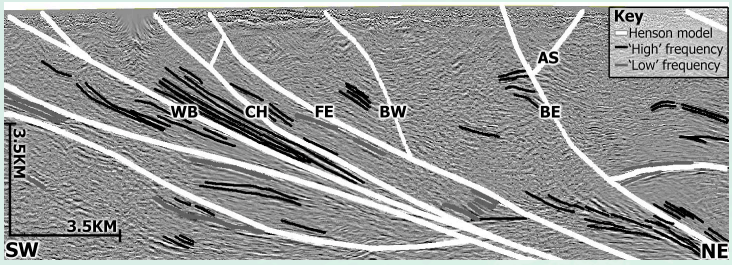


Step 1: Combine the regional seismic with 3D architecture of the region. Seismic data shown is part of 01AGS-NY1 from the Laverton region. Seismic lines in the Laverton region is also shown with Henson et al's (2006) 3D architecture of the region.





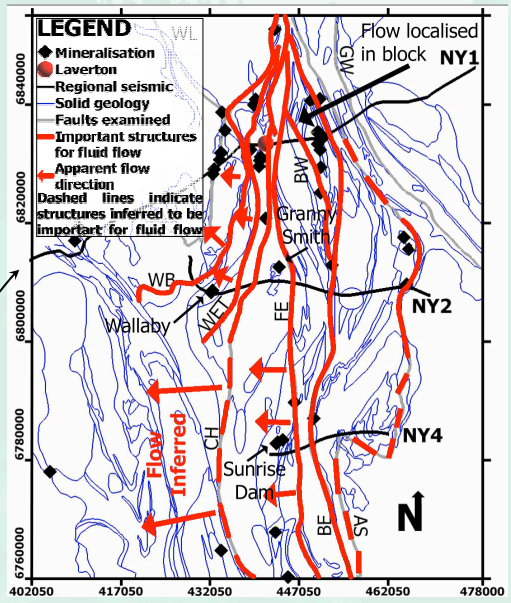
Step 2: Examine the seismic data, looking for reflectors that appear to be indirectly associated with faults. (*Left*) Faults from Henson et al's (2006) model of the region as shown in Step 1. Faults and surfaces are named as follows: WB – Wallaby Basin; CH – Childe Harold Fault; FE – Far East Fault; BW – Barnicoat West Fault; BE – Barnicoat East Fault; AS – Apollo Shear. (*Right*) Different reflector characters in part of the 01AGS-NY1 seismic line. Different characters may be due in different seismic energy or alteration.



Step 3: Final interpretation of one section.
Repeat steps 1 – 3 for each seismic line in the region.

Step 4: Inferred fluid flow map.

Step 5: Make predictions from the fluid-flow map of the region. The validity of the fluid-flow interpretations can be made by comparison with other evidence, e.g. the location of known ore-bodies lying near faults postulated to be important for fluid-flow in the region.
For the map shown on the right and by referring to the seismic interpretation shown in Step 3, the area to the west of the Childe Harold Fault is a relatively highly prospective area within the Laverton Region.



For the Laverton 3D architecture model, refer to Henson, P., Blewett, R. S., Champion, D. C., Goleby, B. R., and Czarnota, K., (2006). Towards a unified architecture of the Laverton Region, W.A. In: *predictive mineral discovery: Science at the sharp end*. Geoscience Australia Record.

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