

Exploration History and Geological Setting

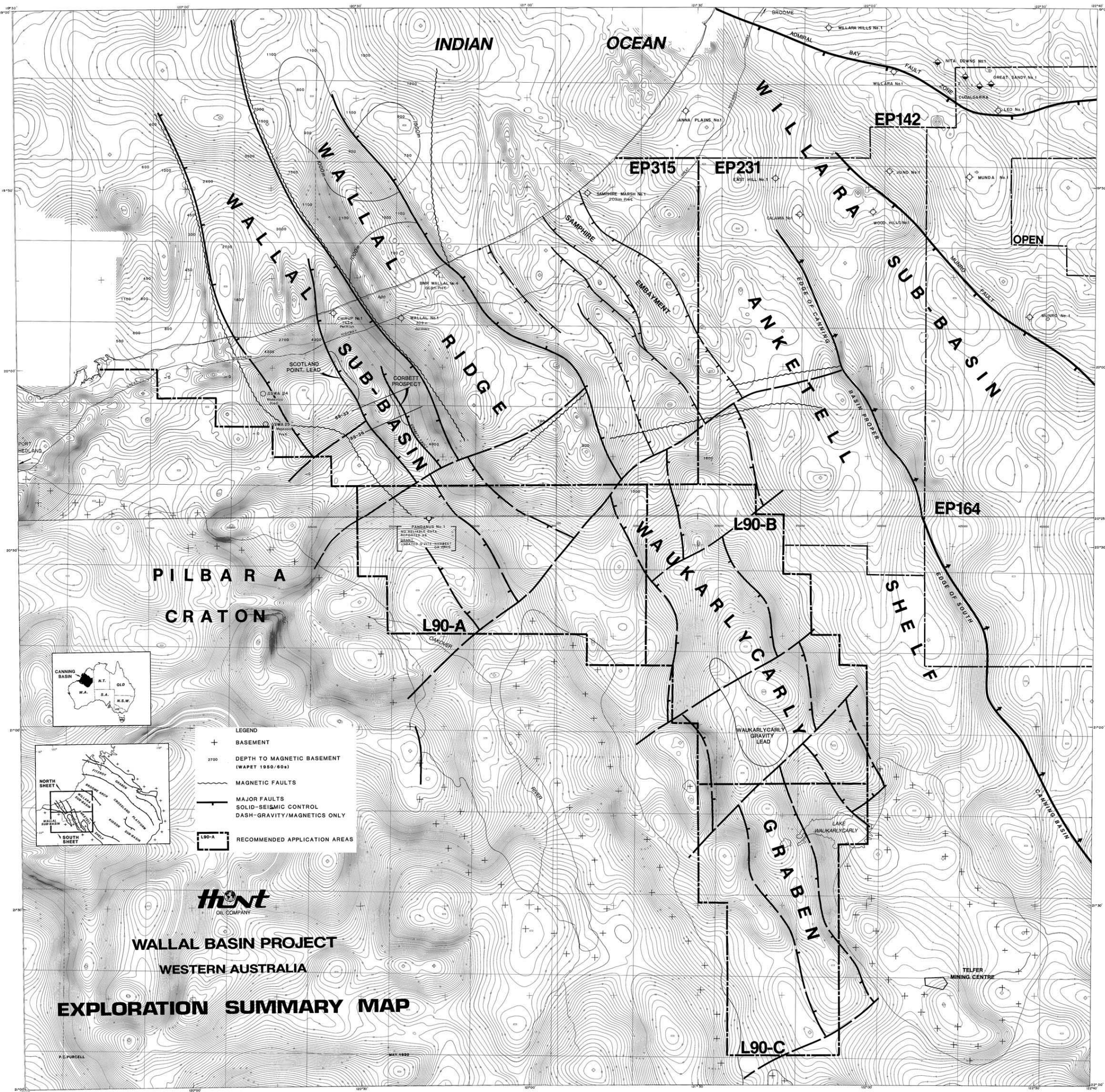


Figure 1

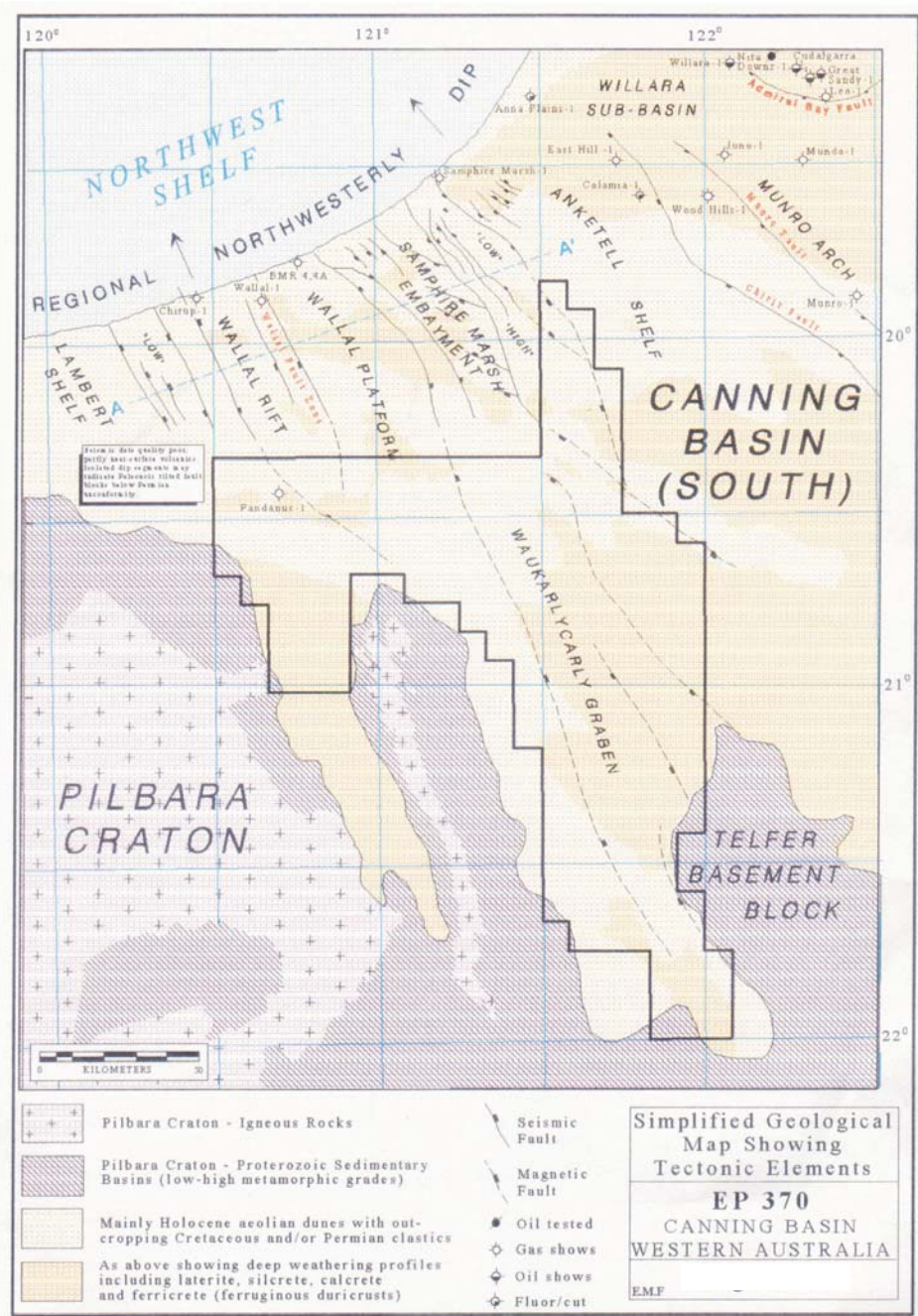


Figure 2



Figure 4

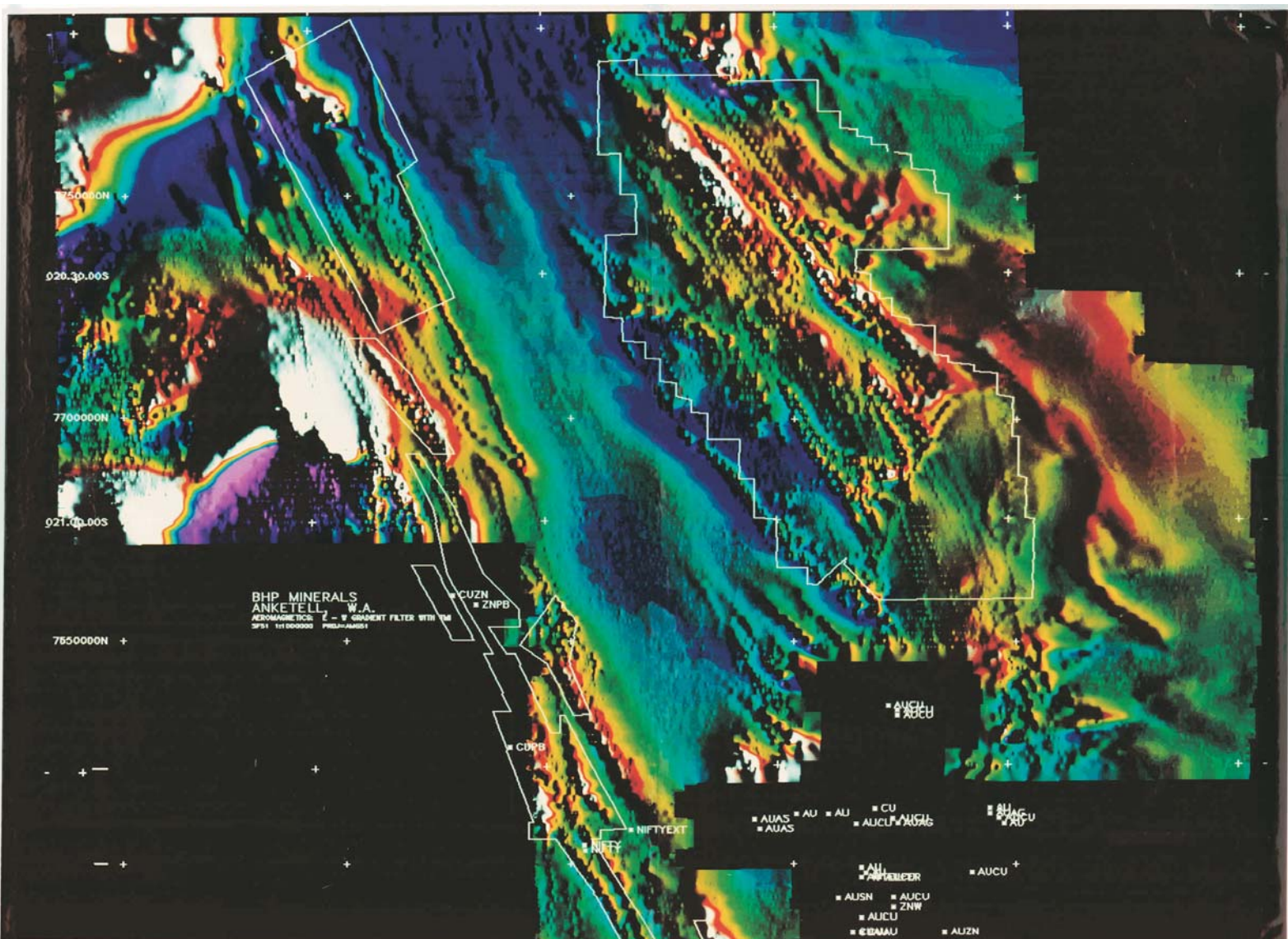


Figure 3

- The regional structural setting of the Waukarlycarly Graben is shown in a circum-Pilbara perspective on Figure 5, revealing the graben as one of a series of basins of Proterozoic to Mesozoic age which rim the craton
- The graben lies immediately east of the major Vines Fault, which is part of a major thrust zone which can be traced southeast to the overthrust Musgrave Complex in central Australia. In the study area, Proterozoic rocks of the Throssel Group and related units are thrust over the Neoproterozoic sediments of the Officer Basin and its sub-basins,
- This map was originally constructed in the mid 1990s and has been modified to show, albeit rather simplified, the re-interpretation of the Precambrian geology by Geoscience Australia and the WA Geological Survey based on recent extensive work in the area.

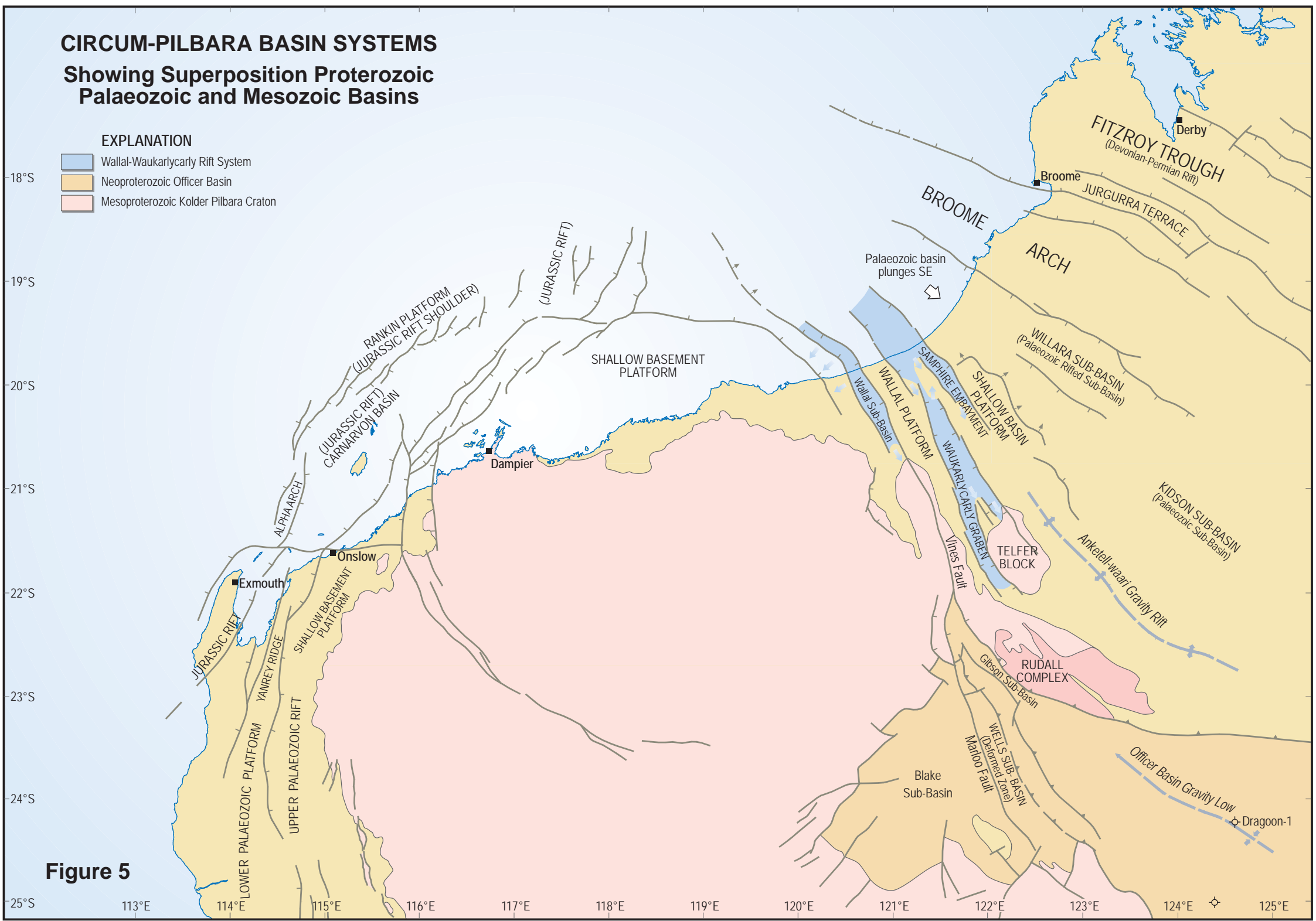


Figure 5

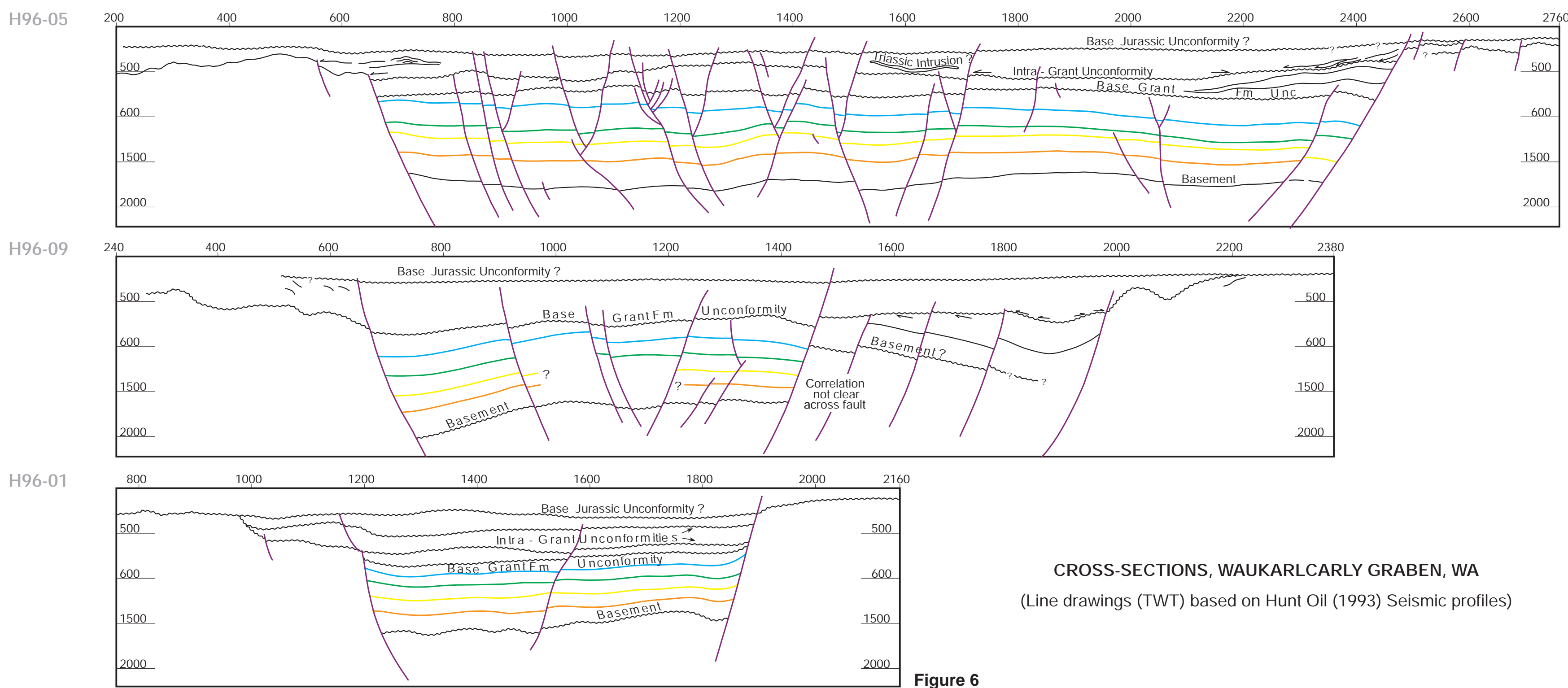
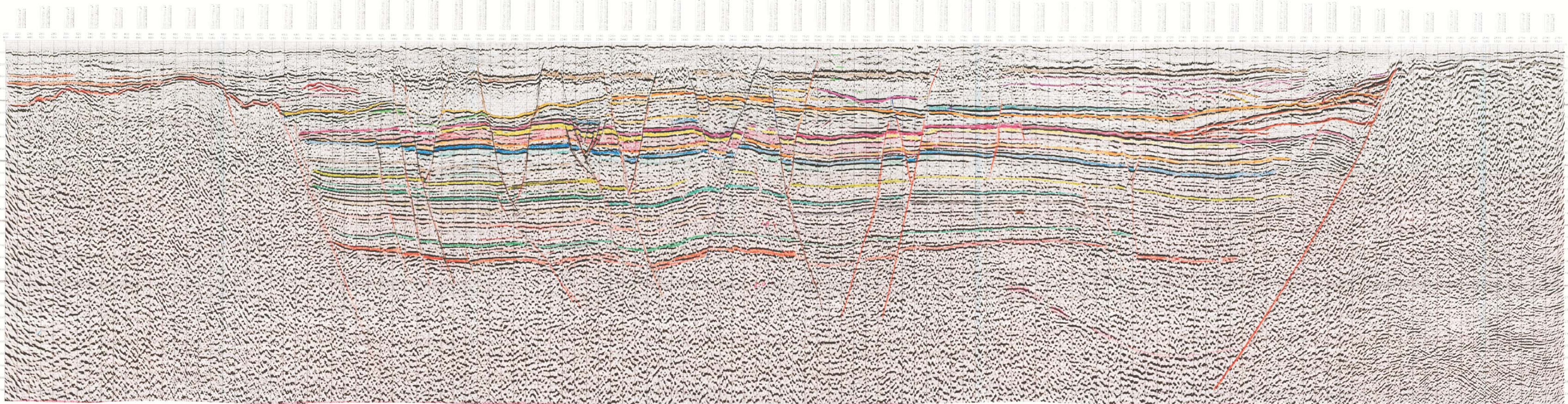


Figure 6

- Hunt conducted soil geochemistry and then a reconnaissance seismic survey in 1995, using roads and tracks across the Great Sandy Desert.
- The seismic profiles confirmed the presence of a deep rift, with over 3500 m of sediments. Correlations from line to line were very speculative.
- Line-drawings of the three profiles are shown on Figure 6 and Line 95-05 is reproduced on Figure 7.
- The absence of significant structure on the seismic and the lack of evidence of syn-rift deposition led Hunt to relinquish the area prior to the commitment for more extensive seismic surveying.



- The age of the deeper sedimentary sequence below the Base Paterson Group Unconformity in the Waukarlycarly Graben remains unclear
- WA Geological survey scientists working on the region strongly favour a Neoproterozoic age, and interpret the sequence as a down-faulted block of the Officer Basin.
- Given the setting of the basin, this seems the logical choice but the original argument for a possible Palaeozoic age remains a teaser.
- Figure 8 shows a seismic profile along the coast passing through the Samphire Embayment, where a Palaeozoic age is proven by drilling, to the Wallal Sub-basin. The Wallal Platform, separating these two tilted basin remnants, was uplifted along the Vines fault during the Permian Alice Springs Orogeny, and these basin was obviously much more extensive prior to that uplift and erosion. But if the Samphire and Wallal section is Palaeozoic, why wouldn't the sediments in the en echelon Waukarlycarly sub-basin also be Palaeozoic?

