



3D Oil Limited
Seismic Interpretation Report
Survey TDO-B08
Permit T/41P

October 2009

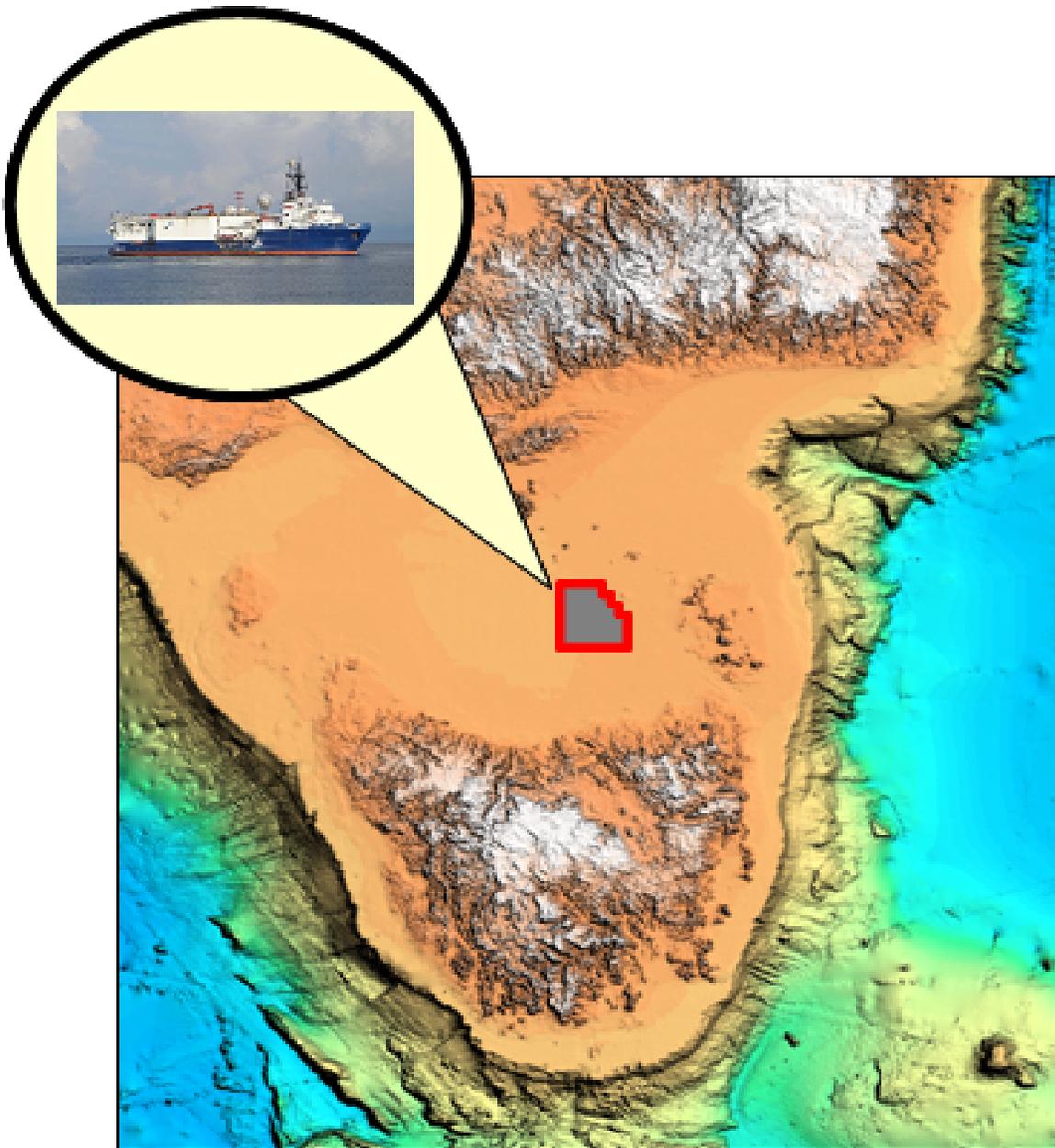


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1. Introduction

The 3D Oil Bass Strait Marine Seismic Survey (TDOB08) in T41/P was a 2D survey conducted in Bass Strait. The survey began on 18th April and ended on 14th May 2008. The survey was carried out by CGG Veritas using the survey vessel 'Pacific Titan'.

The survey area was located approximately 100 kilometres North of Tasmania within permit T41P in the Bass Strait of Australia. Water depth is around 80m over the survey area.

Source volume was 3040 cubic inches at a depth of 6 m. Streamer length 6000 m, towed at a depth of 8 m. Recording length was 6 sec.

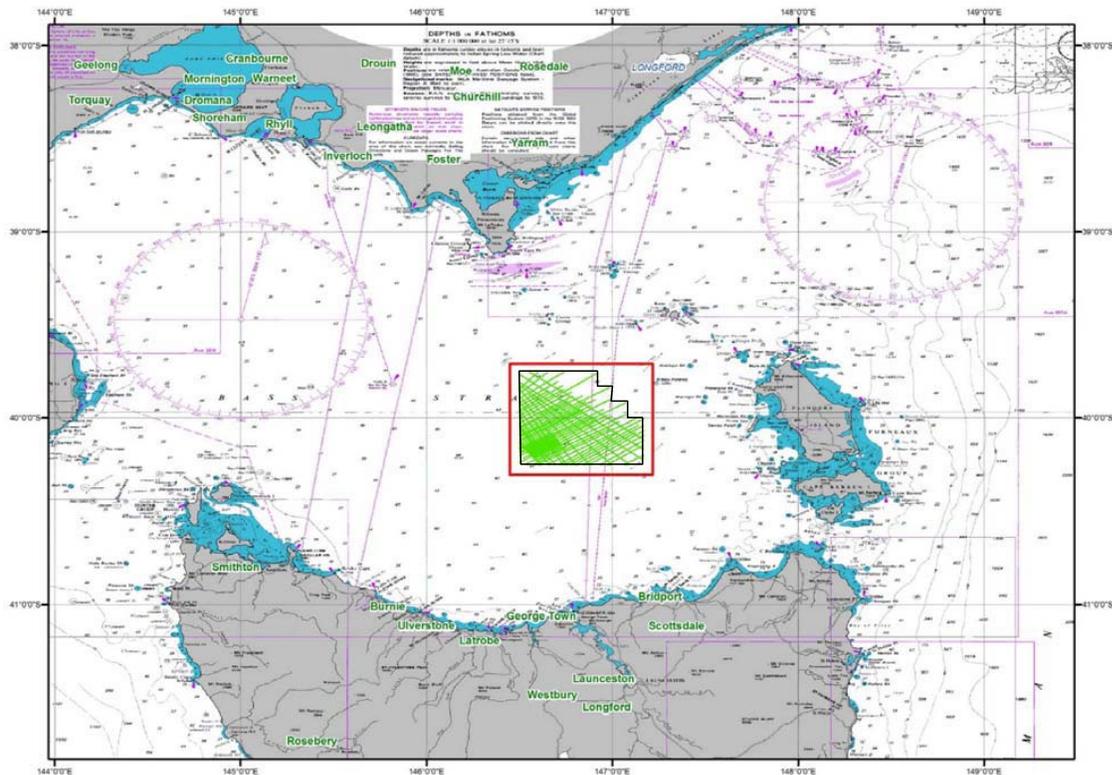


Figure 1. Location of survey – T/41P, Bass Strait

The seismic was processed by Fugro Seismic Imaging in Perth. The processing sequence is shown in figure 2.

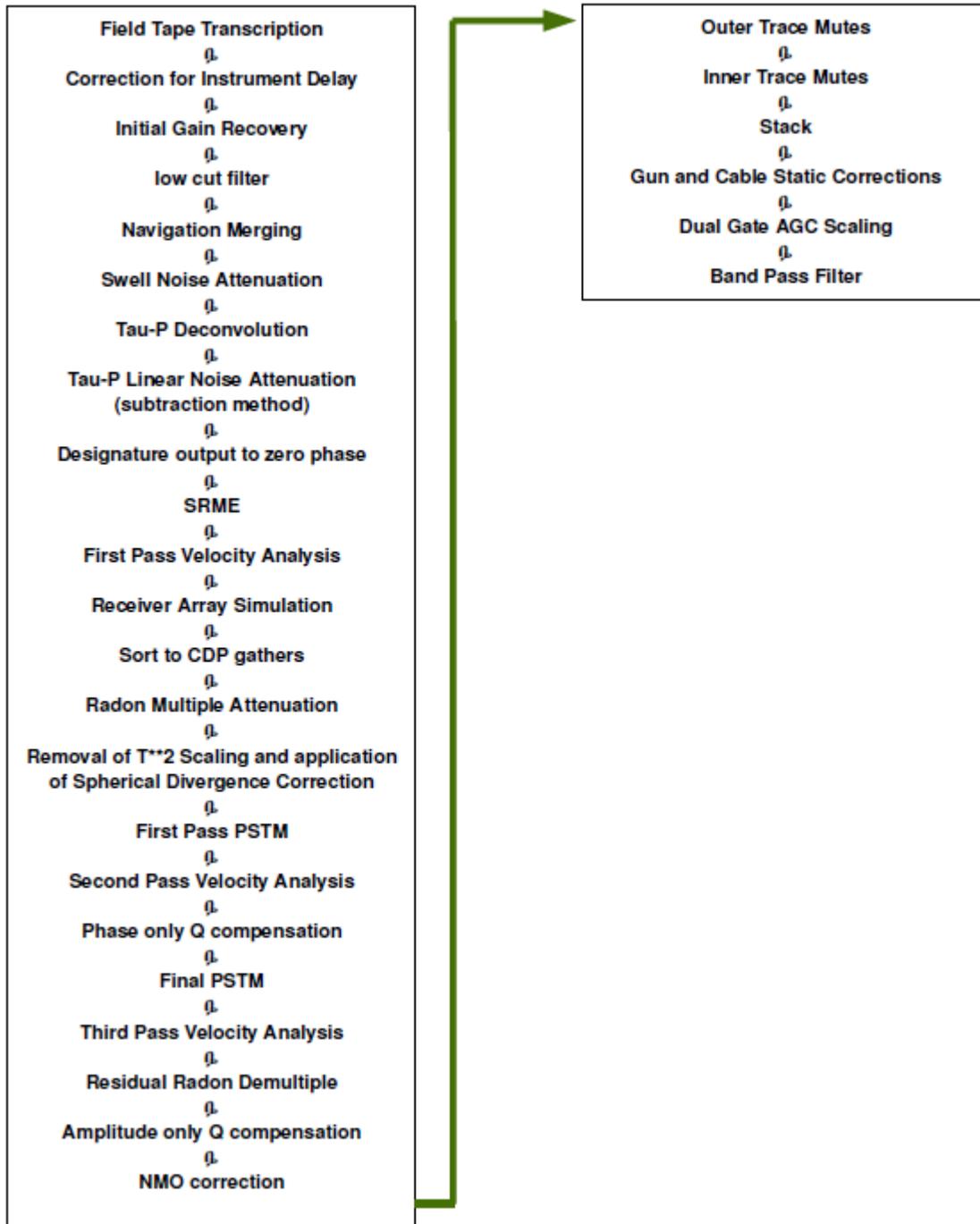


Figure 2 Processing Sequence

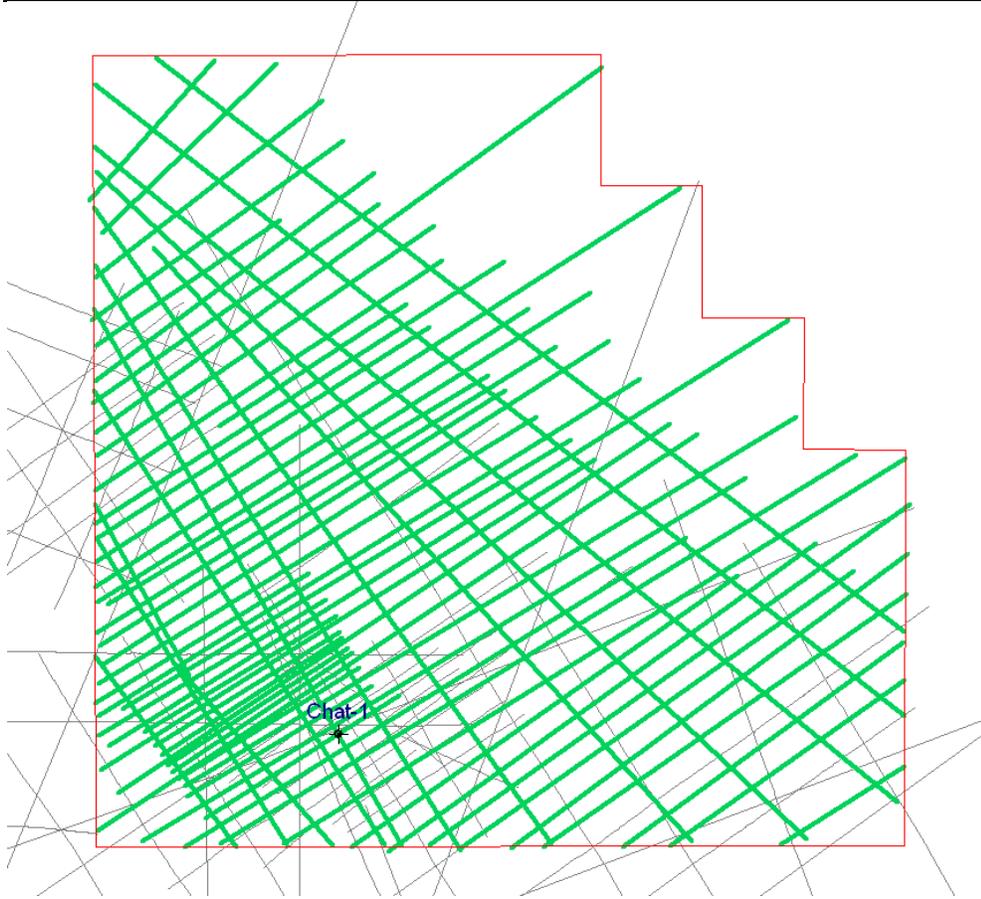


Figure 3 TDO-B08 seismic programme

The TDO-B08 survey consists of 2200 line km of seismic data. The seismic interpretation was carried out using the Kingdom seismic interpretation software by 3D Oil consultant Ian Ward of Basian Enterprises. A total of 15 horizons were interpreted over the survey area.

TWT and depth maps were constructed for eight horizons.

Seismic Marker	Abbreviation
Water Bottom	WB3
Shallow1	SH1T
Top Torquay Group	TORQT
Fracture Zone 1	FRAC1T
Fracture Zone 2	FRAC2T
Fracture Zone 3	FRAC3T
Squid Sand Equivalent Marker	SQST
Top Oligocene Sand (Chat-1)	OLGSTE
Top Demons Bluff	TDBT
Top Eastern View Sand	TEVSTE
Top Eastern View Coals	TEVCTE
Intra Eastern View Coal	IEV2TE
Intra Eastern View Unconformity	CHUNCTE
Top Paleocene	DP2TE
Basement	BMTT

Table 1. Mapped horizons

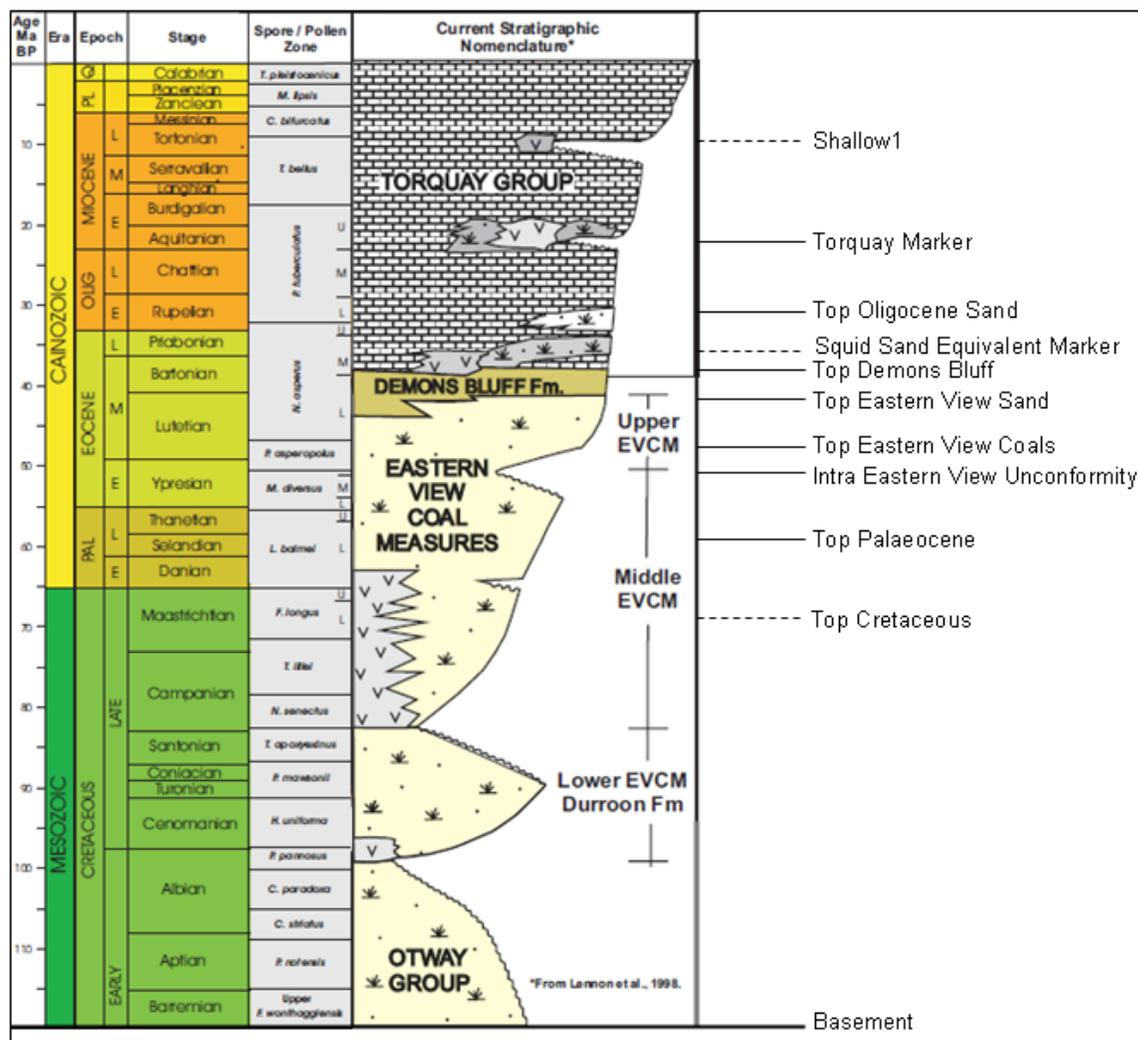


Figure 4. Bass Basin Stratigraphy and mapped horizons

2. Seismic Mapping

The TDOB08 seismic survey was treated as the prime survey. All surveys were interpreted as zero phase data, and a stepped increase in velocity was taken to represent the centre of a negative amplitude seismic event (trough).

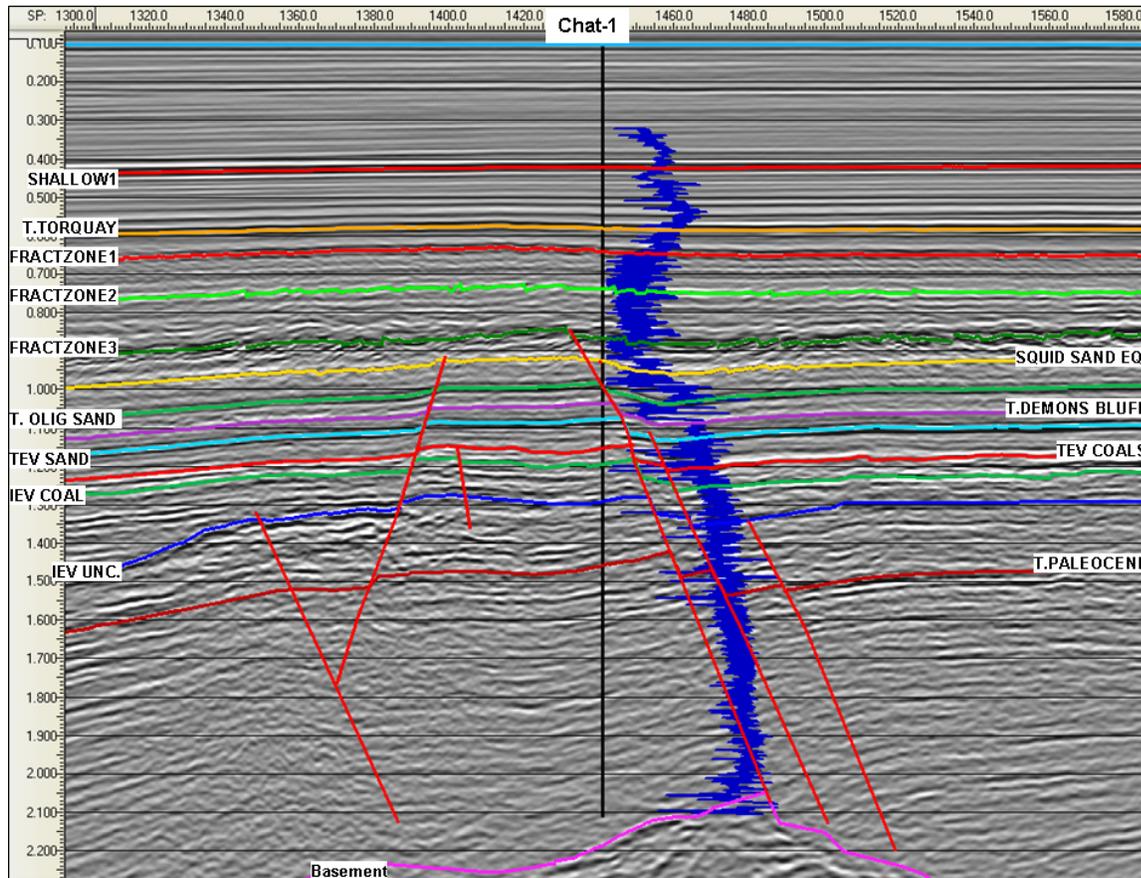


Figure 5. Seismic line through Chat-1 with interpreted horizons

Average mis-ties to the TDOB08 survey and the other surveys, at TEV Sand level were applied to the existing vintage data as time shifts in the Kingdom Project. The Chat-1 well was used as the primary identification point for the seismic markers. As Chat-1 had no well velocity survey, TWT and depth pairs were calculated by integrating the sonic log and using the TEV sand seismic time and well depth as a reference point.

With the exception of the Top Demons Bluff formation, it was assumed for the purpose of evaluating structural prospectivity of the area that all the horizons, from the Top Oligocene Sand marker to the Basement marker, should be considered as target levels, or are in proximity to target levels.

Time ties made were based firstly on the identification of the formations with the largest velocity shifts across the boundary and then lags at these levels were used to assist in the derivation of the lags at the other levels. The fault bounding the Chat structure to the east is

close to the well bore at the main shallow target levels. Based on the other seismic ties and the formation thicknesses in the well, it was concluded that the fault intersected the well bore near the top of the Oligocene Sand, and that the top 6-8 metres of this unit is faulted out.

The Intra Eocene unconformity seismic marker was proposed on the basis of the appearance of the seismic reflector relationships immediately to the west of the Chat-1 well. Elsewhere in the permit it appears to be fairly conformable.

A significant number of fault dependant closures were identified from the time maps. Time maps with a 100m cell size, were constructed from the horizon data. Residual mis-ties at intersections were distributed based on honoring the TDOB08 data first, and secondly, pro-rating the error distribution according to dip across the intersection - steepest dip getting the largest proportion of the mis-tie distribution.

Based on this current seismic interpretation, the Chat-1 well location is reasonably placed for the Oligocene Sand (6-8 metres down fault plane but well within structural closure) and well placed for TEV Sand. There are however, locations in close proximity to the crest of the structure where the throw on the western bounding fault exceeds the sealing Demons Bluff formation thickness. The TEV Coals and the IEV Coal are interpreted to be within closure but not optimally placed. The IEV unconformity, Top Paleocene and Basement are interpreted to be outside closure or not closed for the Chat structure.

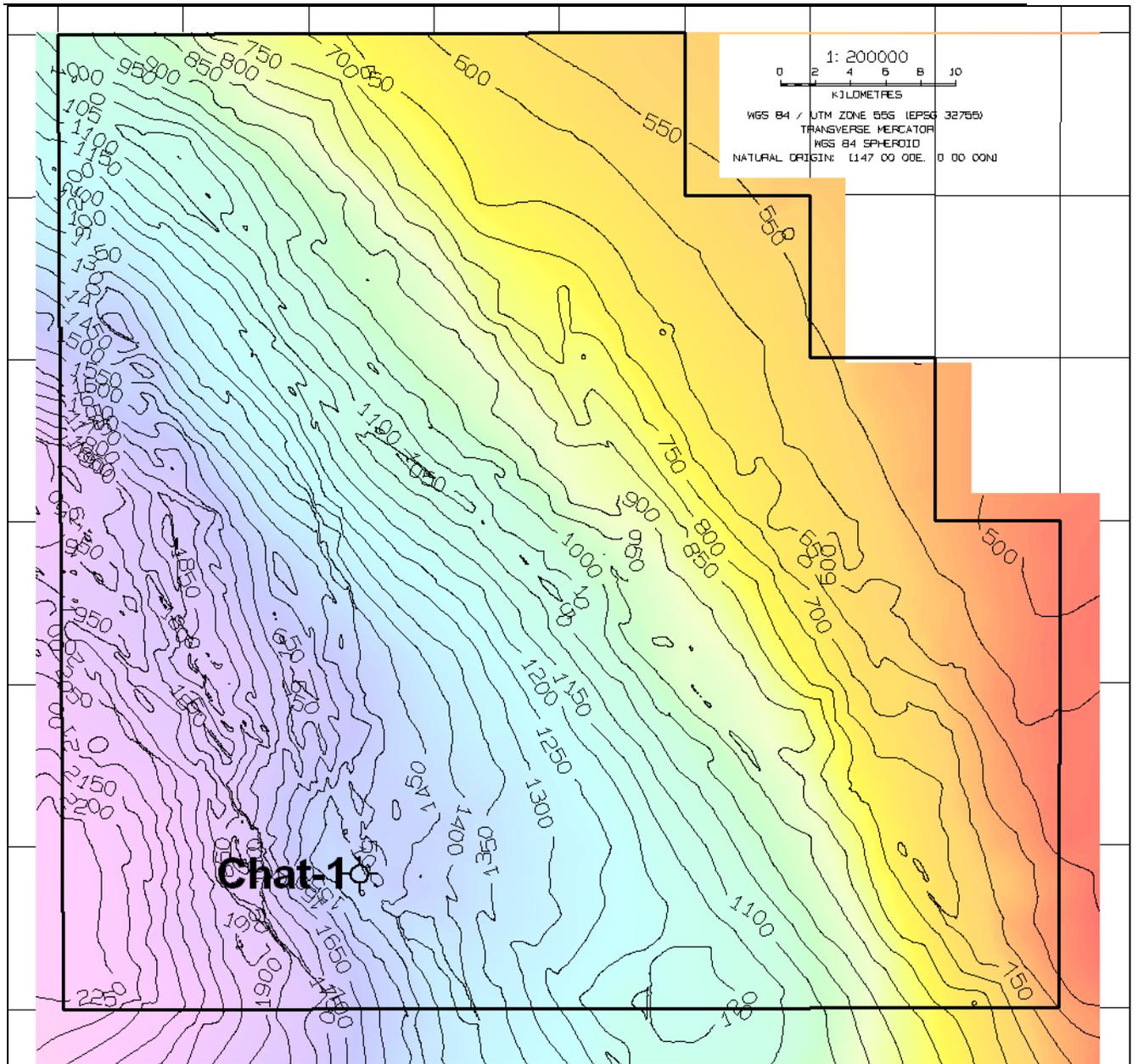


Figure 6. Intra Torquay Group TWT

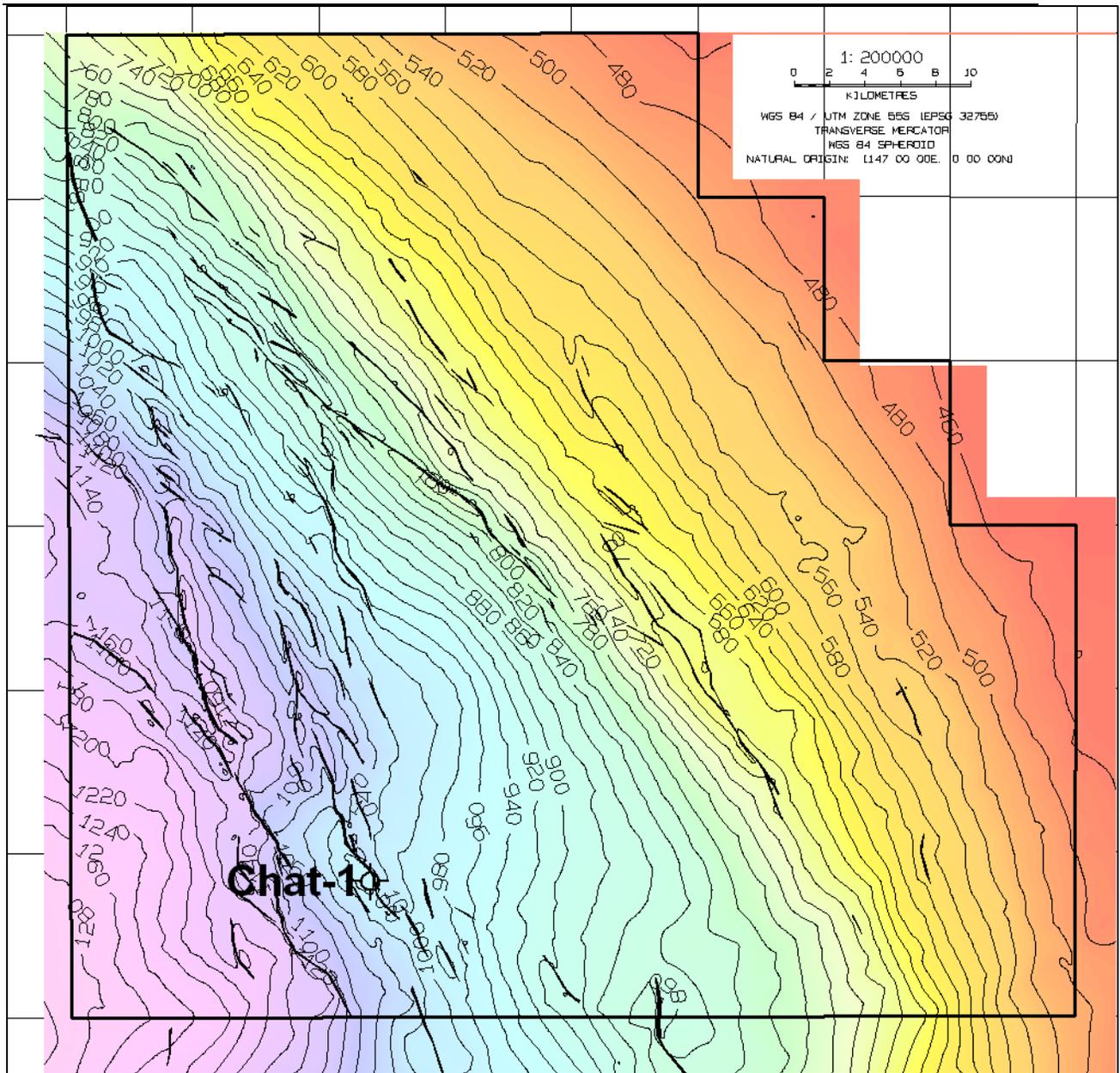


Figure 7. Top Oligocene Sand TWT

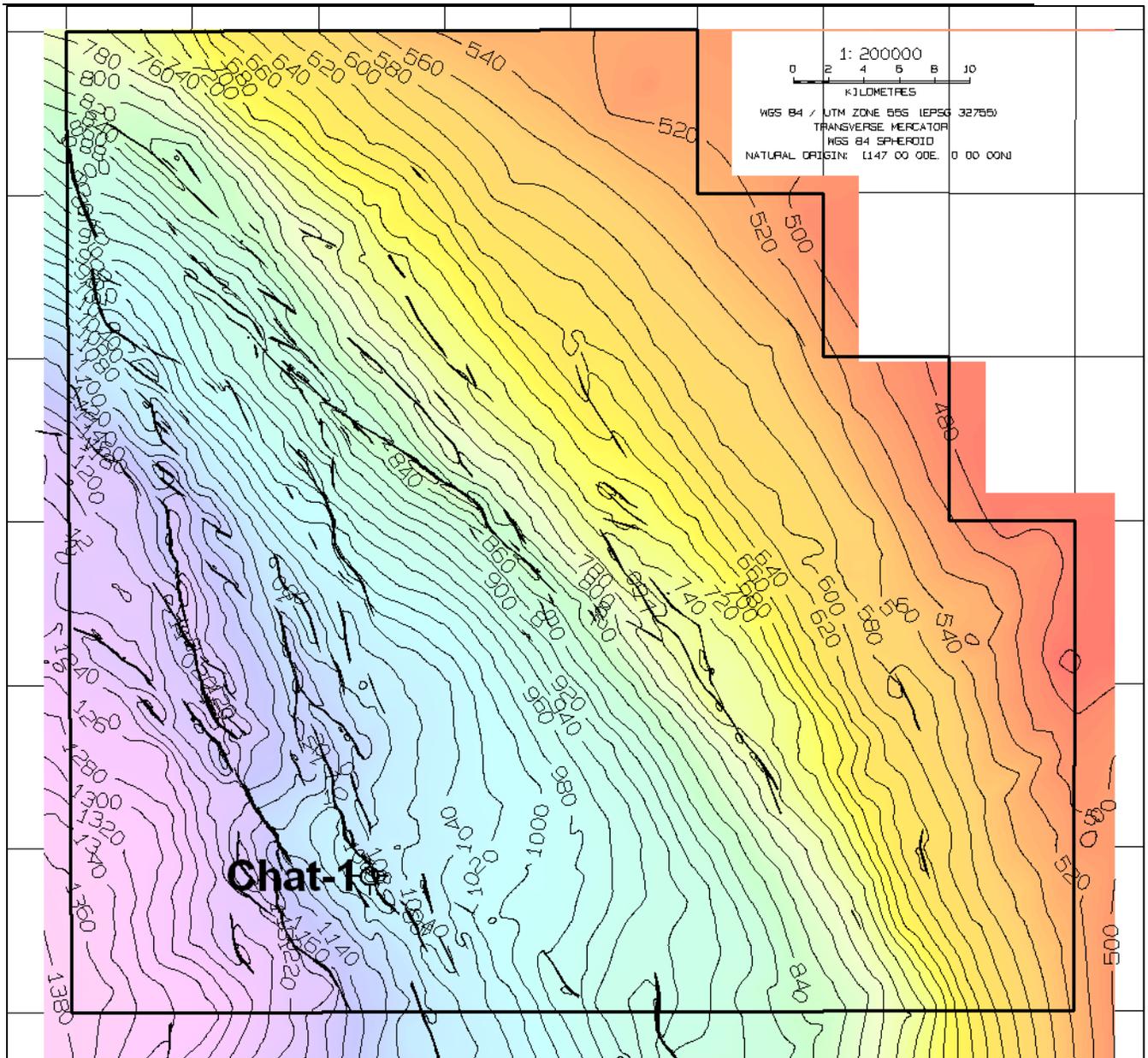


Figure 8. Top Demons Bluff Formation TWT

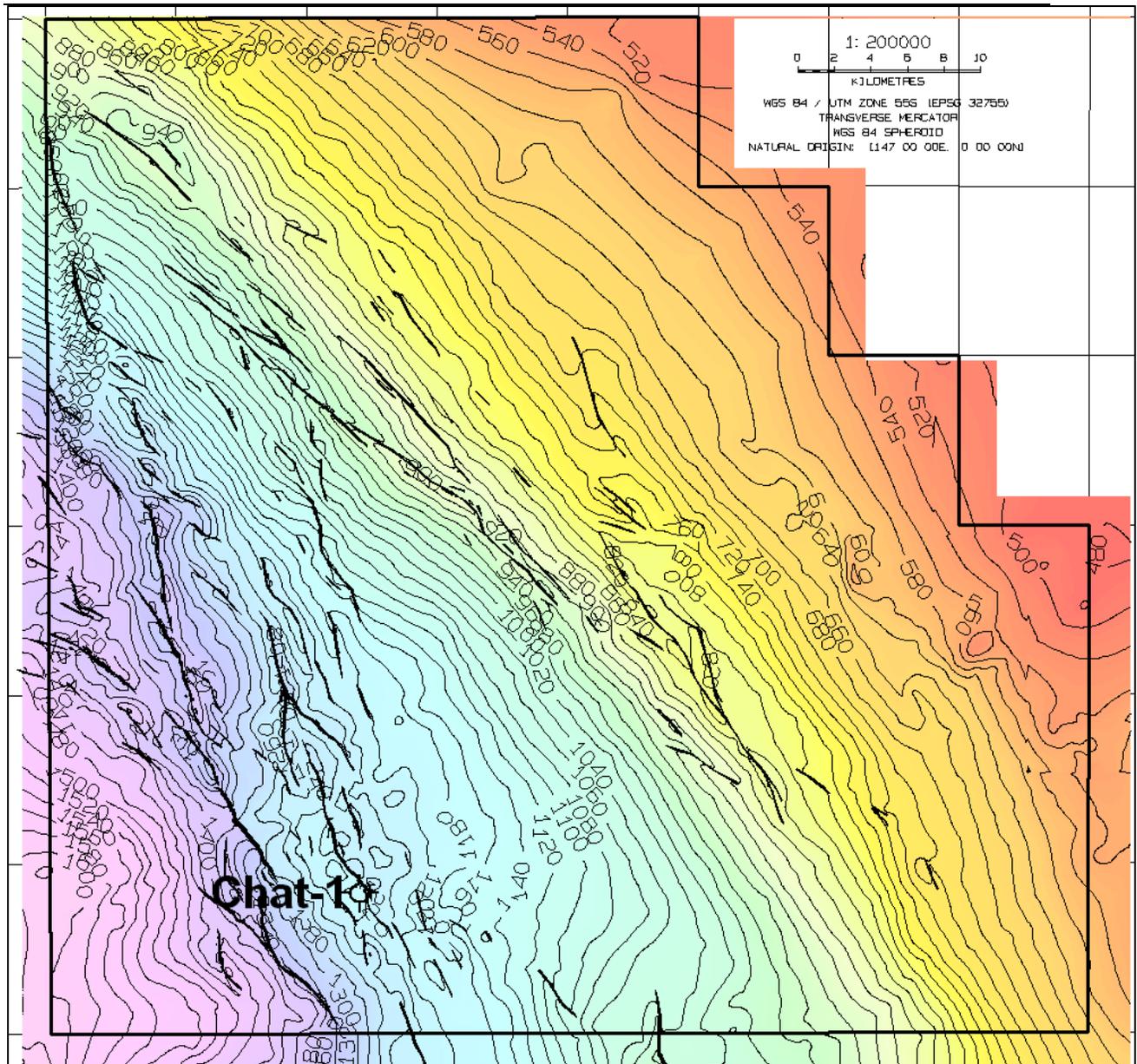


Figure 10. Top Eastern View Coals TWT

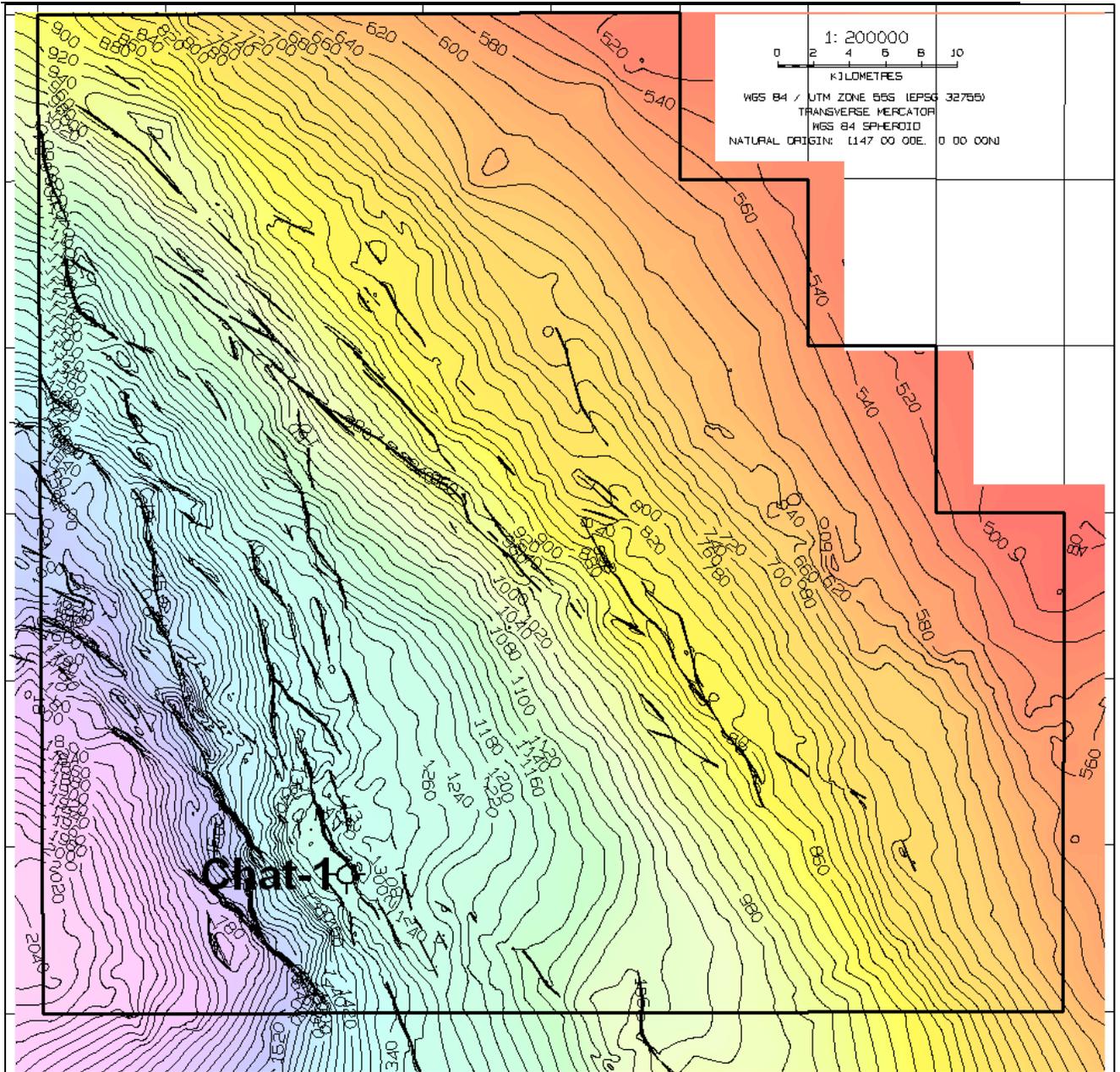


Figure 11. Intra Eastern View Unconformity TWT

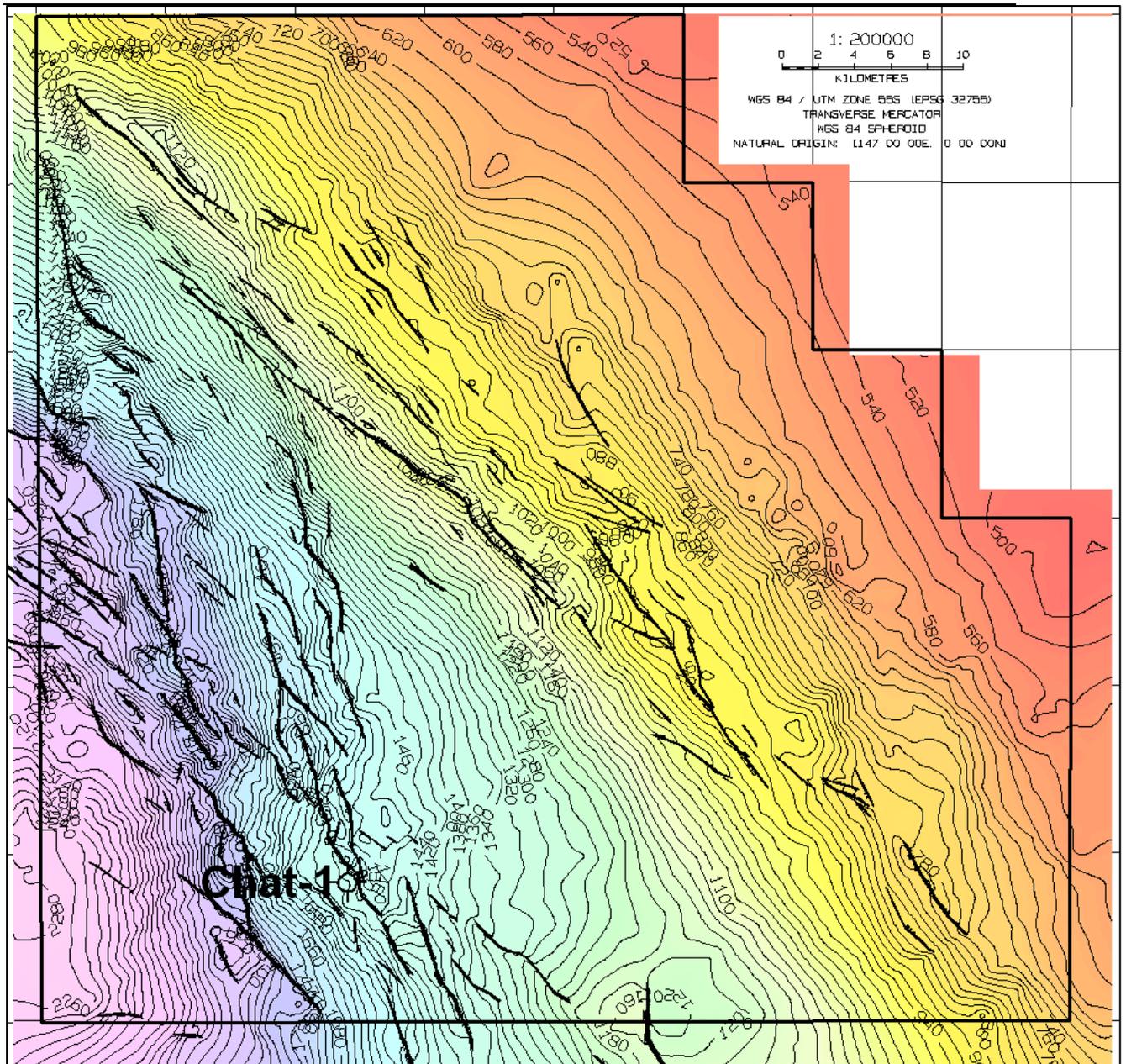


Figure 12. Top Palaeocene TWT

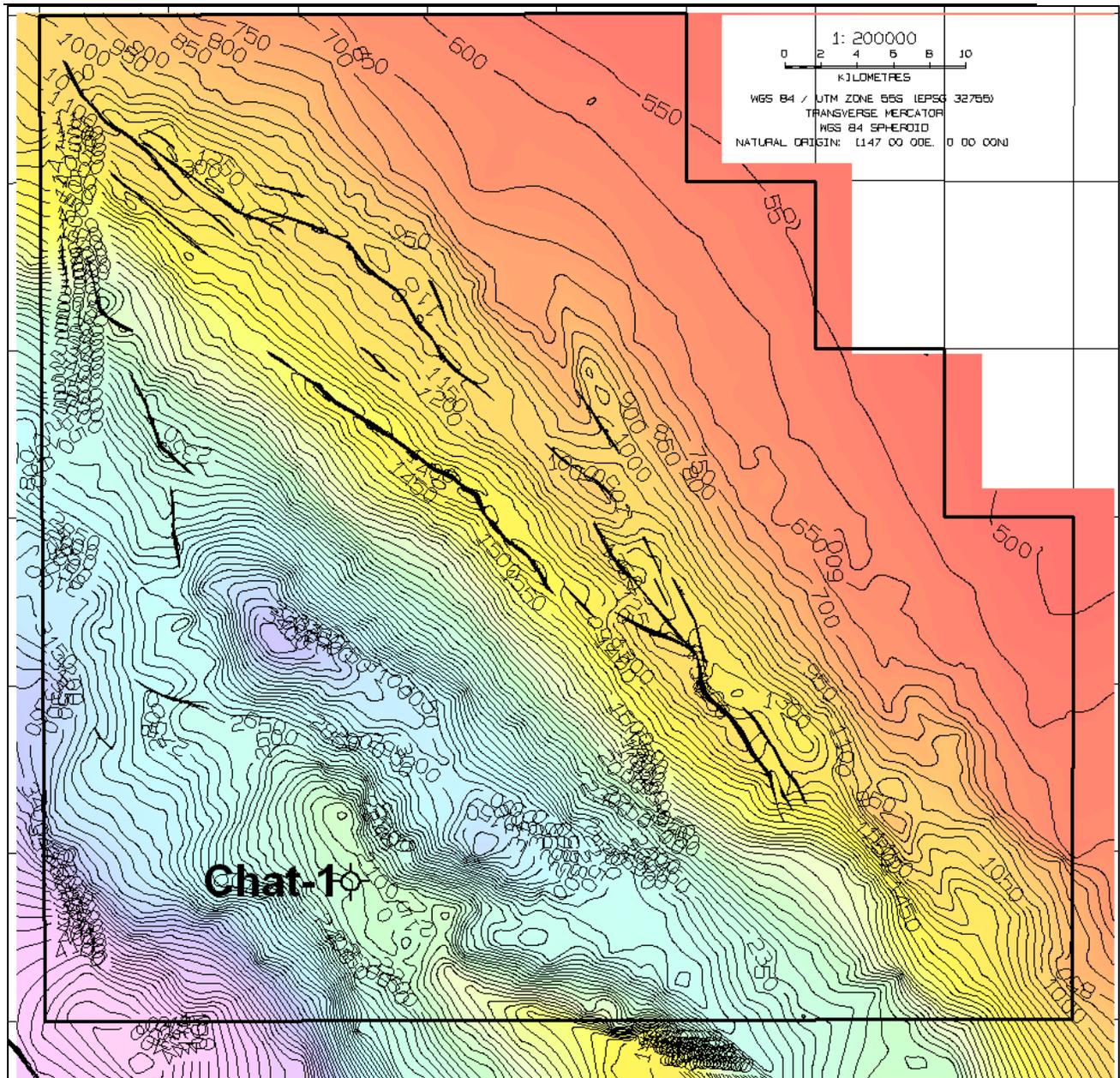


Figure 13. Basement TWT

3. Depth Conversion

Time ties from these grids at Chat-1 formed the basis of the layer depth conversion method and the calibration of the RMS velocities for the depth conversion. Previous work in the permit had used Time-Depth pairs from the Bass-2 checkshot survey. These pairs only went as deep as 1640m and then Kingdom extrapolates using a constant interval velocity below this depth, for deeper markers.

Based on this TD chart there was an excellent match with the strong seismic marker interpreted as basement and the volcanics penetrated in the well. The TD pairs based on the Chat-1 integrated sonic log, with time depth values down to 3070m, and much higher interval velocities below 1640m, calculated the volcanics to be 80msec above the strong seismic marker interpreted as basement. It is clear that the Bass-2, TD relationship is too slow, but 80msec seems too large a discrepancy to attribute to lags and migration effects (ie over-migration). For this mapping, the Basement was assumed to be below the top of the volcanics, with a lag of 23msecs to the Chat-1 sonic TD pairs.

Depth conversion was primarily based on RMS velocities from the seismic survey. The velocity data used was derived automatically from the seismic data using the stacking velocity functions from the seismic gathers, as seed functions, to constrain the results. The RMS velocity data was assigned to time horizon grids, smoothed and converted to average velocity via the Dix correction.

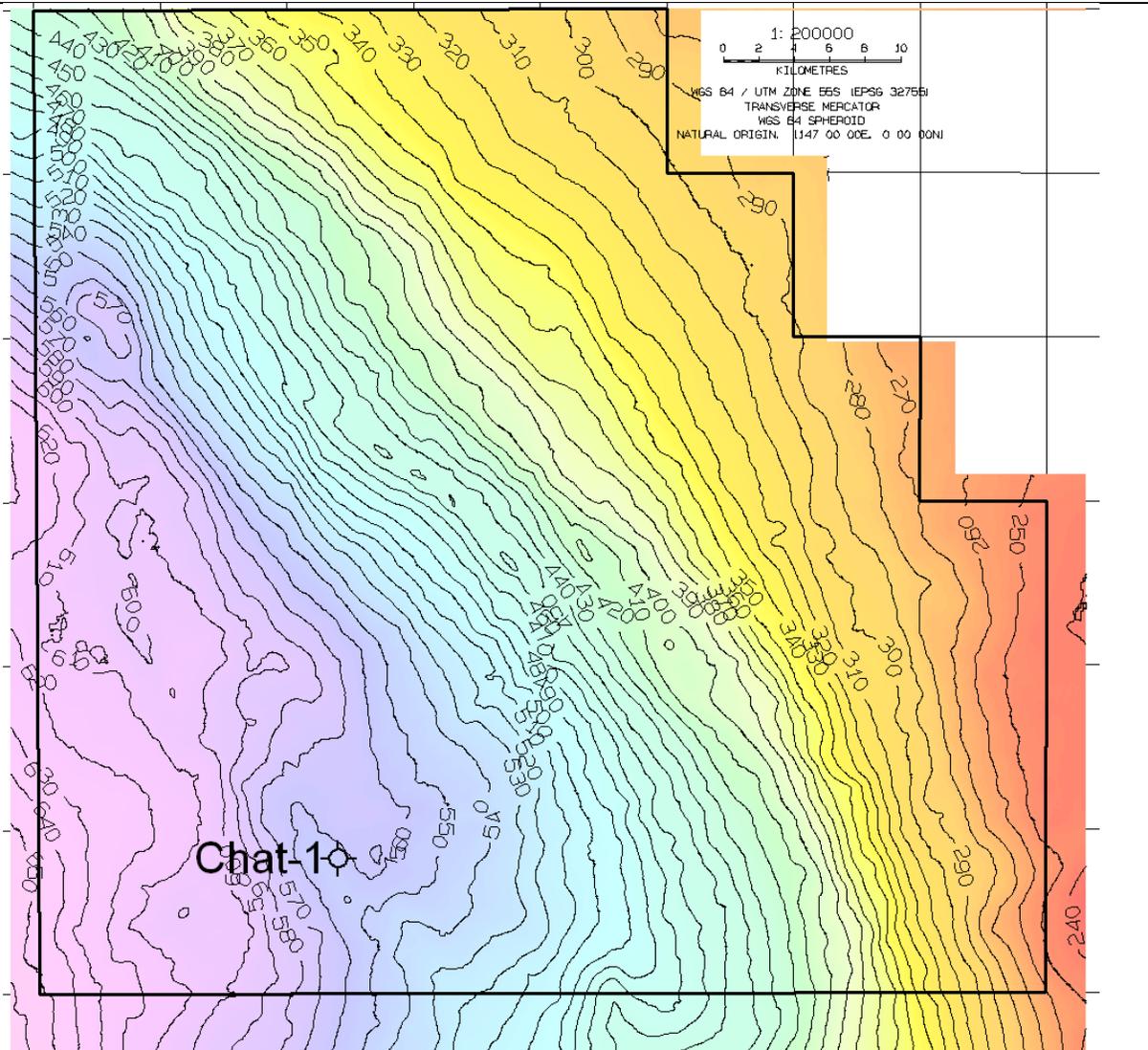


Figure 14. Intra Torquay Group Depth

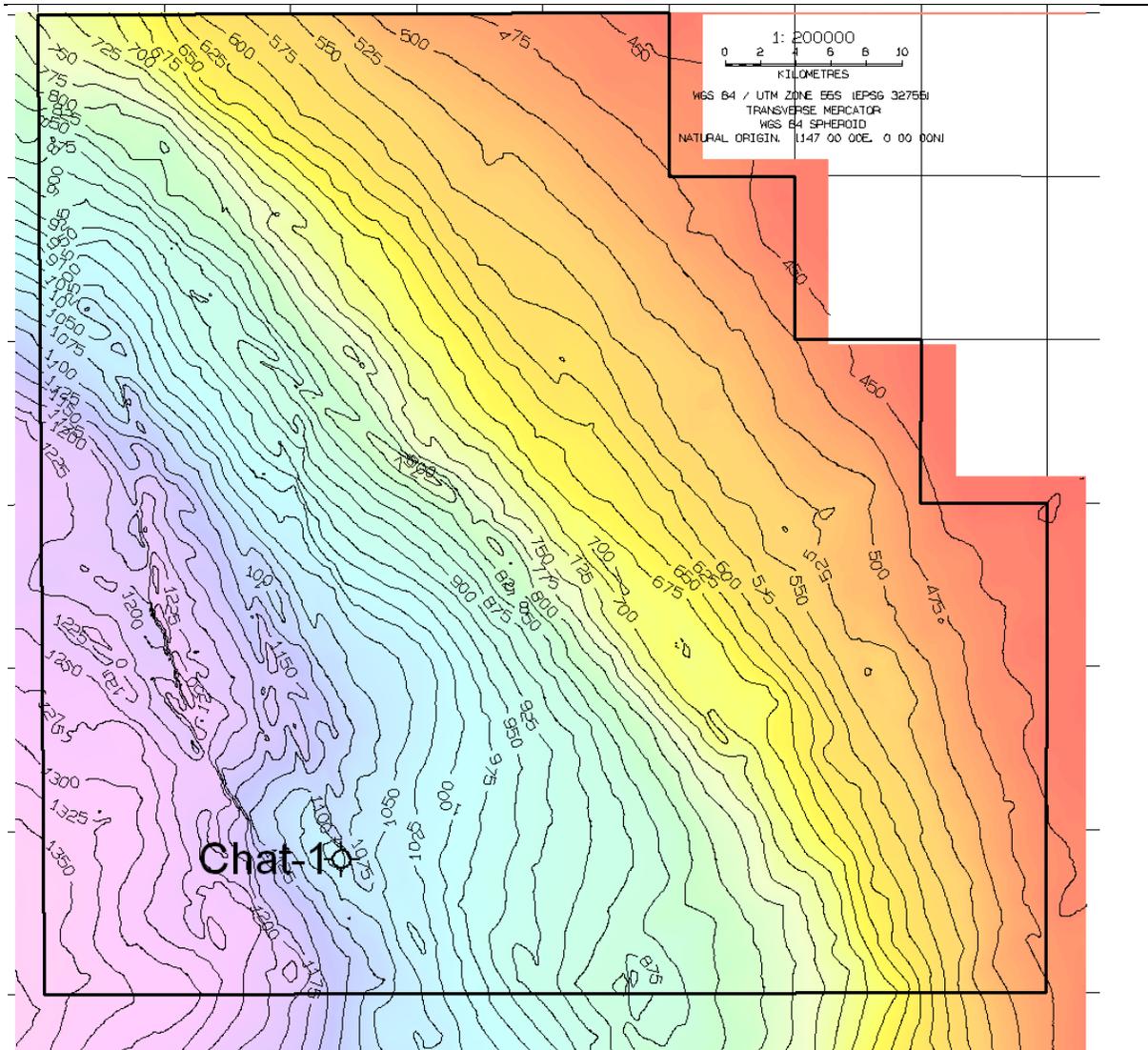


Figure 15. Top Oligocene Sand Depth

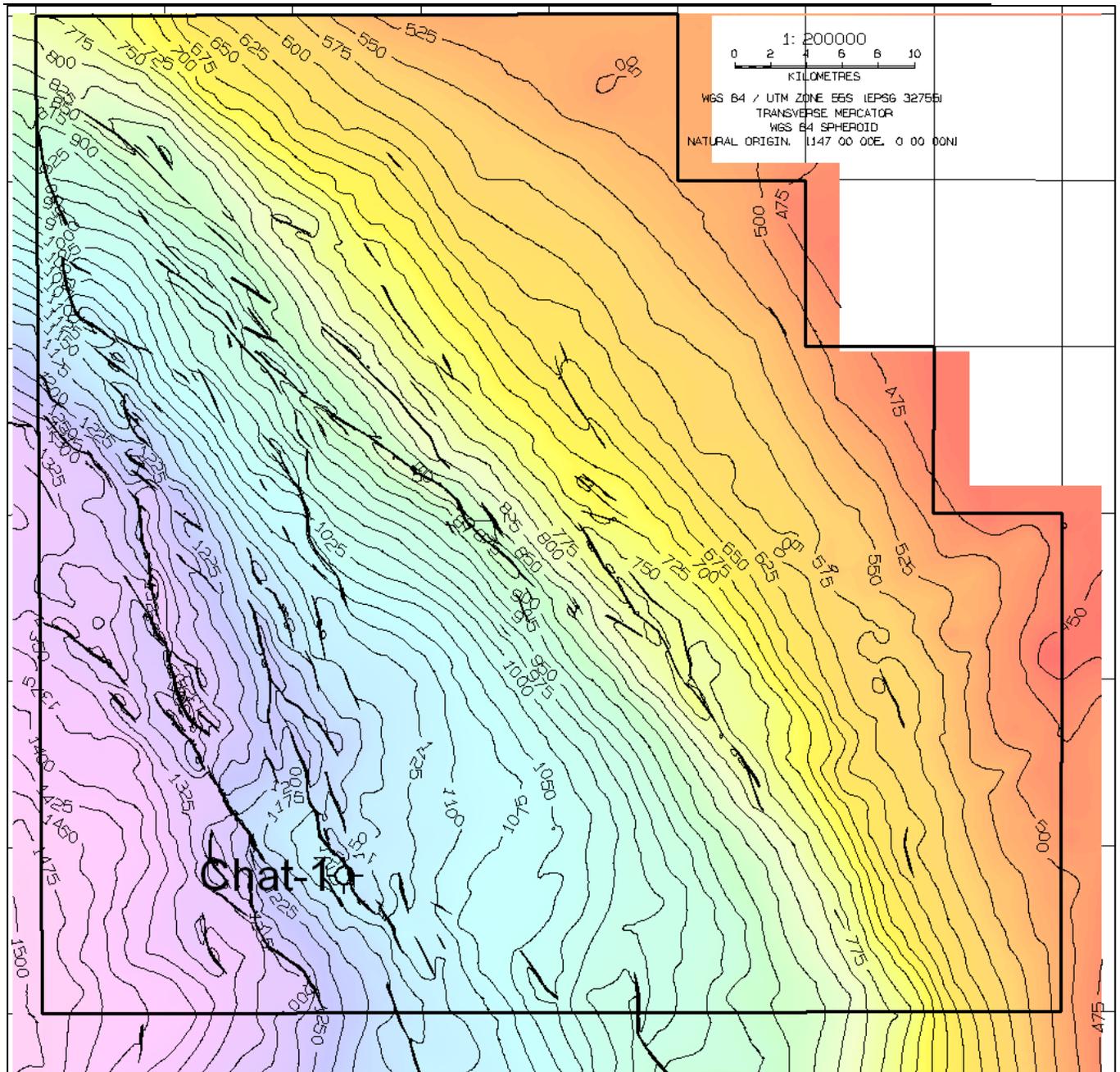


Figure 16. Top Demons Bluff Formation Depth

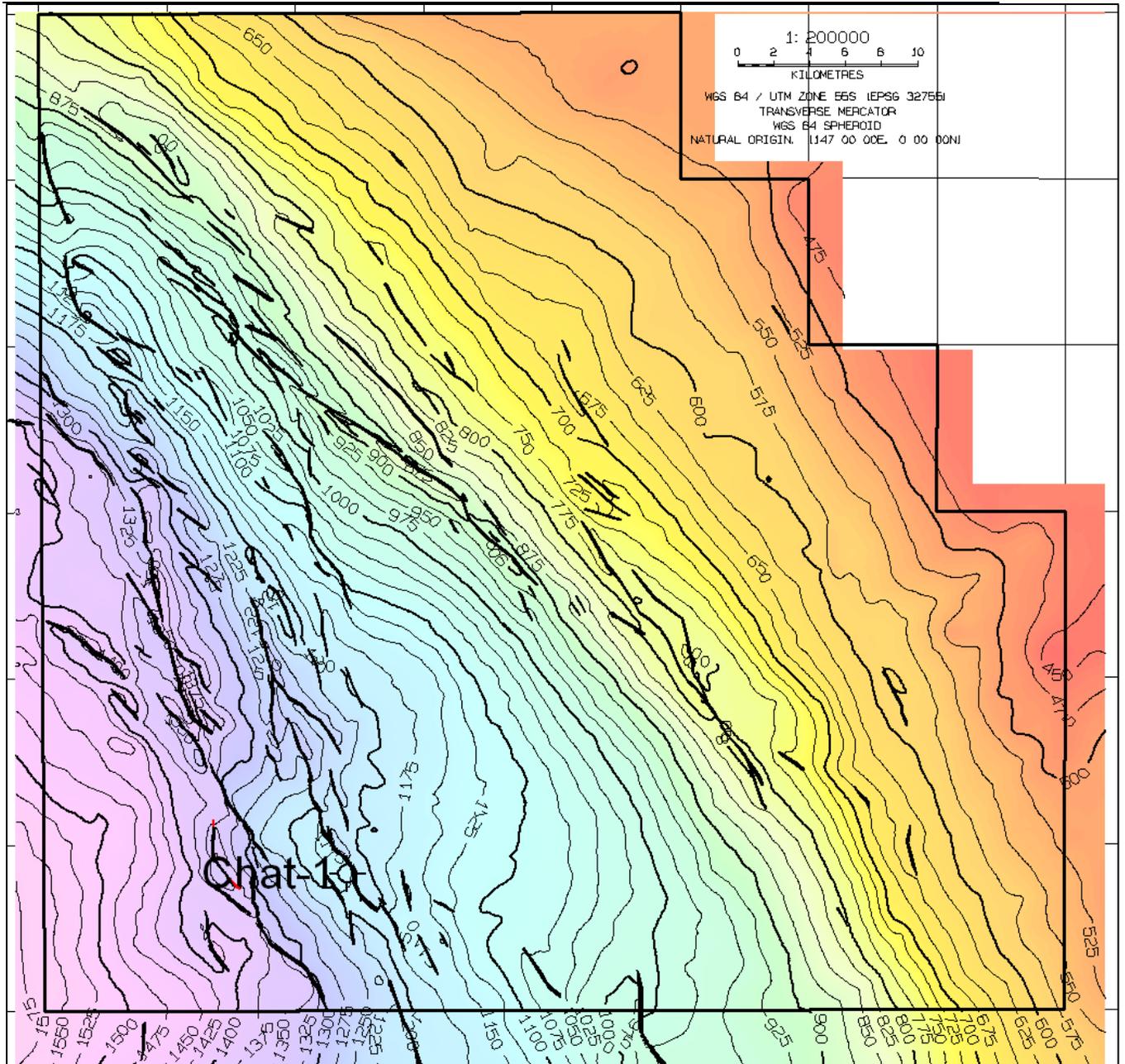


Figure 17. Top Eastern View Sandstone Depth

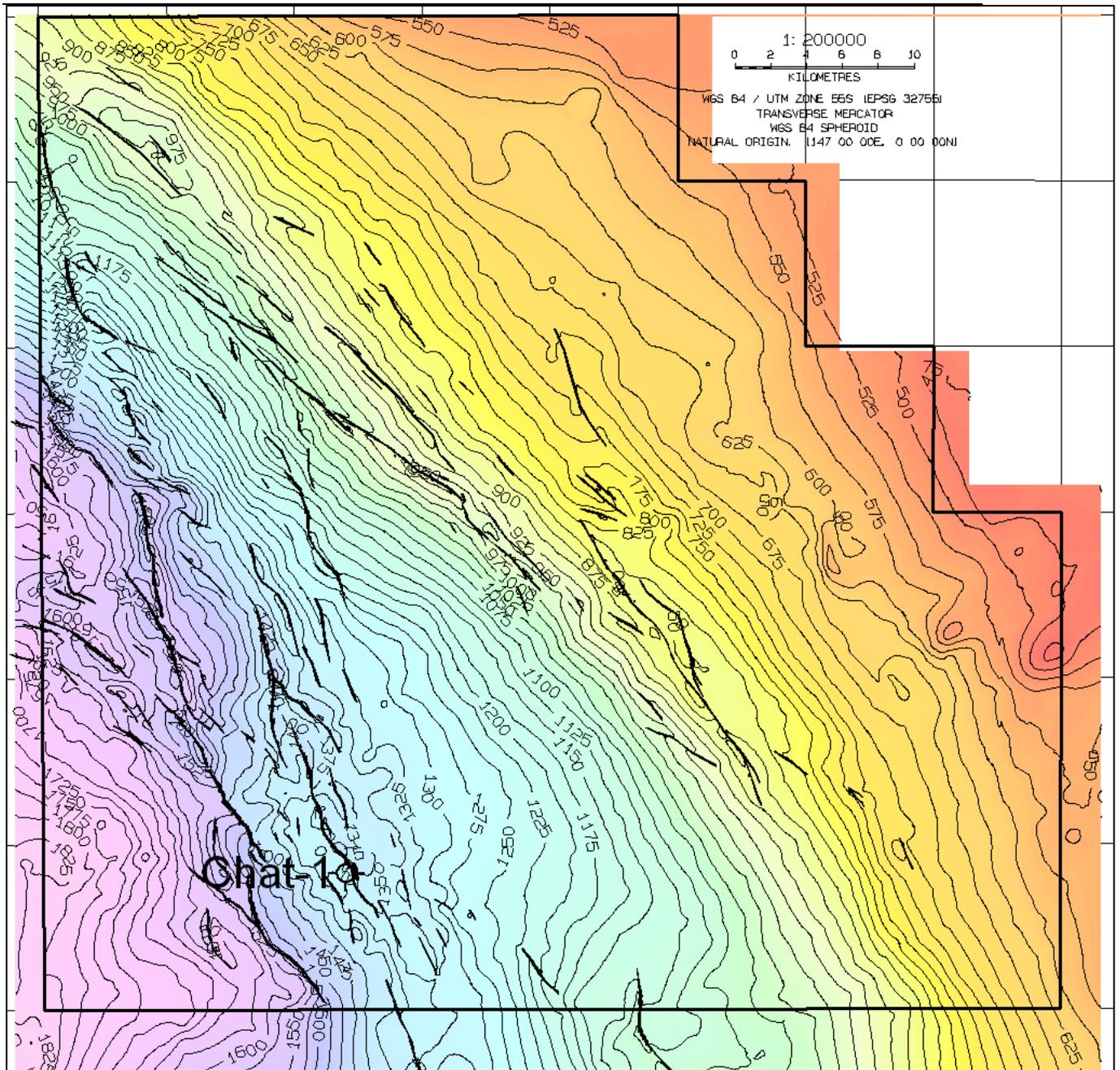


Figure 18. Top Eastern View Coals Depth

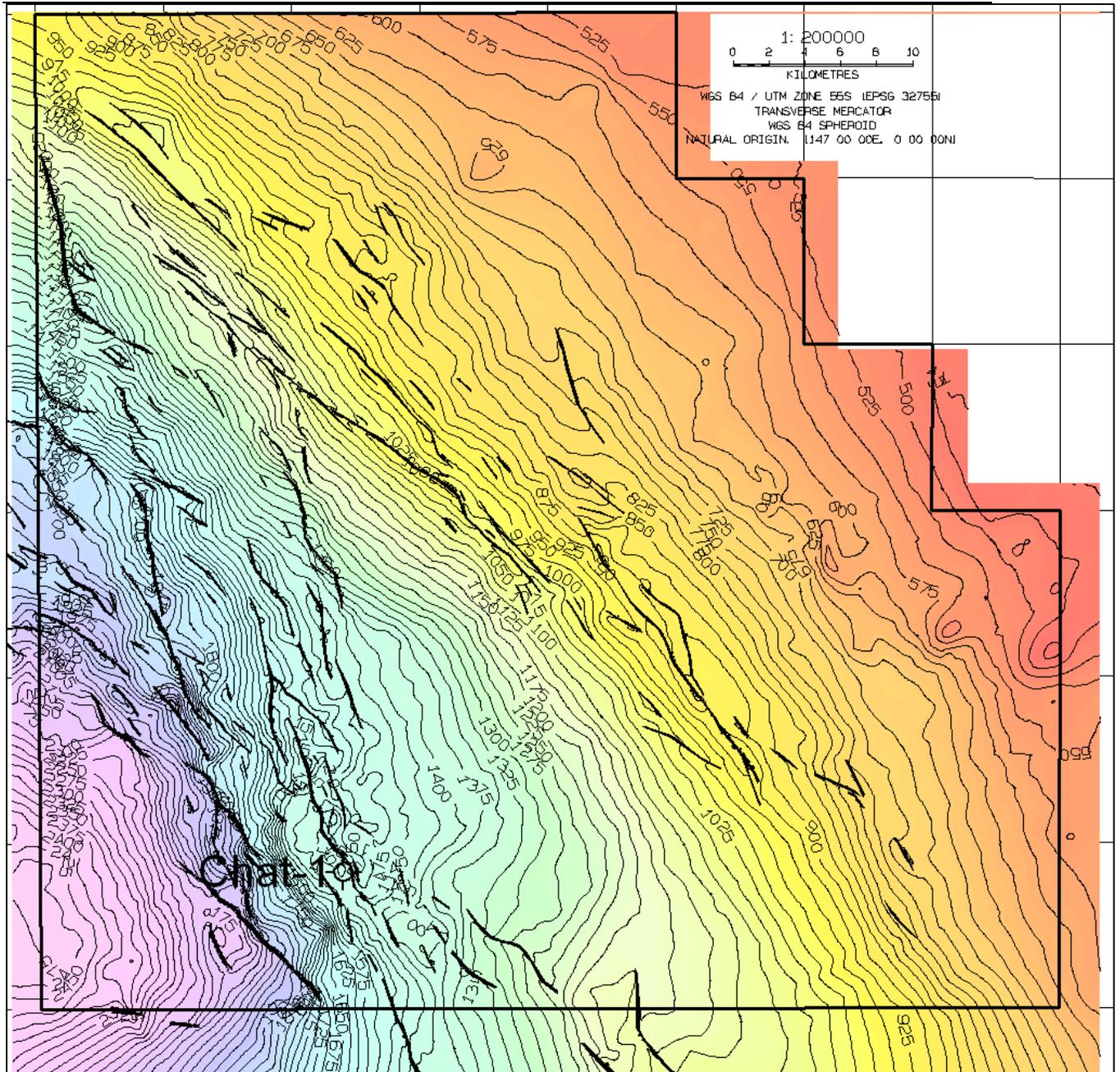


Figure 19. Intra Eastern View Unconformity Depth

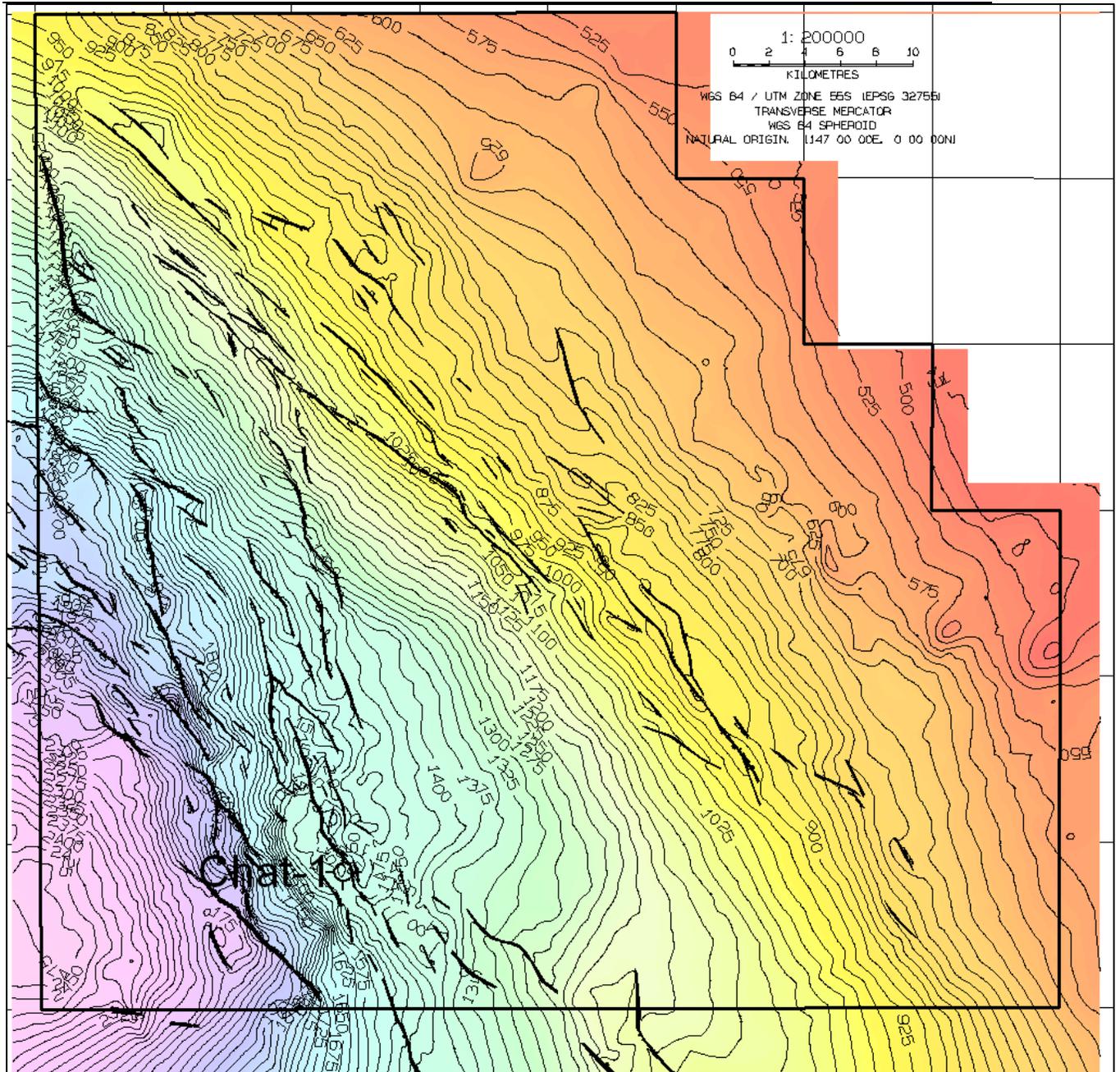


Figure 20. Top Palaeocene Depth

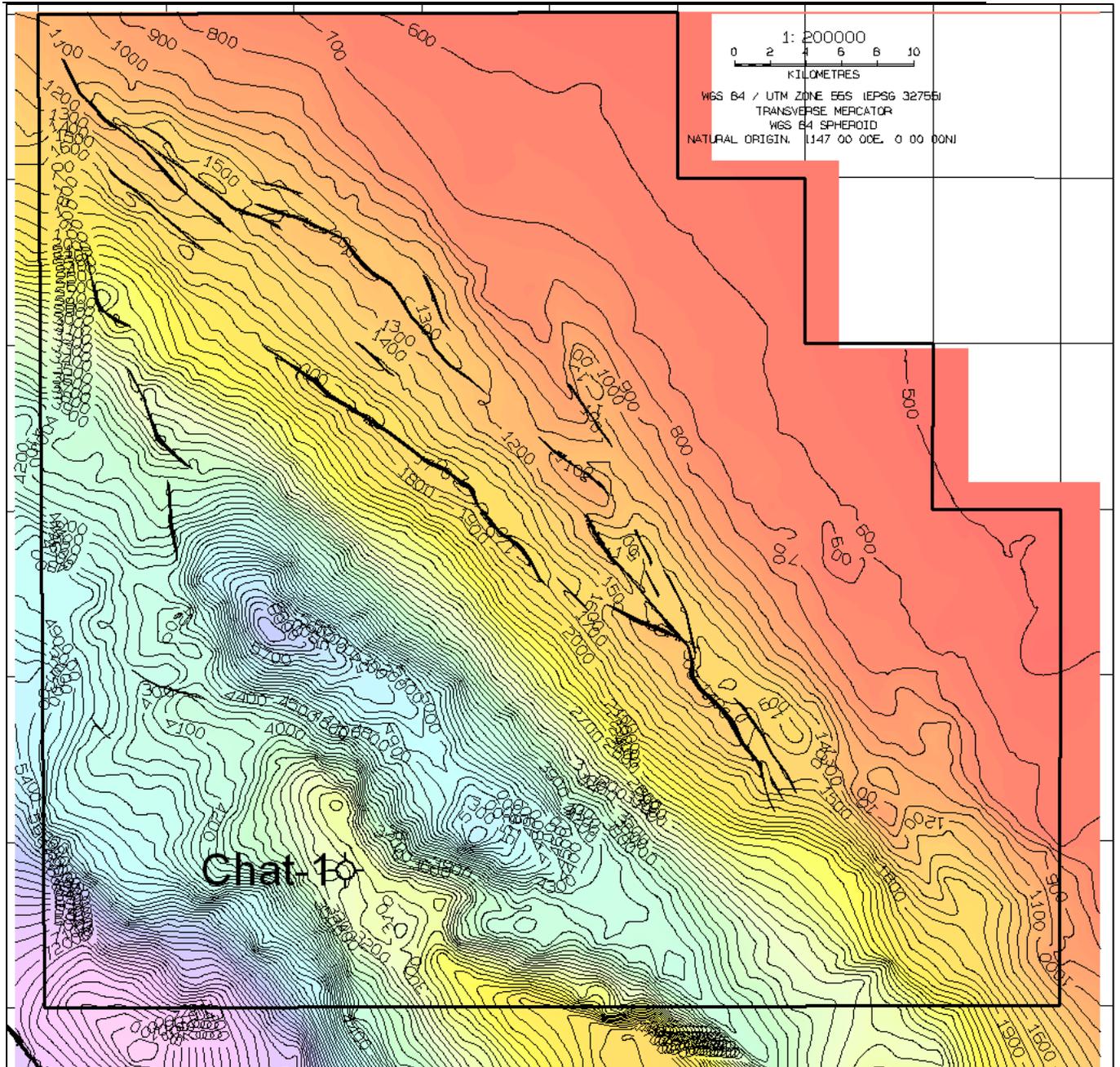


Figure 21. Basement Depth