

5. Offshore Otway Basin and West Tasmania

In this area the structural trend swings from NW-SE to N-S, following that of the continental margin. The depocentre in the deeper water area is separated by a shallow basement ridge from the Otway and Bass basins and has had an independent geological history.

In the area offshore from the Otway Basin the structural trends in the Upper Cretaceous and Tertiary are similar to those of the Great Australian Bight : passing from landward to seaward, block-fault, synsedimentary fault and thrust fault trends may be seen. A well-developed base Tertiary unconformity separates a seaward-dipping Palaeocene cycle from the faulted and eroded Upper Cretaceous. The later Tertiary deposits overlie a second unconformity, but have been eroded from the shelf and upper slope. Below the continental rise they onlap both landwards and seawards suggesting that they were deposited as turbidites in an abyssal plain environment.

In the deeper sea area west of Tasmania the tectonic style is much simpler than to the north-west. The slope is very gentle and the base Tertiary unconformity is rather flat. In addition the Upper Cretaceous is affected by synsedimentary faults of small throw only, and there are few signs of coupled thrusts. Both the Upper Cretaceous and Palaeocene probably comprise megafault cycles - such a feature can be clearly seen in the Palaeocene on N 414 (Encl. 19).

On two lines west of Tasmania the landward ends of the lines (N 416, N 417, Encl. 19) show a steeply dipping flank of shallow basement. Landward dips seen within this basement (e.g. N 416, sp 1100, Encl. 19) may represent an older Mesozoic section. GC.282, drilled about mid-way between the seaward ends of Petrel lines N 416 and N 417 penetrated pre-Upper Eocene basalt at 300 m below the sea floor. This suggests that the unconformity at the top of the Palaeocene corresponds to a basalt layer - perhaps of the same age as the "Older Basalts" of Victoria.

6. East Tasmania and Offshore Gippsland Basin

East of Tasmania the basal unconformity visible on the sections lies within the Upper Cretaceous (GC.283). The continental basement forms a series of linear north-south trending step-faulted blocks of pre-Mesozoic basement with occasional wedges of landward-dipping continental sediments (? Lower Cretaceous) e.g. N 427, sp 750, Encl. 19). This kind of basement probably also underlies the east Tasman Plateau. At the base of the continental slope the basement changes abruptly to one of volcanic character and is buried below an abyssal plain.