

- 3) A regional low at the north end of ER-29 that may trend southwest from as far north as the onshore well Heywood 10 (plates 6 (e,f)).
- 4) A generally undisturbed surface (plates 6(f,gh)) from the regional low to the West King fault that is intruded by volcanics close to the King Island area.
- 5) The outline of the Anglesea Sub-basin (plate 6(e)).

Individual closures are numerous within the faulted Gambier Sunklands; Argonaut A-1 tested a well defined fault closure without any shows of hydrocarbons.

5. Top Eocene Sandstone (plates 7(a,b,c))

The outstanding feature of the map is the southern zero line of the lower Tertiary clastics which marks the clinoformal edge of Tertiary sand deposition. The Paleocene faulting shown on Base Tertiary maps in the Gambier Sunklands area is largely absent at the Top Eocene Sandstone; an exception to this is apparently post Eocene fault rejuvenation in the Argonaut area (plates 7(a)).

There are no structural closures on the Top Eocene Sandstone considered to be worthy hydrocarbon prospects.

6. Lower Miocene Marker (plates 8(a,b,))

The outstanding feature of these maps are four major deep erosional channels that cut the Lower Miocene Marker in the centre of the basin in the Nautilus area. These are filled with Mid-Miocene and younger rocks, and apparently the channels were caused by submarine erosion or slumping close to the edge of the then existent Lower Miocene continental shelf.

There are no structures prospective for hydrocarbons at the level of the Lower Miocene Marker.

F. Magnetic Survey Interpretation

Plates 10 (a,b) are total magnetic intensity contoured at an interval of 20 gammas from the EP-67 and ER-68 shipboard magnetometer readings. No correction was made for the regional geomagnetic gradient, in this area of the order of 8 gammas per mile. The datum is arbitrary and the diurnal variation (of the order of 10 gammas) has been adjusted by forcing intersecting magnetic profiles to tie and distributing mistie readings over the profile.

The maps have been subdivided into subsheets to conform with the previous aeromagnetic survey of the area, The Bass Strait to Encounter Bay Aeromagnetic Survey by Hematite Exploration Pty. Ltd. Depth estimates are based upon the Peters (1949) half-slope method, the model results of Vacquier et al (1951) and, since there are surveys at two elevations (aeromagnetics and shipboard magnetics) depths to a theoretical point pole source. Discussion of individual sheets follows.

Sheet 5

Only two lines were surveyed in this area and a single circular anomaly (5.1) of 380 gammas occurs at their intersection. A similar anomaly of 250 gammas occurs on the aeromagnetic map at the same location. The anomaly recorded by the marine survey is slightly smaller in area and indicates a source (magnetic basement) at a depth of less than 4000 feet versus about 3000 feet from the aeromagnetic survey.

A number of intense narrow anomalies were recorded on line ER-2, indicating that the depth to magnetic basement decreases to the southeast.