

1.0 INTRODUCTION

Approximately 1,100 km of seismic data were recorded within T/15P in 1990. These data extended the seismic coverage over areas that had not previously been mapped and infilled the existing grid in areas of potential interest.

Regional seismic boundaries were mapped and the component sequences within them identified. The group of related sequences, the megasequences, that represent the major phases of deposition, are recognised as the sedimentary response to major plate reorganisations in the area.

Two seismic megasequence boundaries are mapped. These are:

- (1) The Otway Megasequence Boundary
- (2) The Durroon Megasequence Boundary

In addition to these an "Event Within the Durroon Megasequence" is mapped.

The quality of seismic data is variable. Data within the Anderson and Bark Sub-Basins are superior to those within the Boobyalla, the result, partly, of severe faulting within the latter. An implicit error is present in all seismic correlations of mapped horizons in the Boobyalla Sub-Basin. This is particularly true of the map made from "Event Within The Durroon Megasequence", where correlations from one fault block to another are always in doubt. The seismic maps in the Boobyalla Sub-Basin should be regarded, therefore, as the best fit that has been made between doubtful and unreliable reflections.

2.0 DEPOSITIONAL SEQUENCE ANALYSIS

Duff et al (1991), following Lowry (1987), recognised four megasequences in the Gippsland Basin. The Strzelecki Megasequence was terminated by the breakup of Australia and Antarctica (98Ma); the Golden Beach Megasequence was closed by the rupture of Lord Howe Rise from eastern Australia (80 Ma); the Latrobe Megasequence ended with the marine incursion that deposited the Gunnard Formation (50 Ma); the Seaspray Megasequence was correlated with the transition from a basement-coupled deformational style to one where folds formed independently of basement structures (Encl 1).

Four megasequences are noted within T/15P, at the southern margins of the Bass Basin (Fig 1). The Otway Megasequence Boundary is dated at Durroon-1 at 98 Ma; the Durroon Megasequence Boundary is dated at 80 Ma; the Eastern View Megasequence Boundary is dated at 37 Ma; the Torquay Megasequence follows (Encl 1). The Otway and Durroon Megasequence Boundaries are owing to the same regional plate adjustments that caused the Strzelecki and Golden Beach Megasequence Boundaries. The Latrobe Megasequence Boundary correlates to a second order Eocene sequence boundary in the Bass Basin. The Eastern View Megasequence Boundary appears to have no correlative counterpart within the Gippsland Basin.

There are second order sequence boundaries common to both basins within the 98 Ma to 80 Ma depositional period. Depositional sequence analyses may prove similar correlative sequence boundaries are common in younger beds. Both basins are of the same age and respond to similar regional adjustments of underlying plates. However, the Gippsland Basin appears to have more localised sequence boundaries and later underwent a prolonged period of compression which had no folded counterparts within the Bass Basin.