

approximately 38 miles are considered unreliable because of bad noise spikes due to recording unit malfunction. Approximately 36 miles of coverage are questionable as far as the readings are concerned, however no instrument malfunction can be identified. The remaining 190 miles of line coverage over which no magnetic data was recorded was due to damage of the towing cable by the ship's propellers. The time lost was in securing a new towing cable from the U.S. manufacturer.

B) DIGITAL PROCESSING

1) Off-shore Otway Basin Marine Seismic and Magnetic Survey - E.P.67.
All digital processing was done by G.S.I. at their digital processing centre in St. Leonards, N.S.W. on TIAC 827A and 870 computers with presentation on to variable density film negatives. Digital processes used include True Amplitude Recovery, Normal Moveout Correction, Stack, Time Variant Deconvolution and Time Variant Filter. A static correction to compensate for the delay in travel through the water was subtracted from all data. On most presentations, sample rate was four milliseconds, time variant deconvolution was with a 58 point operator and time variant filter with a 39 point operator.

All processing decisions that involved geophysical specifications, such as dynamic corrections, deconvolution, filtering and presentation were made by an Esso Geophysicist. T-delta T analysis on single-fold digitally processed sections was the basis of normal moveout corrections. Various processing parameters were tried before settling on the methods described above which gave best results for most conditions.

Magnetometer total intensity curves are displayed at the bottom of each VDF section as a plot of gammas versus distance covered.

2) Previous Surveys

1000 miles of six-fold CDP data from the Off-shore Otway Basin Marine Seismic Survey (EO-67) were processed digitally via G.S.I. at St. Leonards, N.S.W. in the same manner described for the EP-67 survey. These were data that had been recorded both analog and digital, but because of lack of available digital facilities, had only been processed analog. Results of the digital processing were much superior to analog due to increased dynamic range with digital recording, better amplitude control, better dereverberation of water bottom and intrabed ringing, and increased signal to noise ratio through time variant digital filtering.

218 miles of three-fold analog data shot in the Cape Grim to Cape Jaffa survey for Hematite in 1965 were transcribed from analog to digital format by G.S.I. and processed digitally. After experimentation, it was decided to transcribe the three-fold analog summed tapes and apply the digital processes of deconvolution and time variant filtering. A static correction for travel time through the water was not applied. Results were superior to analog processing, but not as good as might have been anticipated. Poor amplitude control in the early part of the summed tapes in the original analog playback was not overcome in digital processing, and only marginal improvement was realized in deep reflections.

380 miles of single-fold analog data shot in the Flinders Island to Kingston survey in 1963 for Hematite were transcribed from analog to digital format by G.S.I. After experimentation, it was decided to transcribe the field tapes and to apply the digital processes of normal