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PRELIMINARY RESULTS OF SEISMIC REFLECTION AND BATHYMETRIC STUDIES OFF DONDRA AND MATARA

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Surveys of the Dondra submarine canyon using high-resolution seismic reflection profiling, shallow water echo-sounding and surface sediment grab sampling were carried out during December 1985 and April 1986 by the R/V 'Samudra Maru'.

The sub bottom seismic profiling records indicate that in the study area the sea bed layer of unconsolidated sediments consist stratographically of an upper and lower sequence. They are separated by fairly strong continuous reflectors on interpreted seismic profiles. Sea bed samples indicate coarse to gravelly shelly sand with a high proportion of shell material up to several centimetres across and continous internal reflectors show their distribution in the survey area.

The thickness of sequence one varies from 0 to 8 metres, and increases from the shelf edge to mid shelf and is totally absent where bedrock reaches the sea bottom forming outcrops.

Sequence two varies in thickness between 6 metre troughs and channels to a few or zero metres in areas where the upper sediment sequence directly overlies the bed rock. In most places this sequence is acoustically transparent or shows a diffuse reflection pattern and could be interpreted as a mixture of fine sand, silt and clay (soft sediments) that absorb acoustic signals.

The deepest weak reflector is infered to be the basement which possibly consists of Precambrian rocks. The bed rock which is observed out-cropping on the shelf and shelf break is irregular in nature.

The seismic profiling and bathymetric transition from the shelf to the canyon ranges from gradual to a sharp break. A gently inclined surface is observed to about a depth of 30 metres where a sudden transition to a inclined area occurs. This zone extends from the foot of the nearshore slope to the border of the almost sub-horizontal terrace in the outer shelf area. Echo-sounding profiles show that the shelf break is at 70m. Seawards of this feature a terrace inclined at about 2 - 3° continues to a depth of 90 metres where a further increase in gradient marks the beginning of the submarine canyon.