

ABSTRACT**Coastal Dynamics and Petrology at Hellshire
and Half Moon Bays, south Jamaica****Keewanmatie Susan Samaroo,**

The response of the beach profile to physical processes operating on the backshore, foreshore and nearshore zones at Hellshire and Half Moon Bays has been examined over a thirty month period, between March, 1983 and August, 1985.

Approximately $139,000\text{m}^3$ of sediment comprise the sand dunes at Half Moon and part of Hellshire Bays. Sediment samples taken from the dunes are finer and better sorted than samples obtained from elsewhere along the beach profile. Experimental data obtained using sand traps indicate that most sediment is transported by a low saltation process. The critical entrainment velocity is exceeded for most of the year, particularly during June to August.

The morphology of the subaerial section of the beach profile showed no significant variation during 1984. Morphological variation of the subaqueous beach profile was statistically significant through 1984.

Time series analysis of beach profile data obtained over the entire study period indicates that beach width extension occurs once per year at most

locations, usually between March and June. The results of a spatial autocorrelation analysis indicate that beach width, subaerial and subaqueous sediment volume changes along the beach profile are spatially interdependent at all locations.

Petrological analysis of sediment samples taken from the mid-tide level indicates a distinctive distribution of terrigenous clastic and biogenic carbonate sediment. In particular, terrigenous clastic sediment declined in absolute proportion from north to south and also fined in this direction. Likely sediment sources are identified and the distribution of sediment related to the direction of alongshore sediment transport.