

Controls on the Development of a Modern Beach Ridge System -
Significance in Interpretation of Ancient Sequences

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The interpretation of subsurface stratigraphic and sedimentological information including 40 shallow vibra-cores and 19 bore holes, geomorphological analysis and ground penetrating impulse reflection radar have shown that the stratigraphy of the beach-ridge barrier is composed of two major lithosomes: (1) an earlier transgressive sequence; and (2) and a later regressive sequence with a landward transgressive component. Like other regressive barriers around the world, the regressive phase coincided with the Late Holocene stillstand of sea level. Its development is also controlled by antecedent topography and the presence of large sediment supply.

A SIR-7 impulse reflection radar has documented time line surfaces that have been inferred in previous studies of regressive systems such as along the Gulf Coast of America, in the Netherlands and in Australia. The radar record suggests that progradation of the regressive system occur sporadically. The development of the beach ridge begins during period of abundant sediment influx whereby the beach widens and builds seaward. This accretionary phase is punctuated by a period of low sediment supply when the beach erodes, leaving some cobble and gravels as sediment lag. Subsequence onshore movement of coarse-grained sediment steepens the beach profile forming a ridge. The influx of sediment is controlled by major storms.