



## **Beach ridge sedimentology: field observation and palaeoenvironmental interpretation for Anegada Island, British Virgin Islands.**

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Beach ridge landforms have been observed in different environments and in settings that range from polar to tropical. Their stratigraphy and sedimentology has received a limited amount of discussion in the literature (Tamura, 2012).

In coastal geomorphology a beach ridge can be seen as a transitional deposit between onshore and offshore environments. They are regarded as representing high level wave action along a coastline. In the Caribbean the origin of beach ridges has been variously attributed to one of three extreme wave events: extreme swell, extreme storm or tsunami waves.

Beach ridges are arranged in beach ridge plains where there is succession of the landforms and can be several kilometres long. Beach ridge accumulation is not continuous and the coast shows alternating accretion and erosion periods. The use of beach ridges as palaeostorm archives is therefore not straightforward.

The temporal continuity of beach ridge formation is being assessed on the beach ridge plains of Anegada, British Virgin Islands (Lesser Antilles). This carbonate platform surrounded by a fringing reef contains two beach ridge plains. There are more than 30 ridges in the Atlantic facing- coast and around 10 in the south, Caribbean-facing coast.

The sediments of the modern beaches are dominated by the sand fraction and are 100% biogenic origin due to the isolation of Anegada from terrestrial sediment sources.

The beach ridge sections have been studied in different area of Anegada beach ridge plains and present low angle seaward-dipping bedding. The sand fraction is dominant in the stratigraphy with a few intact shells. At only one site were coral pebbles deposited in association with the sand fraction.

Aeolian deposits represent the upper part of the beach ridges and reflect the stabilization of the beach ridges with ongoing accretion.

The sedimentology of the contemporary beach and dunes will be discussed in terms of their implications for understanding beach ridge genesis and its relationship to extreme wave events.

Tamura, T., 2012. Beach ridges and prograded beach deposits as palaeoenvironment records. *Earth-Science Reviews*, 114, pp. 279-297.