

**Nature of marine winds, waves and swells over West African coasts -
case study of Victoria Island beach in Lagos, Nigeria**

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Beaches and bays are essential in the economic development of any nation around the world. One of the natural forces eroding beaches and threatening the coastal environment is the wave caused by the prevailing ocean winds. Over the years Victoria Island in Lagos had suffered massive erosion from the action of the wave energy.

This paper therefore investigates the nature and characteristics of the marine winds, generated waves and the corresponding coastal swells for the months of January-March from 1998 –2002 using a parametric wave model.

Results showed that:

- a. Winds from the fetch area (lat. 10 degree South - 20 degree South and long. 0–10 degree East) generally lie between 7-20 knots in strength. The weakest and strongest winds were observed in January and March.
- b. The corresponding significant wave heights were less than 0.3 meters and more than 2.2 meters with period ranging between 2.0 and 7.5 seconds. It takes the lowest generated wave about 10-12 days and the highest 3-4 days to reach the coast as swells. Swells of about 0.4 meters resulting from winds of about 10 knots grazed the coast frequently during the period.
- c. Rate of erosion from 1998–2002 was observed to be 27m/year.