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## Shoreline change in the western region of Ghana: Causes and trends

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Most shoreline prediction models assume uniform coastal material behavior along transect lines hence no provision is made for variability in the material properties. Such models produce reliable results where the coastal material is soft such as along sandy beaches. On the contrary, for a geological and geomorphological variable coastline like the western region of Ghana, the application of such existing models may yield erroneous predictions. This study identified the causes of shoreline change in the study area modeled it in terms of the driving and resistive factors influencing coastal erosion using a process based approach. Multi-temporal spatial datasets, hydrodynamic datasets and field measurements were used. The field data measured included: shear strength of coastal soil, compressive strength of coastal rocks, beach profiling and exposed beach width at systematically sampled locations within the study area. Other variables included are sediment supplied by fluvial, potential sediment transported alongshore and the exposed beach slope. Applying multiple regression model to the data, revealed that the exposed beach slope presumed to mimic the sea floor contributed significantly to shoreline change rates within the entire study area; this was followed by the strength of the coastal rock outcrops. It was realized that sea level rise is not a key candidate causing shoreline change in most parts of the study area. This present study shows that in designing shoreline prediction models for heterogeneous coastal materials it is recommended that beach slope and the strength of the coastal rock outcrops be included in the predictor variables.

### Biography

Cynthia Borkai Boye is a lecturer at the Geomatic Engineering Department of the University of Mines and Technology, Tarkwa -Ghana where she lectures in GIS, Engineering Surveying and Hydrographic Surveying. She is currently pursuing doctoral studies at the Department of Marine Science and Fisheries at the University of Ghana, Legon- Ghana. She holds a masters degree in Geo-informatics from the International Institute of Geo-Information and Earth Sciences (ITC), Enschede, Netherland. She is 44 years old and has published more than six papers in reputed journals and is a member of Ghana Institution of Surveyors (GhIS) and Ghana Institution of Engineers (GhIE).

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