

Title: BeachCam monitoring of shoreline dynamics.

Authors: Anna Crouse¹, Kathleen Fallon² and Henry Bokuniewicz¹

¹ School of Marine and Atmospheric Science
Stony Brook NY

² New York Sea Grant Institute
Stony Brook New York

Abstract: Long-term periodic monitoring on New York's ocean shoreline showed that, despite waxing and waning in the course of any year, beaches have maintained a stable average width between about 200 and 300 feet. To examine the shorter-term patterns of change in the beach width, a camera was used to monitor a location along the New York Ocean shoreline. Images were calibrated to allow beach widths to be determined. Beach widths measured at low tide varied between less than 60 feet to more than 175 feet between January and August, 2023. A pattern of modulation showed a quasi-cyclical behavior with periods between 5 and 15 days. This seems consistent with the classic synoptic periods of between two and seven days for the passage of mesoscale weather systems. Large variations seem to coincide with high low wave activity monitored 30 nautical miles south of Long Island (NOAA station 44025) as represented by a "profile parameter"¹ taking into account wave height, period and sediment settling speed. Conversely, beach widths increased at a rate of about 2.5 feet per week as wave activity decreased over the summer.

¹ Dalrymple R.A., 1992. Prediction of storm/normal Journal of Waterway, Port, Coastal, and Ocean Engineering 118: 193-200.

Point of contact: henry.bokuniewicz@stonybrook.edu