

Abstract

Mohamed A Elsayed

Analyzing wave breaking in a barred beach using wavelet

In this paper, a cross-shore profile evolution model, Uniform Beach Sediment Transport-Time- Averaged Cross-Shore (UNIBEST-TC), is used. The model was developed at WL/Delft hydraulic laboratory in the Netherlands. The model is used to predict wave height in a barred beach (Egmond site, The Netherlands) and the results show that there is a good agreement between the measured and predicted values by the model. In the present study, Morlet wavelet is used to distinguish the breaking waves it is integrated over frequency to provide the temporal variation of localized total energy. The study shows that the local peaks of the energy densities correspond to the events of wave breaking in the predicted-wave time series. Furthermore, the wave energy distribution shows a tendency to decrease in the off-shore direction of the inner bar.