

STORM SURGE FORECASTING IN SRI LANKA

A Thesis

By

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ABSTRACT

A storm surge associated with tropical cyclones is one of the greatest natural hazards, sometimes even surpassing earthquakes. The resulting floods have caused great damage and loss of life. Presenting a high-resolution model developed for storm surges along Sri Lanka area may help minimize the damaged caused by server cyclonic storms. The objective of this study is to present a developed high-resolution numerical model for the prediction of storm surges in and around Sri Lanka coast, which would assist in implementation of an effective rehabilitation project to avoid or minimize the damages.

2° to 12° *N* and 75° to 85° *E* is the area that has been selected for this study. Characteristics of two cyclones 1978 Batticaloa cyclone and 1992 Tuticorin cyclone have been considered and the resolution of the bathymetry data are 3-minute and 5-minute.

The output of the model determined the surge, peak surge, sea currents and wind stress.

Three-minute resolution bathymetries were estimated using Taylor series interpolation and it coincided with the actual three-minute resolution bathymetry data.

It is reveled that the simulated peak surges at the coasts are little underestimated with the post-surveyed results of the cyclones.

To simulate the surges with high resolution domain one has to consider non-hydrostatic model equations.

The interpolated values of depth are much closer to the actual values of depth.

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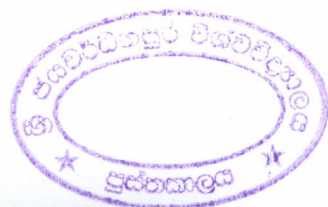


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