

ABSTRACT

STORM SURGE SIMULATION FOR MYANMAR USING IIT-D MODEL

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A numerical storm surge prediction model developed in IIT- D (Indian Institute of Technology, Delhi) was used to simulate surge heights by applying actual parameters for storms which made landfall in Myanmar. The numerical model was tested on the sensitivity of the predicted surge heights with varying water depth and storm parameters such as pressure drops, maximum sustained wind speed, the radius of maximum wind, duration of the storm and landfall angles. Results indicate that the shallowness of the water in coastal areas may considerably magnify the surge heights in the region. Obtuse landfall angle generated the highest surge in Rakhine coast and perpendicular landfall angle had the highest surge in the Delta coast. Higher surges are associated with larger pressure drop, maximum sustained wind and radius of maximum wind. The experiments show that a slow moving cyclone results in maximum surge compared to a fast moving cyclone. In addition, case study with best track data from JTWC (Joint Typhoon Warning Centre) crossed Myanmar coast. The pressure drops are calculated from the empirical method of Lwin (1980). The model computed peak surges are found to be in agreement with the previous cyclonic storms which crossed Myanmar coast based on the 1967, 1975, 1988 and 2008 experiments. The model generated value nearly coincides with the observed value in the Ayeyarwady delta region and some areas in Rakhine coastal region. It was suggested that the model may be used reasonably for operational prediction of storm surge in Myanmar coast.