



Modeling Storm Surge and Waves During Typhoons Tembin and Bolaven (2012)

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ABSTRACT

Over the past decade, the largest storm surge is 50.4 cm by analyzing the tide gauge station at Green Island during typhoons Tembin (2012) while the wave height is not the extreme one. General speaking, the correlation between the storm surge and wave height is a strong relationship because these two variables are always dominated by the strength of the typhoon. Therefore, the finding is motivated this paper to further study.

To figure out the reason for the inconsistency, the storm surge and wave during typhoons are necessary to build. The employment of a proper numerical model might be a good choose to build the hydrodynamics. Since the scales of current and wave are quite different, the whole simulations usually are separately performed. Most researches use tidal current model to describe the surface evolutions and current motions. The wave fields are calculated by wave model. In recent years, the model coupled with wave and current was fully developed and more advanced. Many studies on the East Cost of US were successfully done with the aid of wave-current coupled model (Dietrich et al., 2011; Dietrich et al., 2012); Hope et al. (2013). It is highlighted that wave-current coupled model is proper tool to figure out the season of the inconsistency.

The main objective of this paper is to simulation the hydrodynamics during typhoon Tembin (2012) which the maximum of storm surge was reported around Green Island.