

Impact of SST on the behavior of the artificial typhoon simulated by stochastic typhoon model

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Our aim is to predict the behavior of tropical cyclones (TCs) and estimate their expected frequencies which could attack to the big cities like Tokyo under the future climate that calculated by GCMs /RCMs. Moreover, it requires sufficient reproductions of TCs for calculation of their probabilities, too. Several stochastic TC models have been developed for different purposes (e.g., for estimation of tidal waves with severe TCs, Nakajo et al. 2014) and they had problems on the bias in the future prediction. Here, we apply new stochastic TC model and bias correction to do a pseudo climate change experiment. The parameters are optimized for the best tracks of model output (MRI-AGCM) in the present and future. Using the differences of parameters between the periods as a climatological bias parameter, we simulated the TCs in the future climate.

Besides, we treat the SST impact on the TCs. The SST has a famous variation around the equator over the Pacific Ocean called as “El Niño/La Niña” . The SST oscillation has a lot of impacts on the TCs; the generations, tracks, intensities, and so on (Wang and Chan, 2002). Dividing the TC tracks to three groups based on SST pattern, we can diagnose that this stochastic typhoon model express the impact of SST change or not. The TC intensity model is added as a physical part of this model for the responses to SST change.

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