

Improvement of Prediction Accuracy of 3-second gust caused by Typhoon –Soil Data : GDAPS SOIL, GFS SOIL -

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In order to reduce the damage caused by the typhoon, 3-second gust, which is the maximum wind speed that can occur during the typhoon, is a very important factor in terms of disaster prevention. Therefore, this study conduct to improve the prediction accuracy of Typhoon Pre-prevention Disaster Model that calculates the 3-second gust. UM(Unified Model) data has a problem in being used as input data because the initial soil moisture and the soil temperature unit and depth are different. Therefore, soil data from GFS(Global Forecast System) and FNL(NCEP final analysis) are mainly used as a substitute. In this study, soil moisture and soil temperature of UM data were adjusted to Typhoon Pre-prevention Disaster Model, and experiments were conduct to use the GDAPS(Global Data Assimilation Prediction System) as meteorological input data, and soil data as the existing method. At the same time, a single model using GDAPS as the meteorological input data and GDAPS SOIL as the soil data is also conduct. The results of 3-second gust calculated using Typhoon Pre-prevention Disaster Model were compared with 'GUST wind speed' in the buoy and 'Maximum instantaneous wind speed' on the beacon. The results of the analysis showed that the experiments using the results of a model using a GDAPS SOIL (Single Model) as input data for Typhoon Pre-prevention Disaster Model was more similar to the observed values and more consistent with the trend than the experiment applying soil data to GDAPS meteorological input data using GFS SOIL. In conclusion, if a single model is used as WRF soil data, which is input data, it is deemed possible to determine the optimal results when performing Typhoon Pre-prevention Disaster Model.

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Keywords: Typhoon Pre-prevention Disaster Model, 3-second gust, soil moisture, soil layer

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