

Verification of wave prediction model by drifting buoy observations

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It is necessary for verification of wave prediction model to compare predicted wave data with in-situ observation data such as buoy data. However, the verification by in-situ observation is limited to coastal wave sensors or moored wave buoys. It is impossible to conduct the verification by the moored wave buoy in the open sea far from the land or in the area with strong current. Therefore, the wave prediction model was verified by drifting buoys of the Japan Meteorological Agency(JMA). The predicted wave data is forced by the ERA interim wind data, and the spatial resolution is 0.75 degrees. We calculated wave parameters from 2017 to 2018. The correlation between wave heights by the JMA drifting buoys and predicted wave heights was about 0.9. The predicted wave heights agree well with observation in both the Pacific and the Sea of Japan. On the other hand, the wave period did not agree well especially in the Sea of Japan. The reason is that wave spectra could not be accurately reproduced by the low spatial resolution wave model due to the short fetch. Next, we compared the predicted wave data considering the current with observed wave data. It is shown that the accuracy of wave prediction improves. The effects of horizontal shear and relative wind on the accuracy of wave prediction were investigated. The relative wind effect the largest.

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