The assessment of ERA-interim wave data in the China Sea

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ABSTRACT

As we know, wave significant height ($H_s$) and wave period, are critical for maritime commerce, infrastructure design, and hazard mitigation, etc. In this paper, we adopt wave data from eight stations in the data-sparse China Sea to assess the ERA-Interim (ERA-I). We have described the comparison with the short-scale and annual features between the datasets. The annual difference of $H_s$ varies from −0.43 to 0.1 m with a mean value of −0.24 m for eight stations. In most of the stations, the ERA-I data of the locations except for the typhoon period has an overall overestimation, and the biases is positive. During the typhoon, due to the underestimation of the typhoon wind field, $H_s$ in the ERA-I data is underestimated, which can be up to −50%. The physics research of typhoon is still poorly at present, causing the discrepancies between the datasets. Hence, we can't adopt the ERA-I $H_s$ for design applications unless the validation has been tested by specific sites.

Keywords: ERA-interim; Reanalysis inter-comparison; Wave height; China Sea