
Validation and Calibration of Nadir SWH Products from CFOSAT and HY-2B with Satellites and in-situ Observations

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Résumé

The China France Oceanography Satellite (CFOSAT) and Haiyang-2B (HY-2B) satellites were successively launched in China on the 29th and 25th of October 2018, respectively. HY-2B carries the second Chinese radar altimeter along with three other microwave sensors, whereas CFOSAT contains the first Surface Waves Investigation and Monitoring (SWIM) instrument and a fan beam rotating scatterometer. As missions for measuring the dynamic marine environment, both satellites can measure the nadir significant wave height (SWH). For data obtained from a newly launched satellite to be utilized with confidence, the quality of SWH from the two satellites requires validation. In this study, the HY-2B altimeter and CFOSAT nadir SWHs have been validated against the National Data Buoy Center (NDBC) buoys and the Jason-3 altimeter SWH data, respectively, which resulted in CFOSAT nadir SWH having the best accuracy and HY-2B having the best precision. The SWHs of the two missions are also calibrated by Jason-3 and NDBC buoys. Following calibration, the root mean square error (*RMSE*) of CFOSAT and HY-2B are 0.21 and 0.27 m, respectively, when compared to Jason-3, and 0.23 and 0.30 m, respectively, compared to the buoys. Our results show that the two missions can provide good-quality SWH and can be relied upon as a new data resource of global SWH.

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