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# A Comparison between the Results of Hormuz Strait Wave Simulations Using WAVEWATCH-III and MIKE21-SW and Satellite Altimetry Observations

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**Abstract :** In the present study, the capabilities of WAVEWATCH-III and MIKE21-SW for predicting the characteristics of wind waves in Hormuz Strait are evaluated. The GFS wind data (Global Forecast System) were derived. The bathymetry of gride with 2 arc-minute resolution, also were extracted from the ETOPO1. WAVEWATCH-III findings illustrate more valid prediction of wave features comparing to the MIKE-21 SW in deep water. Apparently, in shallow area, the MIKE-21 provides more uniformities with altimetry measurements. This may be due to the merits of the unstructured grid which are used in MIKE-21, leading to better representations of the coastal area. The findings on the direction of waves generated by wind in the modeling area indicate that in some regions, despite the increase in wind speed, significant wave height stays nearly unchanged. This is fundamental because of swift changes in wind track over the Strait of Hormuz. After discussing wind-induced waves in the region, the impact of instability of the surface layer on wave growth has been considered. For this purpose, the average monthly mean air temperature has been used. The results in cold months, when the surface layer is unstable, indicates an acceptable increase in the accuracy of prediction of the indicator wave height.

**Keywords :** numerical modeling, WAVEWATCH-III, Strait of Hormuz, MIKE21-SW
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