



The role of satellite directional wave spectra for the improvement of the ocean-waves coupling

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Swell waves are well captured by the Synthetic Aperture Radar (SAR) which provides the directional wave spectra for waves roughly larger than 200 m. Since the launch of sentinel-1A and 1B SAR directional wave spectra are available to improve the swell wave forecasting and the coupling processes at the air-sea interface. Moreover next year CFOSAT mission will provide directional wave spectra for waves with wavelengths comprised between 70 to 500 m. This study aims to evaluate the assimilation of SAR and synthetic CFOSAT wave spectra on the coupling between the wave model MFWAM and the ocean model NEMO. Three coupling processes as described in Breivik et al. (2014) of Stokes-Coriolis forcing, the ocean side stress and the turbulence injected by the wave breaking in the ocean mixed layer have been used. a coupling run is performed with and without assimilation of directional wave spectra. the impact of SAR wave data on key parameters such as surface sea temperature, currents and salinity is investigated. Particular attention is carried out for ocean areas with swell dominant wave climate.