

Courtney Rocha
Ocean and Resources Engineering
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**RESPONSE OF THE GLOBAL WAVE CLIMATE TO EL
NIÑO SOUTHERN OSCILLATION**

ABSTRACT

Global significant wave height data for the past 37 years from WAVEWATCH III forced by reanalysis winds are used to study the signatures of El Niño Southern Oscillation (ENSO) in the Pacific and Atlantic Oceans. Partition of the global hindcast wave data into the four seasons allowed for the analysis of the seasonal effects of El Niño on the climate. Correlation of the seasonal significant wave heights at the 50, 95, and 99th percentiles with the Oceanic Niño Index identifies areas that respond strongly to ENSO events. These areas include the western North Pacific, central South Pacific, and eastern North Pacific which are associated with changes in tropical cyclone patterns as well as the central North Pacific in response to southward and eastward shifts of the extratropical storms. These areas are further investigated through direct comparison of the time histories of the wave height and the Oceanic Niño Index. The results quantify the influence of ENSO on the global wave climate. The effects are more prominent in the high percentile wave heights confirming a stronger influence on storm activity due to El Niño.