



Relationship of extreme wave climate with long-term patterns in the North Atlantic Ocean and Mediterranean Sea

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The seasonal, interannual and spatial variability of the extreme wave climate in the North Atlantic Ocean and the Mediterranean Sea are investigated using the data of WAVEWATCH III wave model, available from the National Oceanic and Atmospheric Administration (NOAA). It provides suitable coverage for the period from 1979 to 2009 (31 years). The seasonality describes around the 50% of the extreme significant wave height variance in the North Atlantic Ocean and about the 85% in the central Mediterranean Sea. The interannual variability is analyzed through the quantification of the climate patterns contribution thanks to the study of the relation between extreme wave and different climate indexes, defined as variations in the atmosphere and ocean systems. The chosen indexes because of its regional scale are the North Atlantic Oscillation (NAO), the East Atlantic (EA), the East Atlantic/Western Russian (EA/WR) and the Scandinavia (SCAND) patterns. Results present a high influence of NAO and SCAND on the North Atlantic Ocean during winters and of EA, and with a lesser degree of NAO, during summers. While the negative phases of EA and EA/WR dominates the Mediterranean Sea during winters and summers respectively.