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WAVE CLIMATE VARIABILITY IN THE INSULAR COLOMBIAN CARIBBEAN REGION NEAR THE SAN ANDRES AND OLD PROVIDENCE ISLANDS: MULTIPLE TIME SCALE APPROACH

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Since ocean wave is a phenomenon that occurs on the surface of the sea, it is an essential part of ocean-atmosphere interactions. Maritime climate has variations classed as short, medium and long term. To determine the wave climate variability in the Caribbean Sea at different time scales, this research used 10 m wind fields from the NCEP/NCAR Reanalysis I data source and significant wave height (Hs) data from GOW (Global Ocean Waves - IH Cantabria) near the islands of San Andres and Old Providence. These series were correlated with each other and with the climate indices MEI, AMO and NAO. To perform this correlation, the Continuous Wavelet Transform (CWT) and Cross Wavelet Transform (XWT) were used. A high inter-annual variability of swell was found. Cycles were between 8 and 16 years and there was an intra-annual variability associated with the ITCZ and Midsummer Drought (MSD) in the months JJA. The ENSO may also affect the MSD, thereby increasing the magnitude of the winds during its warm phase.

Key words: wave climate, ocean wind waves, Caribbean Sea, Wavelets, ENSO.