WISE 2013 ABSTRACT

METHODOLOGY TO CORRECT WIND SPEED DURING AVERAGE WIND CONDITIONS: APPLICATION TO THE CARIBBEAN SEA

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Spatial and temporal variability of ocean wind waves play an important role in many engineering and environmental problems. Although research in this area has been improved in recent decades thanks to the emergence of satellite data, in many cases this information does not have the appropriate spatial and temporal resolution for more detailed and local research. In view of this, Reanalysis data developed by several meteorological agencies have appeared as a good alternative to force the most popular ocean wind wave models. Thus, to achieve more accuracy in the data, the 60-year global atmospheric Reanalysis I carried out by the National Center for Environmental Prediction and The National Center for Atmospheric Research (NCEP/NCAR) has been corrected employing the Vector Correlation and Triple Collocation theories combined with information from different sources such as altimetry, scatterometer and in situ buoy data. The comparison of wind speed with satellite data before correction reveals an important underestimation of NCEP/NCAR reanalysis I data for areas near the Colombian coast (between 74°W and 77 °W approximately). A strong underestimation of wave data is produced when it is compared with in situ buoys located nearest the Colombian Caribbean coast, and to a lesser extent, NOAA buoys located in the central Caribbean Sea. After wind speed is corrected and employed for wave forcing, most wave parameters present high accuracy for the entire area. The obtained results clearly show an increase in the accuracy of the calibrated wind speed.