



OCEANOGRAPHIC HINDCAST TIME SERIES VS BUOY DATASETS: INSIGHTS AND COMPARISONS

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RESUMO

The present work was developed with the aim of comparing two datasets of oceanographic hindcast parameters (wave height, peak period and direction), obtained from different models, with field data from the Figueira da Foz and Leixões wave buoys at the Portuguese central west coast for the period of 1990 to 2001. The dataset from Dodet et al. (2010) was obtained from simulations using the WAVEWATCH 3m Model (WW3) and the Puertos del Estado dataset resulted from the WW3 and WAM models. The buoy dataset results from joining the measurements at the Figueira da Foz (from 1990-1996) with those at Leixões (from 1996-2001), following Plecha et al. (2007).

Methods of descriptive statistics were used to calculate and compare the mean values, standard deviations and root-mean-square errors of those datasets. It was verified that the Puertos del Estado dataset values were closer to the buoy data. A moving average with a three-months width was also computed to assess trends. The trends of the temporal series, shows that the dataset closest to the field data is the Dodet et al. (2010). The differences between each hindcast dataset were also calculated in relation to the buoy's data, showing that the Puertos del Estado dataset has values closer to the buoy dataset, for height and peak period. The buoys wave direction are similar to the Dodet et al. (2010) dataset values.

Since the Puertos del Estado dataset is longer, has a higher sampling frequency (hourly), it is concluded it to be more accurate for that time period and the study site (Espinho – Cape Mondego Stretch). However, if the most important parameter in the study would be the wave direction, for time periods prior to 2009, it is advised to use the Dodet et al. (2010) dataset.

Keywords: Oceanographic parameters; Hindcast data; Buoy data; Descriptive statistics.