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Dolan and Davis (1992) Power Index: Application to Coastal Storm Events in Cadiz (SW Spain)

Nelson Rangel-Buitrago and Giorgio Anfuso

Universidad de Cádiz, Departamento de Ciencias de la Tierra, Facultad de Ciencias del Mar y Ambientales, Polígono Río San Pedro s/n, 11510 Puerto Real, Cádiz, España. (nelson.rangelbuitrago@mail.uca.es)

Over the past centuries several great storms have caused important economic losses and scores of deaths along the coastline of the world. For the past 30 years, coastal scientists and the general public have used the Saffir-Simpson Scale to compare tropical cyclones. More recently, different indexes have been developed: they usually take into account wind and/or wave characteristics, duration of the storm, etc. In this study case, the Dolan and Davis (1992) Power Index was used to classify coastal storms in Cadiz littoral (SW Spain). The Index was calculated according to the formulation Hs2td, with Hs being the significant wave height and td the duration of the storm in hours. The index discriminates between 5 classes ranging from weak to extremes. Storm event was defined considering significant wave heights higher than 2.5 m and duration of 12 hours. Wave data were obtained from the prediction point 1054046 which belongs to the HIPOCAS network (data from January 1958 to December 2001). A total amount of 334 events was classified with 222 and 70 events respectively belonging to the weak and moderate classes. The significant, severe and extreme classes respectively presented 23, 11 and 8 events. Usually storm events took place from October to March, the most powerful storms taking place in December and January.

Keywords: Storms, Coastal Erosion, Power Index, Cadiz.