



Forecasting maximum wave height at selected sites based on high resolution hindcast modeling and local adaptation techniques

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Extreme wave heights play a major role in many deep offshore and coastal activities today. As a result, it is of significant importance to understand and accurately simulate their behavior. The lack of a dense in-situ and remote sensing observational network implies non trivial difficulties in this framework. A way out can be given by the utilization of high resolution third generation spectral wave models that incorporate advanced formulations for the estimation of maximum wave height conditions along with local adaptation techniques which can simulate in a credible way the non-frequent values for a specific area.

For this study, a 10-year (2001-2010) hourly high resolution dataset of the main metocean parameters that covers the entire European coastline with a resolution of 5km, developed by the Atmospheric Modeling and Weather Forecasting Group of the National and Kapodistrian University of Athens in the framework of the FP7 project MARINA Platform (<http://www.marina-platform.info/index.aspx>) was utilized. The hindcast wave data, based on the latest version of the wave model WAM, in conjunction with non-conventional statistical methods and available buoy measurements for selected locations in the Spanish coastline formed an integrated system able to provide accurate maximum wave height estimations taking into consideration the climatological characteristics of the area.