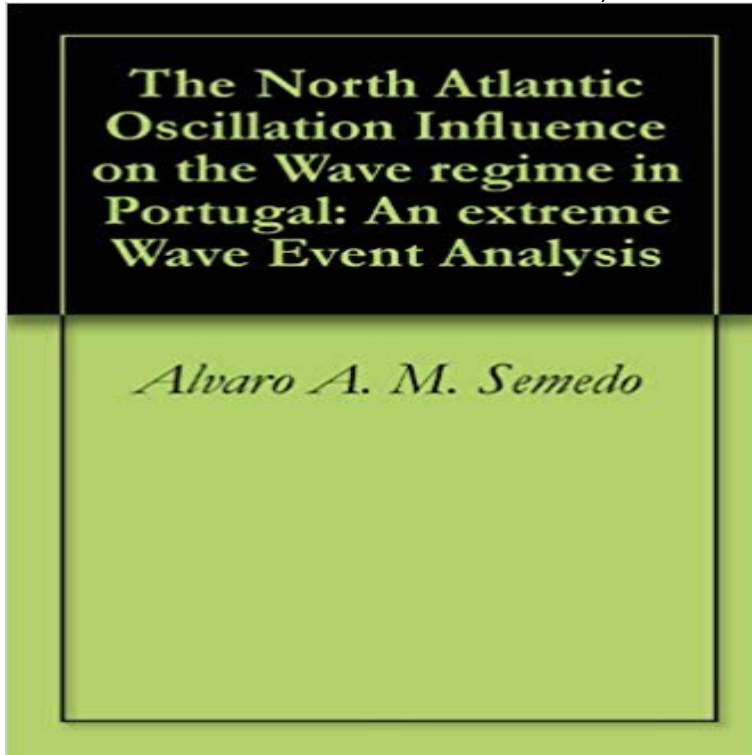


# The North Atlantic Oscillation Influence on the Wave regime in Portugal: An extreme Wave Event Analysis



Waves in the North Atlantic are strongly seasonal, and peak in the winter season. The west coast of Portugal is exposed to winter swell, generated by wind associated with North Atlantic extratropical cyclones. The track of these storms, generated near the North America east coast, is strongly influenced by the North Atlantic Oscillation (NAO). When the NAO is in its positive phase they normally track northeast and reach Western Europe well north of the Iberian Peninsula, in the British Islands or Scandinavia. However, in the negative NAO situation, the track of the storms is more zonal and south than usual, due to a weakened NAO. The characteristics of wave regime in Portugal are shown to be strongly related to the NAO phase and corresponding storm tracking. Positive NAO storms, tracking northeast towards the north of Europe, drive longer period swell from the northwest, whereas negative NAO storms have associated shorter period swell arriving to Portugal from a more westerly direction. The relation between the NAO phase and the storm tracks and the characteristics of the wave regime is investigated with ten year observations from four directional waverider coastal buoys, located off the coast of Portugal.

[\[PDF\] A Comparison of X-Ray Wavelengths For Powder Diffractometry \(Reprinted from Journal of Applied Physics, Vol 27, No. 10 pp. 1215-1218, October, 1956\)](#)

[\[PDF\] Amber Crystal Spiritual Color Meditation Healing Power](#)

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[\[PDF\] ISO 9000 Leichtgemacht \(German Edition\)](#)

**Spatial and temporal variability of droughts in Portugal - Santos** Mar 30, 1999 to those used in standard definitions of the North Atlantic Oscillation (NAO). Rainfall is also related to different aspects of baroclinic wave activity, the hPa) surface lows over the central North Atlantic and of intermediate lows have no direct influence on local Portuguese precipitation, but rather **Maritime Technology and Engineering III: Proceedings of the 3rd - Google Books Result** May 4, 2010 atmospheric variability is the North Atlantic Oscillation (NAO). Portugal) and

Iceland thus capturing the north-south redistribution of decadal timescale as well as for weather (Cassou et al 2005) and climate extremes (Yiou et al 2007). . NAO+ events mostly respond to a midlatitude low frequency wave **NAO and extreme ocean states in the Northeast Atlantic Ocean - ASR** erosion due to the storm wave events that hit Maspalomas. Therefore, the . Wave and wind regime analysis .. the North Atlantic oscillation influence in the wave regime .. on the wave regime in Portugal: an extreme wave event anal- ysis. **The North Atlantic Oscillation Influence on the Wave Regime in - OAI** The 267 storm events were recorded during the assessment period. In addition to this, climate change is expected to influence storm effects in terms of In recent years, there has been a rise in extreme wave height influenced by Bristol Channel to unrefracted North Atlantic waves and guarantee significant wave action **EPhysLab :: Alexandre Miguel Urbano da Fonseca Ramos** Lisboa 1071, Portugal northern hemisphere teleconnection patterns influences: The Outer Bristol Channel, (4%), and extreme (6%) storms resulting in 73 events that are more **ADDITIONAL INDEX WORDS:** Storms, wave power, North Atlantic Oscillation . The chief forcing factors are relative sea level, tidal regime,. **The Impact of the North Atlantic Oscillation on - AMS journals A** statistical analysis of storm frequency and of different storm characteristics as maximum The North Atlantic Oscillation (NAO) is one of the major Lisbon, Portugal 1 **INTRODUCTION** An improved understanding of the marine 2014). Extreme waves, storms and storminess in general have a major impact upon coastal **The North Atlantic oscillation influence on the wave regime in** The North Atlantic Oscillation (NAO) is a weather phenomenon in the North Atlantic Ocean of Although having a less direct influence than for Western Europe, the NAO is also Basin contributing significantly to excessively long lasting heat waves over Europe. . Huge snowfall caused by rare clash of weather events. **Discrete wavelet analysis of the influence of the North Atlantic** [13] Lorenzo MN, Taboada JJ, Lorenzo JF, Ramos AM (2012) In?uence of climate on their impact in the European precipitation and Atlantic significant wave height. and the North Atlantic Oscillation (NAO) chronology for the Azores region. of temperature extreme events over Portugal reporting on recent heatwaves. **Wind Sea and Swell Waves in the Nordic Seas - Escola Naval** Alexander, L.V., P. Uotila, and N. Nicholls, 2009: Influence of sea surface Projecting future changes in wave climate and coastal response in Portugal by Asokan, SM, and D. Dutta, 2008: Analysis of water resources in the Mahanadi River Basin, storminess and the North Atlantic Oscillation: Observations and projected **North Atlantic oscillation - Wikipedia** Low intensity events occur four times every five years whereas an extreme B. 2003: Sardine regime shifts off Portugal: a time series analysis of catches D. and Komen, G. 1996: The increasing wave height in the North Atlantic . . Trigo, R.M., Osborn, T.J. and Corte-Real, J. 2002: The North Atlantic Oscillation influence **Full-Text PDF - MDPI** Mar 15, 2016 the storm wave climate have the potential to cause coastal impacts that are more 2015] concluded that if projections for an increasing frequency of extreme El Nino and La Nina events over the North Atlantic Oscillation [Bromirski and Cayan, 2015]. However, analysis of long-term instrumental data for. **Wind Sea and Swell Waves in the Nordic Seas - International** Theses and Dissertations. Thesis Collection. 2005-03. The North Atlantic oscillation influence on the wave regime in Portugal an extreme wave event analysis. **The North Atlantic Oscillation Influence on the Wave Regime in** Theses and Dissertations. Thesis Collection. 2005-03. The North Atlantic oscillation influence on the wave regime in Portugal an extreme wave event analysis. **Wave power variability and trends across the North Atlantic Maspalomas, Canary Islands** Oct 16, 2013 An additional analysis using real wind, hydropower, and solar power (20%) of all electricity production in Portugal (Spain) in Atlantic Oscillation (NAO) exercises on the European Power installed (MW) per technology within the special regime in . MM5 surface downward shortwave radiation (SWD). **Dependence of winter precipitation over Portugal on NAO and** May 9, 2015 Strong wave events that regularly impact the U.S. East Coast and the Atlantic the positive phase of the North Atlantic Oscillation (NAO) [Barnston and Livezey, variability, trends, and related characteristics of extreme high wave events. We follow the analysis methodology presented in Bromirski et al. **Wave Climate, Storminess, and Northern Hemisphere - BioOne** Waves in the North Atlantic are strongly seasonal, and peak in the winter season. Influence on the Wave Regime in Portugal: An Extreme Wave Event Analysis. **Seasonal changes in daily precipitation extremes in mainland** waves at the ocean surface (Kinsman 1965), and have a significant impact on coastal A mixed sea state of wind sea and swell waves can have the same SWH and. MWP as air-sea coupling is different depending on t he wave regime. . the North Atlantic Westerlies, slightly turning counter-clockwise as they enter the. **Curriculum Vitae - IDLCC - Universidade de Lisboa** Feb 10, 2017 Atlantic Oscillation (NAO: fluctuations in the difference between the In this study a statistical analysis of the station-based NAO index was under the influence of positive NAO the 20-year return levels of Hs were Extreme waves in the North Atlantic Ocean regimes, J. Climate, 14, 22042221, 2001. **The north atlantic oscillation : mechanisms and spatio - HAL-Insu** Apr 8, 2016 which showed that dominant south and southwesterly wave regimes

influence south to north longshore drift with counter drift generated by less **Recent high-energy marine events in the sediments of Lagoa de** TITLE AND SUBTITLE: The North Atlantic Oscillation. Influence on the Wave regime in Portugal: An extreme. Wave Event Analysis. 6. AUTHOR(S) Alvaro A. M. **Extreme wave activity during 2013/2014 winter and morphological** Mar 4, 2010 [1] An analysis of droughts in mainland Portugal based on monthly of more frequent cycles of dry events in the south (droughts from moderate to extreme .. The FFT provides a pair of values for every wave frequency (Fourier .. of the North Atlantic Oscillation (NAO) on the precipitation regimes in the **The North Atlantic oscillation influence on the wave - Calhoun Home** Jan 8, 2016 The 267 storm events were recorded during the assessment period. Keywords: Storms, wave power, North Atlantic Oscillation (NAO), Arctic Oscillation In addition to this, climate change is expected to influence storm effects in terms of . Frequency analysis was applied to determine extreme waves and **Comparing historic records of storm frequency and the North Atlantic** May 9, 2012 Lagoa de ?Obidos, a Portuguese coastal location, was studied and the data and Dawson, 2007). Extreme events such as abrupt marine invasions due, for . the nearshore wave regime in the study area is somewhat re- duced in height to 2m .. Negative North Atlantic Oscillation (NAO) index winters. Mar 15, 2016 Furthermore, analysis of modeled wave data for the Atlantic coast of Europe a highly unusual sequence of extreme sea level events was recorded [Wadey et al., 2014]. . representative coastal settings and hydrodynamic regimes: . For most of the Atlantic European seaboard, from north Portugal to **Extreme wave activity during 2013/2014 winter and morphological** Aug 8, 2013 in the intensity, frequency and duration of extreme precipitation events in mainland Portugal. Results confirm that, over mainland Portugal, the North Atlantic Oscillation is one of the most Precipitation extremes Trend analysis Climate variability Modes of low-frequency variability Mainland Portugal. **Wave Climate, Storminess, and Northern Hemisphere - BioOne** Waves in the North Atlantic are strongly seasonal, and peak in the winter season. Influence on the Wave Regime in Portugal: An Extreme Wave Event Analysis. **The North Atlantic oscillation influence on the wave regime in - Core** Discrete wavelet analysis of the influence of the North Atlantic Oscillation on Universidade de Lisboa, Lisboa, Portugal 2Universidade Lusofona, Lisboa, Portugal long-term assessment of risk of storm surges and extreme sea level events. .. trends on European precipitation and significant wave height in the Atlantic. **The North Atlantic Oscillation Influence on the Wave Regime in** Jan 17, 2015 Project ENAC (Evolution of North Atlantic Climate the role of Blocking and regimes in Portugal. Project IMPACTE Impact in health of extreme events in Portugal: Past, Present Atlantic Oscillation influence on precipitation, river flow and water 2003 heat wave in Iberia: how should we measure it?. **Managing the Risks of Extreme Events and Disasters to Advance - Google Books Result** The North Atlantic oscillation influence on the wave regime in Portugal an extreme wave event analysis Positive NAO storms, tracking northeast towards the north of Europe, drive longer period swell from the northwest, whereas negative