



Extreme Windstorms and Related Impacts on Iberia

Margarida L. R. Liberato (1,2), Paulina Ordóñez (1), Joaquim G. Pinto (3,4), Alexandre M. Ramos (2), Melanie K. Karremann (3), Isabel F. Trigo (2,5)

(1) Escola de Ciências e Tecnologia, Universidade de Trás-os-Montes e Alto Douro (UTAD), Vila Real, Portugal (mlr@utad.pt), (2) Instituto Dom Luiz (IDL), Universidade de Lisboa, Lisboa, Portugal, (3) Institute for Geophysics and Meteorology, University of Cologne, Cologne, Germany, (4) Department of Meteorology, University of Reading, Reading, UK, (5) Instituto Português do Mar e da Atmosfera (IPMA), Lisboa, Portugal

Extreme windstorms are one of the major natural catastrophes in the mid latitudes, one of the most costly natural hazards in Europe and are responsible for substantial economic damages and even fatalities. During the recent winters, the Iberian Peninsula was hit by severe (wind) storms such as Klaus (January 2009), Xynthia (February 2010) and Gong (January 2013) which exhibited uncommon characteristics. They were all explosive extratropical cyclones formed over the mid-Atlantic, travelling then eastwards at lower latitudes than usual along the edge of the dominant North Atlantic storm track. In this work we present a windstorm catalogue for the Iberian Peninsula, where the characteristics of the potentially more destructive windstorms for the 1979-2012 period are identified. For this purpose, the potential impact of high winds over the Iberian Peninsula is assessed by using a daily damage index based on maximum wind speeds that exceeds the local 98th percentile threshold. Then, the characteristics of extratropical cyclones associated with these events are analyzed. Results indicate that these are fast moving, intense cyclones, typically located near the northwestern tip of the Iberian Peninsula.

This work was partially supported by FEDER (Fundo Europeu de Desenvolvimento Regional) funds through the COMPETE (Programa Operacional Factores de Competitividade) and by national funds through FCT (Fundação para a Ciência e a Tecnologia, Portugal) under project STORMEx FCOMP-01-0124-FEDER-019524 (PTDC/AAC-CLI/121339/2010). A. M. Ramos was also supported by a FCT postdoctoral Grant (FCT/DFRH/SFRH/BPD/84328/2012).