

Explosive Cyclones over Europe: Influence of the North Atlantic Oscillation in different timescales

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The aim of this study is to analyse the influence of the North Atlantic Oscillation (NAO) on the genesis and lysis processes of explosive cyclones that have affected the European continent in the recent past. Cyclone events have been tracked from the NCEP/NCAR reanalysis Mean Sea Level Pressure 6-hourly data and selected according to Sanders & Gyakum (1980) criterion for explosively developing cyclones. We will focus on the NAO and Jet Stream conditions that seem to favour the development of such cyclones (Pinto et al. 2009) and the influence of their synoptic wave-breaking processes on this oscillation (Rivière & Orlanski, 2007).

On the second part of this study, an analysis of cyclone variability linked to the abrupt change in the basic state of the Tropical Pacific, ENSO dynamics (Miller et al., 1994; Trenberth & Hurrell, 1994) and NAO conditions (Vicente-Serrano & Lopez-Gomez, 2008b) in the 70's, so-called the "Climate Shift", will be carried out in the Euro - Atlantic sector based on the climatology of Pinto et al. (2005). We will lay emphasis on the study of explosive cyclones in this framework.

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