EMS Annual Meeting Abstracts,
Vol. 6, EMS2009-570, 2009
9th EMS / 9th ECAM

9th EMS Annual Meeting
9th European Conference on Applications of Meteorology
High resolution meteorology
- applications and services

Variability of Hot and Cold Spells in North-eastern Spain (1955-2006)

A. El Kenawy (1,,)

(1) (kenawy@ipe.csic.es), () Instituto Pirenaico de Ecología—CSIC, Zaragoza, Spain

Variability of Hot and Cold Spells in North-eastern Spain (1955-2006)
Ahmed El Kenawy, Juan I. López-Moreno and Sergio M. Vicente-Serrano
Instituto Pirenaico de Ecología—CSIC, Zaragoza, Spain

Abstract
Hot and cold spells are of main concern in studies related to impacts of climate change, hydrological modeling and simulation and agriculture. This paper focuses on characteristics of hot and cold spells in North-eastern Spain using daily maximum and minimum temperature for 666 observatories for the period (1955-2006). Warm spells are defined as uninterrupted consecutive days of temperature > 90th percentile, whilst cold spells are identified as successive days of temperature < 10th percentile. This paper investigated temporal variability and statistical distribution of duration, intensity and frequency of hot and cold spells using Spearman Rank test and the Generalized Pareto distribution. Furthermore, potential future characteristics of the extreme spells were assessed using different simulations through the HIRHAM regional climate model at a resolution of 30 km for the period (2050-2100). The applied model was validated using the observed data and all the results were also compared with current conditions.