Precipitation Modes in the Tagus Basin

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Abstract — The observed annual precipitation in the Iberian Peninsula in the period 1961-2006 shows a generalized but non-uniform decrease with variations between 0 and 120 mm per decade. In the context of the ADAPTACLIMA-EPAL project, we are analyzing the long term series of precipitation daily data, performing a characterization of the precipitation regime in the past 40 years, in Tagus hydrological basin. The complete observation series for selected climatological stations are compared with the reanalysis data (ERA-40).

Keywords — Climate Variability, Impacts on Water Resources

1 Introduction

An analysis of the amount of observed precipitation in the Iberian Peninsula, in the period 1961 to 2006 shows a generalized but non-uniform decrease with variations between 0 and 120 mm per decade [1].
Also, a large set of climate models project climate scenarios with a progressive reduction of annual precipitation in the same region [2]. Furthermore, water resources are very likely to be vulnerable to climate [3], mainly because of the project reduction in precipitation and more intense extreme weather and climate events, particularly droughts and events of very high precipitation in short periods, which involve the risk of inundation.

2 Procedure

The main objective of the ADAPTACLIMA-EPAL [4] project of the *Companhia Portuguesa das Aguas Livres Company. EPAL*, is to have an assessment of the vulnerability of its operations and infrastructures to climate change adaptation strategy to minimize impacts [5].
In this context it is important to establish a detailed and updated characterization of the precipitation modes in the Portuguese region of the river Tagus drainage basin, based on long data series of daily precipitation observation from pluviometric, synoptic and climatology stations.

Results on the variability of rainfall patterns observed in the region will be presented. Since there are few pluviometric stations that were in operational order in the 1960's, the conclusions drawn result mainly from the analysis of the trends over the past 40 years.
A comparison between these results and those obtained through the use of reanalysis data from the ECMWF deterministic model (ERA40), for the same region and period of time is also presented.

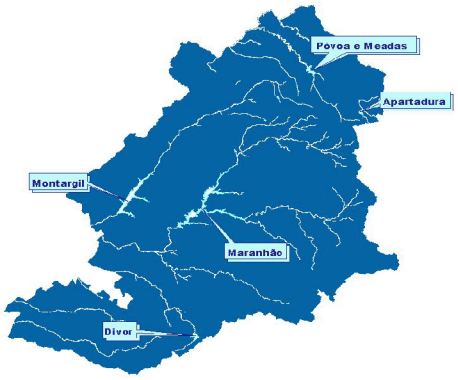

Fig - Drainage basin of river Tagus

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