



Recovery of 19th and early 20th century Portuguese historical meteorological data

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This work presents the joint efforts of the 3 Portuguese Geophysical Institutes (of Lisbon, Oporto and Coimbra) and the Portuguese Meteorology Institute to convert to a digital database the historical meteorology data, recorded since 1856 until 1940 in several annales published by the institutes. The different sets of historical data contain monthly, daily and sometimes hourly records of pressure, temperature, precipitation, humidity, wind speed and direction, cloud cover, evaporation and ozone. The published data cover several stations in mainland Portugal, the Azores and Madeira islands and in former Portuguese African and Asian colonies. One of the aims is to use the data to study the changes that have taken place in the historical records during the last 150 years, when the recovered data are joined with the post-1941 data stored in the Meteorology Institute digital database. The other aim is to make the data available to the meteorology community at large. Direct observations of pressure data for Lisbon and for the 1856-1940 period were prioritised and have been manually digitised, being later subjected to quality control tests. Digital historical records of Lisbon temperature, relative humidity and precipitation data have been obtained through corrected OCR techniques applied to published hourly or bi-hourly tables. Preliminary digital results are also available for several stations in mainland Portugal, Azores and Madeira. All datasets are subjected to an initial quality control test, to detect wrong values, with more comprehensive tests to be applied at later stages. At the same time, detailed metadata files are being compiled for each station. This work will show the

preliminary analysis results for the digital historical database obtained so far.

We intend to adapt a synoptic weather type (WT) classification scheme for Portugal (Trigo and Dacamara, 2000) to recently available daily SLP fields reconstructed for Europe since 1850 (Ansell et al., 2006). This daily WT classification will be useful to evaluate climatic trends and extremes of precipitation and temperature over Portugal between 1850 and the present time.