

CLIVAR-SPAIN contributions: MOPREDAS (MOnthly PREcipitation DATaset of Spain) a new tool for subregional analyses of precipitation in Southern Mediterranean areas.Jose Carlos Gonzalez-Hidalgo[†]; Martin de Luis; Petr Stepanek; Michele Brunetti; Nicola Cortesi[†] University of Zaragoza, SpainLeading author: jcgh@unizar.es

During the last ten years we have focused our research on the set up of a monthly precipitation dataset over conterminous Spain, with the aim of analyzing precipitation variability at the highest spatial resolution as possible and of detecting their impacts on natural systems. Thus, a high quality control was applied to digitalized archives of National Meteorological Agency of Spain (AEMet) and, as a result, a total of 2670 complete, homogeneous and free of suspicious data series were obtained, covering the period spanning from 1945 (December) to 2005 (November). This new data set is characterized by an overall mean density of about 1 observatory per 200 km², it includes information at least up to 1500 m a.s.l. and, at present, is the most dense monthly precipitation dataset in Europe for that period. The spatial distribution of reconstructed series allowed us to develop a high resolution grid (0.1° x 0.1° resolution). The grid contains a total of 5334 cells. The analyses of MOPREDAS revealed that, at monthly scale, no generalized signal of trend ($p < 0.10$) can be identified in the precipitation of the conterminous of Spain between 1945-2005. Trend signals vary from month to month and, in each month, the trend changes spatially varying from positive to negative and from significant to non-significant, with the exceptions of March, June and October. In fact, more than 60% of the conterminous land of Spain has suffered a negative and significant ($p < 0.10$) precipitation trend in March, and the same is true for June for the 30% of land ($p < 0.10$), while in October a generalized positive trend ($p < 0.10$) was detected over more than 30% of conterminous land, mostly located in the NW area of Iberian Peninsula. As a result of monthly precipitation trend, we have identified a seasonal change in the precipitation regime of the conterminous land of Iberian Peninsula: areas under spring precipitation regimes have changed to autumn precipitation regimes. These changes in precipitation regimes have been mainly produced by the decrease of spring precipitation amount, particularly by the effect of March trends and, in a less extent, by a light autumn precipitation increase. Other changes in precipitation have been detected in monthly concentration that can affect rainfall aggressiveness and soil erosion processes. The effect of precipitation trends and changes on rainfall regimes have being evaluated by dendrochronological analyses. A total of 28 forest (*Pinus halepensis*) distributed in the Mid-East have been studied and chronologies compared with precipitation series. The results suggest a high instability in climate-growth response. At present we continue the development of MOPREDAS extending back to 1916 by digitalizing the annual books and updating to 2010, and also covering the portuguese stations. Key Words. Clivar-Spain, Climate variability and change, Southwestern Europe, Database, Precipitation, Trends