

**CLIVAR-SPAIN contributions: Spatial and temporal comparative of temperature observations (SDATS) against ERA-40, NCEP/NCAR and NOAA-CIRES 20th Century reanalysis, and GCM series in the Iberian Peninsula along nineteen and twenty century.**

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The aim of this work is to evaluate the differences in spatial and temporal trends of maximum, minimum and mean temperature series in the Iberian Peninsula interpolating gridded data from reanalysis and GCM and using statistical methods for comparing meteorological measurements with simulated temperatures. The study has examined the local fields of near-surface temperature over the Iberian Peninsula (IP) from five different set of data -observations, GCM simulations and three reanalysis simulations (ERA-40 (1), NCEP/NCAR (2) and NOAA-CIRES 20th Century (3)-. Observed surface air temperature data were obtained from the Dataset of Spanish Daily Adjusted Temperature Series (SDATS) (4). In this paper they developed a new adjusted dataset composed of the 22 longest and most reliable Spanish daily temperature records. The observed data include the maximum and minimum daily temperature for the period 1850-2003. This study also uses the near surface daily-mean air temperature data generated by a GCM (the Third Generation Atmospheric General Circulation Model Canadian Centre for Climate Modelling and Analysis) (5) whose simulations from 1850 greenhouse gasses levels increasing as observed through the 20th century (20C3M). Finally, two meter surface monthly-mean air temperature reanalysis ERA-40 -from 1958- and NCEP/NCAR -from 1948-, and tmax and tmin NOAA-CIRES 20th Century reanalysis -from 1871- are used. The results show important differences in the adjustment of the various GCM and reanalysis simulations against observations. These differences have been found in spatial patterns and in the behavior of timeseries, both for the set of the IP and for individual stations. (1) Uppala SM et al (2005) The ERA-40 reanalysis. Q J R Meteorol Soc 131:2961-3012 (2) The NCEP/NCAR 40-year reanalysis project, Bull. Amer. Meteor. Soc., 77, 437-470, 1996. (3) Compo, G.P et al 2011: The Twentieth Century Reanalysis Project. Quarterly J. Roy. Meteorol. Soc., 137, 1-28. DOI: 10.1002/qj.776. (4) Brunet, M; Saladi , O; Jones, P, et al. 2006. The development of a new dataset of Spanish Daily Adjusted Temperature Series (SDATS) (1850-2003) (5) McFarlane, N.A., J. F. Scinocca, M. Lazare, R. Harvey, D. Versegny, and J. Li, 2005: The CCCma third generation atmospheric general circulation model. CCCma Internal Rep., 25 pp.