



Long-term variability of cloudiness over NE Iberia from late 18th century: preliminary results

Arturo Sanchez-Lorenzo (1), Elena Guinaldo (2), Jordi Via (3,4), Josep Calbó (2), Mariano Barriendos (3), and Marc Prohom (4)

(1) Climate Research Laboratory, Barcelona Science Park, Catalonia, Spain (asanchezl@pcb.ub.cat), (2) Group of Environmental Physics, University of Girona, Catalonia, Spain (e.guinaldo@udg.edu, josep.calbo@udg.edu), (3) Department of Modern History, University of Barcelona, Catalonia, Spain (jvia@meteo.cat, mbarriendos@ub.edu), (4) Meteorological Service of Catalonia (SMC), Catalonia, Spain (mprohom@meteo.cat)

This work presents preliminary results regarding cloudiness variability over the northeastern Iberian Peninsula from late 18th century until the present. Analyzed data are in situ visual observations from different surface meteorological stations, and the studied variables are overcast and cloud-free sky frequencies covering the 1865-2007 period. Using total cloud cover (TCC) estimations in oktas (1961-2004 period, Sanchez-Lorenzo *et al.*, 2009) and their relationship with overcast/cloud-free sky frequencies, we estimated TCC changes from mid-19th century up to the present. We completed the analysis by using partially digitalized sky observations that were taken during the *Early Instrumental Period* in Barcelona and Valencia cities since the late 18th century. For the first time, this work tries to use this data in order to reconstruct cloudiness variability records using the available visual observations recorded previously to the establishment of official meteorological services.

- Sanchez-Lorenzo, A., J. Calbó, M. Brunetti, and C. Deser (2009), Dimming/brightening over the Iberian Peninsula: Trends in sunshine duration and cloud cover and their relations with atmospheric circulation, *J. Geophys. Res.*, 114, D00D09, doi:10.1029/2008JD011394.