

## ***Interactive comment on “A shift in the spatial pattern of Iberian droughts during the 17th century” by F. Domínguez-Castro et al.***

**F. Charpentier Ljungqvist (Referee)**

fredrik.c.l@historia.su.se

Received and published: 16 June 2010

Let me first state that this paper definitely should be published in *Climate of the Past*. It contributes in a somewhat novel way to assessing the spatio-temporal pattern of droughts in Spain during parts of the Little Ice Age (AD 1600–1749) using historical documentary data. However, I think that the paper could be improved on a few points.

My main concern is the key conclusion of the paper, namely that the droughts 1600–1652 had a more local character than those 1653–1749. I would like a longer and deeper discussion, ruling out that this is merely an artifact of changes in the historical source material or a consequence of changing rogation customs. Such a discussion would significantly improve to vigor of the conclusions.

C314

The quite different climatic conditions c. 1720–1749 compared with those during the Maunder Minimum should be discussed in the light of the results. Is it not somewhat surprising that we see the same drought conditions during a cold and a relatively warm period but other conditions during the first half of the likewise cold 17th century?

The paper would be improved by a little longer general discussion of the field of historical climatology in the beginning of the paper, preferably with references to some recent key papers in the field, for example:

Brázdil R., Pfister C., Wanner H., von Storch H., Luterbacher J. 2005. Historical climatology in Europe – the state of the art. *Climatic Change* 70: 363–430.

Brázdil R., Kundzewicz Z.W., Benito G. 2006. Historical hydrology for studying flood risk in Europe. *Hydrol Sci J* 51: 739–764.

Many excellent articles are also published in the very latest issues of the journal *Climatic Change*, which should be discussed in the paper, not at least from a methodological point of view.

Under the Discussion and conclusion section, it would be preferable if the results of the paper (that are drawn from historical data) are compared with the results of studies of drought based on natural archives such as sediments. The following studies, among many others, could be considered for this purpose:

G. Benito, M. Rico, Y. Sánchez-Moya, A. Sopena, V.R. Thorndycraft, M. Barriendos. The impact of late Holocene climatic variability and land use change on the flood hydrology of the Guadalentín River, southeast Spain. *Global and Planetary Change*, 70: 53–63.

G. Benito, V.R. Thorndycraft, M. Rico, Y. Sánchez-Moya, A. Sopena. Palaeoflood and floodplain records from Spain: Evidence for long-term climate variability and environmental changes. *Geomorphology*. 10, 2008: 68–77.

V. López-Días, Á.G. Borrego, C.G. Blanco, M. Arboleya, J.A. López-Sáez, L. López-

C315

Merino. Biomarkers in a peat deposit in Northern Spain (Huelga de Bayas, Asturias) as proxy for climate variation. *Journal of Chromatography A*, 1217. 2010: 3538–3546.

It would also be preferable to write something in the Discussion and conclusion section about what long time-series of proxy data (up to several 1000 years long) relate about the relationship between temperature and droughts in Spain. In this way, the observed high-frequency drought patterns of the paper could be placed in millennium-scale low-frequency drought patterns.

Minor remarks

Page 1113, line 5–10: I would like to see a reference to Spanish rogations as a historical phenomenon.

Page 1113, line 25 forward: I would like to see a reference to the precipitation requirements for corn and other crops.

Page 1114, line 20: I would like to see a reference to historical research concerning the increasing anticlericalism in Spain after the Napoleonic Wars.

---

Interactive comment on *Clim. Past Discuss.*, 6, 1111, 2010.