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Climate of the Past Discussions

Interactive comment on "The influence of the circulation on surface temperature and precipitation patterns over Europe" *by* P. D. Jones and D. H. Lister

Anonymous Referee #3

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This paper presents results on the relation between weather types obtained from surface pressure data and temperature and precipitation. It is an invited contribution to Clim. Past.

The manuscript presents a few results that add to the EMULATE European project, i.e. a gridded sea-level pressure (SLP) dataset, and station temperature and precipitation datasets. It is based on a circulation type analysis of the SLP data with a simulated annealing method (Philipp et al. 2007).

I have no fundamental objection to this manuscript. The paper is rather descriptive, and presents an excerpt of an obviously thorough analysis.

My remarks follow: The goal of the paper is "to assess whether the long-term change in temperature over Europe [. . .] is a result of a change in the mix of CTs or is a result of within-type changes in the CTs" (p. 538, l. 14). Note that those mechanisms are not necessarily the only ones that can cause long-term change in temperature. Moreover, I do not think that the authors address this question in their manuscript. Instead, they assess the response (of temperature), assuming that the driver is the atmospheric circulation (note that temperature variations also affect surface pressure, which is not discussed here). Although I believe that it is important and interesting, it is different from the original goal of the manuscript. The authors could rephrase the introduction to make the manuscript more coherent. The authors should cite work by other researchers who have tackled this kind of problem [e.g., Corti et al., 1999; Michelangeli et al., 1995; Palmer, 1999; Robertson and Ghil, 1999; Yiou et al., 2007]. More that half of the references have P.D. Jones as a co-author. I believe that he deserved the H. Oeschger medal, but a bibliographic search cannot do harm. The description of the Monte Carlo method (p. 540, l. 26) is rather vague (I gather that what the authors did is close to a bootstrap method). How (and why) does this procedure allow for an assessment of significance? The authors have a better command of English than me, but they should avoid colloquial phrasing (haven't, doesn't, can't. . .) in the manuscript. What do the authors mean by "weekly" (p. 545, l. 22)? That sentence is rather strange and might need to be simplified to non native English speaking readers. Figure 6 (p. 555) seems incomplete. Its legend mentions at least two panels. I see only one, entitled 'summer_prec'.

References

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