

Interactive comment on “Continental atmospheric circulation over Europe during the Little Ice Age inferred from grape harvest dates” by P. Yiou et al.

Anonymous Referee #2

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Yiou and co-authors present a study of continental-scale atmospheric circulation inferred from temperature reconstructions using grape harvest dates from 4 regions in France and adjacent areas. The study is based on careful data collection and interpretation that have been carried out in multi-disciplinary project. Temperature reconstruction models based on inversed, process-based phenological models have been successfully reapplied to the newly available data.

General comments

Data and methods including calibration results and verification studies during the 20th century are clearly presented. However atmospheric circulation reconstructions from the Little Ice Age nor their comparisons with other reconstructions are very much hidden in the result part of the paper. I support the Editor's comment to include com-

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parisons of LIA circulation reconstructions with independent reconstructions. I even think that the comparisons should be shown in a figure. Moreover I suggest that the temperature-atmospheric-circulation-relationship needs to be introduced and discussed more carefully throughout the manuscript. At the present stage I am not convinced that there is much more relevant information gained than 4 regional temperature reconstructions.

The text suggest that the study provides new insights in circulation patterns at the continental European scale. However from Fig. 2 and 3 I am not convinced how reliable the results are. First, uncertainty estimates are missing. Second, the changing number of GHD observations and its reduction back in time are not displayed in the reconstruction. Third, only the Eastern series has complete coverage during the LIA whereas West and North contain significant gaps. In consequence the results in Fig 3 are overly positive.

In the present form the study appears to be unfinished and lacks the conclusions that are indicated in the title. After completion of the work and a much clearer focus on circulation patterns the study will very much merit publication in Climate of the Past.

Minor comments

Introduction: maybe include paragraph p3033, l. 5ff here with more detailed descriptions.

P3026, 1st paragraph: what's exactly the benefot of so many co-authors?

P3027, l. 9ff: two personal communications are confusing. Did you use real ECAD download data? Method section: a clear description of the method for gradient constructions and inferences of pre-instrumental period atmospheric flow is missing.

P3031: what is the importance of the second paragraph and data description for atmospheric circulation flow? Move to discussion or remove.

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