Natural Hazards
and Earth System
Sciences

Discussions

Open Access

EGU

Interactive comment on "Towards a monitoring system of temperature extremes in Europe" *by* Christophe Lavaysse et al.

Anonymous Referee #2

Received and published: 30 August 2017

This is an interesting study that quantify the intensity of heat and cold waves regarding the climatology for the development of a monitoring system of temperature extremes in Europe. This study represent a substantial contribution to the understanding of natural hazards and their consequences. Explanations, results and references are appropriate, and are presented in a clear, concise and well-structured way. Figures and tables are helpful and the number and quality of both is appropriated. Overall, I found it is an interesting paper and would recommend publication after some additional work. Although I enjoyed reading the manuscript, the paper is written well and I appreciate the work of the authors, I have some concerns about the methodological choices.

My main concern is related to the small size of the sample and the return times computation. Although climate is usually defined as an average of weather, the classical

period as defined by the World Meteorological Organization (WMO) is 30 years. So the most important caveat that I see in this study is the small sample of 21 years. The return times are computed with the intensities of the waves you have detected with a climatology of 21 years, It is also difficult to believe in return times greater than 100 years (figure 11) computed over a basis of 21 years. I also understand that Lisflood has more benefits than the other two for the monitoring system but it is quite short dataset (starting at 1990).

Therefore, and in order to validate and justified the short period of study, I suggest to repeat the experiment (including some additional figures or tables in the manuscript) but using just EOBs for the whole period (1950-2015) since is the largest dataset you have used and has a good agreement with Lisflood. Hence, you will have a largest climatology to detect the waves and compute the return times with less influence of noise due to the small sample size. If these results are in consistence with the ones you got using the 21 common years of the three datasets your results and the monitoring system, which, by the way, I find very interesting and promising, will demonstrate that are robust enough even for a short period, and so the use of Lisflood will be justified for this purpose.