

## ***Interactive comment on “On the quest for a pan-European flood frequency distribution: effect of scale and climate” by J. L. Salinas et al.***

**R. Romanowicz (Referee)**

romanowicz@igf.edu.pl

Received and published: 10 June 2013

The aim of the paper is to harmonise and homogenise (summarise) the current state of knowledge on the approach to flood frequency estimation across Europe based on the first available pan-European inventory database created as part of COST Action ES0901 (FloodFreq). The authors describe the present state of national guidelines for flood frequency estimation in Europe, which are available in 9 out of the 15 surveyed countries. The first reviewer rightly noticed that the paper has two separate parts that address two different questions. The first question is about the existence of parent distribution based on the whole pan-European database. The second question is looking for the relationship between the distribution characteristics, under a chosen classifica-

C2389

tion scheme.

The authors base their analysis on the ratio of L-moments derived from the data and they investigate links between hydrological processes and L-moment ratios. The classification is based on the MAP and the catchment size. These two catchment characteristics were chosen due to their general accessibility. However, it seems that the other catchment characteristics, such as catchment elevation (and gradient) or the existence of snow-induced floods should also be taken into account (Merz and Blöschl, 2003). The best approach would be to perform an analysis of different catchment characteristics to choose those that have the strongest influence on the flood frequency indices. The first question that comes to mind after reading the paper is whether parent distribution of annual flood extremes for Europe exists. The authors express this doubt, and the research presented indicates that the doubt is justified. Therefore, the title of the paper is misleading. I suggest changing the title to “The first pan-European flood frequency analysis”. There is no question that the research presented is just a first attempt to develop a methodology for the analysis of flood extremes in Europe. There is much to do but the paper outlines the methodology based on L-moment ratio that can be easily extended towards more sophisticated classification methods of catchment flow regimes. I look forward to the sequel.

The paper is well written. There are few points that the authors do not describe clearly. The first is the method used to derive the GEV for all catchments from the pan-European database having different lengths of record (noticed by the first reviewer F. Laio). The second (and related to the first question) is the weighted moving averages (WMA) applied to derive sample L-Cs and L-Ck records used across all the catchments, weighted proportionally to their record length, but also across the classified catchments. Some more information about the procedures used (and their limitations) would be welcome.

Merz, R. And G. Blöschl, 2003, A process typology of regional floods, Water Res. Research, 39, no. 12, 1340, doi:10.1029/2002WR001952

C2390

C2391