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Hydrology and Earth System Sciences Discussions

Interactive comment on "Aspects of seasonality and flood generating circulation patterns in a mountainous catchment in south-eastern Germany" *by* T. Petrow et al.

Anonymous Referee #2

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General comments. Overall, the paper is very interesting and highlights specific aspects of the flood generation in Eastern Germany in dependence of the atmospheric circulation patterns. The long-term data and thorough analysis provide good quality of the results.

Specific comments. The general impression is that most attention is paid to the methods of "statistical purification", whereas the conclusions on real relationships between weather events and floods are too short and not detailed enough. If the main conclusions are made based on quite simple analysis of the frequencies of floods under certain circulation patterns, may be the previous detailed statistical analysis can be

presented shorter?

The authors reveal the so-called Vb-regime as rather important one. However, the Vb-regime is absent from the list of circulation patterns (Table 2). Only from the caption to the last figure one can see that the Vb-regime can correspond to 2 different GWLs (TM and TRM). No analysis of the merging these 2 types into a new type (Vb) is presented. It is also unclear whether all TM and TRM types always correspond to the Vb-regime.

For studies of the winter floods, may be a combination of 2 (or more) circulation patterns should be analyzed: one with heavy snowfalls, and another with intense snowmelt.

Is it necessary to use the German term “Großwetterlage”? It could lead to misunderstanding for non-German readers.

As an additional comment, I would like to say that there exists rather detailed classification of the daily circulation types over entire North Hemisphere based on 500-mb geopotential field. It was developed by Russian climatologist Boris L. Dzerdzeevsky (1946) and counts for 41 type. The archive of the daily circulation types (or mechanisms) for 1899-2005 is available from Internet, although the most reliable period of the calendar ends about 1994.

Technical corrections In the abstract, it would be nice to explain in short what is the Vb-regime. Page 3: “only five different weather patterns are susceptible to produce flood events in Bavaria” - five of how many? Page 5: “The region has a vital history of large flood events.” May be a long history? Page 6: “have a distance of at least 3 km among each other.” It should rather be “between each other”. Page 7: Why the mean flood discharge is abbreviated as MHQ? “Vb-weather regimes do not always trigger large flood events in the study area, but large floods are mostly generated by these weather patterns” - it would be nice to see the numbers. Figure 2, legend: not “brushes”, but “bushes”.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 589, 2007.