



Extreme precipitation events in the transitional area between Western and Central Europe and their comparison with flood extremes

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In the area of Western and Central Europe, it is particularly important to watch extreme floods and analyze their causes as river floods pose a serious hazard and occur fairly often in this area. A comprehensive examination of causal atmospheric conditions, the induced precipitation field and the hydrological response is required.

In this study, we mainly focus on extreme precipitation events that occurred in the transitional area between Western and Central Europe. The study area covers Rhine, Elbe, Weser and Ems river basins and Danube up to Bratislava. We are just interested in spatially extensive precipitation events and the floods of a trans-basin character. The precipitation extremes are assessed on the basis of the extremity index reflecting the areal extent of the affected area and processed in terms of temporal and spatial distribution. The comparison with major flood events shows how much the flood extremes are related to extreme precipitation events as the causal precipitation may not be the only factor influencing flooding. There are differences in antecedent precipitation fields and also some seasonal variations. The causal atmospheric conditions could explain some differences hence the quantitative assessment of circulation conditions associated with hydrometeorological extremes (precipitation, flood or both of them) will be included in the following studies.