Pan-European catalogue of flood events

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There have been numerous extreme flood events observed in Europe in the past years. One of the way to improve our understanding about causing flood generation mechanisms is to analyse spatial and temporal variability of a large number of flood events. The aim of this study is to present a pan-European catalogue of flood events developed within the SWITCH-ON EU Project.

The flood events are identified from daily discharge observations at 1315 stations listed in Global Runoff Data Centre database. The average length of discharge time-series for selected stations is 54 years. For each event, basin boundary and additional hydrological and weather characteristics are extracted. Hydrological characteristics are extracted from the pan-European HYPE model simulations. Precipitation, together with the corresponding proportions of rainfall and snowfall, snowmelt, and evapotranspiration are computed as total amounts between the event start date and event peak date. Soil moisture, soil moisture deficit, and basin accumulated snow water equivalent are computed for the event start date. Weather characteristics are derived from the weather circulation pattern catalogue developed within COST 733 Project.

The results are generated in an open data access and tools framework which allows reproduction and extension of results to other regions. More information about the analysis and project are available at: http://www.water-switch-on.eu/lab.html.