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Monthly Danube River Basin Precipitation - Discharge Anomalies Associated with the Large-scale Atmospheric Circulation

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Correlation between large scale atmospheric circulation indices and Dnube river basin precipitation and discharge at a number of observation stations have been calculated. A clustering technique for classification of the Danube River Basin monthly precipitation and discharge anomalies into similar space patterns has been applied. A mutual relationship between these patterns and European-Northern Atlantic sea-level pressure anomaly patterns has been achieved. For that purpose, time series of monthly precipitation data for 29 weather stations, discharge data for 22 hydrological stations over the Danube Basin and sea-level pressure data for 19X12 grid points over the European-Northern Atlantic area have been used. Data refer to the standard World meteorological Organization reference climate period 1961-1990. In spite of limitations, the results could be used for a long-range precipitation and discharge forecasting over the basin as well as for downscaling of climate change scenarios. Further improvements can be expected by expanding the data sets (more weather and hydrological stations should be included in the study) and taking into consideration some other parameters, e.g. snow cover, evapotranspiration and soil moisture.