



## **Meteorological situations that generated exceptional discharges along the Danube River**

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For Europe, the undisputed importance of the Danube can be rendered by some general data: Its hydrographic basin surface exceeds 817,000 km<sup>2</sup>, i.e. about 10% of that of the continent, its length is 2857 km and its mean multiannual discharge is about 6500 m<sup>3</sup>/s, thus ranking second to Volga river.

Romania is the country with the largest surface situated within Danube's basin (97.4%), representing 29% of Danube's hydrographic basin.

The water resources of the Danube in Bazias section amount to 205 billion m<sup>3</sup>, 30 billion m<sup>3</sup> of which are technically usable resources.

Our analysis aimed at determining those complex meteorological situations at the European continent level that triggered exceptional discharges along the Danube, resulting in severe flooding, causing in turn heavy damages, fatalities, population evacuations and considerable rehabilitation costs.

A complex analysis was performed, of statistical-synoptic type and those complex meteorological situations were identified that determined the occurrence of such disasters.

Discharges and levels of the Danube were used along the whole measuring period, data from the archive of the National Meteorological Administration, and data, map and image archives from Wetterzentrale (Kartenarchiv, NCEP, NCAR, AVN etc.).

The complex meteorological situations at the level of the European continent that triggered exceptional discharges along the Danube correlate with intense cyclonic activity, of both the Icelandic and the Mediterranean cyclones, with the negative phase of the North-Atlantic Oscillation and with decreasing or minimum solar activity (according to data from NOAA's Space Environment Center).

The most disastrous floods occurred in the spring of 2006.

The paper is important for meteorologists, in their weather forecasting activity, for hydrologists, in their hydrological forecasting and for the institutions involved in flood management.