



## **Floods and climate in Europe during the past millennium: the new challenge for historical hydrology and climatology**

R Brázdil

Institute of Geography, Masaryk University, Kotlářská 2, 611 37 Brno, Czech Republic

Recent global warming could significantly influence the frequency and severity of future floods in Europe. Knowledge of historical flooding is important for better understanding future trends. Historical hydrology represents a significant tool for combining information about floods from periods of instrumental hydrological measurements (several decades) with the pre-instrumental period covered by documentary data (several centuries). Basic documentary data sources are described taking into account long-term environmental and anthropogenic changes. Methodological aspects dealing with documentary-based floods are discussed. Examples of flood chronologies from Central Europe from A.D. 1500 based on a synthesis of documentary and instrumental data are presented. Long-term changes in frequency and seasonality of floods, their synoptic causes and human impacts are analysed. Floods trends are discussed in the context of temperature and precipitation variability reconstructed in Europe for the past 500 years. Selected examples of the most disastrous flood events in Central Europe from the 12th century are shown. Wide-European floods of the hard winter 1783/84, following after the 1783 Lakagígar (Iceland) volcanic eruption, are presented as a case study with respect to their climate context and human impacts. The potential of historical hydrology and climatology for the future study of relationships between floods and climate variability is described.