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Fluctuations of floods of the River Morava (Czech Republic) in A.D. 1691–2009: interactions of natural and anthropogenic factors

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Floods from the middle part of the River Morava (eastern Czech Republic) are considered over the course of the past three centuries, basing the study on data derived from documentary evidence (1691–1880), measured peak water stages H (1881–1920) and peak discharges Q (1916–2009), evaluated with respect to their N-year return period (HN and QN). Changes in land-use and water management (water reservoirs, channel modifications) are discussed as they are factors influencing runoff conditions in the River Morava catchment. Decadal synthesis of flood series identifies the highest flood activity in the decades of 1911–1920 and 1961–1970 (11 floods each), 1831–1840, 1891–1900, 1901–1910 and 1931–1940 (10 floods each). Uncertainty in this series is related to some incompleteness of documentary data in the pre-1881 period. Very low flood frequency occurred in the 1990s–2000s, although the most disastrous floods were recorded in this particular period (July 1997 at Q100 and March/April 2006 at Q20–Q50). Changes in flood frequency correspond partly to long-term changes in temperature and precipitation patterns.