



Long-term fluctuations of floods in the Czech Republic

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The paper presents results of analysis of flood series in the instrumental period for the Elbe-Děčín (1851–2003), the Vltava-Prague (1825–2003), the Ohře-Louny (1884–2003), the Odra-Bohumín (1896–2003) and the Morava-Kroměříž (1881–2003). Sea level pressure patterns based on PCA are analysed for floods of the winter synoptic type (snow melting, ice damming) and of summer synoptic type (heavy precipitation). There is a significant decrease in the number of floods and their severity (expressed by a return period of maximum peak discharges) from the 2nd part of the 19th century to the end of the 20th century. It is consistent with global warming with significant decrease in the number of winter floods. Above series of floods are extended into the pre-instrumental period based on different kinds of documentary evidence (e.g. narrative reports, newspapers, watermarks) and presented in decadal frequencies since the 15th century. The most disastrous floodings in the territory of the Czech Republic during past millennium were recorded in the years 1118, 1432, 1501, 1598, 1655, 1675, 1784, 1845, 1862, 1872, 1890, 1903, 1938, 1997, 2002. Since 1872 all catastrophic flood events were caused by extreme precipitation. Synthesis of documentary and instrumental floods shows long-term flood trends with maximum of floods during the 19th century and the 2nd part of the 16th century. The 20th century belonged to relatively very quiet periods.