



Spatiotemporal variability of hydrometeorological extremes and their impacts in the Jihlava region in the 1650–1880 period

Lukas Dolak (1,2), Rudolf Brazdil (1,2), Katerina Chroma (2), Hubert Valasek (1,3), Ladislava Reznickova (1,2)
(1) Masaryk University, Geography, Brno, Czech Republic (dolak@mail.muni.cz), (2) Global Change Research Institute CAS, Brno, Czech Republic, (3) Moravian Land Archives, Brno, Czech Republic

Different documentary evidence (taxation records, chronicles, insurance reports etc.) and secondary sources (peer-reviewed papers, historical literature, newspapers) are used for reconstruction of hydrometeorological extremes (HMEs) in the former Jihlava region in the 1651–1880 period. The study describes the system of tax alleviation in Moravia, presents assessment of the impacts of HMEs with regard to physical-geographical characteristic of area studied, presents up to now non-utilized documentary evidence (early fire and hail damage insurance claims) and application of the new methodological approaches for the analysis of HMEs impacts. During the period studied more than 500 HMEs were analysed for the 19 estates (past basic economic units) in the region. Thunderstorm in 1651 in Rančřřov (the Jihlava estate), which caused damage on the fields and meadows, is the first recorded extreme event. Downpours causing flash floods and hailstorms are the most frequently recorded natural disasters. Together with floods, droughts, windstorms, blizzards, late frosts and lightning strikes starting fires caused enormous damage as well. The impacts of HMEs are classified into three categories: impacts on agricultural production, material property and the socio-economic impacts. Natural disasters became the reasons of losses of human lives, property, supplies and farming equipment. HMEs caused damage to fields and meadows, depletion of livestock and triggered the secondary consequences as lack of seeds and finance, high prices, indebtedness, poverty and deterioration in field fertility. The results are discussed with respect to uncertainties associated with documentary evidences and their spatiotemporal distribution. The paper shows that particularly archival records, preserved in the Moravian Land Archives in Brno and other district archives, represent a unique source of data contributing to the better understanding of extreme events and their impacts in the past.