



Spatio-temporal variability of windstorms in the Czech Lands derived from documentary evidence

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Because of relatively short series of wind-speed measurements (starting in the Czech Lands during the first half of the 20th century), documentary evidence represents an important source of information for the study of past and recent windstorms in the pre-instrumental period and afterwards. Documentary sources of windstorms in the Czech Lands are presented particularly by chronicles and memories, weather diaries, economic and financial sources, special prints, letters, newspapers, scientific papers and communications, and early meteorological observations. The earliest credible report of strong winds related to the territory of the Czech Lands is related to the tornado in Prague on 30 July 1119 (Cosmas, the Chronicle of Czechs). The number of strong wind events, usually related to any damage caused, increases continuously from the 12th century over the subsequent centuries, based on the number of preserved documentary sources. Strong winds, detected from documentary sources, were divided to squalls, tornadoes, blizzards, gales and violent windstorms and with respect to extent and character of the damage caused. Based on these criteria, long-term chronology of strong winds for the Czech Lands from AD 1501 was compiled. Particular attention is devoted to the analysis of the spatio-temporal variability of tornadoes. Two case studies of the “windstorms of the century” on 20–21 December 1740 and 7 December 1868 are presented with respect to their spatial extent and with a particular focus on their damaging impacts in forests and subsequent responses for the forestry development. Results and analyses provided are put into the context of the project no. 15-11805S “Windstorms in the Czech Lands during the past 500 years” funded by the Grant Agency of the Czech Republic.