

Long-term windstorm variability 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 used to create database used for further analyses. They were classified on squalls, tornadoes, blizzards, gales and violent windstorms and with respect to extent and the type of the damage caused. Based on these criteria, various long-term chronologies of strong winds for the Czech Lands from AD 1501 were compiled. They allow identify periods of higher and lower storminess over the Czech Lands in the past. The potential of documentary data is demonstrated on the example of the spatio-temporal variability of tornadoes and on the analysis of past outstanding windstorms as was "windstorms of the 18th century" on 20–21 December 1740. (This work was supported by Czech Science Foundation, project no. 15-11805S "Windstorms in the Czech Lands during the past 500 years".)