Geophysical Research Abstracts
Vol. 18, EGU2016-2559, 2016
EGU General Assembly 2016

April–August temperatures in the Czech Lands, 1499–2012, reconstructed from grape harvest dates

Martin Možný (1,2), Rudolf Brázdil (3,4), Petr Dobrovolný (3,4), Miroslav Trnka (2,4)

(1) Czech Hydrometeorological Institute, Doksany Observatory, Czech Republic., (2) Institute of Agrosystems and Bioclimatology, Mendel University in Brno, Czech Republic, (3) Masaryk University, Department of Geography, Brno, Czech Republic (dobro@sci.muni.cz), (4) Global Change Research Institute, Czech Academy of Sciences, Brno, Czech Republic

Various sources of documentary evidence from Bohemian wine-growing region (NW part of the Czech Republic, CR) were used to compile series of grape-harvest dates (GHDs) for the 1499–2012 period. As the higher temperatures lead to earlier harvest dates and vice versa, GHDs series and mean Czech instrumental temperature series starting in 1801 were used to reconstruct mean April–August temperatures for the Czech Lands (recent CR) from 1499 to 2012. Ordinary least square (OLS) regression and variance scaling (VS) methods were used for calibration and compared as for explained variance and their ability to capture extreme values. The OLS does not underestimate temperature variability significantly and captures extremes well. The GHDs explain 79% of temperature variability in overlapping period. The 1971–2012 period, consistent with recent global warming, was identified as the warmest during the past 515 years. The highest April–August temperatures were reconstructed for the year 1540, which was warmer than two last very warm and more recent seasons in 2000 and 2003. The coldest period occurred at the beginning of the 20th century (1900–1929). The new reconstruction shows good agreement with existing Central European reconstructions that are based on different proxies. Reconstructed temperature series represents an important contribution to the better understanding of the long-term spatial-temporal temperature variability in Central Europe.