



## **Record-breaking 2015 heat waves in Central Europe: how to view them in the climate change context?**

Ondrej Lhotka (1,2,3), Eva Plavcová (1), Jan Kyselý (1,2)

(1) Institute of Atmospheric Physics CAS, Prague, Czech Republic (ondrej.lhotka@ufa.cas.cz), (2) Global Change Research Institute CAS, Brno, Czech Republic, (3) Faculty of Science, Charles University, Prague, Czech Republic

The 2015 summer was the warmest summer ever observed in Central Europe according to many characteristics, including the overall severity of heat waves. We assess how unusual this summer was by i) comparing the seasonal temperature anomalies and severity of heat waves against long-term temperature records at Central European stations, ii) evaluating its temperature characteristics at the continental scale against hot summers and major heat waves affecting Europe recently (including the 2003 western-European heat waves and the 2010 Russian heat waves), and iii) identifying time slices in climate change scenarios for the 21st century in which similar events are projected to occur over Central Europe at least once per decade. In the last point, we make use of a large ensemble of RCM simulations from CORDEX and ENSEMBLES projects and critically evaluate their ability to simulate events such as the 2015 summer (in terms of both seasonal temperature anomalies and heat waves, including their spatial extent). We examine also how results for the climate change scenarios depend on radiative forcing and driving global models.