



## **Combined evaluation of synoptic-scale (thermo)dynamic anomalies related to heavy steady rains**

M. Müller (1,2) and M. Kaspar (1)

(1) Institute of Atmospheric Physics, Department of Meteorology, Prague, Czech Republic (muller@ufa.cas.cz), (2) Charles University, Faculty of Science, Prague, Czech Republic

If there was a dynamic or thermodynamic variable reaching extreme values during extreme precipitation in a given region, it could be considered as a predictor of heavy precipitation there and used in addition to the quantitative precipitation forecasting. Although Central-European heavy steady rains are strongly influenced by synoptic-scale circulation conditions, no individual meteorological variable can be used in this manner. On the other hand, many studies show that some variables typically reach abnormal values before or during the events with heavy steady rains in the Czech Republic. Simultaneous occurrence of anomalies of these variables seems to be a reason for heavy steady rains in Central Europe. This idea motivates us to compile proper predictors into a combined predictor which should enable to assess the extremity of precipitation from the synoptic conditions.

The evaluation of synoptic-scale (thermo)dynamic anomalies was based on re-analyses ERA-40. In order to compare the values of many different variables in different regions together, we expressed the extremeness of their values by distribution function in individual grid points. We present the selection of the best synoptic-scale predictors and searching the optimal combination of them.