

## **Regional analysis of extreme precipitation events based on L-moment approach**

Principal investigator: Jan Kyselý, Institute of Atmospheric Physics, Prague

Co-investigator: Jan Pícek, Technical University, Liberec

funded by Grant Agency of Academy of Sciences in 2003-2005

### **Abstract**

The L-moment based method of regional frequency analysis is a recent development in environmental science which was proved to be superior to more traditional approaches (based mostly on methods of conventional moments or maximum likelihood, and at-site analysis) and has not been applied in analyses dealing with return periods of hydrological extremes in the Czech Republic. Benefits of the regional frequency analysis of high and low precipitation extremes compared to the at-site analysis will be examined. The main aims of the project are (i) to find the best method for the identification of homogeneous regions and to divide the area of the Czech Republic into regions; (ii) to select the distribution which fits the data best and to compare results of single-samples goodness-of-fit tests for different distributions with results of the regional goodness-of-fit test and the L-moment ratio diagram; and (iii) to estimate parameters and quantiles of the fitted distribution and their uncertainty, with an emphasis on return periods of the 1997, 1998 (floods) and 2000 (drought) extreme precipitation events.