

**Climate  
≈  
water**

Bridging the gap between adaptation strategies of  
climate change impacts and European water policies



# **WP 4 – Identification of research needs**

## **4.5 – Research into water stress and drought**



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***Bridging the Gap between Adaptation Strategies of Climate Change Impacts and European Water Policies  
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**Ing. Lotta Blaškovičová, PhD.  
RNDr. Peter Škoda**

**[lotta.blaskovicova@shmu.sk](mailto:lotta.blaskovicova@shmu.sk)**

**PP9 – SHMU**

## Research needs regarding drought indices

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- Developing effective indicators and indices to detect and assess drought situations throughout Europe
- Development and dissemination of drought hazard, vulnerability and risk assessment tools
- Development of vulnerability assessment methodologies under different environmental conditions, including the predicted climate change in Europe
- Development of decision support models for the dissemination of drought-related information to end users
- Knowledge or at least qualified estimation of water resource changes in changing global climatic system can be helpful in preparation of human society on expected changes

## The following research areas are essential to conserve and develop water resources in the future:

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- Consolidated datasets-observations at the regional scale
- Detection space and temporal patterns/trends in drought-changes in climate and catchment process and anthropogenic interferences
- Drought monitoring to enable early warning systems
- Quantitative parameters of surface water issues are not in the center of interests in monitoring process of water status, so it should be enhanced

# Research needs into water stress and drought

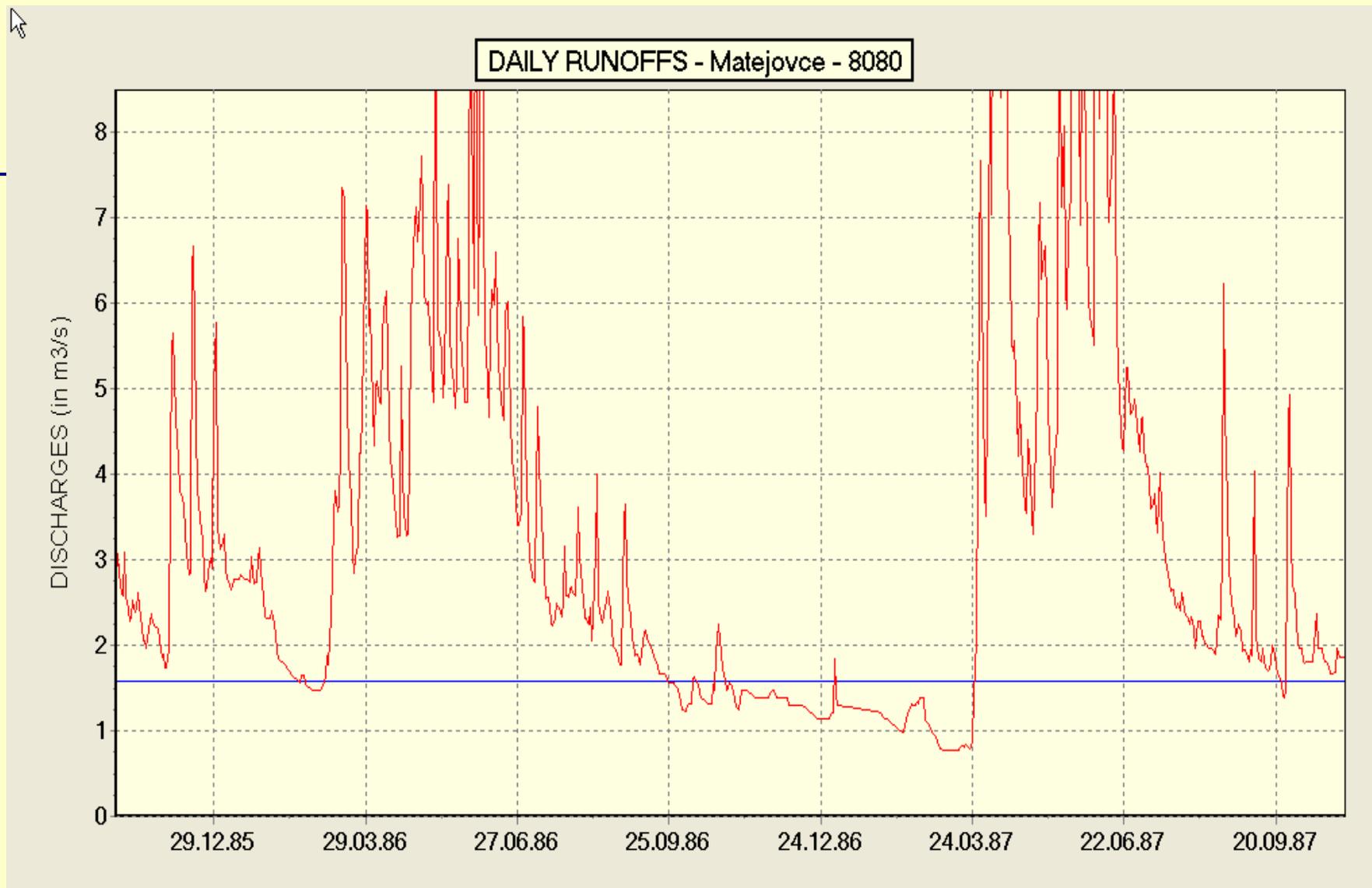
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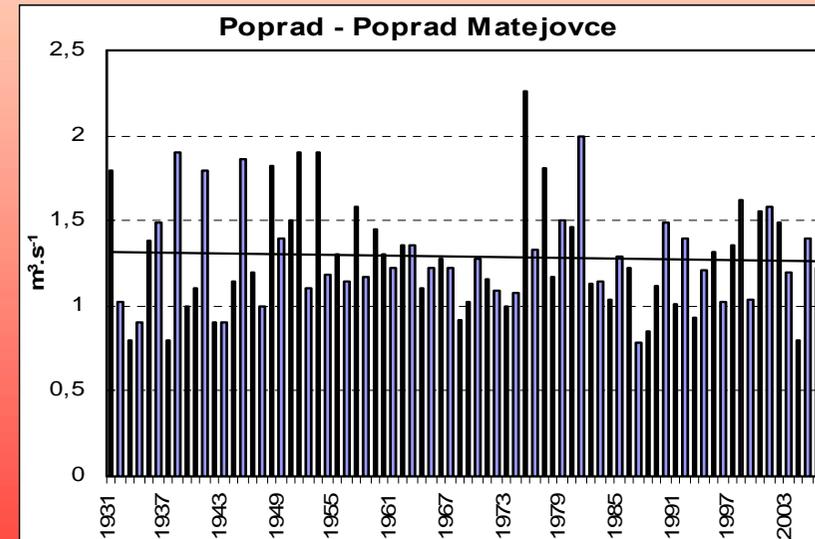
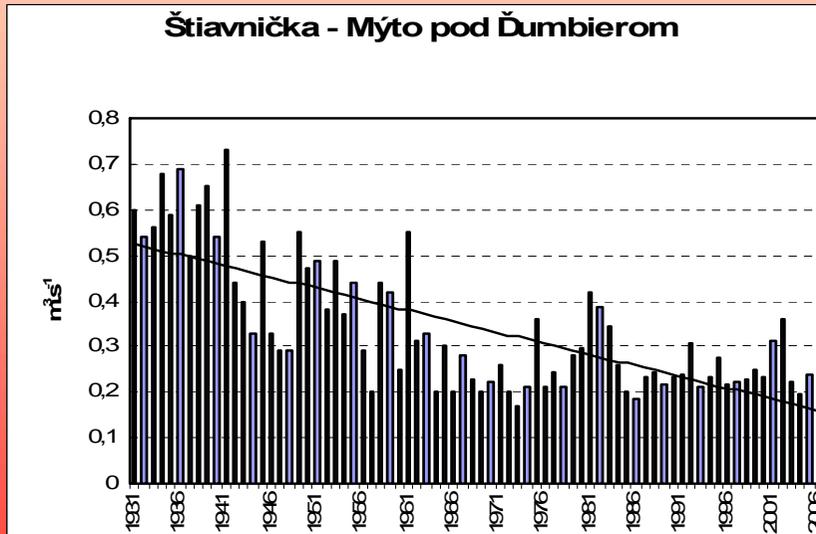
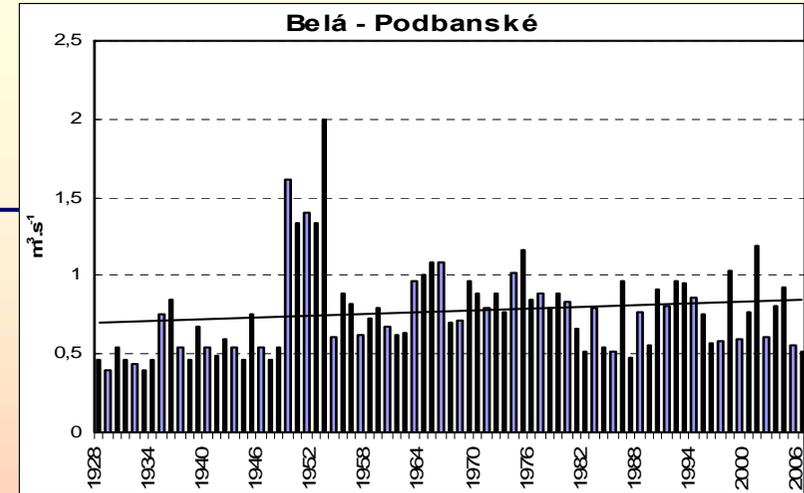
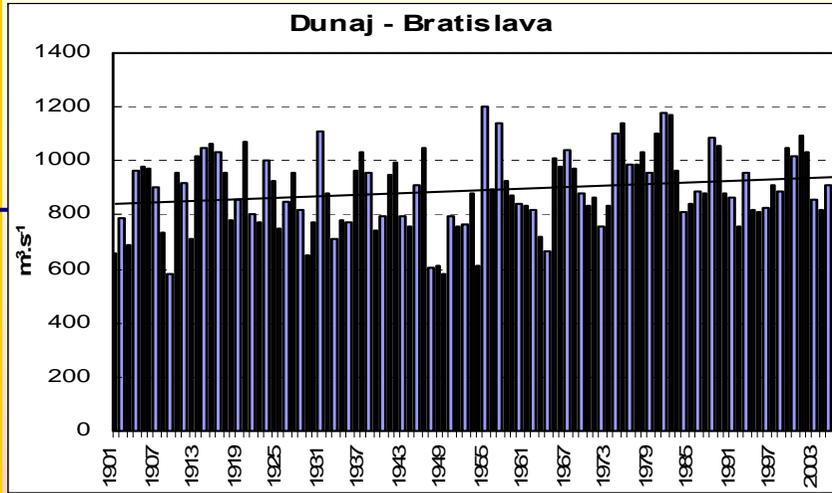
- Appropriate methods to encourage feedback on climate and water supply assessment products
- Development of decision support systems for the best exploitation of all information available, including drought forecasts, in order to optimize drought management and mitigation measures
- Development of information systems to disseminate drought-related information to specifically various end user communities and to encourage their feedback on the usefulness of the presented products
- Improvement of the monitoring, modeling and prediction capacities

# Research needs into water stress and drought

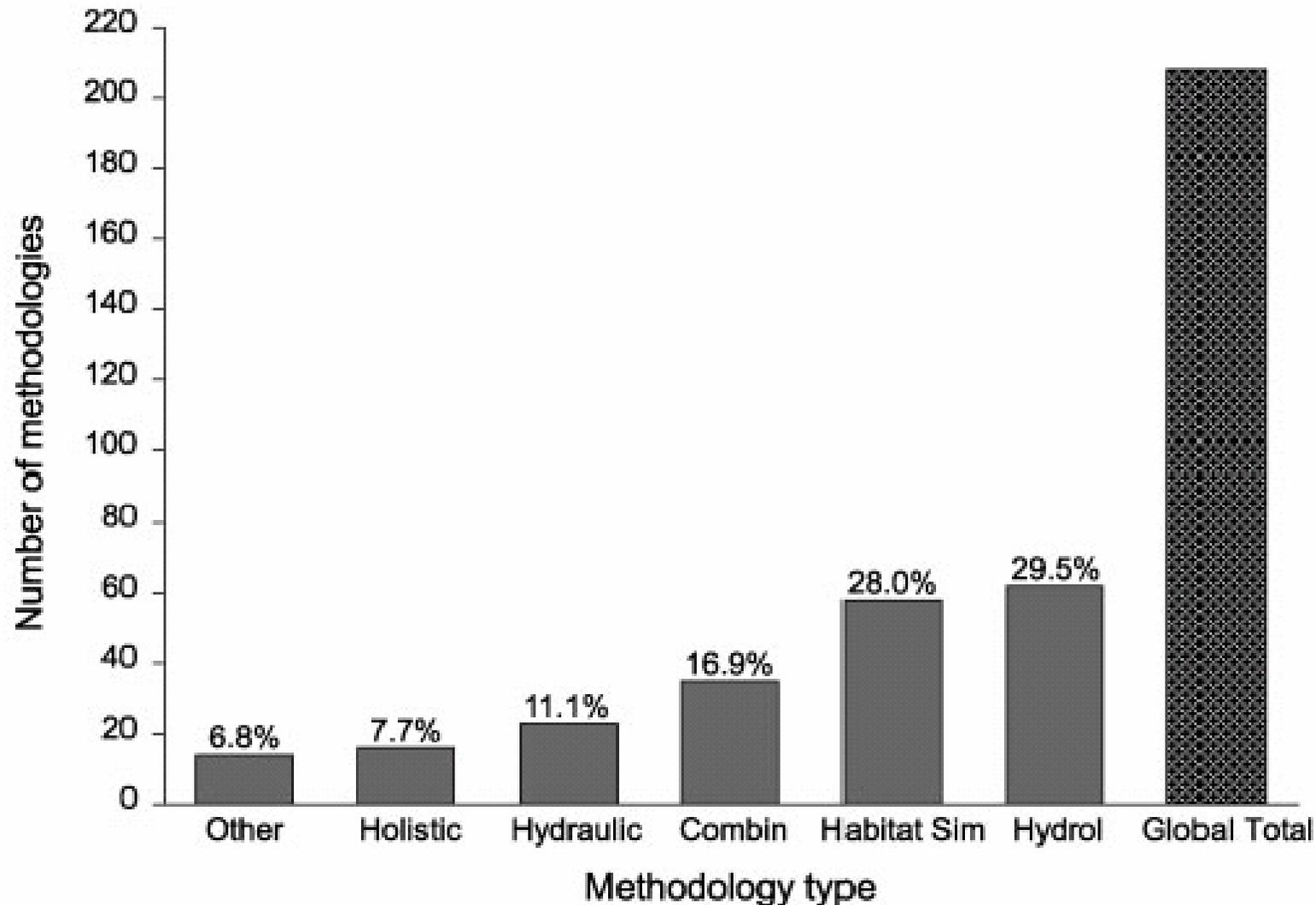
cont.

- Support of initiatives related to the development, improvement promotion, and inter-linkage of early –warning systems
- Development of national and regional drought and disaster management policies
- Development of comprehensive drought reduction strategies that emphasize monitoring and early warning, risk assessment, mitigation and response as an essential part of drought preparedness.
- Assessment of the availability of skilled human resources to be involved in drought preparedness planning
- Addressing the existing gaps and research needs for adequate risk methodologies in order to establish objective links between drought indicators and thresholds on one hand, and operational alarm levels necessary to perform decision making during drought situation for taking mitigation measures on the other hand





# *Minimal residual discharge, e – flows – overview of the worldwide used methods*



# E-Flow in Great Britain, which fulfill requirements of the WFD

- Acerman, M., Dunbar, M., at all. (2008): Developing environmental standards for abstraction from UK rivers to implement the EU Water Framework Directive. Hydrological Sciences Journal 53(6) 2008, 1105-11020 p.
- Experts for hydrology and ecology in UK responsible for WFD implementation have organized several workshops to create the discharge threshold – hands of flows – HOFs.
  - *Identification of physical parameters of rivers – velocities, depths – on samples (1450 measurements) have been provided,*
  - *the clasification of rivers to 4 basic types by biological vulnerability was performed,*
  - *the ecological basis for environmental standards have been set*
  - *the discharge thresholds have been defined for basic types of the rivers.*

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Thank you for attention

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