



Hydrological and meteorological issues in the ISRBC framework

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Sava river basin

- The second largest Danube sub-basin (share: 12%)



Sava river basin

- **Sava – the largest Danube tributary** (contribution: 25%)



Sava river basin

- **Area:** 97 713 km² (the second largest Danube sub-basin; share: 12%)
- **Average flow** at the mouth: 1722 m³/s
(the largest Danube tributary; contribution: 25%)
- **River length:** 940 km (594 km of which is the waterway)
- **Population:** approx. 8.5 million

Country	Share of the basin (%)	Share of the territory (%)
Albania	0.2	0.6
Bosnia & Herzegovina	39.2	75.8
Croatia	26.0	45.2
Montenegro	7.1	49.6
Serbia	15.5	17.4
Slovenia	12.0	52.8

ISRBC

- **Established in 2005**
- **Established for** implementation of the Framework Agreement on the Sava River Basin (FASRB)
- **Four countries involved** (Bosnia and Herzegovina, Croatia, Serbia and Slovenia)
- **Montenegro**
 - Contacts on their possible approach to FASRB
 - Cooperation on technical level, in some fields of work

ISRBC

- **Key objective of the FASRB:**

**Transboundary cooperation
for sustainable development of the region**

- **Particular objectives of the FASRB – to establish:**

- International regime of **navigation**
- Sustainable **water management**
- Sustainable **management of hazards**
(floods, droughts, accidents, etc.)

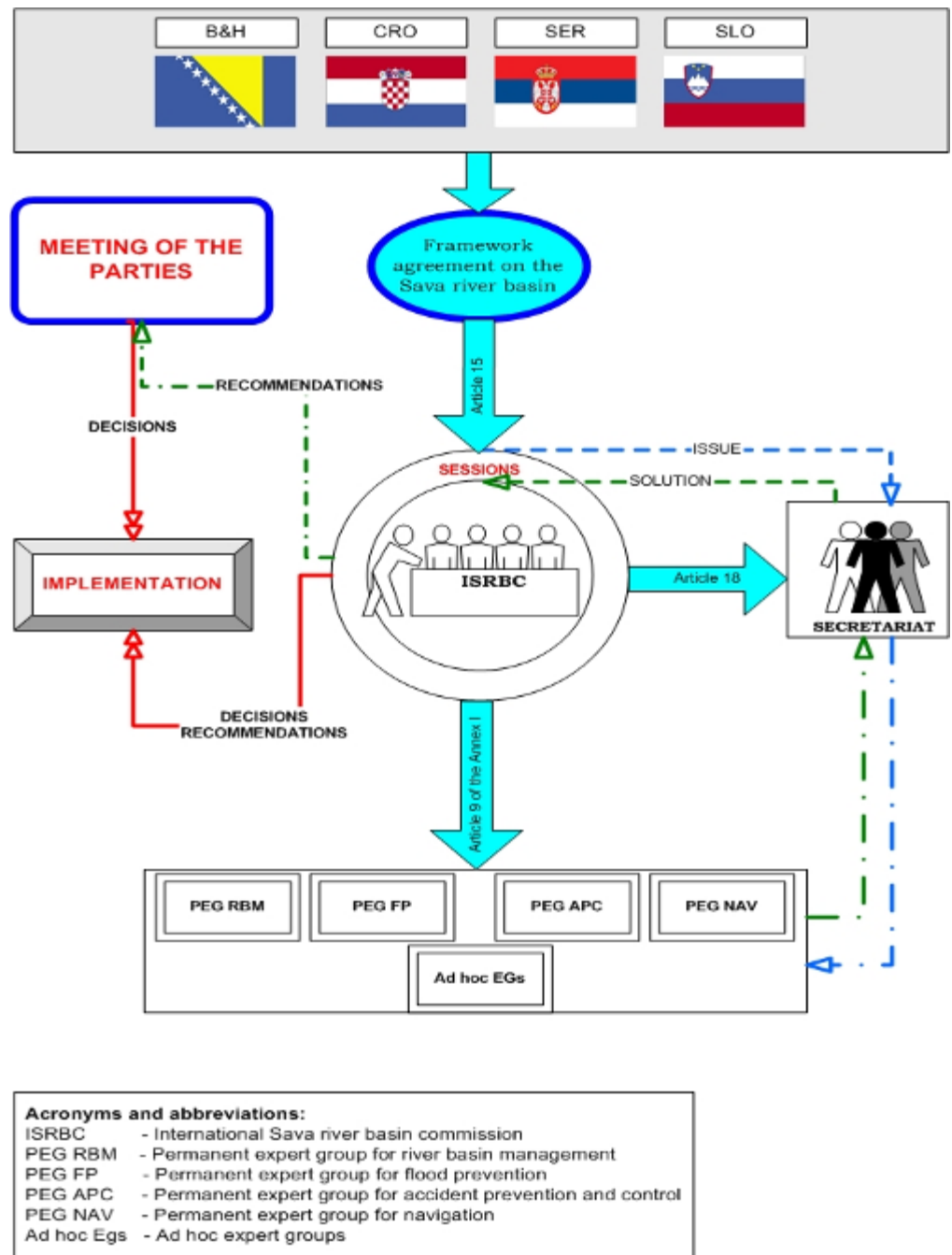
- **The broadest scope of work** among European basin organizations (i.e. river/lake commissions)

ISRBC

- **Coordination of:**
 - Development of **joint / integrated plans** for the SRB
 - River Basin Management Plan (according to EU WFD)
 - Flood Risk Management Plan (according to EU Flood Directive)
 - Establishment of **integrated systems** for the SRB
 - GIS (according to EU INSPIRE Directive and WISE)
 - RIS (according to EU RIS Directive)
 - Meteorological and Hydrological Data Exchange System
 - Flood Forecasting and Warning System
 - Accident Emergency Warning System (use of the ICDPR's system)
 - Preparation of **development programs** for the SRB
 - Navigation
 - (River) Tourism
 - Other water uses

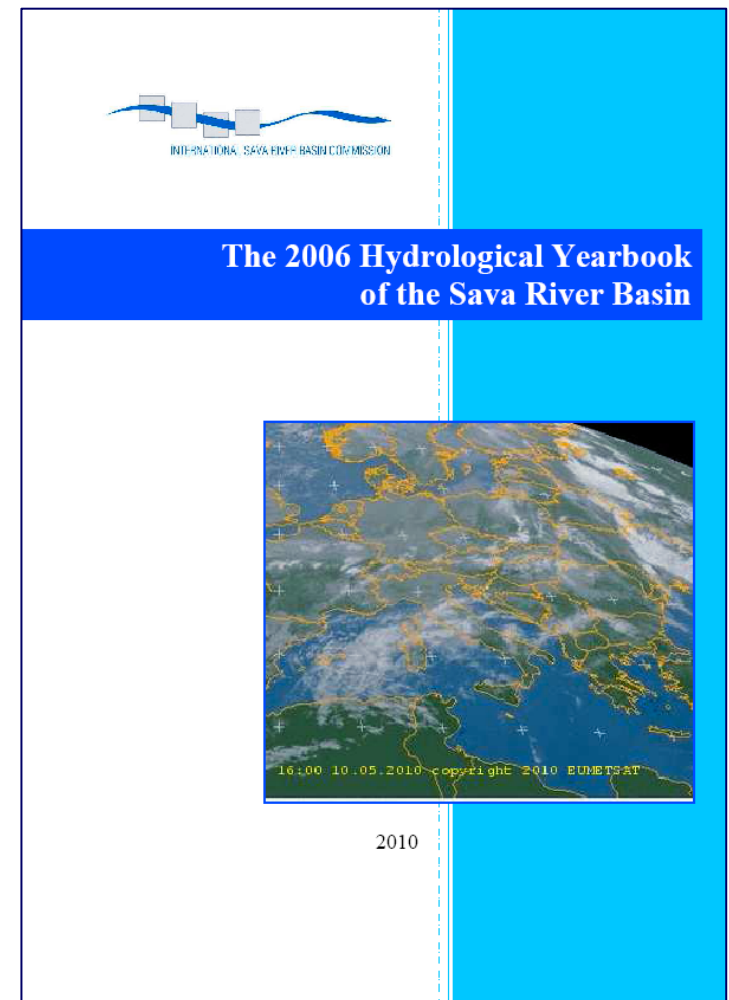
Link to NHMSs

- Expert Group for HM issues



Data exchange

- **Hydrological Yearbook of the Sava River Basin**
 - The **first since 1986**
 - **2006, 2007 and 2008 issues** available on the ISRBC web-site
 - Starting with the 2007 issue, **data for Montenegro included**

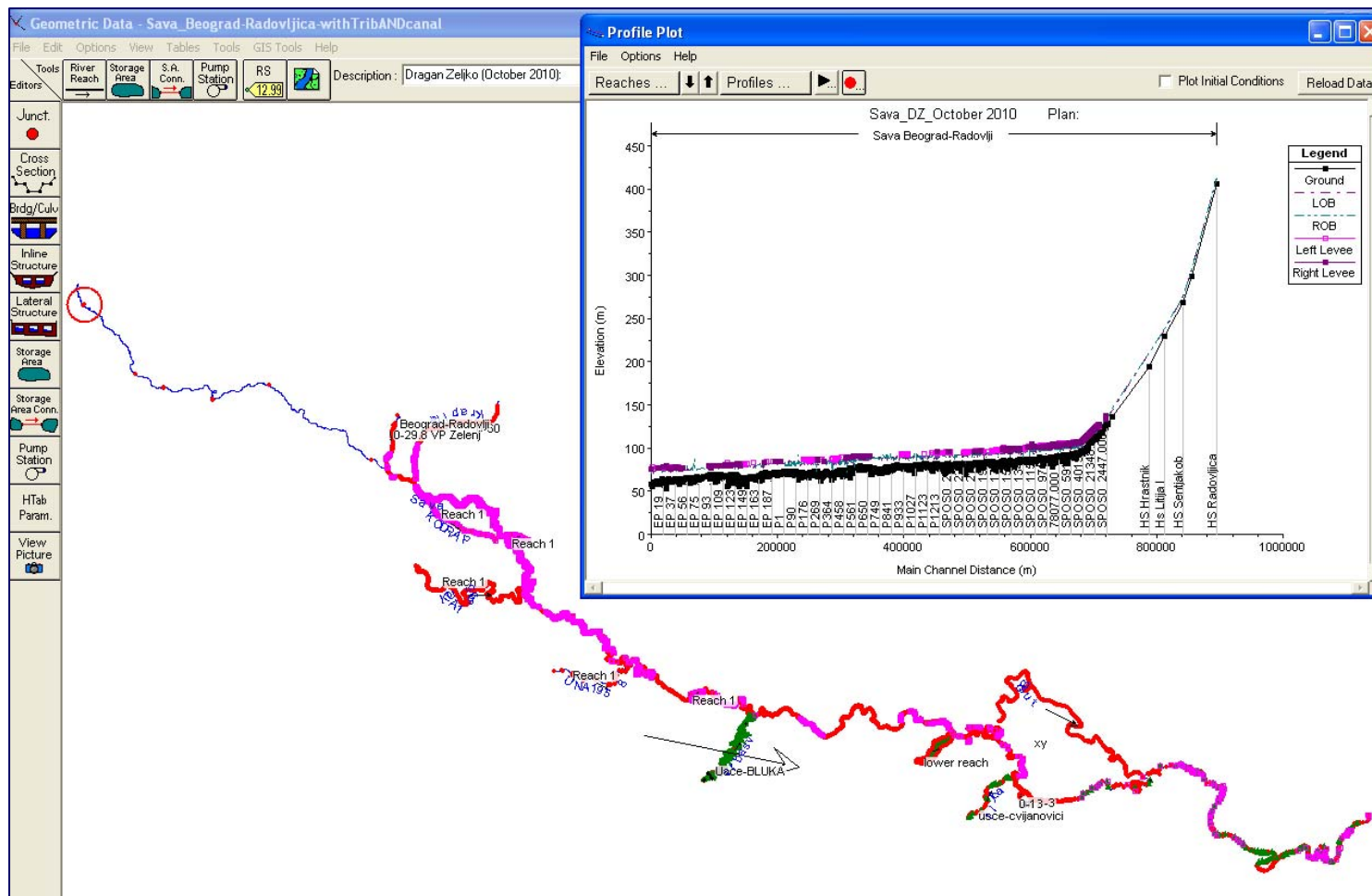


Data exchange

- **Hydro-meteorological data exchange system**
 - **Access to a complete, basic information on the water regime** in the basin at one place, i.e. the ISRBC web-site
 - 4 hydrological and 5 meteorological parameters
 - 41 hydrological and 45 meteorological stations
 - **Data automatically downloaded** from national databases at certain intervals and **presented** on the ISRBC web-site
 - **Shortcoming:** different frequency of the data provided in the national databases
 - **System to be upgraded** by introducing the possibilities to store the data and review the data archive

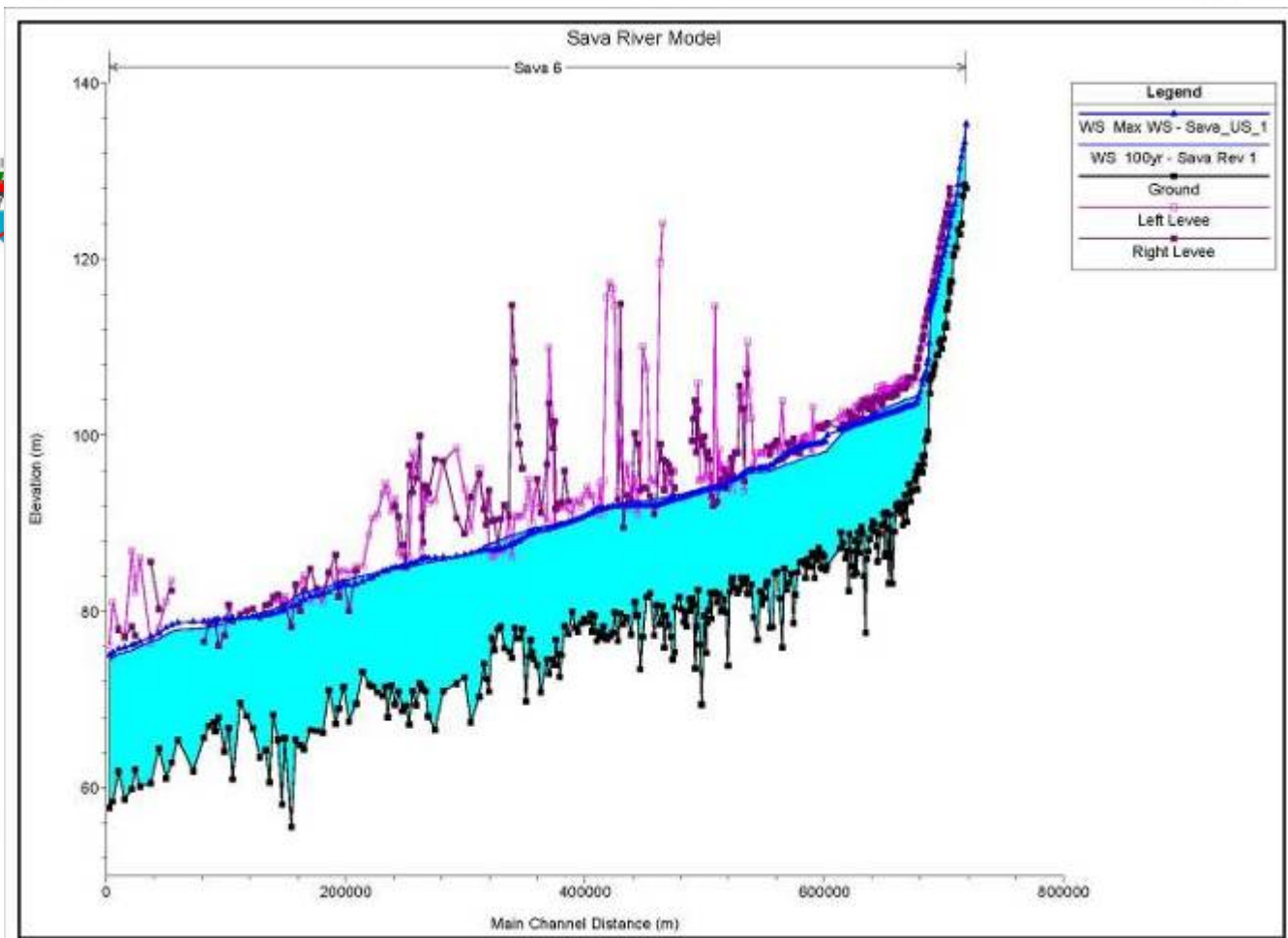
Models

- Sava HEC-RAS georeferenced unsteady flow model



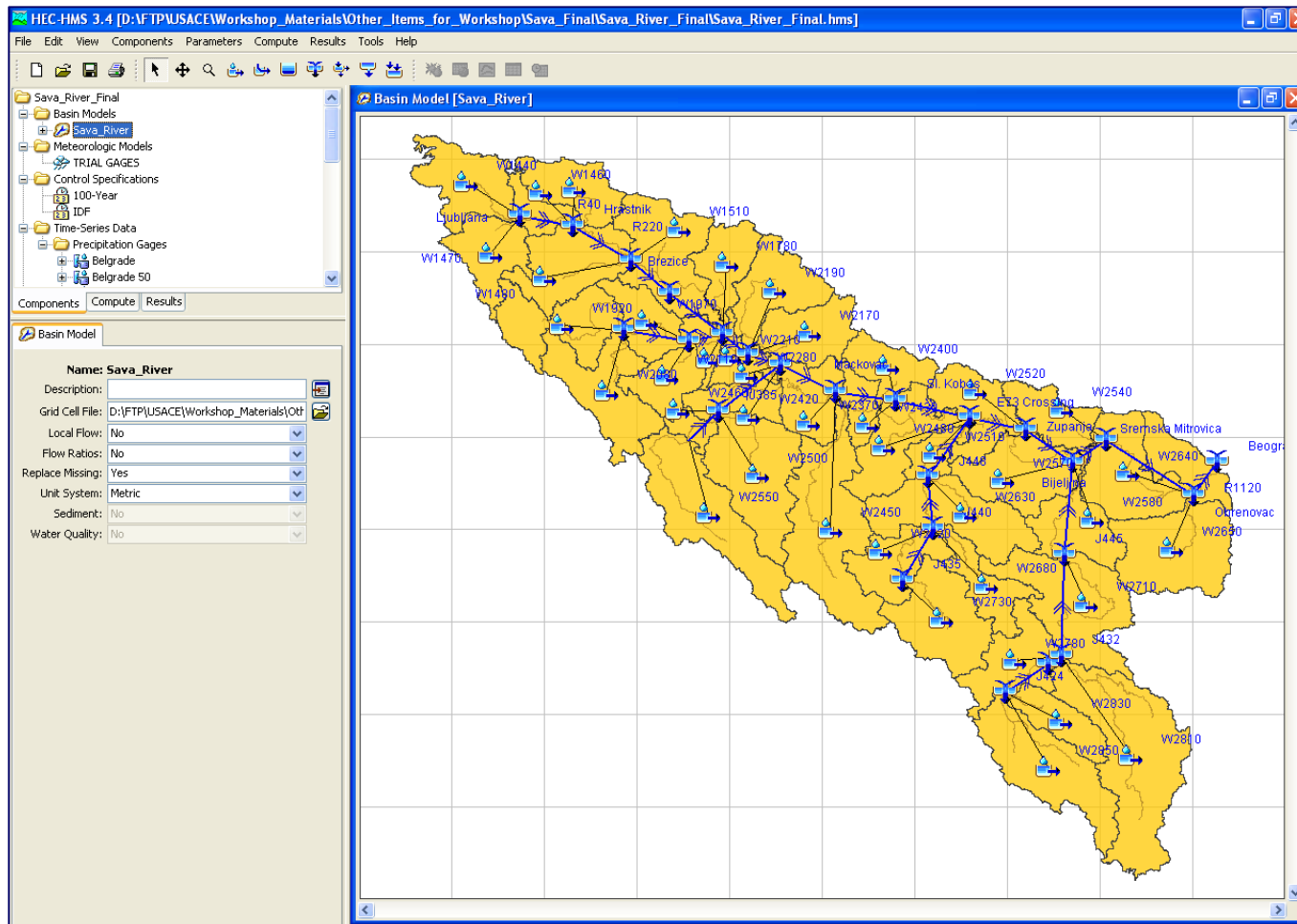
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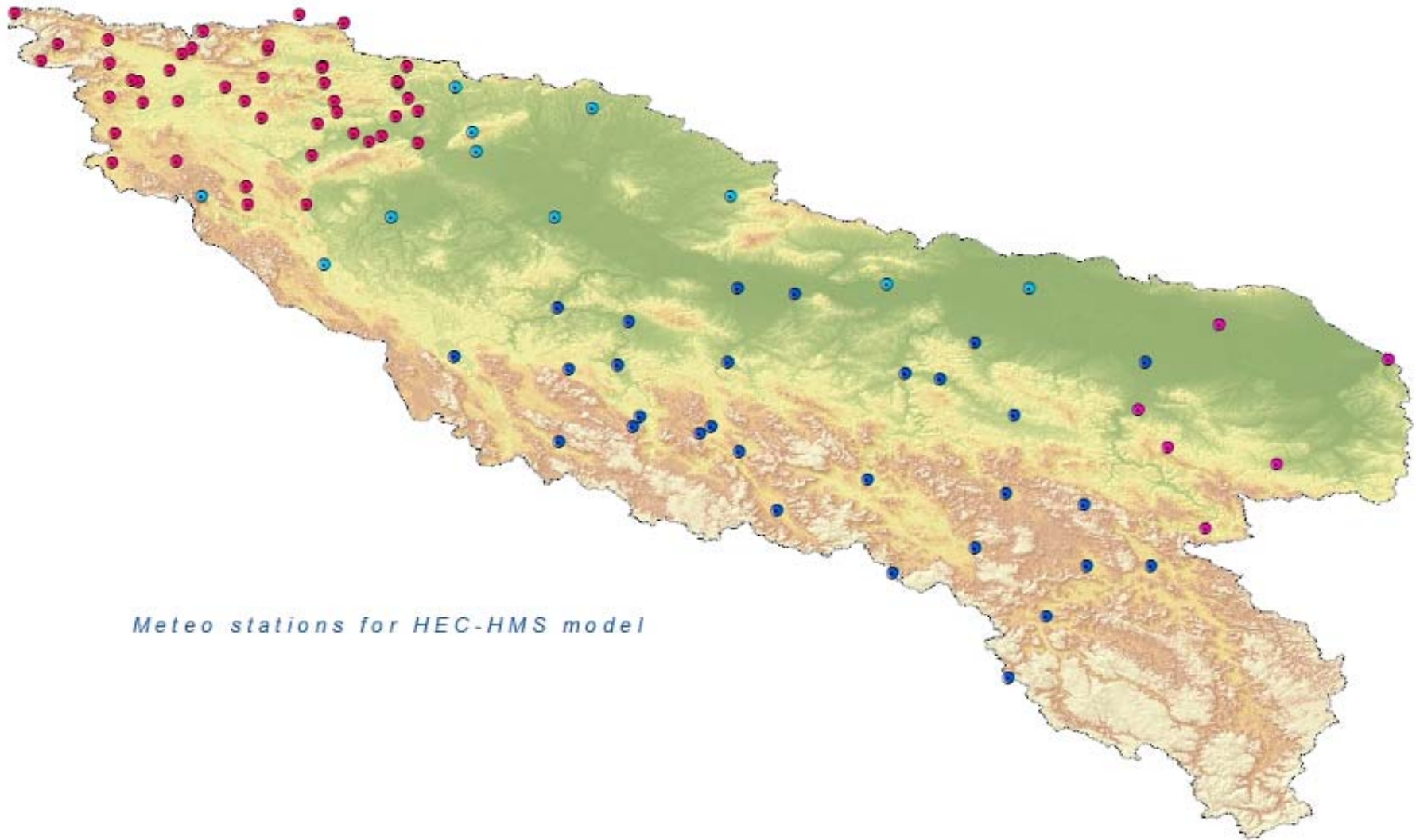


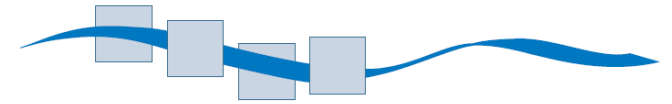
Models

- Sava HEC-HMS model

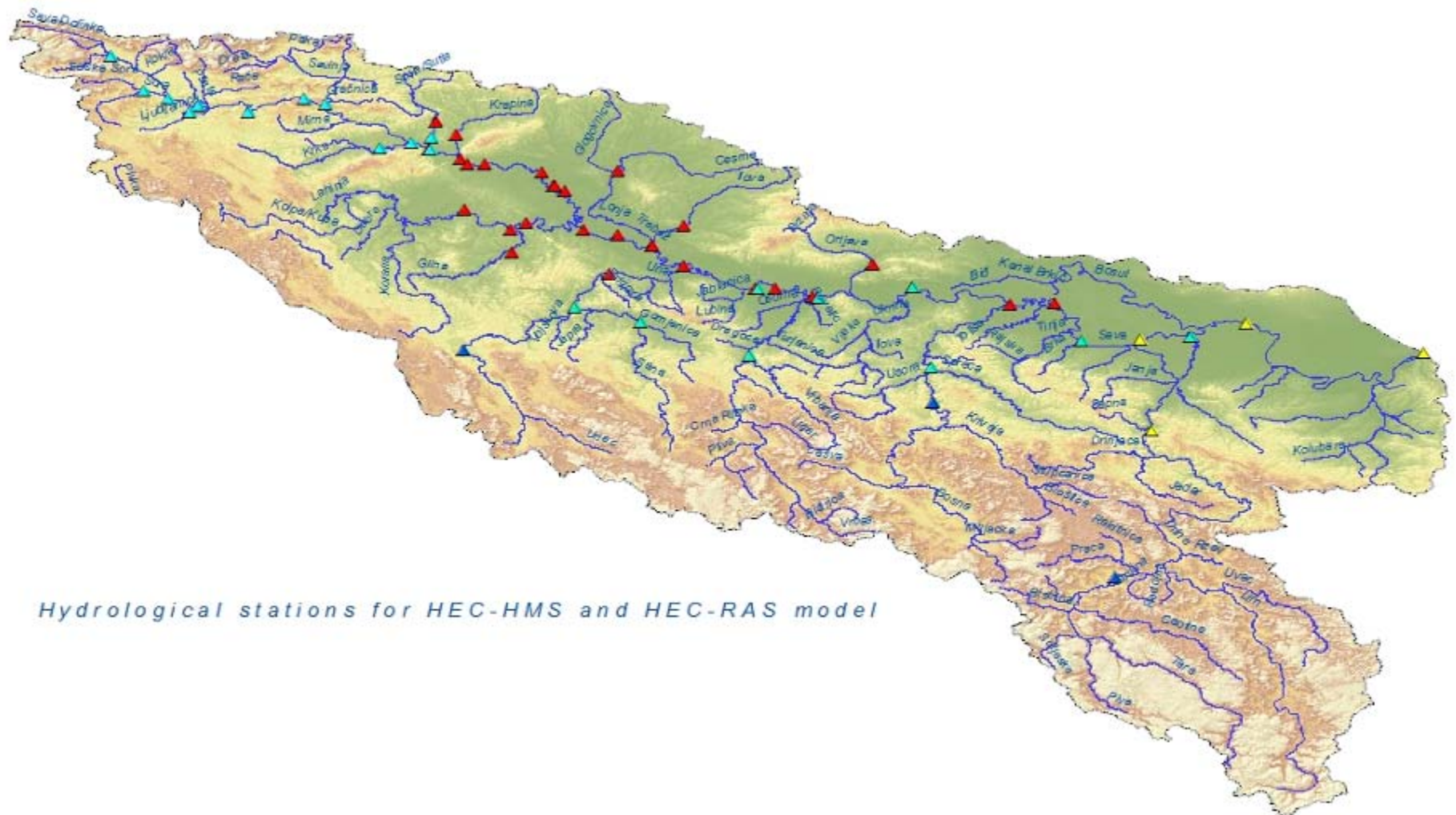


Models





Models



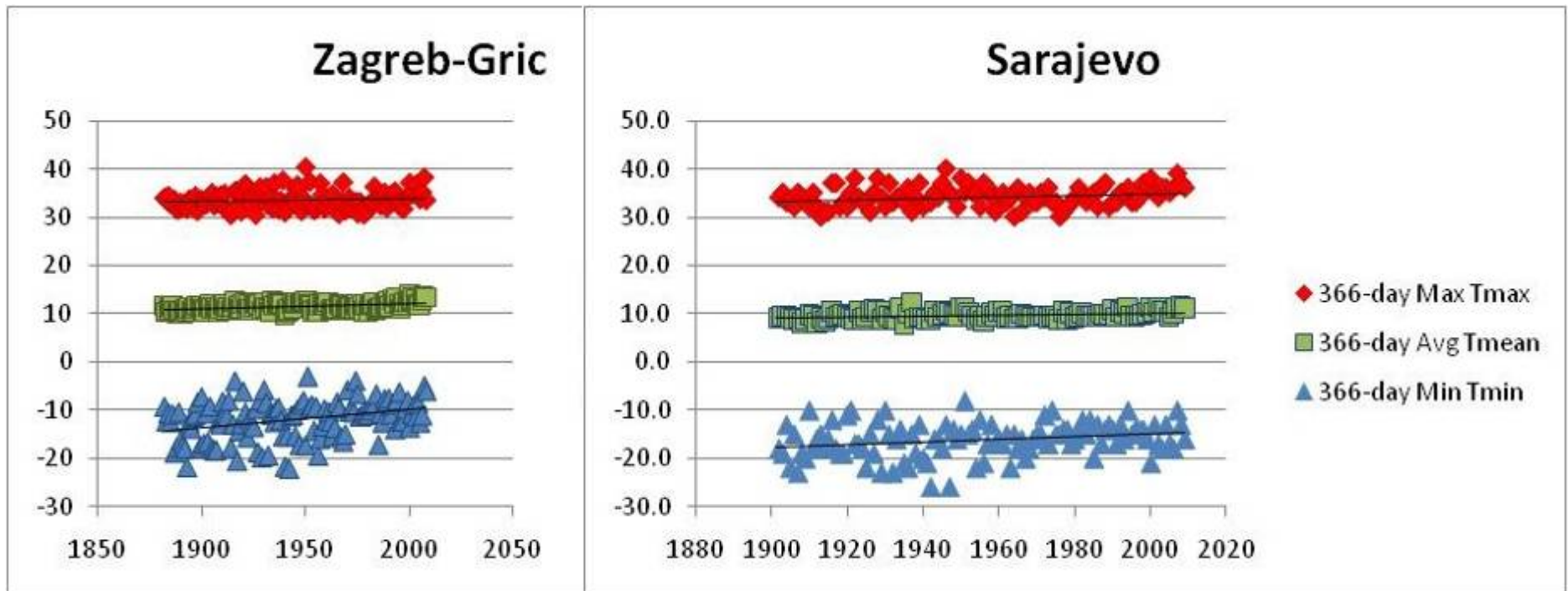
Hydrological stations for HEC-HMS and HEC-RAS model

Models

- **The models to undergo this procedure:**
 - Distribution to relevant national institutions
 - Use and upgrade by the national institutions
 - Submission of the (national) upgrades to the ISRBC
 - Preparation of the upgraded models by the ISRBC

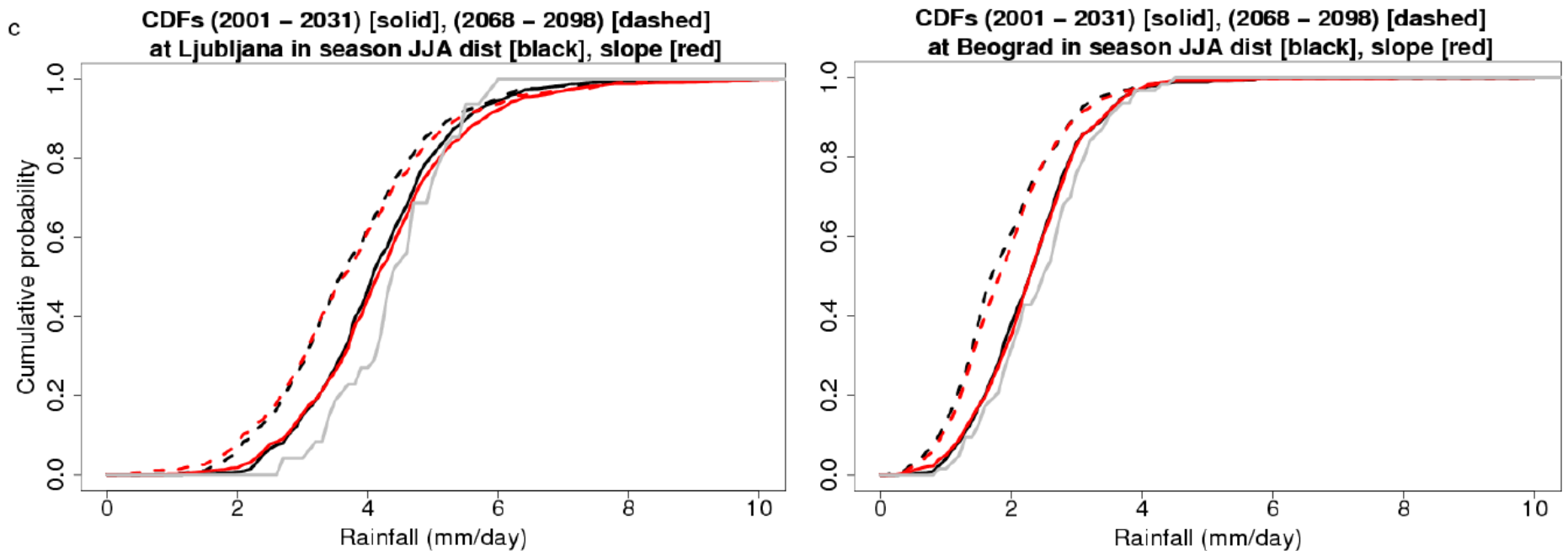
Other related activities

- **Climate Adaptation Plan for the Sava River Basin**
 - **Analysis of climate and hydrologic trends**



Other related activities

- **Climate Adaptation Plan for the Sava River Basin**
 - **Climate modelling**



Other related activities

- **Water and Climate Adaptation Plan** for the basin
 - Analysis of hydrologic and climate trends
 - Climate modelling
 - Hydrologic modelling
- **Linking flood risk management and climate change assessment** in the basin
- **Sediment Management Plan** for the basin
 - Sediment balance, monitoring, quality and quantity ...
 - A project launched jointly with UNESCO (ISI, IHP Germany, Venice Office) and SedNet

Planned activities

- **Flood / drought forecasting and warning system**
 - **Project proposal** prepared
 - **Letter of recommendation** of the EU Danube Strategy received
- **Hydrological study of the Sava river basin**
(the last one prepared in 1976)
- **HM data policy agreement**

Commitment of the Parties

- Sessions of the ISRBC
- Meetings of the Parties
- Other high-level meetings



WMO RA VI Hydrology Forum, Koblenz, 8-10 May 2012



SAVA RIVER BASIN – Treasure for a Common Prosperity
SLIV RIJEKE SAVE – Potencial za zajednički razvoj
SAVSKI BAZEN – Potencial za skupen napredek
СЛИВ РЕКЕ САВЕ – Потенцијал за заједнички развој

INTERNATIONAL SAVA RIVER BASIN COMMISSION

**THIRD MEETING OF THE PARTIES
TO THE FRAMEWORK AGREEMENT
ON THE SAVA RIVER BASIN**

**REPUBLIC OF SLOVENIA
BRDO, MAY 31 – JUNE 1, 2011**

HOSTED BY
GOVERNMENT OF THE REPUBLIC OF SLOVENIA

SUPPORTED BY
INTERNATIONAL SAVA RIVER BASIN COMMISSION

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