



# WMO RA VI Hydrology Forum Concept and Launch Meeting Koblenz, Germany 8-10 May 2012

Status, Challenges and Perspectives of  
Hydrological Monitoring System

Republic Hydrometeorological Service  
of Serbia

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# Republic Hydrometeorological Service of Serbia

RHMSS is a Special Organisation within the State Administration of the Republic of Serbia

Legal framework and main field of responsibility in the area of hydrology is regulated by **The Law on Meteorological and Hydrological Activity** and **The Law on Water**

RHMSS is solely responsible for monitoring and forecasting of meteorological and hydrological phenomena

Department of Hydrological Observation System and Analysis is divided on:

- Division for Hydrological Station Network
- Division for Hydrological Analysis
- Division for Ground Water

# Hydrological Monitoring System



## Surface Water Station:

190 stations

**Six Regional Offices** are responsible to:

- Execute monitoring programs
- Control, operate and maintain network
- Collect, control and process data

## Operational program of hydrological stations include:

- observations of water level (190)
- measurements of water temperature (62)
- the occurrence and the state of ice (183)
- flow measurements (150)
- measurements of suspended deposits (26)
- cross sections measurements (150)



# Hydrological Monitoring System



## Data Recording:

- 129 continual water level recording instruments (51 analogous, 78 digital)
- 66 digital data loggers
- 1 discharge recorder (TRDI HADCP 300 kHz)



61 stations water level reports in real time



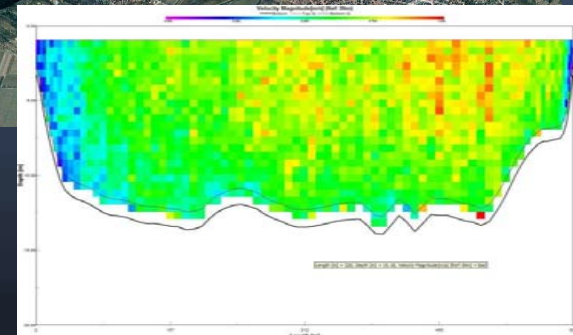
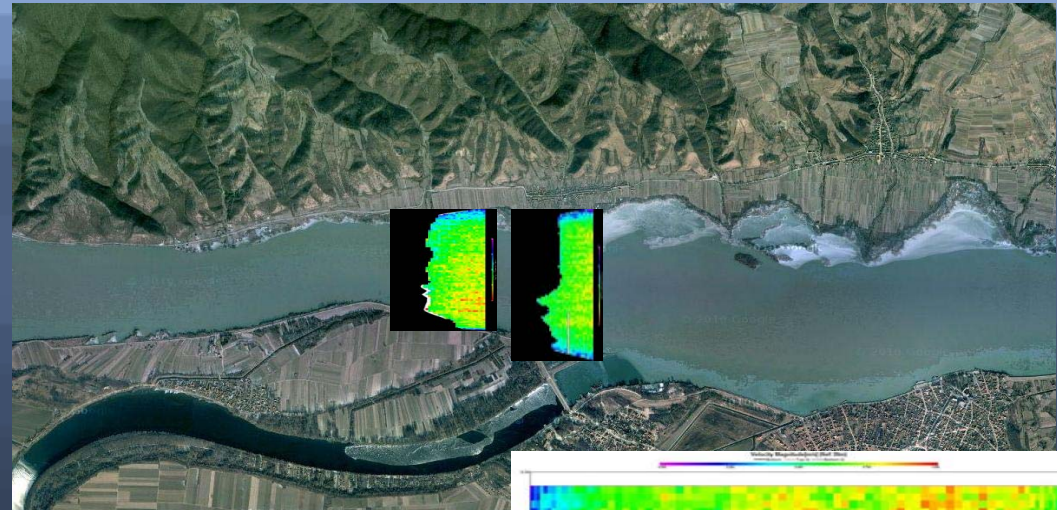
# Hydrological Monitoring System



## Measuring with ADCP



ADCP Discharge Measurement



River Danube, ADCP Cross Sections for wide rivers



# Hydrological Monitoring System



## Ground Water Stations:

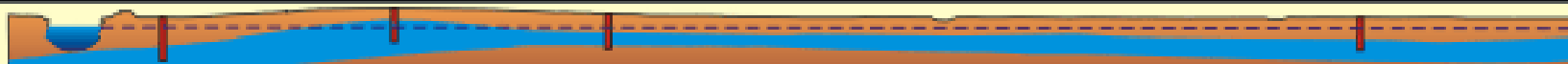
408 stations

Ground Water Stations are distributed near bigger rivers and hydrogeological collectors. There is 13 regions where we do monitoring over the ground water regime

- **18 Principal Stations** (piezometer batteries are in semi-permeable layers, shallow aquifer and in underlying aquifer)
- **176 First Order Stations** (piezometers are placed in profiles perpendicular to the river flow)
- **245 Second Order Stations** (additional stations distributed across the network of squares and triangles among the profiles)



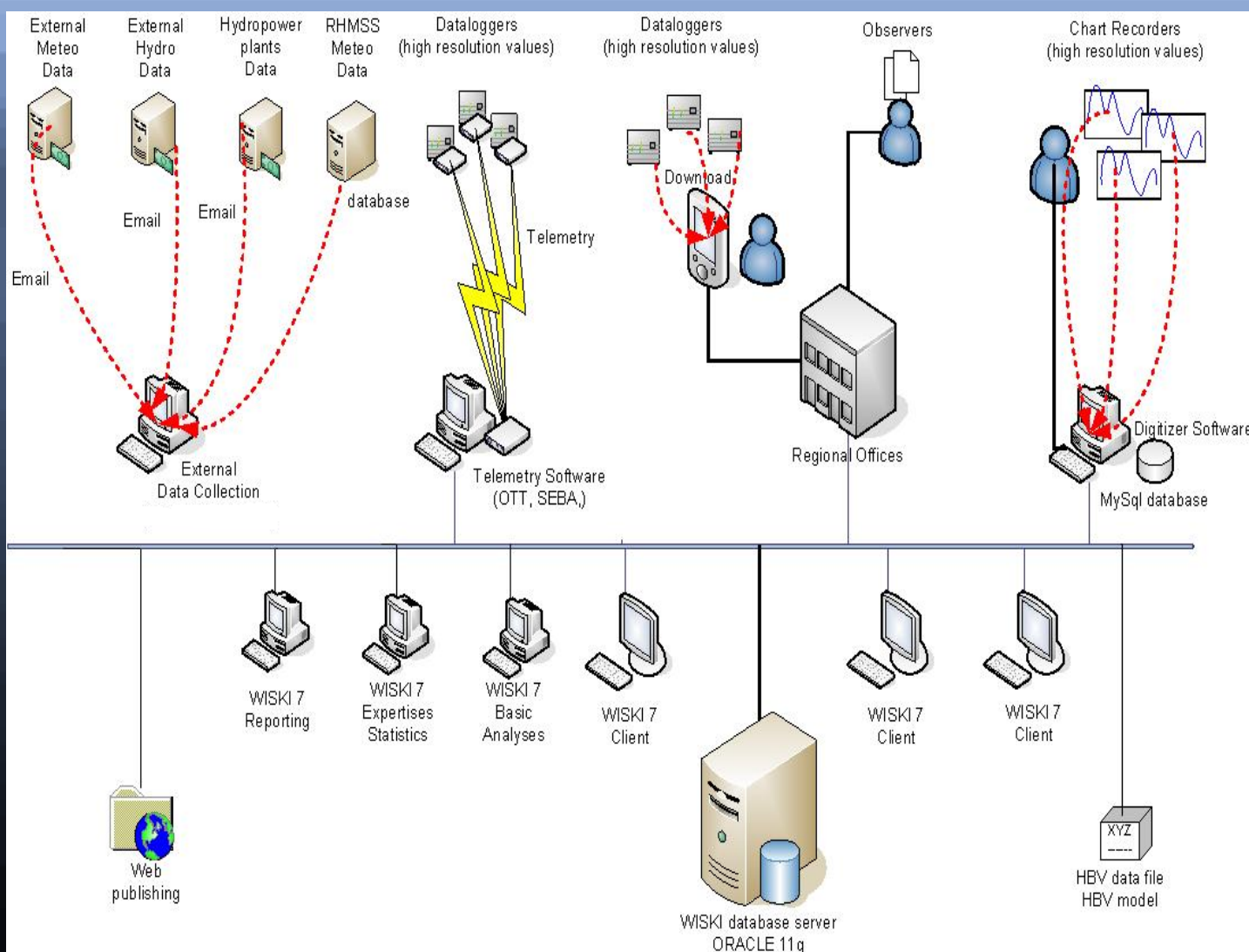
HIDROGEOLOŠKI  
PROFIL



# Hydrological Monitoring System at RHMSS



## System for Acquisition, Control, Archiving and Dissemination of Hydrological Data



Acquisition:

Data Loggers  
Observers  
Chart Recorders

Regional Offices are collecting data and they are responsible for :

Control  
Verification  
Organisation

Archiving to DB  
Dissimination

Last two years we are implementing **WISKI** software



# Bilateral Cooperation



Having many transboundary rivers we need reliable and good international and regional cooperation.

With neighbouring countries Hungary, Romania and Croatia (in progress) under the Framework of International Water Management and Hydrological Cooperation

- coordination of monitoring programs
- common measurements
- data exchange
- data evaluation
- harmonization of methods
- provision of data for all the activities connected to the watermanagement



Szeged  
22 September 2010



# Challenges in Development



## RHMSS make effort to:

- increase the number of hydrological stations to satisfy the needs of interested groups (energy, watersupply, flood protection, climate change)
- to modernise network, introducing new instruments and equipment
- to improve quality of observation and measurements
- to improve procedures of data collection

# Development Projects:



**2006 Improvement of the water monitoring system for environmental protection and flood prevention in Vojvodina**  
EU, IPA fund (six hydrological stations, HADCP, ADCP)

Projects funded by The Kingdom of Norway with Norwegian Water Resources and Energy Directorate as the main Partner

## **2006 Pilot Project 'Hydrology in Serbia'**

Workshop on Hydrometry and Water Resources Management  
Training for ADCP measurements  
Two StreamPro ADCP's

## **2007 'Design and Optimisation of the Nacional Hydrological Network in Serbia'**

National Hydrological Network Redesign and Optimization In Accordance With the Assessed Requirements at National Level and International Obligations

# Multilateral Projects



*We participate in:*

Regional Cooperation in Southeastern Europe for Meteorological, Hydrological and Climatological Data Management and Data Exchange in Support of **Disaster Risk Reduction** ( DRR-SEE ), UNDP

GRDC-The European Terrestrial Network for River Discharge ETN-R support for **European Flood Alert System-EFAS**(JRC)

**Danube Floodrisk** in cooperation with other water management organisation, co-financed by EU through a trans-national cooperation programme for South-eastern Europe

Distributed Research Infrastructure for Hydro-Meteorology **DRIHM**, EU FP7 Project



# Transboundary Cooperation



Republic of Serbia is the member of Sava and Danube River Commissions and experts from National Service are participating in various working groups

## Danube Commission

**ISRBC**-The International Sava River Basin Commission  
Framework Agreement of the Sava River Basin (FASRB)  
Protocol on the Regime of Sailing with  
the Framework Agreement on the Sava River Basin 2004

Signing The Convention on Cooperation for the Protection and Sustainable Use of the Danube River 2003, Republic of Serbia is supporting Implementation of Danube River Protection Convention through **ICPDR**





Thank You for Your Attention

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