

## **FINAL PROGRAMME**

### **REGIONAL WORKSHOP on HYDROLOGICAL FORECASTING AND REAL TIME DATA MANAGEMENT**

#### **WORKSHOP VENUE & SCHEDULE:**

Hotel Park, Dubrovnik, Croatia  
11- 13 May 2009

#### **ORGANISERS:**

Meteorological and Hydrological Service of Croatia (DHMZ)  
Norwegian Water Resources and Energy Directorate (NVE)  
Republic Hydrometeorological Service of Serbia (RHMSS)

### **Background**

Regional Workshop on Hydrological Forecasting & Real-Time Data Management is jointly organised by the Norwegian Water Resources and Energy Directorate, the Meteorological and Hydrological Services of Croatia, and the Republic Hydrometeorological Service of Serbia, with financial support of the Kingdom of Norway.

The Workshop's general aim is to foster regional cooperation in the South-Eastern Europe (SEE) region and, in particular, to strengthen capabilities of the National Meteorological and Hydrological Services (NMHSs) of the SEE states to better cope with ever increasing users' needs and requirements for real-time hydrological data, and timely, accurate hydrological flood warnings and forecasts of river flow regime in the region.

### **WORKSHOP PROGRAMME**

#### **Sunday, 10 May 09**

Arrival of participants and registration; participants will stay at the Hotel Park in Dubrovnik, Croatia. The Workshop venue will be at the Conference hall of the same hotel.

**Monday, 11 May 09**

**08,00 – 09,00:** Continuation of Registration at the Workshop venue. Coffee

***MORNING SESSION***

**Session Chair: Ivan Cacic , DHMZ, Croatia**

**09,00 – 09,30:** Workshop opening: welcoming address by representatives of:

- Meteorological and Hydrological Service of Croatia
- Norwegian Water Resources and Energy Directorate
- Hydrometeorological Service of Serbia

**09,30 – 10,30:** Invited speakers:

- Mr. Tommaso Abrate , World Meteorological Organisation (WMO)
- Dr. Dejan Komatina, Secretary, International Sava River Basin Commission

**10,30 – 17,00: Topic 1: Hydrological data collection and management systems - current status, and modernisation strategies**

Hydrological real time data collection and information management systems represent a prerequisite for establishment of an operational and reliable hydrological forecasting and flood warning system. This is in particular important in small and medium river basins in which runoff processes are very fast, thus generate storm and flash floods with very short time left for issuing warnings and taking flood protection measures. To be able to prepare and issue timely and fairly accurate flood warnings for such river basins, it is of vital importance to have a well organized and fully operational hydrological real-time monitoring & data collection system as well as a reliable hydrological and meteorological information management system.

Through two separate sub-topics the workshop will highlight the role of hydrological data collection and information management systems in hydrological forecasting; examine current practices and modernisation strategies in this field in the NMHSs of the SEE region; and present experience from Norway and some other European countries.

**10,30 – 11,30: Sub-topic 1 – 1: Hydrometeorological real time monitoring and data collection systems in the SEE region and elsewhere**

**10,30 – 11,00:** Keynote Paper on Sub-topic 1-1 by **Mihailo Andjelic (Serbia)**. Setting the scene.

**11,00 – 11,15:** Discussion

**11,15 – 11,30: Coffee break**

**11,30 – 17,00: Sub-topic 1 – 2: Hydrological Information Management Systems (HIMS) and their role in water resources management and hydrological forecasting**

**11,30 – 12,00:** Keynote Paper: **Hydrological information systems - the importance of well designed and well working computer systems for hydrological services - by Svein Taksdal (NVE, Norway)**

**12,00 – 13,00:** Invited papers

- **Knut Møen (NVE, Norway)**, NVE experience in development & use of HIMS
- **Gabor Balint ( Hungary)**, Hungarian experience in real time management of hydrological information

**13,00 - 14,00: Lunch break**

***AFTERNOON SESSION***

**Session Chair: NVE Representative, Norway**

**14,00 – 16,00:** Country reports on topic 1:

- Slovenia
- Croatia
- Bosnia Herzegovina
- Montenegro
- F.Y.R. of Macedonia
- Serbia

**16,00 – 16,30:** Closing Discussion on Topic 1

**16,30 – 17,00:** Conclusions and Recommendations on Topic 1

**17,00 – 17,15: Coffee break**

**17,15 – 18,30: Software session**

This session is designed to provide an opportunity for the software suppliers to present to workshop participants from the SEE region modern approaches and software packages used for hydrological forecasting and information management systems, and discuss practical aspects and limitations of their establishment and operational use in the region.

**17,15 – 17,35: KISTERS AG** - by Matthias Egeling, Germany

**17,35 – 17,55: Danish Hydraulic Institute(DHI)**- by Dr Claus Skotner, Denmark

**17,55 - 18,15: Delft Hydraulics** -by Dr. Micha Werner, The Nederland

**18:15 – 18,30:** Discussion

In addition, the software suppliers may use stands, posters and demonstrations in the workshop area reserved for this purpose, thus giving a possibility for less formal discussions with the participants during lunch & coffee breaks, etc.

**20,00: Group Dinner at the Park Hotel, hosted by the Workshop organizers**

**Tuesday 12 May 09**

**MORNING SESSION**

**Session Chair: Slavimir Stevanovic, HMSS, Serbia**

**09,00 – 18,00: Topic 2: Hydrological Forecasting Systems in the Balkans region and elsewhere: current status, issues and prospects for the future**

Available worldwide knowledge and scientific experience in hydrological modelling doesn't necessarily always translate into a reliable and fully operational hydrological flood forecasting system; in real world such a system often doesn't exist or is not reliable and fully operational for a number of small and medium river basins in the Balkan region and elsewhere. Meteorological forecasts, in particular quantitative precipitation estimates/forecasts (QPEs/QPFs) are unavoidably used as input into hydrological forecasting models in small/medium river basins, therefore the QPEs/QPEs have a decisive impact on accuracy of the issued hydrological forecasts. For this reason the whole subject is divided into the following two sub-topics: (i) The use of meteorological QPE & QPF products as input into hydrological forecasting models and (ii) The hydrological forecasting systems.

Hydrological forecasts and flood warnings are of crucial importance for water resources management, and in particular for flood protection in the SEE region. The workshop will review current status, problems, success stories and future prospects in development and operational use of hydrological forecasting systems in the world, with special focus on the current practices and experience in the NHMSs of the SEE states, Norway and several other European countries.

**09,00 – 09,30: Sub-topic 2 – 1: Use of meteorological forecasts, QPE & QPF products in the region as input into hydrological forecasting models**

**09,00 – 09,30:** Keynote paper on sub-topic 2-1 by **Jozef Roskar (Slovenia) & Branka Picek (Croatia)**

09,30 – 09,50: Invited paper

- **Slobodan Nickovic, WMO (Switzerland)**, Integrated atmospheric and hydrology modelling: Relevant WMO atmospheric research projects; Example of atmosphere-hydrology coupling

**09,50 – 18,20: Sub-topic 2 – 2: Hydrological Forecasting Systems. Problems and success stories in using hydrological models in practice for issuing real-time hydrological forecasts**

**09,50 – 10,20:** Keynote Paper on sub-topic 2-2 by **Ezio Todini (Italy)** presenting general overview of hydrological models used in the world for real-time hydrological forecasting

**10,20 – 10,50: Coffee break**

**10,50 – 12,50:** Invited papers

- **Ad de Roo, JRC (Italy)**, Experiences with EFAS & LISFLOOD in building an early flood warning system for Europe, with examples from the Balkan region
- **Mira Kobold (Slovenia)**, Slovenia experience in hydrological forecasting

- **Elin Langsholt (NVE, Norway)**, Norway experience in hydrological forecasting
- **Jiri Zezulak (Czech Republic)**, Hydrological forecasting practices and experience in Czech Republic
- **Gabor Balint (Hungary)**, Hungarian experience in hydrological forecasting

**12,50 – 13,20: Discussion**

**13,20 - 14,20: Lunch break**

***AFTERNOON SESSION***

**Session Chair: Elin Langsholt, NVE, Norway**

**14,20 – 16,20:** Country reports on topic 2:

- Slovenia
- Croatia
- Bosnia Herzegovina
- Montenegro
- F.Y.R. of Macedonia
- Serbia

**16,20 – 16,50: Coffee break**

**16,50 – 17,20:** Closing Discussion on Topic 2

**17,20 – 18,00:** General Discussion and adoption of Workshop Conclusions and Recommendations

### **Wednesday 13 May 09**

Field trip with the following programme:

8,30: Trip starts by bus in front of the Park Hotel

9,00: Arrival to Dubrovnik old town (Dubrovnik city centre)

9,00 – 10,00: Dubrovnik city tour with local guide including visit to the medieval fortress and the Old Town's main street called STRADUN or PLACA

10,00 – 12,00: Transfer by boat to Cavtat with sightseeing of the city and its environs

12,00 – 13,00: Transfer by bus to Konavle region with visit to the Ljuta river valley, its springs and watermills

13,00 – 15,00: Lunch at the restaurant Konavoski Dvori, hosted by Ivan Cacic, Director of DHMZ and Permanent Representative of Croatia with WMO

15,00: Transfer by bus to the Park Hotel

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#### **MEMBERS OF THE WORKSHOP ORGANIZING COMMITTEE**

- 1.** Ivan Cacic, Croatia (Chairman)
- 2.** Mihailo Andjelic, Serbia (Vice Chairman)
- 3.** Hege Hisdal, NVE, Norway
- 4.** Elin Langsholt, NVE, Norway
- 5.** Mira Kobold, Slovenia
- 6.** Dušan Trninić, Croatia
- 7.** Krešo Pandžić, Croatia
- 8.** Nino Rimac, Bosnia Herzegovina