

WORLD METEOROLOGICAL ORGANIZATION



RA VI HYDROLOGY FORUM 2014

Warsaw, Poland, 24 – 26 September 2014

FINAL REPORT

1. Opening

The second session of the WMO RA VI Hydrology Forum was held in Warsaw, Poland, in the premises of the Institute of Meteorology and Water Management from 24 to 26 September 2014.

The meeting was attended by 46 experts, representing 29 National Hydrological or Hydrometeorological Services and 6 international institutions (See Annex I - List of participants).

The meeting was opened by Dr M. Ostojski, Director of the IMGW, Permanent Representative of Poland with WMO and Second Vice-President of the WMO. In his opening speech Dr. Ostojski recalled the importance of operating at the regional scale in the area of hydrology, in terms of both institutional cooperation and for assessing the impacts of climate change and trends in the occurrence of extreme events. He also recalled the increased visibility gained by water sciences in WMO in recent years also as a consequence of climate change studies.

Mr T. Abrate, from WMO Secretariat, presented the main activities being undertaken by the Commission for Hydrology through its Advisory Working Group, notably the development of a manual on Water Resources Assessment, the outcomes of the project on the Assessment of the performances of flow measurement and instruments, the continuous development of manuals, guidance and training material under the Quality Management Framework - Hydrology, the support in data management provided by making available MCH data management system, and by testing the implementation of WaterML2.0 protocol for data exchange; and invited the forum to identify areas where contribute to these CHy endeavours. He also recalled that EC-66 appreciated the hydrology forum concept and decided to keep it under review in view of its possible implementation in other regions.

Mr I. Čačić, president of RAVI briefly also addressed the Forum recognizing that it has gained within RA VI and WMO at large a wide recognition, for its role in bringing together NHMSs and partner organizations in a number of key topic areas (service delivery, disaster risk reduction, global information systems) for WMO. The forum is expected to bring in contribution not only in support of the activities of the Working Group on Climate and Hydrology, but also for other two working groups of the Region, and in general in the development of WMO strategic planning tools.

Mr D. Bérod: co-chair for hydrology of the RA VI Working Group on Climate and Hydrology (WG-CH) reported to the forum on the meeting of the WG-CH that had been held the preceding day. WG-CH reviewed the results of its activities during the previous intersessional period, and agreed on a series of action, notably identification of the Task Team members and finalization work plan by end November. WG will meet again by teleconference in March 2015 and physically in 2016.

Ms C. Alionte Eklund reported about the activities undertaken in the framework of the WMO Flood Forecasting Initiative (FFI) to develop a methodology for the assessment of service delivery capabilities. The methodology is based on a matrix of institutional and technical criteria (overall 106 criteria) and on a grading scheme eventually producing a ranking of the capabilities of an NHS into three levels: limited or non-operational, basic services and well established. Assessment of national capabilities will be implemented on a voluntary demand-driven basis and is conceived as a tool for driving and prioritizing the efforts for improving forecasting service delivery. RA VI NHSs through the Hydrology Forum were invited to provide advice and suggestions on the improvement of the methodology. In particular the topic of: transboundary data exchange for the flood forecasting, communicating uncertainty, institutional cooperation, including the relation with the European Flood Awareness systems (EFAS) where highlighted.

2. Presentations

Ms V. Stojov reported on the activity “Overview on the current state of operation, maintenance and safety in fieldwork (O&M&SFW) within RAVI countries”. The issue was analyzed by means of a questionnaire distributed to all NHSs in the region though only a very limited number replied (7 answers). In spite of the scant information, it has been possible to determine that NHSs of different development level are equally continuously confronted to problem of operation and maintenance, the most sever being lack of human resources, lack of sufficient financial resources, lack of established and standardized operational procedures, ageing equipment, as well as specific issues related to the particular environment in which stations are to operate. The strict implementation of field safety issues is also a common weakness, together with the lack of proper guidance on the topic, even from international organizations such as WMO. The lack of with other state entities operating in the field may also lead to suboptimal operational and maintenance practices. Gratuitous acts of vandalism also accounts for difficulties in operation of observing networks.

All these problems can cause disruption in the normal operation leading to irrecoverable loss of hydrological data. It was pointed out that a higher number of respondents could bring better insight into the problems, and will help identifying cluster where similar problems are felt in a more marked way.

Mr D. Bérod reported on the topic “Inventory of monitoring needs: hydrologic network optimization and strategic planning”. The activity was implemented with the goal of improving efficiency and advocacy with decision makers.

It is recognized that neither simple nor universal method exist and optimization methods can be based on experience, available guidance, scientific and pragmatic approaches to respond to various challenges issuing from the need to ensure long series and real time observations, face changes in environment, as well as lack of financial and human resources. A mix of pragmatic and scientific approaches is recommended; an overview can be found in “Review and Analysis of Stream Gauge Networks for the Ontario Stream Gauge Rehabilitation Project March 2004 (revised from May 2003), WSC Report No. 01-2004, Richard S. Pyrcce”. Optimization should be based especially on following criteria: policy framework, identification and dialogue with partners and users, definition of clear objectives, identification of homogeneous catchments and river reaches, analysis of the stations representativeness, information gained, and possible interpolations.

An important recommendation is to combine basic stations, continuously observed with higher security including redundancy, with secondary ones observed for shorter periods (5-10 years). A scientific approach, including also local expertise, can help prioritize stations as well as their location; different monitoring objectives should be assessed jointly and stations should be multipurpose.

Ms E. Trondsen reported on the study on “Network design practices” carried out reviewing case studies in the Region, in particular needs and wishes of the operators. A number of criteria were identified, among the most common was underlined the need for co-location with meteorological stations and overall improving the coordination among various data providers, especially integrating with water quality observation. Concerning location small rivers, flood prone sites, unregulated pristine rivers were indicated as priority location, together with sites in proximity of high density inhabited areas. Stability of the section, redundancy of information were also parameters included in the design process. The need for updated guidance from WMO on this topic was underlined.

Mr H. Dixon reported on “Harmonization of methodologies, quality control and access to data”. Data management remains a widely felt problem among NHSs in the region; the main difficulties faced being training and retention of qualified people, inconsistency of data formats and incompatibility of software, assessment and ingestion of data from new technologies (e.g. ADCP), the estimation of missing data and a number of issues related to metadata. It was also noted that way too often the methodologies adopted for data quality control were not fully standardized and

recorded in reference documents, and the training of quality control managers was mainly based on on-the-job practice, with little formal theoretical content and serious issues related to knowledge transfer. It was noted that CEN is now engaging in the process of developing data quality standards, in a context of general weak international cooperation in the domain.

Mr D. Bérod, on behalf of Mr M. Puupponen, reported also on the topic “Positioning of hydrological community in respect to decision makers and other experts and scientific communities”. He reported that partners and clients at various levels were identified as well as the specific services and products that could be provided to each of them. Subsequently an analysis was carried out of the weakness related to the delivery of such services and products, highlighting issues related to framework legislation, lack of qualified personnel, problems in data collection and forecasting systems.

Ms M-J. Adler reported on the topic “Needs in harmonization of monitoring networks and of hydrological data processing issues in transboundary river”. Problems related with compatibility and redundancy of data collected (not only hydrological but also, e.g., the basic topographic references and the statistical parameters) and coherence sampling interval among the monitoring programmes of the riparian countries were highlighted. Another issue reported was the reliability of mobile operators in emergency situation. She presented the outcomes and future plans of the Danube Flood Risk project on improving data collection in the lower Danube basin.

Mr U. Looser recalled that the Global Runoff Data Centre (GRDC) is a world-wide repository for river discharge data and associated metadata operating under the auspices of the WMO with financial support from the Federal Republic of Germany and supporting climate related programmes and projects of the UN and the international scientific community. The GRDC has been tasked to improve and formalize data sharing procedures between NHSs and data centres using WMO RA VI experiences. The initial step was the consolidation of data requests to cover all GRDC supported projects. Requests have been sent to 17 RA VI countries and extensive discussions resulted in an agreed upon list of stations for which data will be transferred to the GRDC on a regular basis. Different technical solutions are currently employed for the data exchange mechanisms ranging from direct access to the NHS database to email attachments.

The remaining RA VI countries will be approached in the future to discuss consolidated stations lists for which the GRDC requires data and to improve data exchange mechanisms. Experiences gained in RA VI will be used for data acquisition in other WMO Regions and also to support data needs for partner data centres like GPCC, HYDROLARE, GEMS/Water, IGRAC and the Soil Moisture data centre at the Vienna University of Technology.

Mr J. Cullmann reported on “Joint resources mobilization for enhancing cooperation in the region”. He presented the interest of having a focal point to keep track of the various ongoing projects and liaise with WMO Resource Mobilization Unit. He recommended to identify among the priorities to be selected by the forum, those that could be successfully presented within the framework of European Union Regio programme or the Seventh Framework Programme for Research (FP7). In this connection it was highlighted the benefit that could derive from sharing whenever possible the experience gained by some countries/institutions in formulating applications for projects proposals.

Mr T. Heigh (EEA) presented his Agency’s activities focused on supporting the development and implementation of evidence based policies by collecting available data and generating and making available usable information and recalled. He underlined that only 9% of EEA data originate from official data banks of Member States and the overwhelming majority is from research works and citizens causing an uneven coverage. Data ownership is another challenge as different sources adopt different policies. The agreement being discussed between EEA, GRDC and WMO on accessing GRDC data for EEA purposes needs to be finalized.

Mr P. Salomon (JRC) presented to the meeting the recent development in European Flood Alert System (EFAS) implementation, currently fully operational under Copernicus, the European Programme for the establishment of a European capacity for Earth Observation. Among the planned activities he recalled the extension of the forecasting model to cover all RA VI, developing flash flood and landslide indicators, pre-tasking observation satellites ahead of event for improved flood mapping, and improving visualization and communication of forecasts. The extension of the methodology to global coverage is pursued via the project Global Flood Awareness System (GloFAS), jointly developed by the European Commission and the European Centre for Medium-Range Weather Forecasts (ECMWF). The 10th annual meeting of EFAS partner is scheduled on April 2015

Mr J. Cullman briefly informed the meeting on the activities of the International Commission for the Hydrology of Rhine Basin (CHR). He underlined the difficulties still experienced in ensuring consistency among data provided by the member countries and looked forward to the cooperation with the Hydrology Forum to address this and other issues of common interest. He also reported on the ongoing cooperation with the Mekong River Commission (MRC) through joint projects in themes such sediment balance, snow and ice-melt, etc.

Mr D. Komatina briefly informed the meeting on the activities implemented by the International Sava River Basin Commission (ISRBC). He mentioned the revived publications of hydrological yearbooks, the development of models, the establishment of a data portal and the preparation, in cooperation with WMO, of a policy document on data exchange that had been agreed upon and signed by NHSs of all ISRBC countries as well as by other national agencies with responsibility on data collection.

Prof. M. Brilly on behalf of the International Commission for the Protection of the Danube River (ICPDR) stressed the need for improving data homogenization especially at station located at international borders, and to review the assumption and data for the calculation of probable maximum floods (PMF).

Mr J. Kubát on behalf of the International Commission for the Protection of the Elbe reported on the implementation of the Action Plan on Flood Protection, developed following the flooding in 2002, and on the analysis of the performances of the plan, undertaken in 2012. He highlighted the critical importance of assessing reservoir influence on flood routing.

3. General discussion

The forum debated at length the issues related to data exchange and data access. It was recognized the wide variety of policy adopted in the various countries and, while a general trend towards lifting of limitation and economic charges could be detected, in many cases access to data are still subject to payment of a fee for cost recovery or to generate income when public funding is not sufficient. In some cases hydrological data are considered of strategic relevance and are not accessible and any condition. It was also pointed out that the generalization of automated data acquisition systems is generating huge quantities of raw data hence creating problems for ensuring timely quality assurance/quality control (QAQC), especially if data are to be made openly and freely available. The issue of data access, together with that of sufficient resources for data collection and management, should be brought to the attention of policy and decision makers and the Forum suggested that the Regional Hydrological Adviser should take a lead role in this issue; to support him in this task NHSs were invited to provide information on institutional problems concerning data access, data dissemination and sale policy.

4. Future work plan

The participant in the forum reviewed the activities identified during the first session, their outcomes and, also in light of the themes presented during the three-day meeting and of the

outcomes of the group discussions, decided the following concerning the future activities in the period 2014-2106:

1. Operational maintenance procedures of networks (2012.1, Lead: Vasko Stojov, Macedonia): Activity to be continued, including in the analysis also the cost of data transmission over mobile phone networks. The review of existing problem should be further expanded.
2. Inventory of monitoring needs; network optimization and strategic planning (2102.2, Lead: Dominique Bérod, Switzerland) and Case studies on network design practices (2012.3): Activity to be continued focusing on monitoring needs and network optimization and development of tools for analyzing and designing network (including local expertise and review of current practices). The forum expressed the wish that WMO guidance on this topic be reviewed and updated if required.
3. Harmonization of methodologies, quality control and access to data (2012.4, Lead: Mary-Jeanne Adler, Romania): Activity to be continued focusing on sharing knowledge on techniques for data management, data quality control (automatic QC methods especially) also through e-learning and potentially staff exchange. Activities should start with a survey and review of current practices. The forum recommended also to set up an e-forum for practical problem solution and also proposed to organize a workshop to make the status of techniques.
4. Positioning of the RA VI hydrological community in respect to decision makers and other expert and science communities (2012.5, lead: Dominique Bérod, Switzerland) It was recommended to develop COST action to take forward the other 5 activities, and explore the possibility for the involvement of non-EU countries.
5. Identifying national focal points (2012.6, lead: Tommaso Abrate, WMO): to be continued through the continuous maintenance and updating of the contact list
6. Data needs analysis - synthesis of national and regional requirements (2012.7) The forum felt that this topic was already covered in other activities
7. Improving formalized data sharing procedures with regard to data centres; simplify data exchange for day to day operational requirements of NHSs (2012.8, lead: Ulrich Looser, Germany) Activity to be continued: priority should be to get a clear picture on data needs, including also international organization (e.g. EEA) and conduct an assessment on data requirement to be reported in 2 years time. Practical tools for implementing data sharing including Sava policy type initiatives could also be explored.
8. Joint resource mobilization for enhancing cooperation in the region (2012.9) Activity to be continued; Mr Cullmann offered to be focal point for resources mobilization. Exploring possible sources of funding should address other donors beyond EU, e.g. World Bank. Recognizing that project proposals to be successful should respond to real needs, it was suggested to make an inventory of the priorities at regional level and subsequently develop projects proposals. Countries were invited to submit their priorities in a 6-month time. Funding for WaterML 2.0 implementation should also be included.
9. A full new action on modelling, forecasting and warning was also considered, in addition to the dedicated task of the RA VI working group on climate and hydrology (lead: Cristina Eklund).

5. Conclusions

The defined work plan reflects the priorities of RA VI hydrologic community. The contribution of everyone, and not only of the leads, is a key element for success; the establishment of an e-forum could facilitate these contributions. In the opinion of the participants, the forum is an important contribution for the improvement of hydrological services and should continue, with a 2 to 3 days meeting every 2 years. It is requested to leave enough room for national presentations as well as for discussions with stakeholders.

Task leaders as well as all participants were thanked by the organizers for their active participation.

The meeting was closed on Friday 26 September 2014 at 13:00.

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