



**World Meteorological Organization**  
**Organisation météorologique mondiale**

**Temps • Climat • Eau**  
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## **Statement of the CBS Technical Conference on Public Weather Services**

*(St Petersburg, Russian Federation, 21-22 February 2005)*

1. During its two days of proceedings, the conference covered four main topics: Innovation and New Technology for Improved Services, Public Weather Services in Support of Disaster Mitigation and Prevention, Communicating with the Public – PWS, the Media and Public-Private Partnerships, and the Socio-economic Benefits of Public Weather Services.

2. The past decade has witnessed an explosive growth in meteorological services provided for the benefit of the community at large and a generally increased awareness of the value of public weather services for day-to-day decision-making in every country and every sector of society. Enormous progress in the scientific, technological and public policy dimensions of the provision of public weather services has produced unprecedented levels of community interest in weather information and established the delivery of public weather services as one of the most important functions of a National Meteorological Service (NMHS). Although the basic role of the NMHS in the provision of public weather services is underpinned by a sound economic and public policy framework, the next few decades will present formidable challenges to NMHSs and the global meteorological enterprise as a whole in identifying the best way forward through the maze of issues that now confront them. The World Meteorological Organization (WMO) has a vital role to play in charting the way ahead and the WMO Public Weather Services Programme will provide the framework for the co-ordinated international effort on the provision of public weather services that is certain to bring unprecedented benefits to the global community.

3. The conference discussed some of the key advances in technology that were now impacting or had the potential to impact on the range and quality of public weather services provided by NMHSs. The continuing revolution in information exchange driven by the Internet and related technologies has almost unlimited potential to improve the range and volume of information that can be provided by NMHSs. This was demonstrated by a wide range of samples from NMHS Web sites as well as the valuable innovation of WMO Web sites for severe weather warnings and city forecasts (the Severe Weather Information Centre and the World Weather Information Service). The Internet can also be a valuable tool for educational purposes. However, it was recognised that the use of the Internet can require significant resources to maintain up to date material, develop new products and maintain electronic security.

4. Other innovative developments discussed included the advances in nowcasting, the use of ensemble prediction techniques and other probability forecasting methods to provide more useful public weather services, and the use of forecast database approaches to streamline forecast production. These developments will have a profound influence on the operations of NMHSs and the work of their staff, and offer the possibility of extending the range and type of services. It was noted that these developments present challenges in the handling of large amounts of data, and that the application of some of the methods would require careful adaptation to suit the level of development of NMHSs.

5. Improvements in observation techniques and technologies offered many opportunities to provide improved public weather services, especially in informational services and nowcasting. Particular attention was given to the marked increase in the range and quality of data available from the new generation meteorological satellites. To maximise the potential benefits of this increase in satellite data, it was important for NMHSs to have sufficient numbers of well-trained staff to fully exploit satellite data in the provision of improved public weather services. For example, the new Meteosat Second Generation satellite is able to produce images and products that assist the detection of night-time fog

and dust storms. It also allows the detection of fire/smoke, thunderstorms, hurricanes, snow and sea ice, super cooled clouds, floods, volcanic eruptions, vegetation, ocean eddies, phytoplankton and many other features.

6. In relation to satellites and new and improved observing systems, there are significant opportunities and challenges for NMHSs connected with the Global Earth Observation System of Systems (GEOSS) plans. It is important that more NMHSs, especially from developing countries engage with GEOSS so that they will be able to take advantage of the increased earth observation data and products that will become available through the implementation of the GEOSS. This will also enable NMHSs to enhance their provision of public weather services for the benefit of all nine socio-economic sectors identified in the GEOSS 10-year Implementation Plan.

7. Advances in meteorological workstation capability emphasised the potential benefits beginning to flow from the substantial investments by a number of NMHSs in a new generation of workstations. These could vary in complexity and expense depending on the type of use needed, ranging from high end units suitable for use in the main centres of large NMHS to less powerful units suitable for smaller offices, to units using mainly Web based software suitable for use within an NMHS for limited purposes, or directly by end users. Rapid advances in visualisation techniques were improving the ability of meteorologists to assimilate information and efficiently provide more relevant services to end-users.

8. The challenge of passing important warnings, forecasts and information to remote communities was given special attention. The RANET project has applied innovative approaches to broadcasting weather, climate and educational information via a communications satellite, supplemented by low power remote local radio stations, and the use of wind-up and solar powered radios to access the information, and even display this on a connected computer. The success of this project in Africa and parts of Asia warrants further efforts by WMO to encourage cooperation on this project and to assist relevant NMHSs to utilise the system to disseminate their information, including displaying their own Web sites. Several delegations expressed their appreciation to NOAA (USA) and South Africa for the support provided in the implementation of the RANET project. In this connection, it was noted that some NMHSs had difficulties in getting frequency allocation for local, low powered radio stations to disseminate RANET information.

9. The Public Weather Services Programme has been influential in achieving significant improvements in the quality and range of services provided by NMHSs, especially in developing countries and countries with economies in transition. Examples were considered such as the excellent end-to-end hurricane warning services in Cuba, the positive impact of NMHSs providing TV weather presentation in a number of African countries, and the rapid expansion of sophisticated public weather services in China and Russia. It was noted however that some of the successful initiatives in developing countries now needed support for maintenance and continued modernisation.

10. Despite remarkable progress in the range and quality of public weather services provided by NMHSs, the effective application of public weather services to the mitigation of natural disasters presents many opportunities and challenges in taking advantage of

technology and in meeting rising community expectations that technology should decrease their vulnerability to such disasters. A particular challenge for WMO Members is to ensure that all the relevant meteorological and related information is provided in a way that enables informed decisions and actions. There is also a need to create better public awareness of natural hazards, and for NMHSs to contribute to vulnerability assessments for all potential natural threats with a view to strengthening an all-hazards community. NMHSs are encouraged to strengthen their engagement with high-level decision makers in government, civil defence and the media to enhance the effectiveness of and support for their efforts in PWS, and to help emphasise principles such as the need for a single authoritative voice for public warnings.

11. WMO and its Members have made substantial progress over the past decade in constructive engagement, and creation of partnerships, with the media. This sector remains very dynamic and it is important for NMHSs to anticipate trends in broadcast and other media, and to be proactive in both improving existing products and services and developing innovative approaches that meet the changing needs of this industry. It was noted that the traditional skills available within NMHSs would need to be augmented with other skills, such as visual design, verbal and non-verbal communication and editorial skills, together with a culture of creativity in order to transform meteorological information into professional and credible services for media. Achievement of this goal would require significant staff training and WMO has a key role to play, through the public weather services program, in assisting NMHSs to strengthen capacity in this area. Ensemble prediction techniques have improved measures of forecast uncertainty; the communication of these uncertainties to the public in a meaningful way presents both opportunities for and challenges to the meteorological-media partnership.

12. Recent developments in economic thinking and analysis, especially in relation to so-called public goods, provides new perspectives on the appropriate frameworks and funding options for meteorological services. These developments present opportunities for NMHSs to demonstrate more clearly the national economic value of services such as those offered through their public weather service activities, and the economic rationale for their support via public funding. It will be important for WMO to assist with advice on appropriate methodologies, the use of relevant economic terms, and with guidance from case studies. Given these new developments, it would be useful for WMO to convene an international conference on meteorological economics to promote awareness and sharing of knowledge and experiences in this area.

The conference recommended:

(a) That WMO assist NMHSs to take full advantage of the improvements in observational systems, especially the latest generation meteorological satellites, to provide enhanced Public Weather Services, noting that the investment in meteorological satellites requires matching investment in sufficient, well-trained meteorological staff to use the products effectively and to deliver services that meet community expectations;

(b) That WMO should encourage and assist NMHSs to engage with the Global Earth Observation System of Systems (GEOSS) plans and take advantage of the increased earth observation data and products that will become available through the implementation of the GEOSS in order to enhance their provision of Public Weather Services for the benefit of all nine socio-economic sectors identified in the GEOSS 10-year Implementation Plan.

(c) That WMO assist NMHSs to maximize the benefits to public weather services of improved capabilities in nowcasting, high-resolution NWP, forecast database approaches and Ensemble Prediction Systems noting that these developments presented significant challenges in managing the volume of data generated, and that the benefit/cost ratio would require adaptation to the level of development of the NMHSs;

(d) That, noting the impressive development of a range of workstation capabilities including enhanced visualization techniques to suit different needs of NMHS and service delivery needs, WMO efforts should be focused on assisting NMHSs to exploit the potential of these systems to improve public weather services.

(e) That, noting the ability of systems such as RANET to reach remote communities, WMO should continue to facilitate cooperation on the RANET system and emphasize the importance of such systems being used to promote the role of the NMHSs in the provision of public weather services;

(f) That, while recognizing the significant resources necessary for the establishment and maintenance of internet services, NMHSs should further explore the potential of the Internet for dissemination of weather information and warnings (e.g. the World Weather Information System and Severe Weather Information Centre websites), to explain complex terminology, and to assist with the interpretation of concepts such as ensemble prediction products.

(g) Noting the marked improvements achieved through low cost investments in public weather service initiatives, WMO technical cooperation, education and training should include assistance to NMHSs in developing countries in improving their capability to access and take advantage of new observing, data processing and forecasting systems to access information and deliver improved public weather services. This effort should include strengthening the ability of existing regional PWS training facilities, assist their modernization, and encourage national support for PWS programmes of NMHSs;

(h) That NMHSs strengthen their engagement with high-level decision makers in government, civil defence, and the media to enhance the effectiveness of, and support for their efforts in public weather services, and to help emphasise principles such as the need for a single authoritative voice for public warnings;

(i) As part of their disaster mitigation efforts, NMHSs should develop the ability to effectively translate weather and related information into a form which enables improved decision-making through better communication and through making that information an integral part of effective decision support tools.

(j) To maximize the effectiveness of PWS disaster mitigation activities that meet national and community needs, NMHSs are encouraged to strengthen their engagement with high level decision makers in government, civil defence and the media, to emphasize the value of warnings as a public good, the importance of the NMHSs to be the single official voice for warnings, and to undertake strong public education programs.

(k) That NMHSs take every opportunity to involve key end user groups in future WMO and national PWS workshops, conferences, and related activities.

(l) That WMO maintain and strengthen its links with the international broadcast meteorology community and assist members to anticipate trends in media and be proactive in developing new products and services;

(m) That WMO should assist Members in the evaluation and demonstration of the social, environmental and economic benefits of their Public Weather Services through elaboration of methodologies, guidance on case studies and sponsorship of an international conference on the application of economics to meteorology and on the benefits of meteorological and related services.