



# Deutscher Wetterdienst

**International Symposium on PWS:  
A Key to Service Delivery  
Geneva 3-5 Dec. 2007**

**PWS in the front line of NMHSs:  
What the PWS Programme achieved so far**



**Wolfgang Kusch, Germany**

## Outline

1. Front-line services of NMHSs
2. PWS Programme
3. Look at NMHSs
4. What has been achieved so far?
  - 4.1 Capacity Building
  - 4.2 Surveys
  - 4.3 Projects
5. Future activities
6. Summary

Outlook

## Front-line Services of NMHSs

” As weather and climate play such a significant role in the cultures and lifestyles of people around the world, National Meteorological or Hydrometeorological Services (NMHSs) have no greater responsibility than ensuring the safety of life, protection of property and the well-being of their nations' citizens. Consequently, the warnings and forecasts that they provide should be timely, reliable and comprehensive. In addition, these forecasts and other information on weather- and climate-related events are vital for disaster management and the decision-making processes of many weather-sensitive sectors. Indeed, the visibility and credibility of an NMS are derived from its ability to provide demonstrably useful and reliable public weather services, tailored to the needs of its national community. “

**Guide To Public Weather Services Practices**  
**WMO-No. 834**  
**Second Edition, 1999**

## PWS Programme

- 1991: the Eleventh World Meteorological Congress established the Public Weather Services (PWS) Programme as a component of the Applications of Meteorology Programme of the World Meteorological Organization (WMO).
- 1994: the implementation of the programme got under way under the umbrella of CBS.

## PWS Programme

- 1) Strengthen the capabilities of WMO Members to meet the needs of the community through provision of comprehensive weather services;
- 2) Foster a better understanding by the public of the capabilities of National Meteorological and Hydrological Services (NMHSs) and how best to use their services

The main purpose of PWS Programme is to assist WMO Members to provide the above defined service.

## PWS Programme

1998: the Commission for Basic Systems (CBS) adopted the Open Programme Area Group (OPAG).

Within this framework, the work of PWSP is co-ordinated through an Implementation Coordination Team (ICT) and 3 Expert Teams.

These are:

- ➔ Expert Team on Services and Product Improvement (ET-SPI)
- ➔ Expert Team on PWS in Support of Disaster Prevention and Mitigation (ET-DPM), and
- ➔ Expert Team on Communications Aspects of PWS (ET-COM)



## Look at NMHSs

### **Do you carry out a public weather services programme? (Q1)**

Of the responding Members, 93 (95 per cent) are carrying out a public weather services programme. Only five countries in RAs I, IV and V did not confirm so, but only one explicitly answered in the negative. However, all of them completed the rest of the questionnaire. Consequently, it can be assumed that nearly all NMHSs carry out a public weather services or similar programme.

### **Overall remarks**

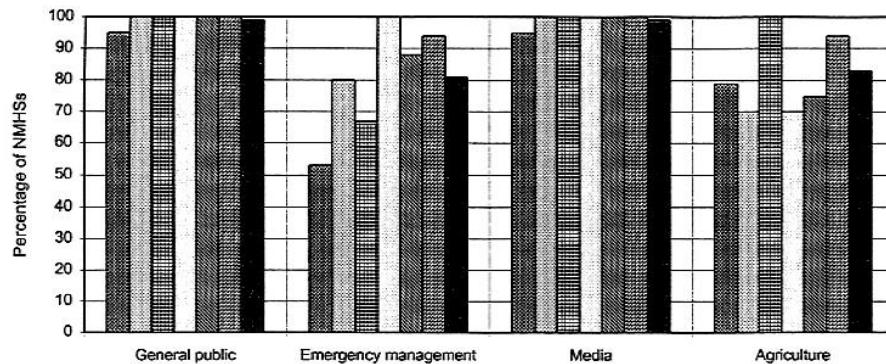
The result reflects the wide acceptance of the importance of public weather services and the need to drive forward the communication of information to the public. For the remaining NMHSs, one reason for not returning the questionnaire might be that they are not carrying out a national public weather services programme in that form. However, similar services might be fulfilled by other programmes of the NMHS or other responsible services.

#### **Public Weather Services in Focus**

**The state of WMO Members' national public weather services programme  
Evaluation of the questionnaire on national public weather services programme,  
WMO, May 1999**

## Look at NMHSs

Whom does your public weather services programme serve? (Q2)



► Figure 2a: Sectors served by public weather services (a)

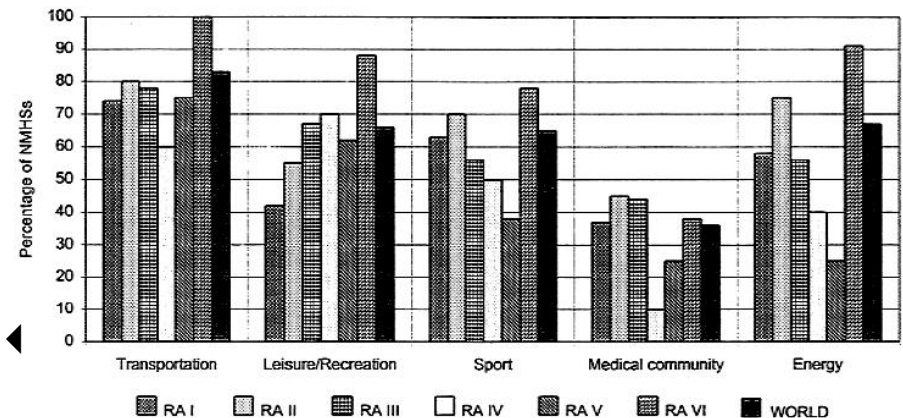


Figure 2b: Sectors served by public weather services (b) ◀

### Public Weather Services in Focus

The state of WMO Members' national public weather services programme  
 Evaluation of the questionnaire on national public weather services programme,  
 WMO, May 1999



# Look at NMHSs

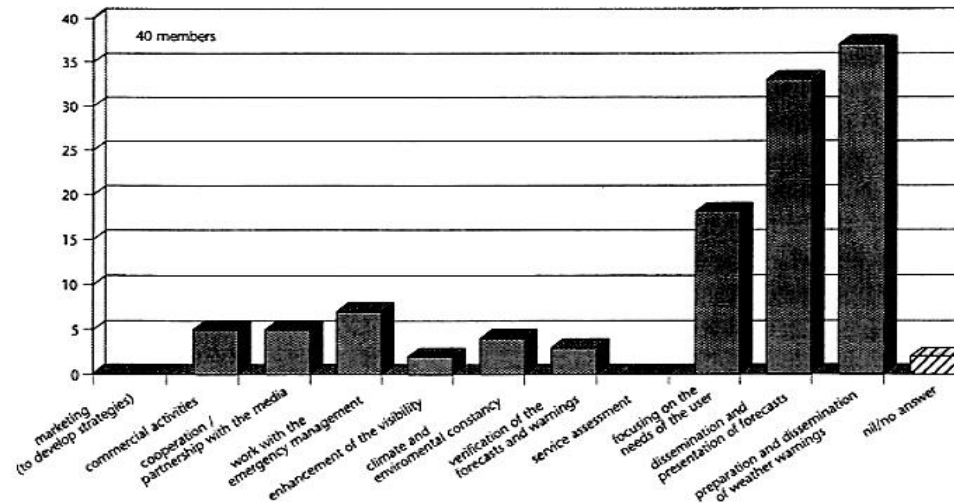
## PWS Priorities in RA VI NMHSs

### Chapter 3 EVALUATION OF THE QUESTIONNAIRE

Graphical form of the evaluation corresponding to questions 1 to 28

#### PWS PRIORITIES IN YOUR NMS

1. Which are the first 3 priorities of your NMS?



**Public Weather Services in Region VI (Europe)**  
**Report of Survey**  
**DWS-5 WMO/TD No. 11 00**  
**Geneva, 2002**

## What has been achieved so far?

### Who did the work?

- WMO Secretariat (PWS Division)  
Since the start of PWS Programme most of the time less than 3 person
- Expert Teams
- NMHSs



## What has been achieved so far?

### The start!

- 1994 First training workshop in Kenya, followed
- 1995 by a workshop in Singapore
- 1996 Publication of the first document: Guide to PWS Practices

### Then followed:

- Training workshops and seminars
- Capacity building through publication of guidelines
- Publication of technical documents
- Surveys
- Projects



## What has been achieved so far?

### Training workshops and seminars

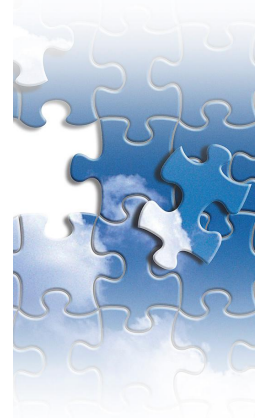
- **Weather presentation** on television, radio, print, Internet and other new technologies;
- **Disaster preparedness and mitigation;**
- **Socio-economic applications** for weather, climate and water services;
- **Quality Assurance** in PWS;
  
- Effective **Communication** of forecasts;
- Improving **Media Relations;**
- **Tropical Cyclone/Hurricane Warning Services;**
- **Warnings of Real Time Hazards** by using **Nowcasting** Technology;
- Use of Global Data Processing System (**GDPS**) and World Area Forecast System (WAFS) products and their presentation to the public;
- Improvement of Public Weather Services for **Early Warning** and **Emergency Response.**



## What has been achieved so far?

### Capacity building through publication of guidelines

- Examples of Best Practice in **Communicating Weather Information** (PWS-17)
- Guidelines on **Biometeorology and Air Quality Forecasts** (PWS-16)  
*(Supplement to PWS-10 below)*
- Guidelines on **Capacity Building Strategies** in Public Weather Services (PWS-15)
- Strategy of Developing Public **Education and Outreach** (PWS-14)
- Guidelines on Integrating **Severe Weather Warnings** into **Disaster Risk Management** (PWS-13)
- Guidelines on **Weather Broadcasting** and the Use of Radio for the Delivery of Weather Information (PWS-12)
- Guidelines on **Quality Management Procedures** and Practices for Public Weather Services (PWS-11)
- Guidelines on **Biometeorology and Air Quality Forecasts** (PWS-10)



... ▶



## What has been achieved so far?

### Capacity building through publication of guidelines

- Guidelines on **Cross Border Exchange of Warnings** (PWS-9)
- Guide on Improving **Public Understanding of and Response to Warnings** (PWS-8)
- Supplementary Guidelines on **Performance Assessment** of Public Weather Services (PWS-7)
- Guide on the **Application of New Technology** and Research to Public Weather Services (PWS-6)
- Public Weather Services in Region VI (Europe) – Report of Survey (PWS-5)
- Guidelines on **Graphical Presentation** of Public Weather Services Products (PWS-4)
- Guidelines on the Improvement of NMHSs – **Media Relations** and Ensuring the Use of Official Consistent Information (PWS-3)
- Weather on the **Internet** and **Other New Technologies** (PWS-2)
- Technical Framework for **Data and Products** in Support of Public Weather Service (PWS-1)
- Guidelines on Performance **Assessment** of Public Weather Services



## What has been achieved so far?

### **Publications – Technical Documents**

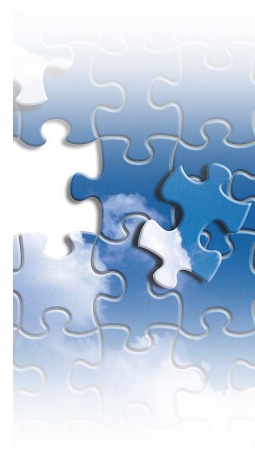
- Weather, Climate and Water Services for Everyone
- The second edition of the Guide to Public Weather Services Practices
- Public Weather Service in Focus
- Public Weather Service – Weather affects everyday life ...
- Guide to Public Weather Services Practices
- On the Front Line – Public Weather Services
- The Role of Meteorologists and Hydrologists in Disaster Preparedness
- Public Educational Packages



## What has been achieved so far?

### Surveys

- Survey on Improving the Delivery of Public Weather Services
- The state of WMO Members' national public weather services programmes (May 1997). – Results were published in, 'Public Weather Services in Focus' in 1999
- Survey on Severe Weather Warning Services – 2006
- Survey on Effectiveness of PWS – 2005
- Survey of Indian Ocean Meteorological and Hydrological Services requirements for disaster reduction, including Tsunamis



## What has been achieved so far?

### Projects

- Severe Weather Information Centre (SWIC)  
*developed by Hong Kong Observatory (HKO)*
- World Weather Information Service (WWIS)  
*developed by Hong Kong Observatory (HKO)*
- Meteoalarm (Eumetnet)
- The Severe Weather Forecasting Demonstration Project (SWFDP)  
(Regional Subproject – RA I – South Eastern Africa)







**World Meteorological Organization**  
Weather • Climate • Water

**Official Observations**  
• Cloudiness & Rain

**Official Forecasts**  
Select WMO Region  
\* Africa  
\* Asia  
\* Europe  
\* N. & Central America  
\* S. America  
\* S.W. Pacific

**What's New**  
\* France launched French version  
\* Spain launched Spanish version  
\* New domain name for WWIS  
\* WWIS includes city map and photo

**Related Web Sites**  
\* WMO  
\* Severe Weather

**Other Languages**  
\* Arabic Version  
\* Chinese Version  
\* Portuguese Version  
\* Spanish Version  
\* French Version

**About This Web Site**  
Participating Members  
Weather Icons  
Introductory Pamphlet  
Search  
Contact  
Note to User  
Disclaimer

The web site is developed and maintained by the Hong Kong Observatory. If you have any suggestions, please send us an e-mail.

<http://worldweather.wmo.int>

## World Weather Information Service

Official Observations. Official Forecasts.



weather forecasts + climatology  
ENGLISH عربي PORTUGUES ESPANOL FRANCAIS

This global web site presents OFFICIAL weather observations, weather forecasts and climatological information for selected cities supplied by National Meteorological & Hydrological Services (NMHSs) worldwide. The NMHSs make official weather observations in their respective countries. Links to their official weather service web sites and tourism board/organization are also provided whenever available. Weather icons are shown alongside worded forecasts in this version to facilitate visual inspection.

The media are welcome to make information presented in this web site available to the public. When doing so, credit to the respective NMHSs should be given.

By 1 Nov 2007, 116 Members supply official weather forecasts for 1248 cities, 1224 cities from 160 WMO Members also have their climatological data presented in this web site. Suggestions to enrich the contents of this web site are welcome.

### Quick Select for Climatological Information

Select Country/Territory  Go  
Weather Forecasts now available from:

- |                              |                          |                        |
|------------------------------|--------------------------|------------------------|
| * Algeria                    | * Argentina              | * Armenia              |
| * Australia                  | * Austria                | * Azerbaijan           |
| * Bahrain                    | * Belarus                | * Belgium              |
| * Belize                     | * Bosnia and Herzegovina | * Brazil               |
| * Brunei Darussalam          | * Bulgaria               | * Cambodia             |
| * Canada                     | * Chile                  | * China                |
| * Colombia                   | * Costa Rica             | * Croatia              |
| * Cuba                       | * Czech Republic         | * Denmark              |
| * Dominican Republic         | * DPR of Korea           | * Egypt                |
| * El Salvador                | * Estonia                | * Ethiopia             |
| * Fiji                       | * Finland                | * France               |
| * Gambia                     | * Germany                | * Ghana                |
| * Greece                     | * Hong Kong, China       | * Hungary              |
| * India                      | * Indonesia              | * Iran                 |
| * Ireland                    | * Israel                 | * Italy                |
| * Jamaica                    | * Japan                  | * Jordan               |
| * Kazakhstan                 | * Kenya                  | * Kyrgyz Republic      |
| * Lao PDR                    | * Latvia                 | * Lesotho              |
| * Libyan Arab Jamahiriya     | * Lithuania              | * Macao, China         |
| * Macedonia, TFY Republic of | * Madagascar             | * Malaysia             |
| * Maldives                   | * Mali                   | * Malta                |
| * Mauritius                  | * Mexico                 | * Mongolia             |
| * Montenegro                 | * Mozambique             | * Myanmar              |
| * Nepal                      | * Netherlands            | * New Zealand          |
| * Norway                     | * Oman                   | * Pakistan             |
| * Panama                     | * Paraguay               | * Peru                 |
| * Philippines                | * Poland                 | * Portugal             |
| * Qatar                      | * Republic of Korea      | * Republic of Serbia   |
| * Romania                    | * Russian Federation     | * Saint Lucia          |
| * Samoa                      | * Saudi Arabia           | * Singapore            |
| * Slovakia                   | * Slovenia               | * South Africa         |
| * Spain                      | * Sri Lanka              | * Swaziland            |
| * Sweden                     | * Switzerland            | * Syrian Arab Republic |
| * Tajikistan                 | * Tanzania               | * Thailand             |
| * Trinidad and Tobago        | * Tunisia                | * Turkey               |
| * Uganda                     | * Ukraine                | * United Arab Emirates |



World Meteorological Organization  
Weather • Climate • Water

## Severe Weather Information Centre

Official Observations. Official Warnings.

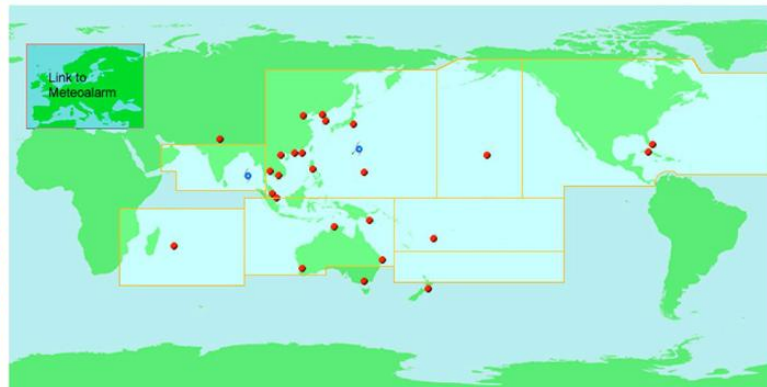
### HOME

- Severe Weather
- Tropical Cyclones
- Heavy Rain/Snow
- Thunderstorms
- Official Observations
- Cloudiness & Rain

### What's New

- Link to Meteocalm
- Introductory Pamphlet
- About this web site
- Participating Members
- Notes To Users
- Links
- World Meteorological Organization
- GMDSS
- Official World City Forecasts
- Meteocalm
- Disclaimer

This World Meteorological Organization (WMO) web site is developed and maintained by the Hong Kong Observatory (HKO) of Hong Kong, China. For more information on the web site please [click here](#).



Last Updated at 2007-11-12 08:49 UTC

Past Positions

### NOTES

- Click on the symbol or for advisories and warnings on the tropical cyclone.
- Click on the symbol for information from individual WMO Members participating in the [web site](#).
- Click on individual boxes to view zoom-in maps.
- Click to enter Meteocalm - Meteocalm is a new website, designed to warn the public for severe weather across Europe.
- This page is best viewed with a display resolution of 1024 x 768 pixels.

The information in this World Meteorological Organization (WMO) web site is based on advisories issued by Regional Specialized Meteorological Centres (RSMC), and official warnings issued by National Meteorological and Hydrological Services (NMHSs) for their respective countries or regions. The media may use this information for their broadcasting services on the radio or TV. When doing so, it should be indicated that they are issued by the respective RSMCs, TCWCs or NMHSs.

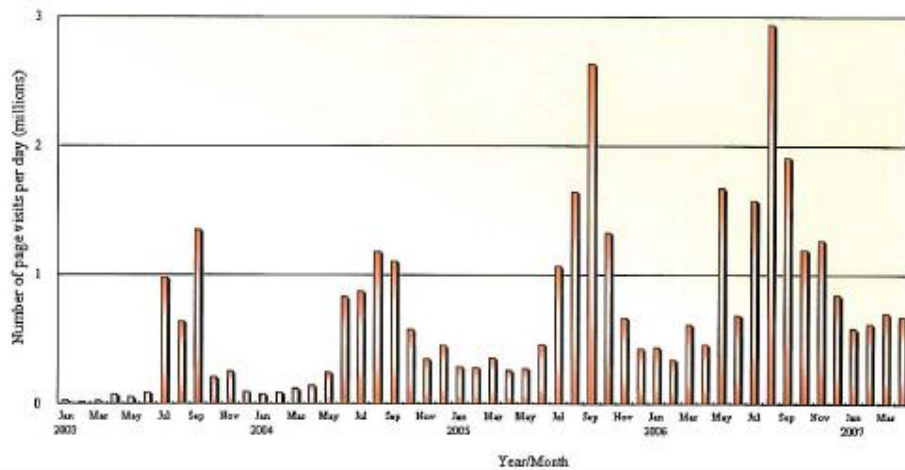
As different participating Members may give different locations, intensities or even names for the same Tropical Cyclone, to avoid confusion, only the information supplied by the RSMC or TCWC responsible for the region is displayed graphically on the maps.

If you have any suggestions, please send an email to [swic\\_wm@worldweather.org](mailto:swic_wm@worldweather.org).

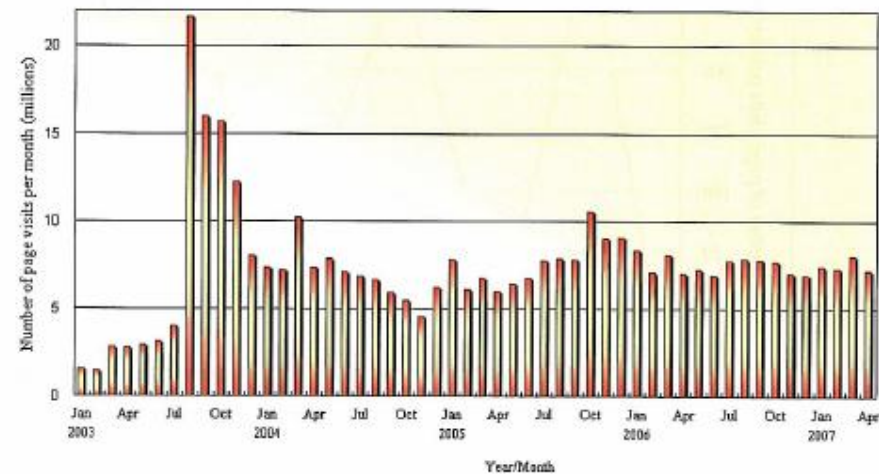
<http://severe.weather.wmo.int>



**Figure Annex III-2. Monthly access statistics of SWIC  
( Jan 2003 - Apr 2007 )**



**Figure Annex II-2b. Monthly access statistics of WWIS (All language version)  
( Jan 2003 - Apr 2007 )**



# Deutscher Wetterdienst



**metealarm**  
alerting europe for extreme weather

EUMETNET  
The Network of European Meteorological Services

Start | Neuigkeiten | Über Metealarm | Hilfe | Nutzungsbedingungen | Links | Graufarbkarten

Sprache ändern: Deutsch

» Europa:

Wetter-Warnungen: Europa:

Warntypen: Alle Ereignisse anzeigen | Anzeigen: heute | Europa

Gefahrenstufenberichte  
Sie finden detaillierte Informationen über Warnungen in den Berichten der Länder. Wählen Sie das gewünschte Land aus.

AT	BE	CH	CY	DE	DK	ES	FR	GR	HU	IE	IS	IT	LU	NL	NO	PT	SE	UK
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Created: 12.11.2007 10:18:48 | Valid for: 12.11.2007

Legend:  
Weiss, Grün, Gelb, Orange, Rot  
Wind, Regen, Schnee/Eis, Gewitter, Nebel  
Extrem hohe Temperatur, Extrem niedrige Temperatur, Küstenergebnis, Waldbrand, Lawinen

Powered by: www.bac3stone.co.uk

**metealarm**  
alerting europe for extreme weather

EUMETNET  
The Network of European Meteorological Services

Start | Neuigkeiten | Über Metealarm | Hilfe | Nutzungsbedingungen | Links | Graufarbkarten

Sprache ändern: Deutsch

» Europa:

Wetter-Warnungen: Deutschland

Created: 12.11.2007 10:27:09 | Valid for: 12.11.2007

Gefahrenstufenberichte  
Detaillierte Informationen über die Warnungen finden sich in den Berichten der einzelnen Länder. Bitte die entsprechenden Gebiete auswählen.

Baden-Württemberg	Bayern	Berlin und Brandenburg	Bremen und Niedersachsen	Hamburg	Hessen	Mecklenburg-Vorpommern	Nordrhein-Westfalen	Saarland und Rheinland-Pfalz	Sachsen	Sachsen-Anhalt	Schleswig-Holstein
-------------------	--------	------------------------	--------------------------	---------	--------	------------------------	---------------------	------------------------------	---------	----------------	--------------------

Mehr Informationen  
DWD

Legend:  
Weiss, Grün, Gelb, Orange, Rot  
Wind, Regen, Schnee/Eis, Gewitter, Nebel  
Extrem hohe Temperatur, Extrem niedrige Temperatur

Anzeigen: heute

Start | Neuigkeiten | Über Metealarm | Hilfe | Nutzungsbedingungen | Links

Powered by: www.bac3stone.co.uk

**metealarm**  
alerting europe for extreme weather

EUMETNET  
The Network of European Meteorological Services

Start | Neuigkeiten | Über Metealarm | Hilfe | Nutzungsbedingungen | Links | Graufarbkarten

Sprache ändern: Deutsch

» Europa:

Warnungen für: Thüringen

Zurück zu Europa

Zurück zu Länderkarte

Mehr Informationen  
DWD

**Wind**  
Gültig von 12.11.2007 08:30:00 CEST bis 12.11.2007 16:00:00 CEST  
Gefahrenstufe: Gelb  
maximum-wind-speed = 63 km/h  
Ortlich treten oberhalb 800 Meter Sturmböden aus Nordwest mit Geschwindigkeiten zwischen 45 und 85 km/h (18 und 24 m/s, 34 und 47 kn; BR 8 und 9) auf. Gelegentlich kann es auch zu schweren Sturmböden kommen.

**Schnee/Eis**  
Gültig von 12.11.2007 07:30:00 CEST bis 12.11.2007 13:30:00 CEST  
Gefahrenstufe: Gelb  
anzwefall = 8 cm  
maximum-wind-speed = 6 beaufort  
In den nächsten Stunden tritt in Höhen oberhalb 300 bis 400 Meter weiterer Schneefall mit Neuschneemengen zwischen 5 und 15 cm in 8 Stunden, ganz vereinzelt auch darüber, auf. In Verbindung mit Windböen zwischen 40 und 60 km/h (11 bis 17 m/s, BR 6 bis 7) sind Schneeverwehungen zu erwarten. Verbreitet sind es glatt.

Anzeigen: heute

Start | Neuigkeiten | Über Metealarm | Hilfe | Nutzungsbedingungen | Links

Sprache ändern: DA | DE | EN | ES | FI | FR | GR | HU | IT | IS | NL | NO | PT | SI | SV | DA

Powered by: www.bac3stone.co.uk

developed by: www.ny software.de

## What has been achieved so far?

- Improved early warning services and products and their presentation;
- User focus in PWS;
- Public awareness and education;
- Capacity building and outreach activities for NMHSs;
- Engagement in demonstration projects;
- Establishing and promoting best practices;
- Building capacity in NMHSs to assess and enhance the socio-economic benefits of weather, climate and water;
- Engaging in surveys and assessments;
- Building the credibility of NMHSs;
- How to initiate a Public Weather Services programme or activities in an NMHS



## Future Activities

- Probability Forecasts and their use in PWS
- Socio Economics Benefit Pilot Project: Learning through doing
- Working with the media
  - IABM
  - Climate Broadcasters Network
- Verification
- Nowcasting Services

## Summary

- Congress noted with appreciation the successful implementation of the PWS Programme (PWSP) according to the direction provided by the 6LTP and the decisions of 14th Congress.
- Congress emphasized that public weather services were at the cutting edge of the contribution made by NMHSs to national goals in relation to the safety of life and livelihood, sustainable development, the quality of life, and the preservation of the quality of the environment. Congress recognized that in pursuing these goals, some Members had expanded the scope of their PWS programmes to areas of service delivery related to climate and water due to the recognition of the contribution of PWS to effective dissemination and communication of information in these areas.
- Congress stressed that public weather services as a critical element of NMHSs, performed this role through the delivery and communication of high quality, useful, relevant and timely, weather and related information on a regular daily basis so as to enable users to make informed decisions. Congress emphasized that a well-run and credible PWS would help NMHSs secure the long-term trust of the public, which would be critical to the effectiveness of warnings of much less frequent severe weather events.

**13 years after its establishment PWS has become a brand**



## Outlook

Taking into consideration the Members' priorities, Congress requested that future directions of the PWSP should aim at:

- Providing guidance on the application of new technology and scientific research to service delivery;
- Capacity building through training in all aspects of PWS, and the publication of guidance materials on topics based on Members' requirements;
- Continuing to provide guidance on the social and economic applications of PWS;
- Continuing to provide guidance on user-based service assessment, and product verification;
- Providing guidance on international and regional weather information exchange.

**Road Map: Let us listen to the Symposium!**