World Meteorological Organization

Working together in weather, climate and water

WMO capacity development for forecasting and warning

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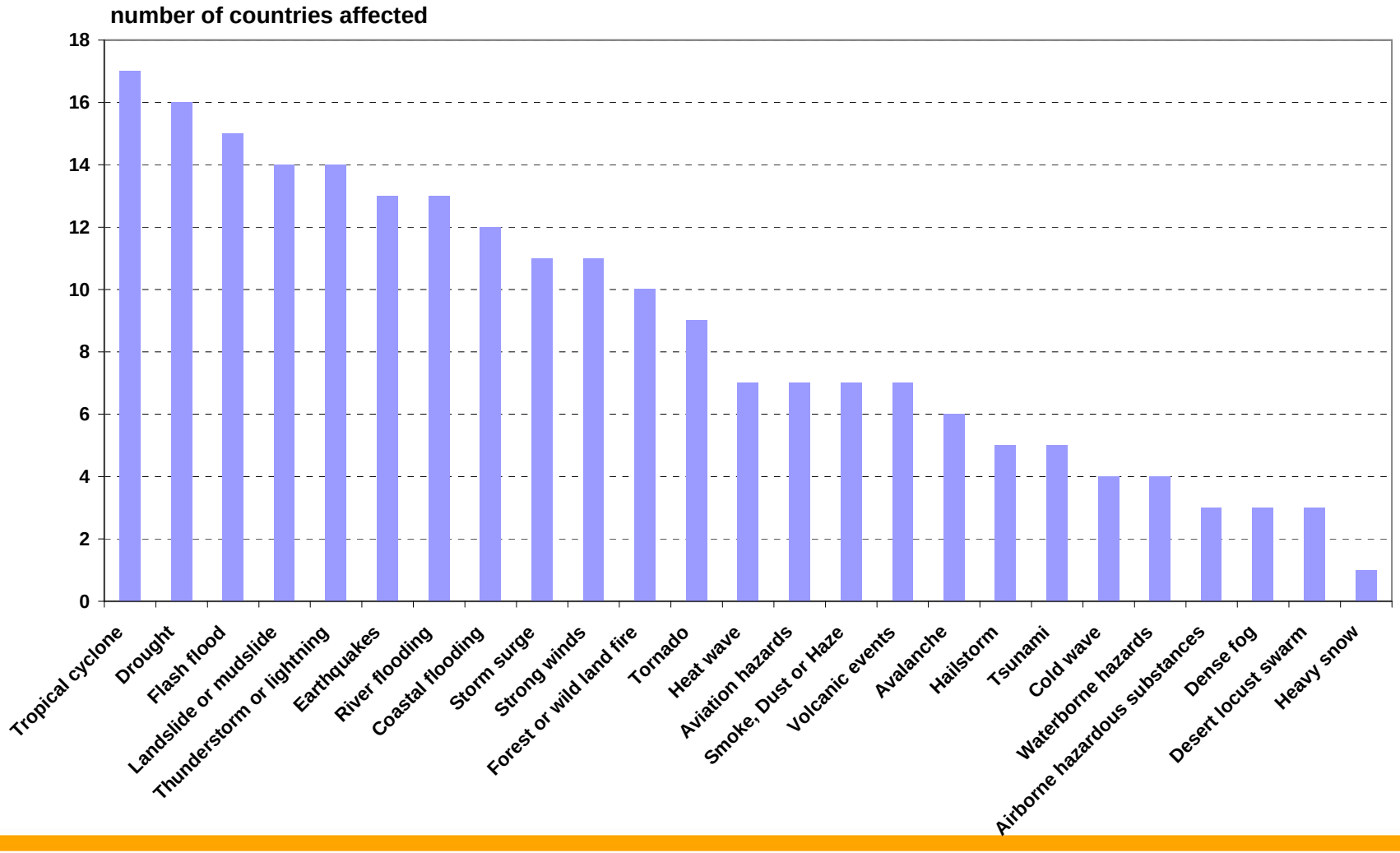
Purpose of Session

Overview of WMO Programmes that contribute to developing capacity of Members

in support of EWS

Number of countries in Central America and the Caribbean affected by various hazards



WMO, in coordination with regional partners, provides:

- Services to meet the needs of the community in response to:
  - Floods: flash, river, coastal
  - Tropical cyclones: strong wind, storm surge
  - Drought
  - Air pollution
  - Health: vector borne diseases, heat
- Tools for such response.

Floods

Integrated Flood Management (IFM)

Integration of land and water management in a river basin

Provides guidance on flood-related issues

http://apfm.info

IFM HelpDesk provides:

- Quick access to flood management information
- Guidance for activities towards IFM
- A continuous and sustainable capacity development mechanism
- A link between flood management practitioners or decision makers and experts in various fields
- A link between technical and financial partners

Development and Implementation of Regional Flash Flood Guidance System

- To strengthen regional capacity for timely and accurate flash flood warnings
- A diagnostic tool for Flash Flood Alerts and Warnings
- Indicates amount of rainfall required to cause a flash flood in small flash flood prone basins

Flash Flood Guidance System Benefits

- Early awareness of impending local flash flood threats for all potentially vulnerable areas
- Enhancement of collaborations with meteorologists and hydrologists and disaster management agencies
- Improvement of community awareness of flash flood disaster threat and mitigation – to respond to warnings
- Development of products for high risk flash flood areas to effectively plan future development.

Participating Regions/ Countries

- Central America
- Romania
- Korea
- South Africa
- SE Asia
- Southern Africa
- Middle East/Black Sea

Coastal Inundation Forecasting Demonstration Project (CIFDP)

Expected outcome:

Integrated software coupling meteorological (tropical cyclone), hydrological (river) and ocean (storm surge) forecasting models

Regions/countries for the implementation:

1. Bay of Bengal (Bangladesh)
2. Caribbean (Dominican Republic)

Partners: WMO, IOC-UNESCO, Oceanographic and Hydrographic Institutions

Storm Surge Watch Scheme provides

- Open source numerical models for ocean waves and storm surges connected with tropical cyclones, and guide to conducting operational experiments with these models
- Open access to all products and guide to using these products for operational forecast
- Assistance with processing capabilities and implementation of warning services

Partners: WMO, Global-Advanced Centres, IOC-UNESCO

Storm Surge Watch Scheme

All Tropical Cyclone Programme Regional Bodies have taken action

- Asia (RSMC New Delhi): SSW Information since 2009;
- RSMC Tokyo (North Pacific and Asia): SS Forecast Charts in 2011;
- Central, North America and Caribbean (RSMC Miami (NHC)): SS information included in advisories;
- Africa (La Reunion): planning stage;
- South West Pacific: Planning stage

Drought

A Viable Drought Monitoring System

- Assessment of water availability and near and long term outlook.
- Data on each of the indicators to evaluate water situation and outlook.
- Ensuring that the agricultural community has the ability to make use of the EWS.
- A review of the communication systems to ensure timely dissemination of the message.
- Shared responsibility between meteorologists, hydrologists and agricultural services for monitoring climate and water supply

Health

Weather, Climate, and Health

PWS Established CHWG (MoM and MoH)

- Madagascar: malaria, plague, Rift Valley Fever
- WA: Burkina Faso, Mali, Mauritania, Niger and Nigeria: malaria, meningitis
- Ethiopia: OpenHealth Mapper application to malaria
- Panama: Dengue Fever

Partners: WHO, IRI, Pasteur Institute, Anti Malaria Association

Benefits: EW and preparedness for disease outbreak based on impacts of weather/climate

Heat Waves and Health:

Heat Waves and Health:
Guidance on Warning System Development

- Raise awareness on health risks and need for management of heat as a hazard
- Objectives include to help Members:
  - Understand heat risk
  - Reduce mortality and morbidity associated with heatwaves
  - Develop effective HHWS and related communications strategies
  - Develop/sustain partnerships between NMHSs and health and social services (global, regional, national)
  - Develop heat-health plans.
- Co-publishers: WMO, WHO, expected publication 2010

Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS)

- Real time predictions of sand and dust from ~ 10 modelling centres
- Two regional nodes provide access to observations, predictions and verification and will become a focal point for research and training
  - EU-Middle East-Northern Africa node hosted by Spain
  - Asian node hosted by China

Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS)

- Benefits and deliverables to the Members:
  - Provides dust concentration predictions for several days in advance to reduce the risks to health, aviation, commerce, ground transportation
  - Provides a retrospective multi-decadal dust reanalysis that forms the foundation of investigations into the impacts of dust on health (MERIT Programme (WMO,WHO, IRI, HCF)

www.wmo.int/sdswas

GURME: Air Quality Modelling and Forecasting, Pilot Studies

Air Pollution kills over 2 million people every year (WHO) !

- GURME capacity building:
  - observational and modelling needs
  - air quality and related products
  - users of the information.
- Pilot projects develop capabilities in Member countries:
  - First GURME Pilot Projects: Moscow, Beijing, and Latin American cities (Mexico City, Santiago and Sao Paulo)
  - Recent: Shanghai MHEWS and New Delhi Commonwealth Games

GURME: Air Quality Modelling and Forecasting, Pilot Studies

- Areas addressed: Enhanced air quality & weather forecasting (incl. smoke and haze, heat island), Enhanced observing systems, Field experiments, Training, Dissemination of information to the public.

- Collaboration between NMHSs, EPAs, other national and local agencies and institutes, and academia

Severe Weather Forecasting Demonstration Project (SWFDP)

Goals

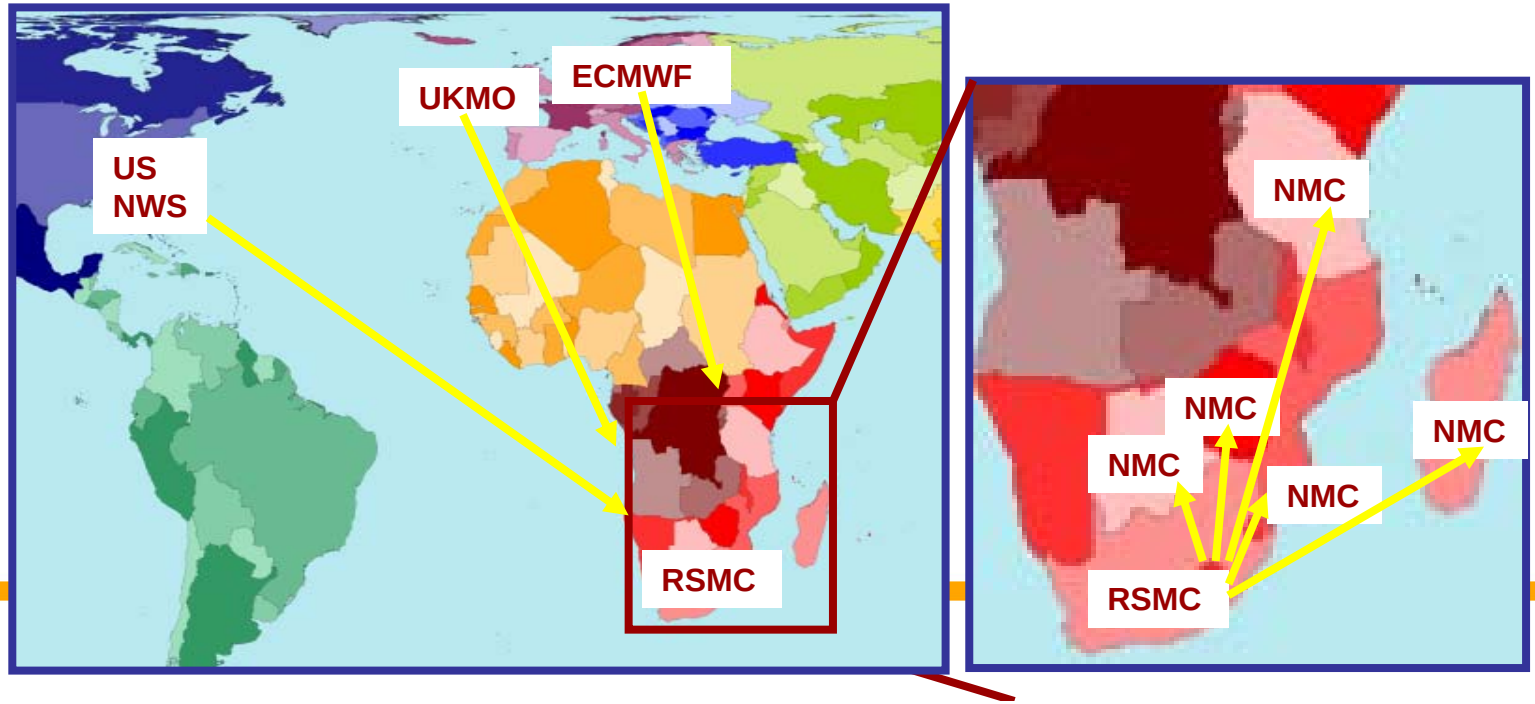
- Improved Service Quality and Service Delivery
- Strengthening Capacity Building

Benefits:

- Improved delivery and access to high quality weather, water, related environmental predictions, information, and services
- Reduced risks and potential impacts of hazards
- Dialogue: NMHSs, Disaster Management, Media and the Public

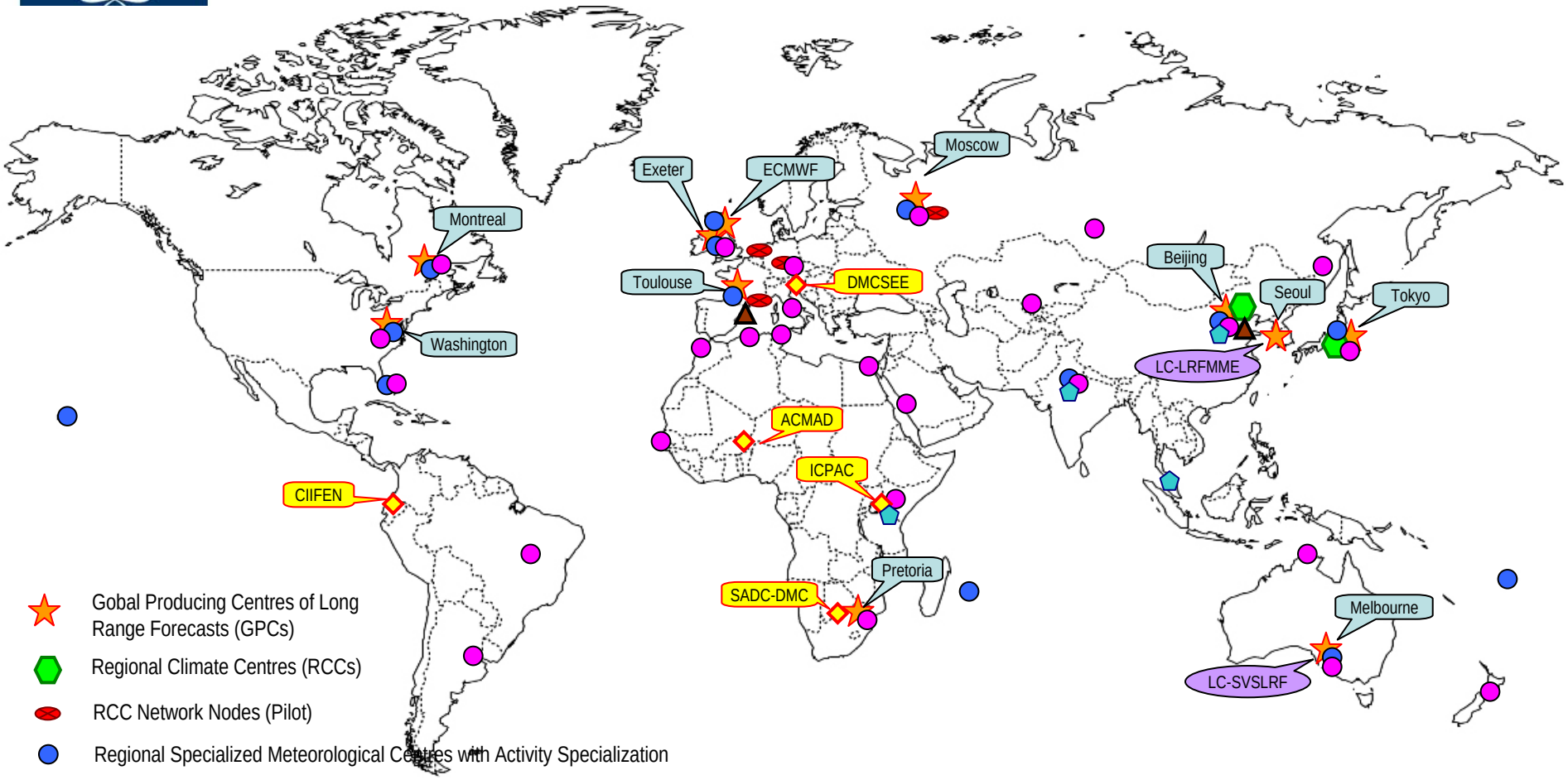
SWFDP – South-eastern Africa (2006-2007)

- Cascading Forecasting Process:
  - Global products cut to project area
  - RSMC guidance bulletin: short range (1-2 days), medium range (3-5 days) for NMCs
  - NMCs use guidance to prepare and issue warnings to public, media, disaster management



Climate Services: Global and Regional

- GFCS: WCC-3 guides development of climate services and links climate predictions with climate risk management and adaptation
- RCC: Centre of excellence serve NMHSs to assist Members to deliver better climate services and products
- RCOF: Forum of climate experts from homogeneous region to provide consensus based, climate prediction and information. Facilitate regional cooperation and information sharing.



LC-SVSLRF: Lead Centre for Standardized Verification System for Long Range Forecasts
LC-LRFMME: Lead Centre for Long Range Forecast Multi-Model Ensemble

Dissemination & Communication Tools

Media, Communication, EWS

- Communication of the message as important as the message
- Communication and/or dissemination inadequacies can lead to catastrophes
- Forecasts of impacts and uncertainty required
- "sole authority" principle in preparing and issuing warnings
- Contradictory information from different sources leads to confusion
- Media: indispensable partner in PWS
- Dissemination: Social networking

Severe Weather Information Centre, SWIC

- Centralized source for media access to tropical cyclone warnings and information issued by NMHSs and RSMCc
- WMO Members in all tropical cyclone basins participate
- Displays all tropical cyclone warnings and information
- Displays all heavy rain/snow/thunderstorms observations
- Ultimate goal: to develop SWIC into a Multi-hazard Information and Resource Centre

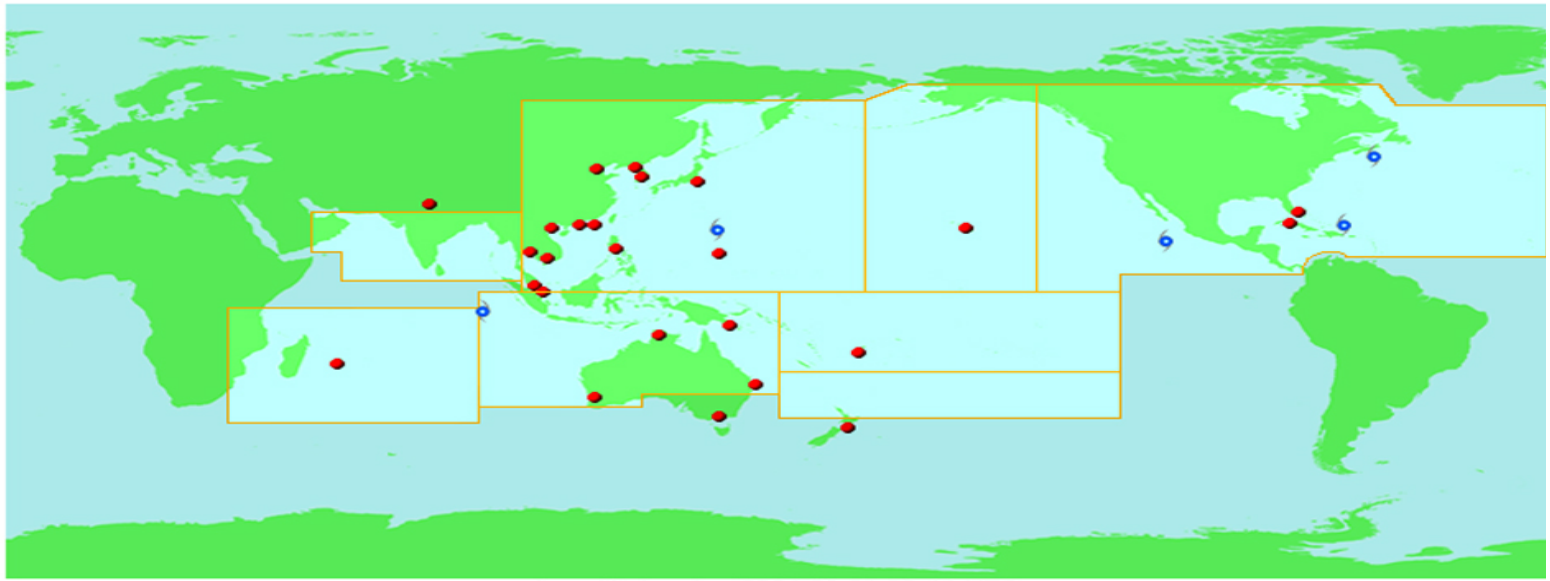
World Meteorological Organization

Severe Weather Information Centre

Official Observations. Official Warnings.

- HOME
- Severe Weather
- Tropical Cyclones
- Heavy Rain/Snow
- What's New
- Introductory Pamphlet
- Pilot Project
- Notes To Users
- Links
- World Meteorological Organization
- Official World City Forecasts
- Disclaimer

This World Meteorological Organization (WMO) pilot website is developed and maintained by the Hong Kong Observatory (HKO) of Hong Kong, China. For more information on the pilot project please click here.



Last Updated at 2004-09-01 08:44 UTC

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 Pilot Project.
- Click on individual boxes to view zoom-in maps.
- This page is best viewed with a display resolution of 1024 x 768 pixels.

The information in this World Meteorological Organization (WMO) pilot website 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.

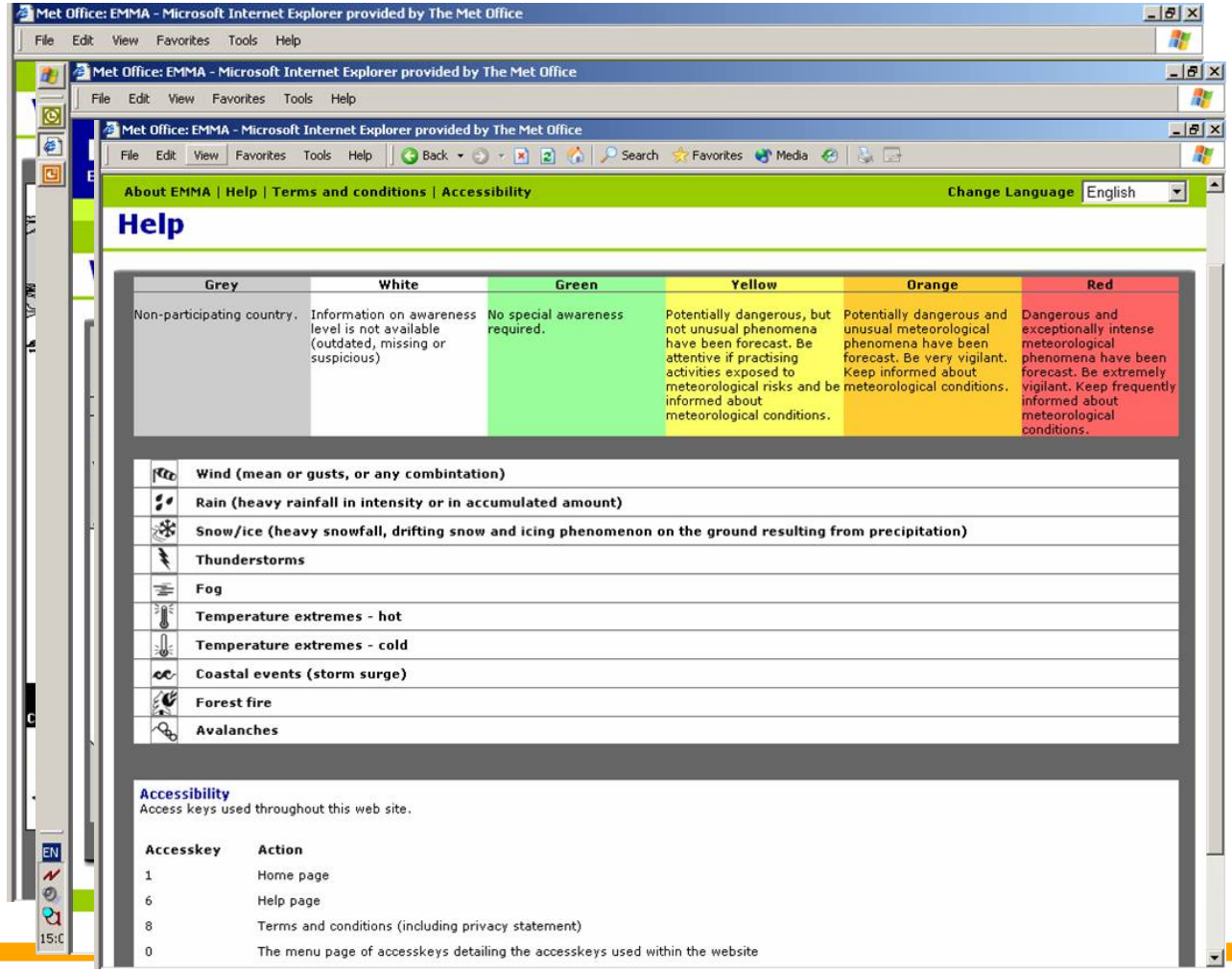
severe.worldweather.wmo.int

World Weather Information Service (WWIS) website

- WWIS (http://worldweather.wmo.int/)
  Coordinated by Hong Kong Observatory (HKO)
- Available in 8 languages: Arabic, Chinese, English, French, German, Italian, Portuguese and Spanish
- 152 Members participating in the Website
- Provides official weather forecasts and climatological data from NMHSs for 1,316 cities to public and media
- Over 10 million page visits per month

Visualizing Weather Warnings

Meteoalarm



www.meteoalarm.eu

Common Alerting Protocol (CAP)

Common Alerting Protocol is a standard message format designed for All-Media, All-Hazard communications:

- any and all media: (television, radio, telephone, fax, highway signs, e-mail, Web sites, RSS "Blogs", ...)
- any and all kinds of hazard: (weather, fires, earthquakes, volcanoes, landslides, child abductions, disease outbreaks, air quality warnings, beach closings, transportation problems, power outages, ...)
- to anyone: the public at large; designated groups (civic authority, responders, etc.); specific people
- Requested by WMO Members

CAP and PWS

- Existing warning systems are a mix of different technologies and procedures
- CAP will allow consistent warning messages disseminated simultaneously over many different warning systems, thus increasing warning effectiveness
- Possibility of use of CAP in SWIC and Meteoalarm for public warnings

WMO Integrated Global Observing System (WIGOS)

- Integrated and comprehensive observing systems to satisfy evolving service requirements of WMO Members
- WIGOS will enhance the coordination of the WMO observing systems with those of partner organizations

WMO Information system (WIS)

- Use international industry standards
- Build on the Global Telecommunication System (GTS), with a smooth and coordinated transition
- Provide time-critical data exchange, data access and retrieval services
- Support all WMO and related international programmes

Benefits of WIS

- Improves efficiency
- Enhances collection of critical data
- Catalogs all WMO data and products
- Enhances availability of time-critical data and products at all national centres
- Exploits technology innovation
- WIS + WIGOS: Building blocks on which delivery of a wide range of high quality services is based

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Thank you