WORLD METEOROLOGICAL ORGANIZATION (WMO)

Possible cooperation with

DISASTER PREVENTION AND PREPAREDNESS INITIATIVE IN SOUTH EAST EUROPE (DPPI)

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

38. DPPI SEE Regional meeting - Advisory Board
16-17 April 2019, Tirana, Albania

WMO - Who we are

WMO is a specialized agency of the United Nations (UN) with 192 Member States and Territories. It is the UN system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the land and oceans, the weather and climate it produces and the resulting distribution of water resources.

History of IMO

International Meteorological Organization (IMO) finds its origins in the 1873 Vienna International Meteorological Congress, which tasked a Permanent Meteorological Committee to draft the rules and statutes of an international meteorological organization to facilitate the exchange of weather information across national borders. The task was completed in Utrecht in 1878 and the IMO came into being at the International Meteorological Congress held in Rome the following year. It remained in operation until 1950, when IMO formally became the World Meteorological Organization (WMO).

WMO OMM

History of IMO and WMO

The establishment of the World Meteorological Organizat ion (WMO) in March 1950, following the entry into force of its Convention, and the designation of WMO in 1951 as a specialized agency of the United Nations, heralded a new era for international cooperation in the field of meteorology, hydrology and related geophysical sciences.

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The mission of WMO is to:

- Facilitate worldwide cooperation in the **establishment of networks of stations** for the making of meteorological observations as well as hydrological and other geophysical observations related to meteorology, and to promote the establishment and maintenance of centres charged with the provision of meteorological and related services.
- Promote the establishment and maintenance of systems for the rapid **exchange of meteorological and related information**.
- Promote **standardization of meteorological and related observations** and to ensure the uniform publication of observations and statistics.
- Further the **application of meteorology** to aviation, shipping, water proble ms, agriculture and other human activities.
- Promote activities in **operational hydrology** and to further close cooperati on between Meteorological and Hydrological Services.
- Encourage **research and training** in meteorology and, as appropriate, in related fields, and to assist in coordinating the international aspects of such research and training.

The vision of WMO:

WMO provides world leadership and expertise in international cooperation in the delivery and use of high-quality, authoritative weather, climate, hydrological and related environmental services by its Members, for the improvement of the well-being of societies of all nations.

The mandate of WMO is:

As weather, climate and the water cycle know no national boundaries, international cooperation at a global scale is essential for the development of meteorology, climatology and operational hydrology as well as to reap the benefits from their application. WMO provides the framework for such international cooperation.

Weather

- Weather forecasts require observations of our environment around the clock and around the world. The bulk of those observations are carried out by National Meteorological Services as part of the WMO World Weather Watch, which networks the observing stations to national, regional and global weather and climate prediction centres 24 hours a day in real-time.

The mandate of WMO is:

Climate

- Climate describes the average weather conditions for a particular location and over a long period of time. We study the climate, its variations and extremes, and its influences on a variety of activities including human health, safety and welfare to support evidence-based decision-making on how to best adapt to a changing climate.

The mandate of WMO is:

Water

- As the global population grows and the demand for water increases, it is critical to effectively and sustainably manage our limited water resources. To do so, we need to know where they are, in what quantity and quality, how variable they are, and how they will evolve in the foreseeable future.

The mandate of WMO is:

- As the global population grows and the demand for water increases, it is critical to effectively and sustainably manage our limited water resources. To do so, we need to know where they are, in what quantity and quality, how variable they are, and how they will evolve in the foreseeable future.

National Meteorological and Hydrological Services work around the clock to provide vital weather and climate information worldwide.

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The mandate of WMO is:

National Meteorological and Hydrological Services' early and reliable warnings of severe weather and fluctuations in air quality as well as of climate variability and change allow decision-makers, communities and individuals to be better prepared for weather and climate events.

Their warnings help save life and property, protect resources and the environment and support socio-economic growth.

WMO supports National Meteorological and Hydrological Services with this work and in meeting their international commitments in the areas of disaster risk reduction, climate change mitigation and adaptation, and sustainable development

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WMO programmes facilitate and promote:

- the establishment of networks of observational stations to provide weather, climate and water-related data;
- the establishment and maintenance of data management centres and telecommunication systems for the provision and rapid exchange of weather, climate and water-related data;
- the creation of standards for observation and monitoring in order to ensure adequate uniformity in the practices and procedures employed worldwide and, thereby, ascertain the homogeneity of data and statistics;
- the application of science and technology in operational meteorology and hydrology to aviation, transport (air, land and maritime), water resource management, agriculture and other focus areas;
- activities in operational hydrology as well as closer cooperation between National Meteorological and Hydrological Services in states and territories where they are separate; and
- the coordination of research and training in meteorology and related fields.

Our core work

Application services

- Weather, climate and water impact on agriculture and fisheries, energy, transport, health, insurance, sports, tourism and many more socio-economic sectors. WMO promotes the application of meteorological, climatological, hydrological and oceanographic information in all human activities.

Capacity development

- WMO assists in the capacity development of National Meteorological and Hydrological Services by developing and improving human resource as well as technical and institutional capacities and infrastructure, particularly in developing, least developed and small island developing states and territories.

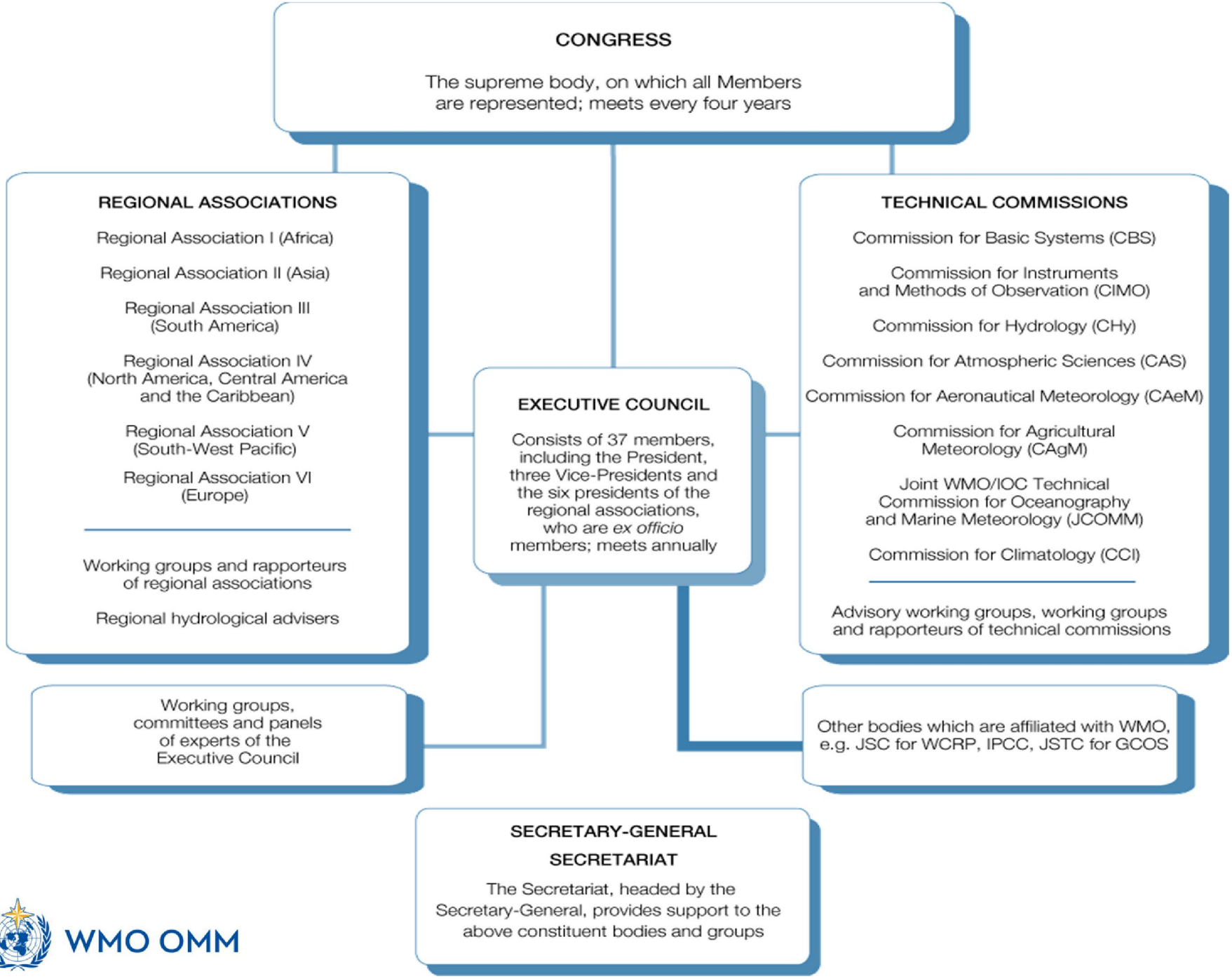
Data exchange and technology transfer

- Powerful computers in WMO centres worldwide process the data collected from tens of thousands of land and sea observation instruments and Earth-observing satellites. These data are used in numerical models based on physical laws to produce weather, climate and water-related forecasts, predictions, and information products and services for use in daily lives, long-term decision-making and research.

The governance of WMO and the on-going Reform process:

The **World Meteorological Congress** is the supreme body of WMO. The **Executive Council** implements its decisions, while six **Regional Associations** are responsible for the coordination of meteorological, hydrological and related activities within their respective Regions. In addition, eight **Technical Commissions** establish methodologies and procedures and make recommendations to the Executive Council and the Congress.

- Regional Association VI (Europe) = 51 Member states


CONGRESS
The supreme body, on which all Members are represented; meets every four years
REGIONAL ASSOCIATIONS
Regional Association I (Africa)
Regional Association II (Asia)
Regional Association III (South America)
Regional Association IV (North America, Central America and the Caribbean)
Regional Association V (South-West Pacific)
Regional Association VI (Europe)
Working groups and rapporteurs of regional associations
Regional hydrological advisers
EXECUTIVE COUNCIL
Consists of 37 members, including the President, three Vice-Presidents and the six presidents of the regional associations, who are ex officio members; meets annually
TECHNICAL COMMISSIONS
Commission for Basic Systems (CBS)
Commission for Instruments and Methods of Observation (CIMO)
Commission for Hydrology (CHy)
Commission for Atmospheric Sciences (CAS)
Commission for Aeronautical Meteorology (CAeM)
Commission for Agricultural Meteorology (CAgM)
Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM)
Commission for Climatology (CCl)
Advisory working groups, working groups and rapporteurs of technical commissions
Working groups, committees and panels of experts of the Executive Council
Other bodies which are affiliated with WMO, e.g. JSC for WCRP, IPCC, JSTC for GCOS
SECRETARY-GENERAL
SECRETARIAT
The Secretariat, headed by the Secretary-General, provides support to the above constituent bodies and groups

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WMO STRATEGIC OPERATING PLAN

VISION 2030

By 2030, a world where **all nations**, especially the **most vulnerable**, are **more resilient** to the **socioeconomic impact** of **extreme weather, climate, water** and other **environmental events**, and **empowered** to boost their **sustainable development** through the **best possible services**, whether over land, at sea or in the air.

OVERARCHING PRIORITIES

- Enhancing preparedness for, and reducing losses of life and property from hydrometeorological extremes
- Supporting climate-smart decision-making to build resilience and adaptation to climate risk
- Enhancing socioeconomic value of weather, climate, hydrological and related environmental services

CORE VALUES

- Accountability for Results and Transparency
- Collaboration and Partnership
- Inclusiveness and Diversity

LONG-TERM GOALS

Better serve societal needs	Enhance Earth system observations and predictions	Advance targeted research	Close the capacity gap	Strategic realignment of WMO structure and programmes
Delivering authoritative, accessible, user-oriented and fit-for-purpose information and services	Strengthening the technical foundation for the future	Leveraging leadership in science to improve understanding of the Earth system for enhanced services	Enhancing service delivery capacity of developing countries to ensure availability of essential information and services	Effective policy- and decision-making and implementation

STRATEGIC OBJECTIVES

2020-2030 FOCUS

1.1 **Strengthen national multi-hazard early warning/alert systems** and extend reach to better enable effective response to the associated risks	2.1 Optimize the **acquisition of observation data** through the WMO Integrated Global Observing System	3.1 **Advance scientific knowledge of the Earth system**	4.1 **Address the needs of developing countries** to enable them to provide and utilize essential weather, climate, hydrological and related environmental services	5.1 **Optimize WMO constituent body structure** for more effective decision-making
1.2 Broaden the provision of **policy- and decision-supporting climate information and services**	2.2 Improve and increase **access to, exchange and management of current and past Earth system observation data and derived products** through the WMO Information System	3.2 Enhance the **science-for-service value chain** ensuring scientific and technological advances **improve predictive capabilities**	4.2 **Develop and sustain core competencies and expertise**	5.2 **Streamline WMO programmes**
1.3 Further develop **services** in support of **sustainable water management**	2.3 Enable **access and use of numerical analysis and prediction products** at all temporal and spatial scales from the WMO seamless Global Data Processing and Forecast System	3.3 **Advance policy-relevant science**	4.3 **Scale-up effective partnerships for investment** in sustainable and cost-efficient infrastructure and service delivery	5.3 **Advance equal, effective and inclusive participation** in governance, scientific cooperation and decision-making
1.4 Enhance the value and innovate the provision of **decision-supporting weather information and services**				

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SDGs, Contributions of WMO Community

The 2030 Agenda for Sustainable Development, adopted by the United Nations (UN) General Assembly in 2015, serves as the centrepiece for national and international policymaking over the next 15 years. It sets out 17 Sustainable Development Goals (SDGs) that the WMO community can contribute to at the national and international levels. WMO is the co-custodian of **SDG 13 on Climate Action**.

- Goal 1: End poverty in all its forms everywhere.
- Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
- Goal 3: Ensure healthy lives and promote well-being for all at all ages.
- Goal 5: Achieve gender equality and empower all women and girls
- Goal 6: Ensure availability and sustainable management of water and sanitation for all.
- Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.
- Goal 13: Take urgent action to combat climate change and its impacts.
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Disaster Risk Reduction Agenda of WMO

*Human and material losses caused by natural disasters are a major obstacle to sustainable development. By **issuing accurate forecasts and warnings** in a form that is readily understood and by educating people on how to prepare against such hazards, before they become disasters, lives and property can be protected. Emphasis is on disaster risk reduction: one dollar invested in disaster preparedness can prevent seven dollars' worth of disaster-related economic losses – a considerable return on investment.*

Disaster Risk Reduction Roadmap for the World Meteorological Organization (link)

Natural hazards: Drought, Tropical cyclones, Air pollution, Desert locusts, Floods and flash floods, Landslide or mudslide (mudflow), Avalanche, Duststorms/standstorms, Thermal extremes, Thunderstorms, Lightning, and Tornadoes, Forest or Wildland Fire, Heavy rain and snow, Strong winds

WMO is Contributing to United Nations Sustainable Development Goals 1 and 9

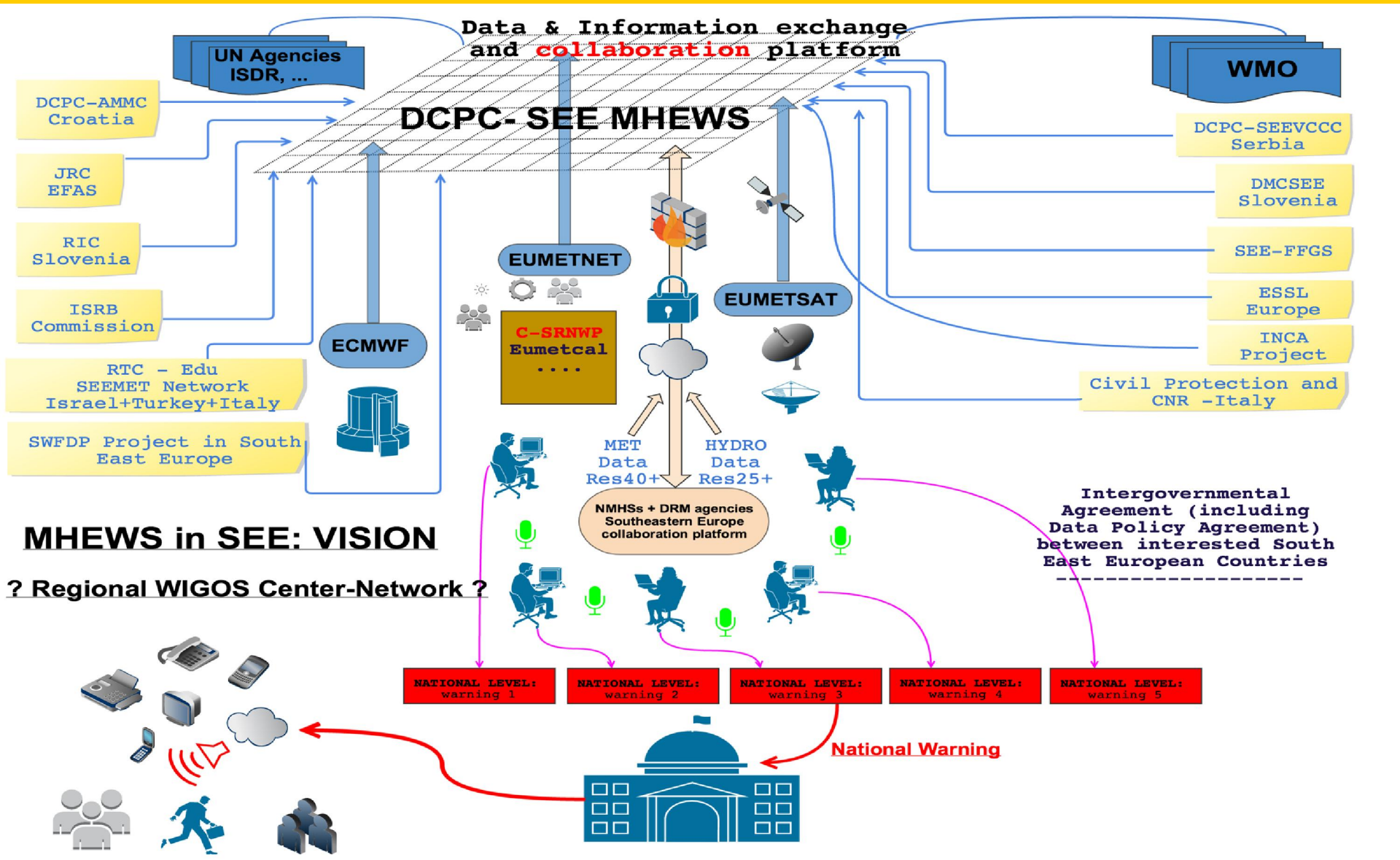
Goal 1: End poverty in all its forms everywhere.

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

WMO Activities in Europe

- DRR program in South-East Europe
- New phase SEE-MHEWS-A
- What is the Policy aspect we could support Members? E.g. Sustainable Development Goals, the Sendai Framework on Disaster Risk Reduction 2015-2030, and the Paris Agreement of the United Nations Framework Convention on Climate Change
- Regional Association RA VI (Europe) = 51 Member states
- Work Plan covers numerous topics under the mandate of WMO, but we single out here the DRR related activities: GMAS, MHEWS, Water .... (RA VI work plan)

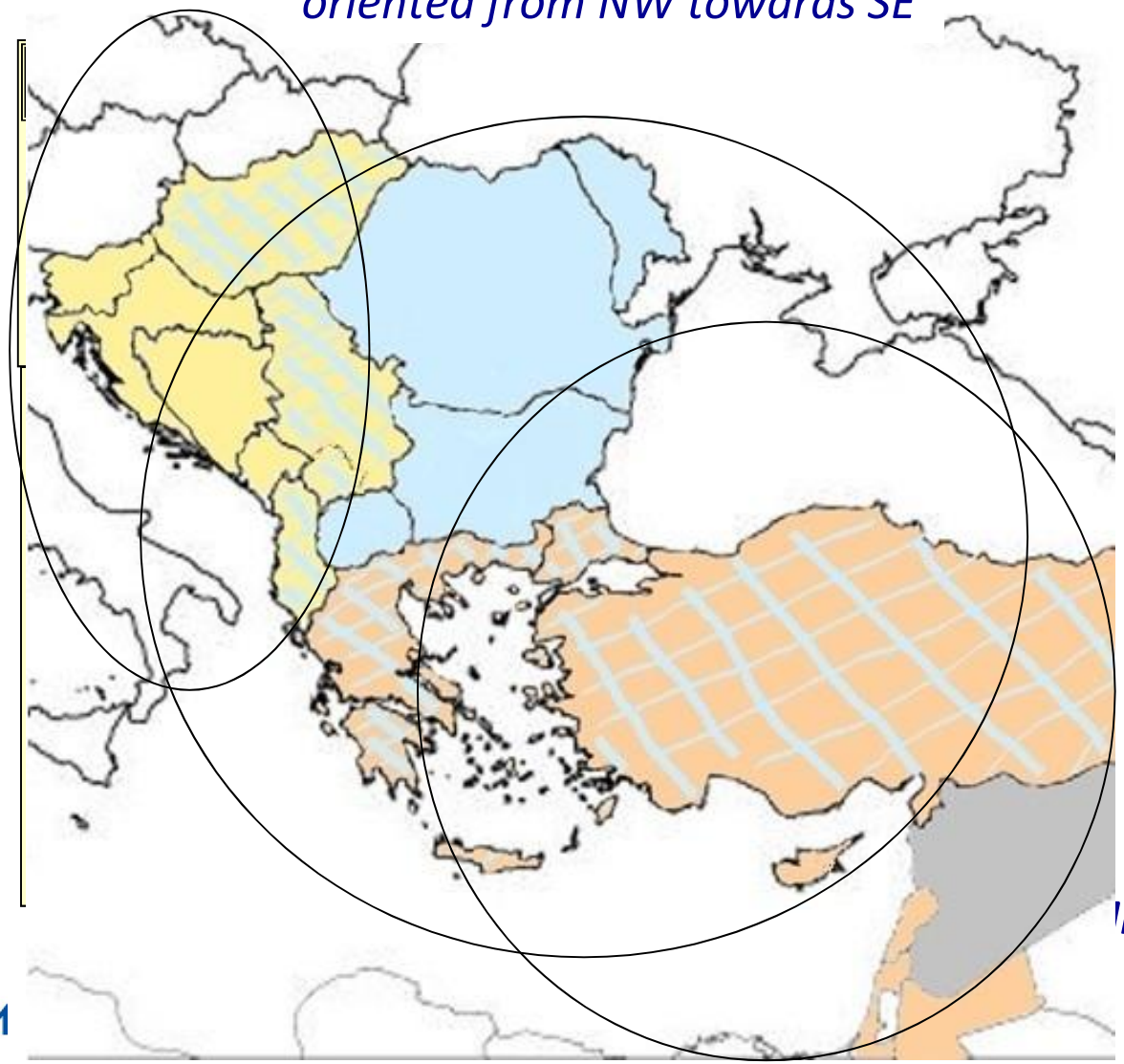
Technical Platform
Part of MHEWS Distributed Network in SEE



Organizational Platform
MHEWS-A Consortium of Operations / SEE

3 Clusters of Operations

oriented from NW towards SE



HEWS

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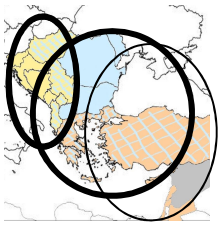
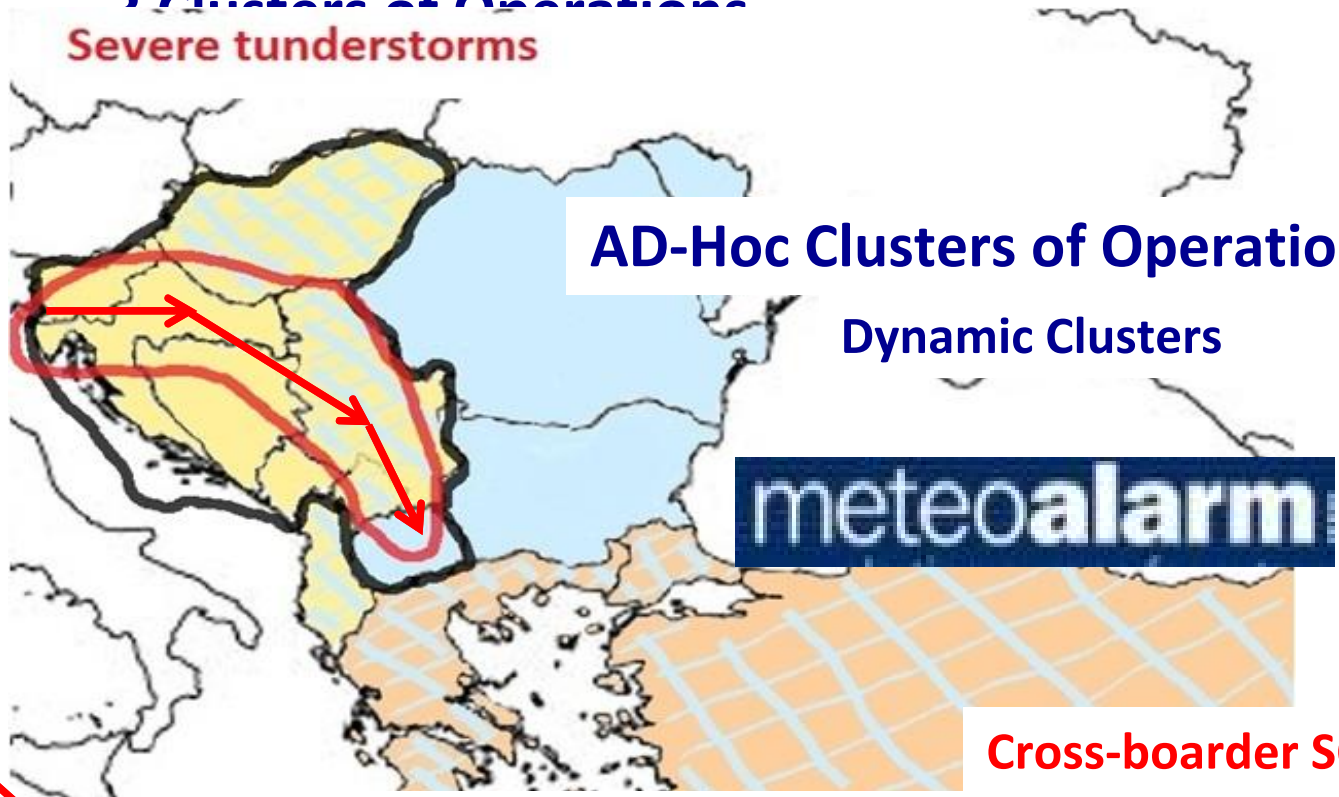
Organizational Platform
MHEWS-A Consortium of Operations / SEE

Fixed Clusters



Severe tunderstorms



AD-Hoc Clusters of Operations

Dynamic Clusters

meteoalarm

Cross-boarder SOP

Flash Flood Risk

C1

Sava River

Panonian Valley

Adriatic Sea

C2

Danube River

Black Sea

Ionean Sea

Slovenia → Croatia

Croatia → Bosnia and Herzegovina → Serbia

Serbia →The former Yugoslav Republic of Macedonia

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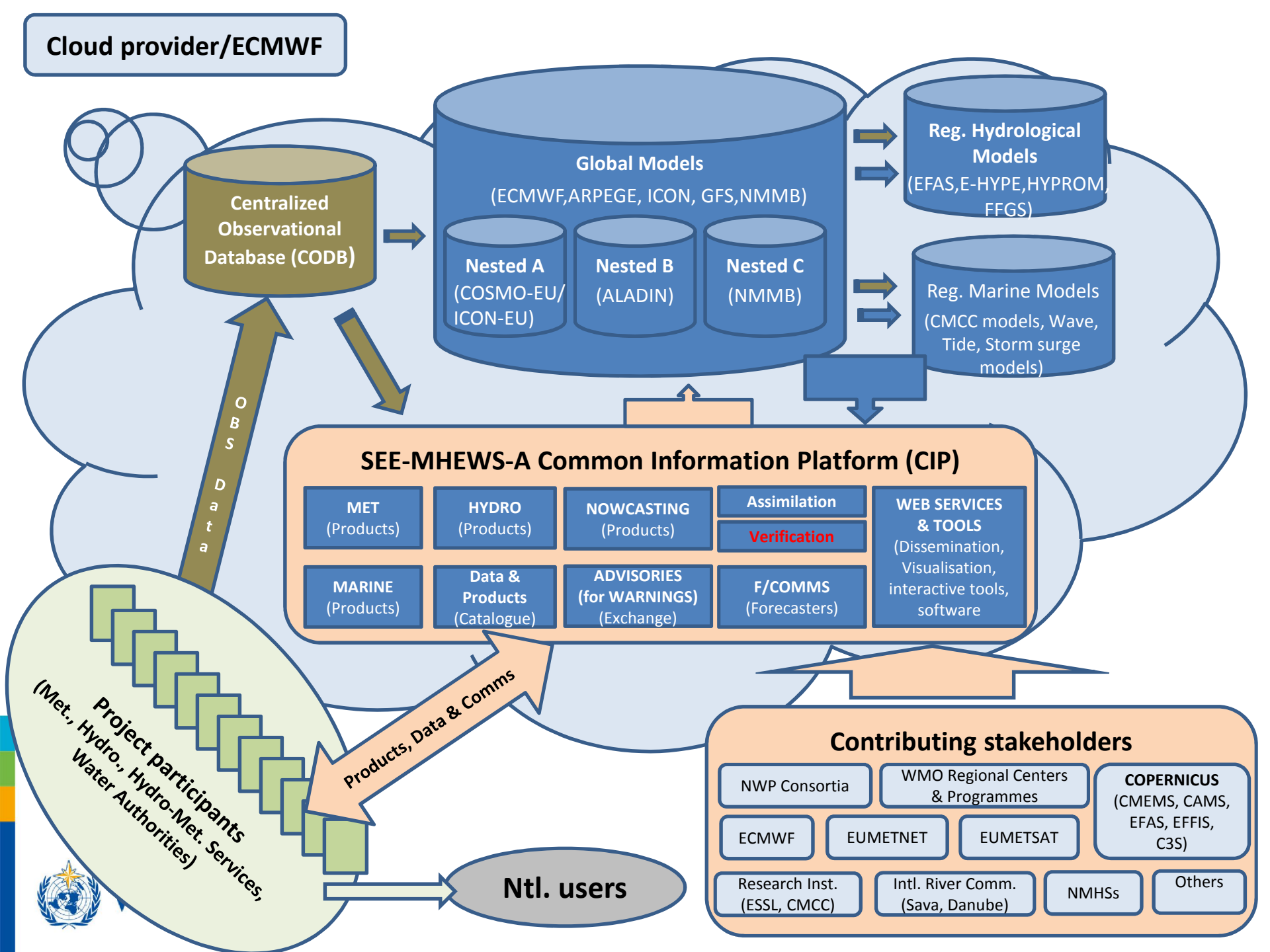
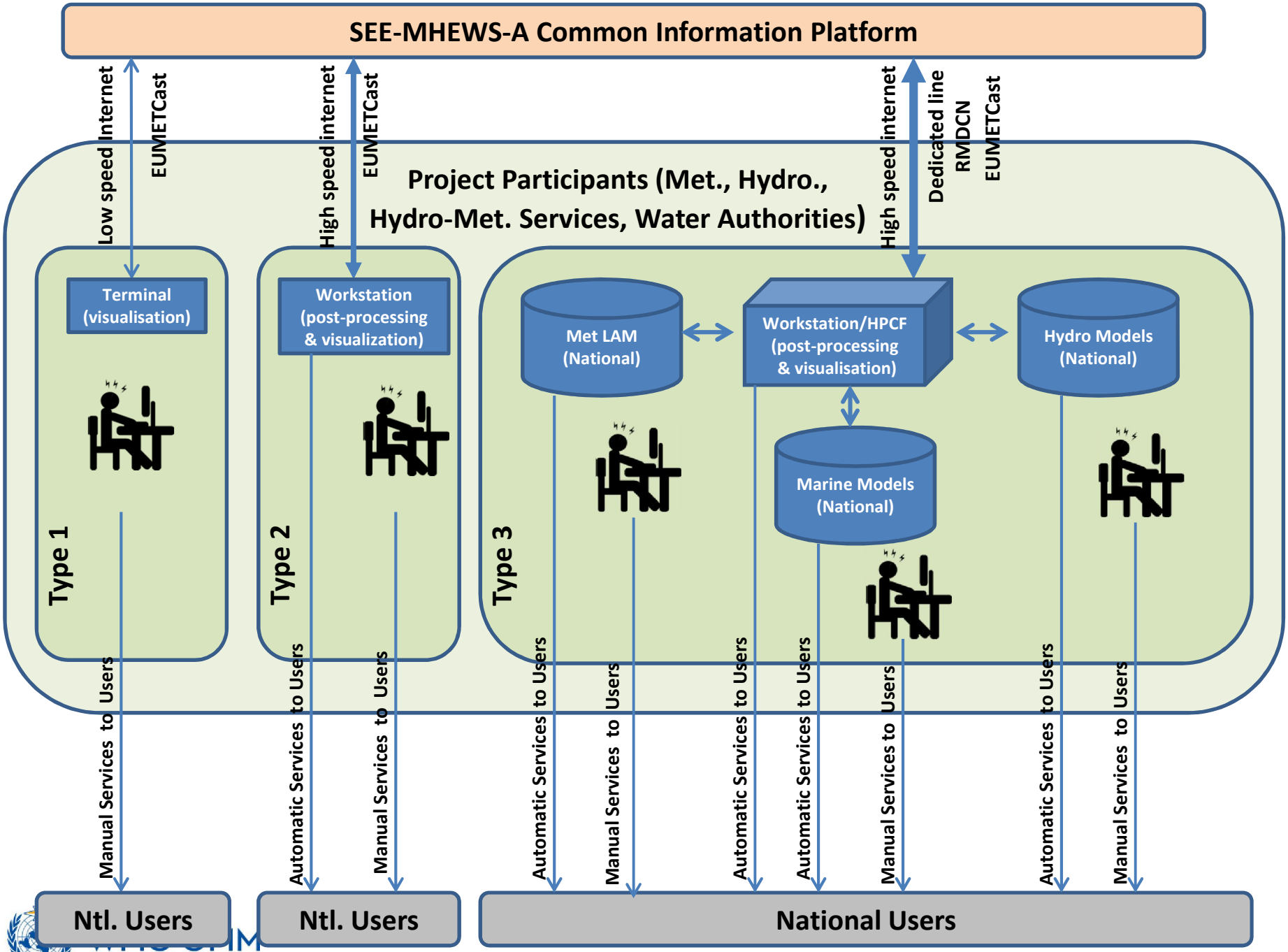

Cloud provider/ECMWF
Centralized Observational Database (CODB)
Global Models
(ECMWF,ARPEGE, ICON, GFS,NMMB)
Nested A
(COSMO-EU/ ICON-EU)
Nested B
(ALADIN)
Nested C
(NMMB)
Reg. Hydrological Models
(EFAS,E-HYPE,HYPROM, FFGS)
Reg. Marine Models
(CMCC models, Wave, Tide, Storm surge models)
OBS Data
SEE-MHEWS-A Common Information Platform (CIP)
MET
(Products)
HYDRO
(Products)
NOWCASTING
(Products)
Assimilation
Verification
WEB SERVICES & TOOLS
(Dissemination, Visualisation, interactive tools, software
MARINE
(Products)
Data & Products
(Catalogue)
ADVISORIES (for WARNINGS)
(Exchange)
F/COMMS
(Forecasters)
Project participants
(Met., Hydro., Hydro-Met. Services, Water Authorities)
Products, Data & Comms
Ntl. users
Contributing stakeholders
NWP Consortia
WMO Regional Centers & Programmes
COPERNICUS
(CMEMS, CAMS, EFAS, EFFIS, C3S)
ECMWF
EUMETNET
EUMETSAT
Research Inst.
(ESSL, CMCC)
Intl. River Comm.
(Sava, Danube)
NMHSs
Others


SEE-MHEWS-A Common Information Platform
Low speed internet
EUMETCast
High speed internet
EUMETCast
High speed internet
Dedicated line
RMDCN
EUMETCast
Project Participants (Met., Hydro.,
Hydro-Met. Services, Water Authorities)
Terminal
(visualisation)
Workstation
(post-processing
& visualization)
Met LAM
(National)
Workstation/HPCF
(post-processing
& visualisation)
Hydro Models
(National)
Marine Models
(National)
Type 1
Type 2
Type 3
Manual Services to Users
Automatic Services to Users
Manual Services to Users
Automatic Services to Users
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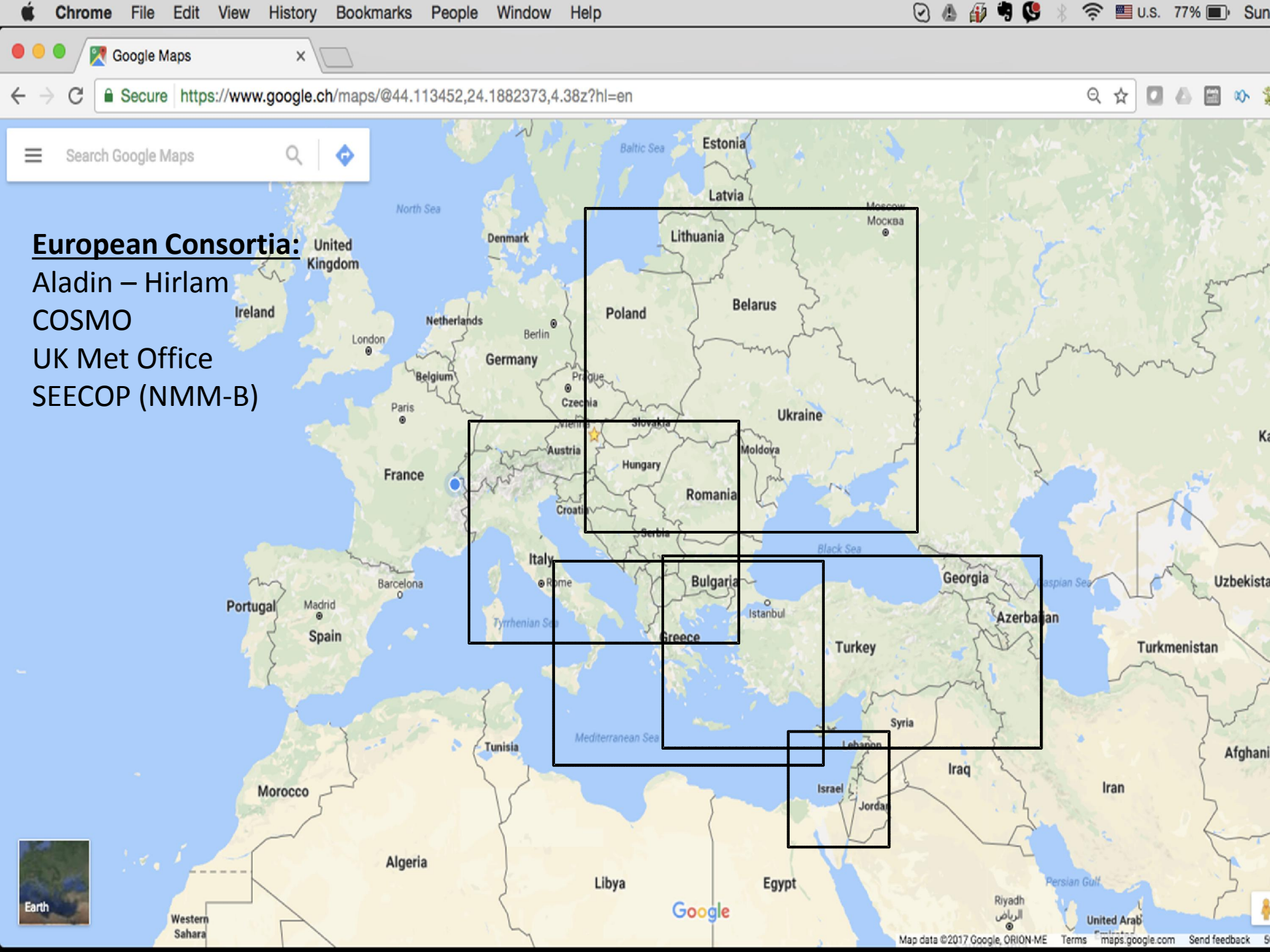
Manual Services to Users
Ntl. Users
Ntl. Users
National Users


Chrome File Edit View History Bookmarks People Window Help
Google Maps
Secure https://www.google.ch/maps/@44.113452,24.1882373,4.38z?hl=en
Search Google Maps
European Consortia:
Aladin – Hirlam
COSMO
UK Met Office
SEECOP (NMM-B)
Baltic Sea
Estonia
Latvia
Lithuania
Moscow
Москва
North Sea
Denmark
United Kingdom
Ireland
London
Netherlands
Berlin
Germany
Belgium
Prague
Czechia
Paris
Poland
Belarus
Ukraine
Slovakia
Austria
Hungary
Moldova
France
Romania
Croatia
Serbia
Black Sea
Italy
Rome
Barcelona
Portugal
Madrid
Spain
Tyrrhenian Sea
Bulgaria
Istanbul
Greece
Georgia
Azerbaijan
Turkey
Uzbekista
Turkmenistan
Syria
Lebanon
Mediterranean Sea
Tunisia
Iraq
Israel
Jordan
Iran
Afghani
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Algeria
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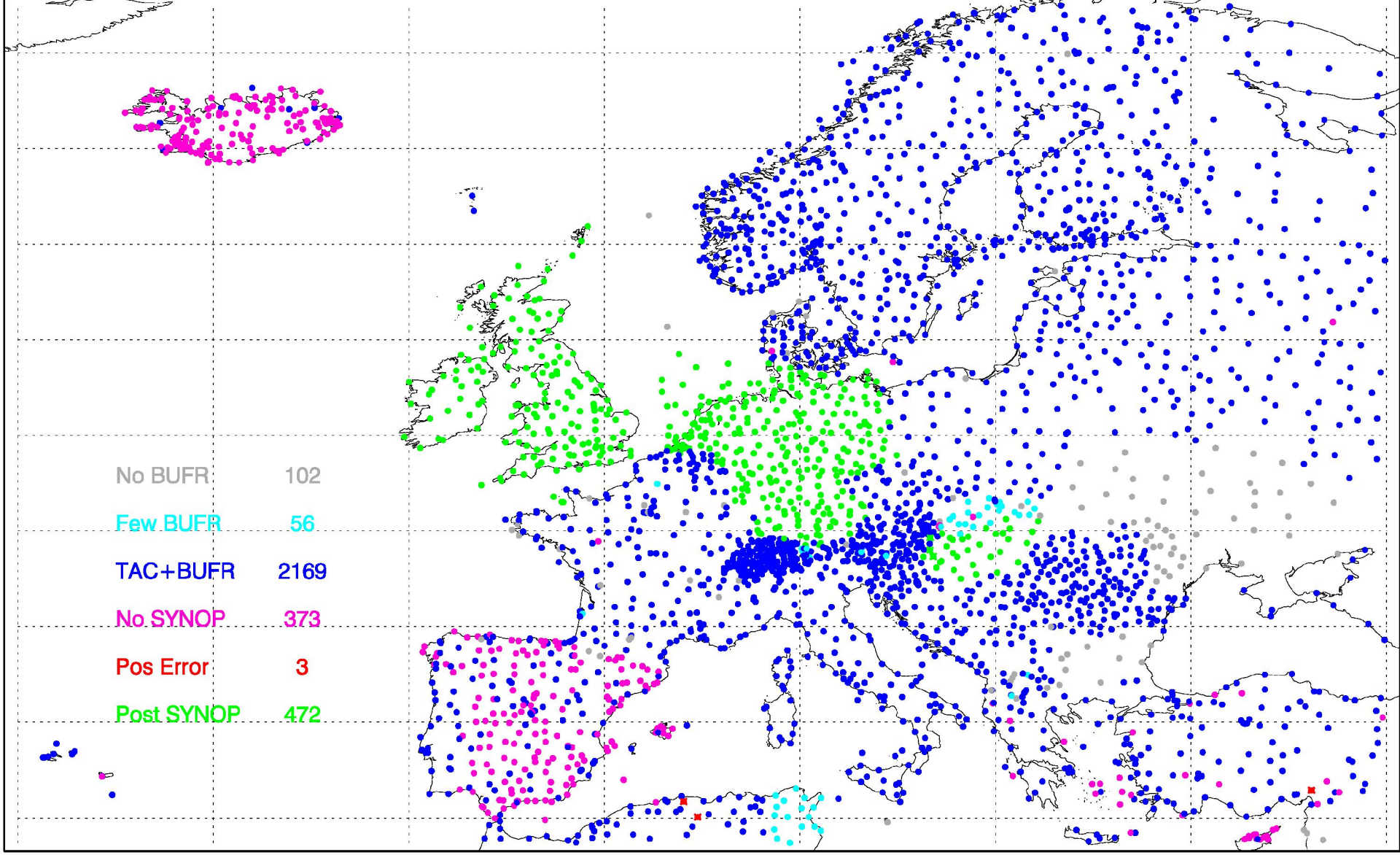
No BUFR 102
Few BUFR 56
TAC+BUFR 2169
No SYNOP 373
Pos Error 3
Post SYNOP 472

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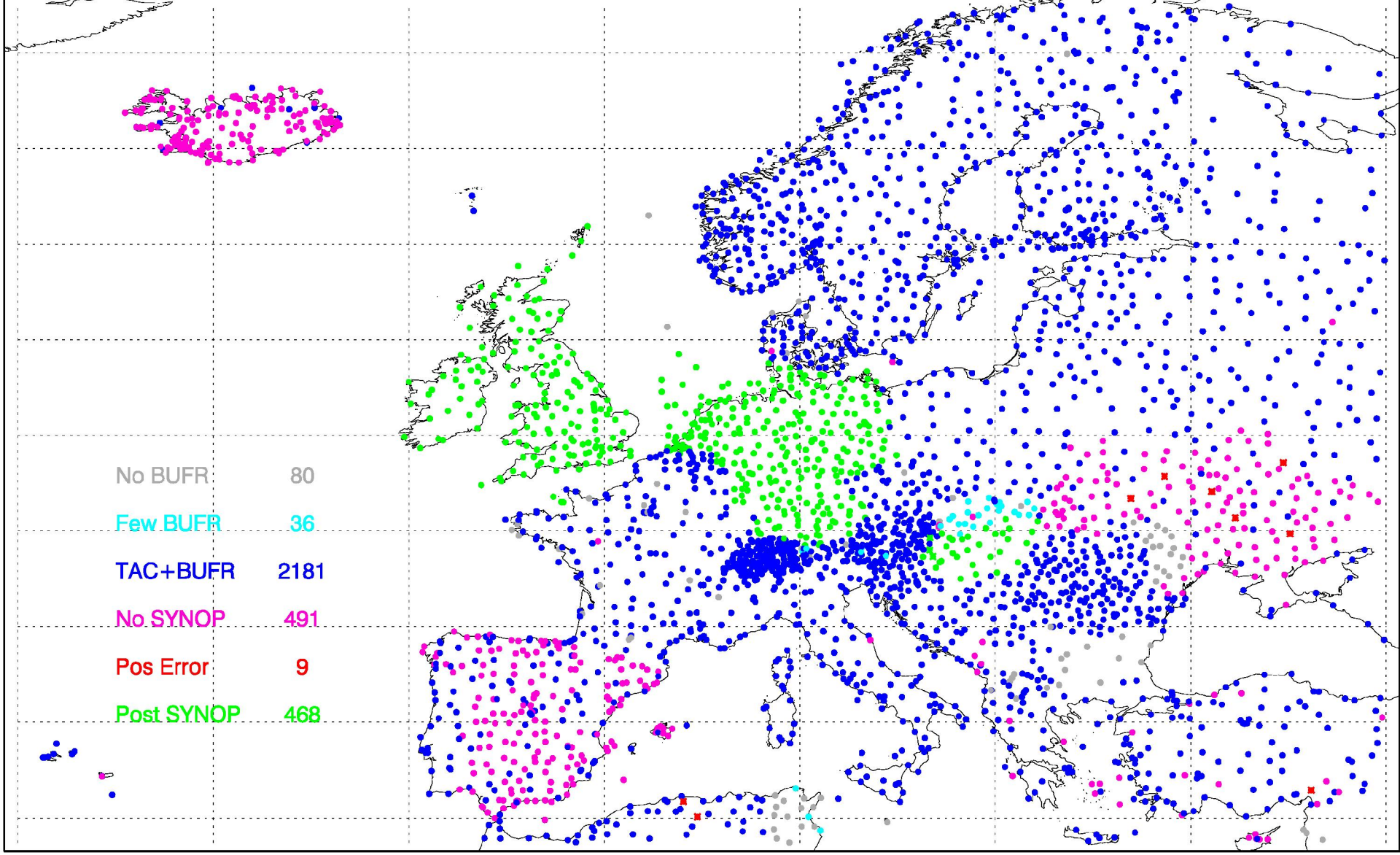
No BUFR 80
Few BUFR 36
TAC+BUFR 2181
No SYNOP 491
Pos Error 9
Post SYNOP 468

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Cooperation with DPPI?

- Discussion?

- Look at mandates of DPPI and WMO and offer complementary roles in defining and running development projects in SEE
- WMO part: empowering NMHS to perform their duties, in particular those relevant to the DRR Agenda: Sendai, Paris, SDGs
- As a specialized agency of the United Nations, WMO is dedicated to international cooperation and coordination on the state and behaviour of the Earth's atmosphere, its interaction with the land and oceans, the weather and climate it produces, and the resulting distribution of water resources.
- Stronger and better linkages with Civil Protection authorities

For more information please contact: **roe@wmo.int**

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WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Thank you

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Organisation météorologique mondiale

https://public.wmo.int/en/