WMO Reform, Strategy and Ocean Activities

Anthony Rea

Director, Infrastructure Department

WMO

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

World Meteorological Organization

- UN Specialized Agency on **weather, climate & water** with 193 Members
- 2nd oldest UN Agency, 1873- with **science and technology** based action
- Coordinates work of **> 200 000 national experts** from meteorological & hydrological services, academia & private sector
- Co-Founder and host agency of **IPCC**, WMO SG UN Climate Principal
- Global **real-time standardized weather & climate observing system** backbone of weather & climate services
- 13 WMO global centres, which provide global short and long term forecasts
- **Sharing of know-how**, developed => developing countries & regional co-operation

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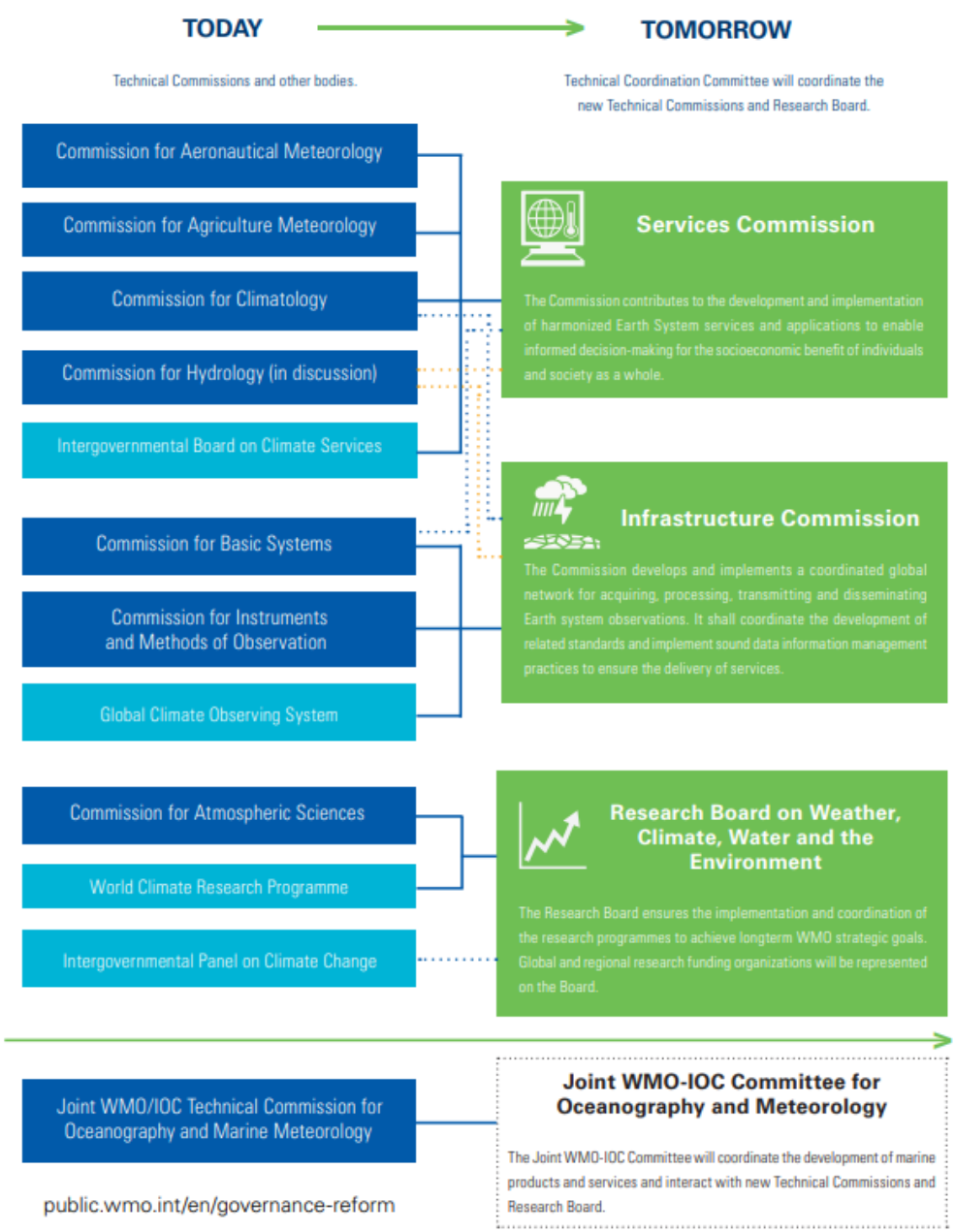
WORLD METEOROLOGICAL ORGANIZATION

WMO REFORM MAPPING

TECHNICAL COMMISSIONS & OTHER BODIES



public.wmo.int/en/governance-reform

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WORLD METEOROLOGICAL ORGANIZATION

WMO REFORM MAPPING

public.wmo.int/en/governance-reform

REGIONAL ASSOCIATIONS (RAs)

Coordinate and organize the planning, implementation and evaluation of agreed programmes, strategies and activities at the regional and subregional levels.

- Contribute to the WMO Strategic and Operating Plans to address regional priorities and ensure the best use of Members' expertise.
- Establish regional networks and facilities in close coordination with the technical commissions.
- Advocate for investment in systems and services at Regional and National levels.
- Raise visibility and engage stakeholders in initiatives and projects related to the strategic priorities and identify impediments to the timely implementation of planned programmes and activities.
- Build and promote regional partnerships.

REGIONAL IMPLEMENTATION OF WMO SERVICE BACKBONE

CAPACITY BUILDING

OBSERVATIONS
- WIGOS Regional Centres
- Regional Instrument Centres

DATA-PROCESSING & FORECASTING
- Regional Specialized Meteorological Centres
- Regional Climate Centres
- Drought Management Centres
- Typhoon/Tropical Cyclone/ Hurricane bodies
- Regional Climate Outlook Fora
- Flash-flood Guidance Systems

INFORMATION MANAGEMENT
- WIS - Global Information System Centres, Data Collection or Production Centres, Global Information System and National Centres

RESEARCH & INNOVATION
- Research Experiments (Research Development and Forecast Demonstration Projects)
- Sand and Dust Storm Regional Nodes

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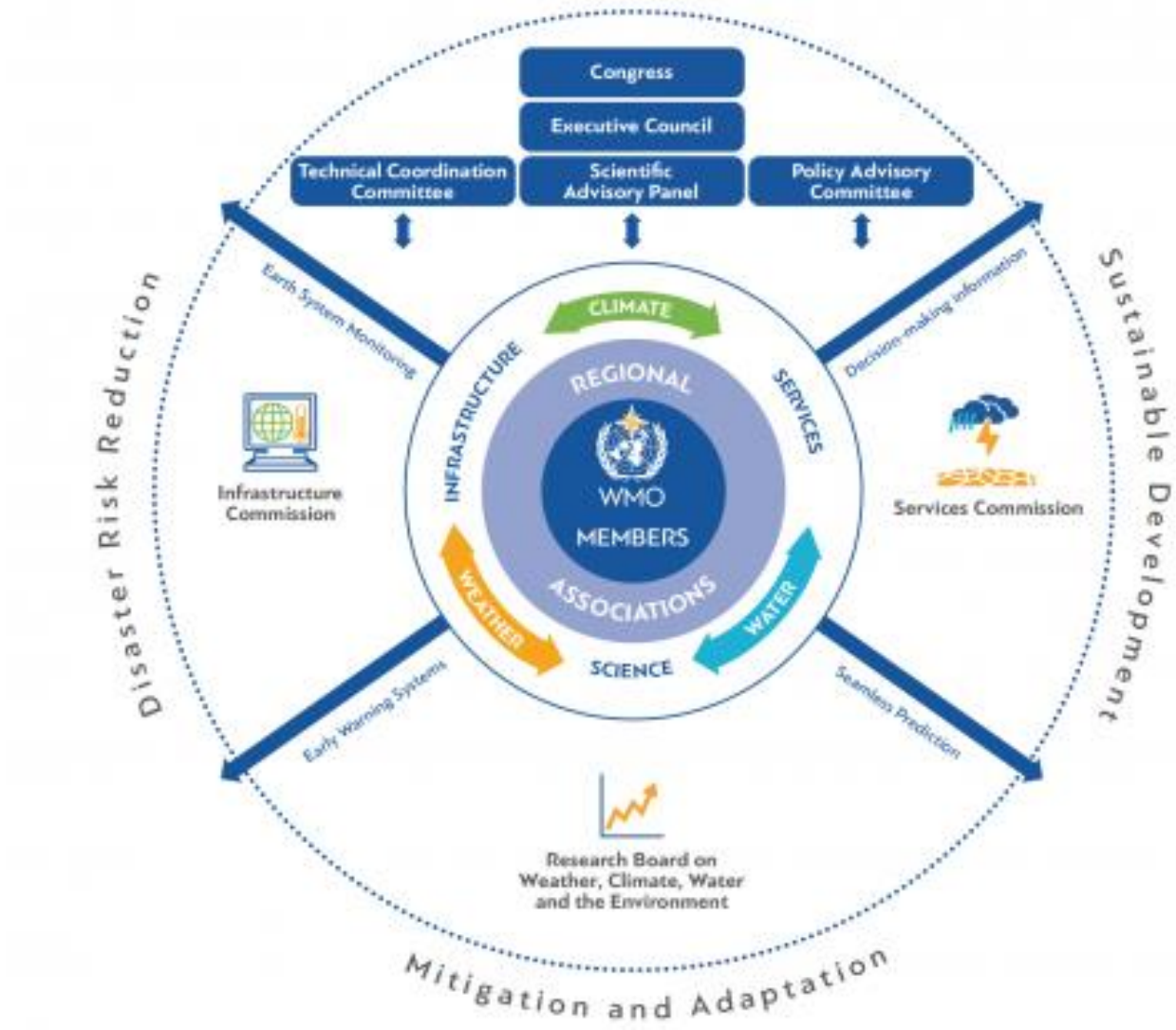
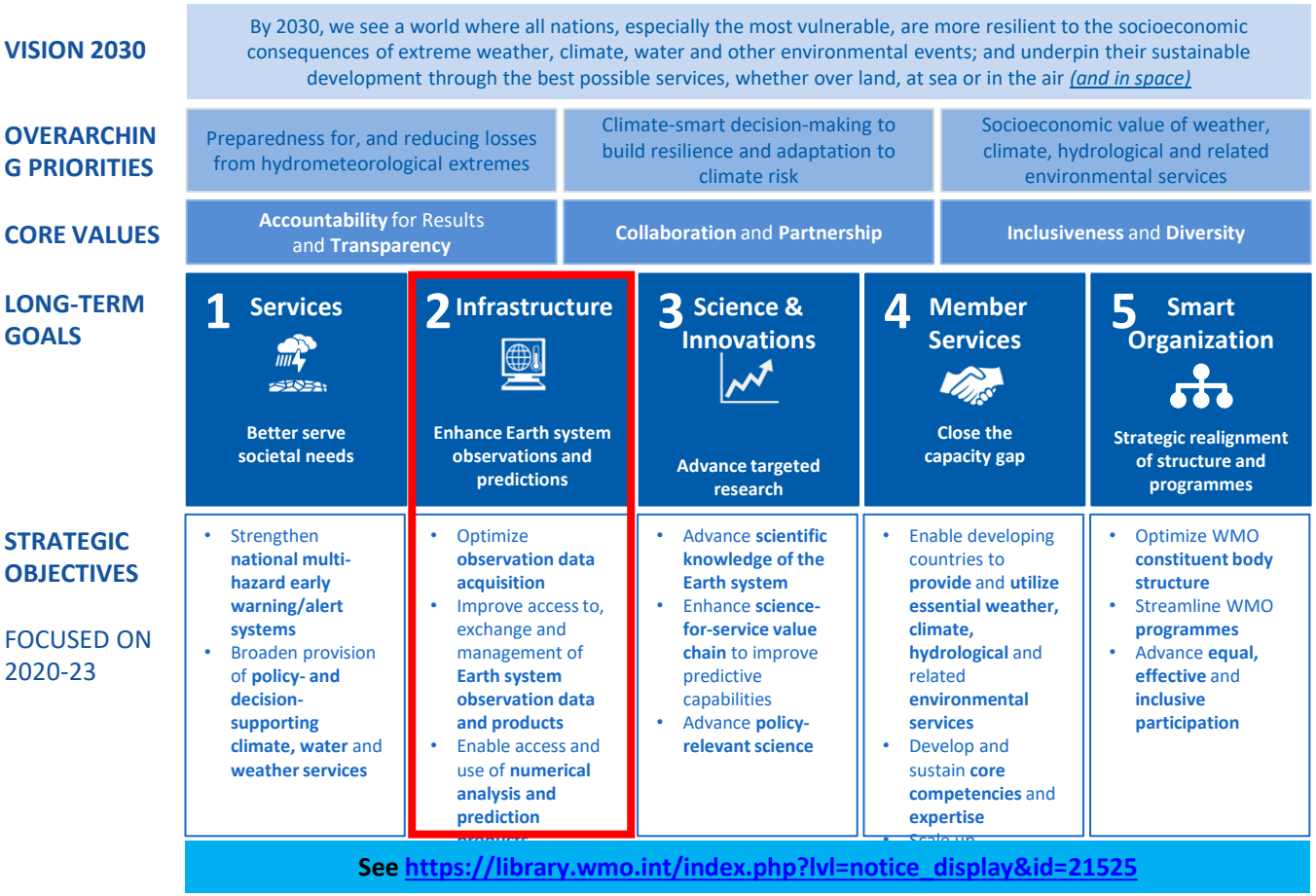
WMO - Today


Congress
Executive Council
Technical Coordination Committee
Scientific Advisory Panel
Policy Advisory Committee
Earth System Monitoring
Decision-making information
Disaster Risk Reduction
Sustainable Development
CLIMATE
INFRASTRUCTURE
REGIONAL
SERVICES
WMO MEMBERS
ASSOCIATIONS
WEATHER
WATER
SCIENCE
Infrastructure Commission
Services Commission
Early Warning Systems
Seamless Prediction
Research Board on Weather, Climate, Water and the Environment
Mitigation and Adaptation

WMO Vision, Mission, Objectives and Strategy



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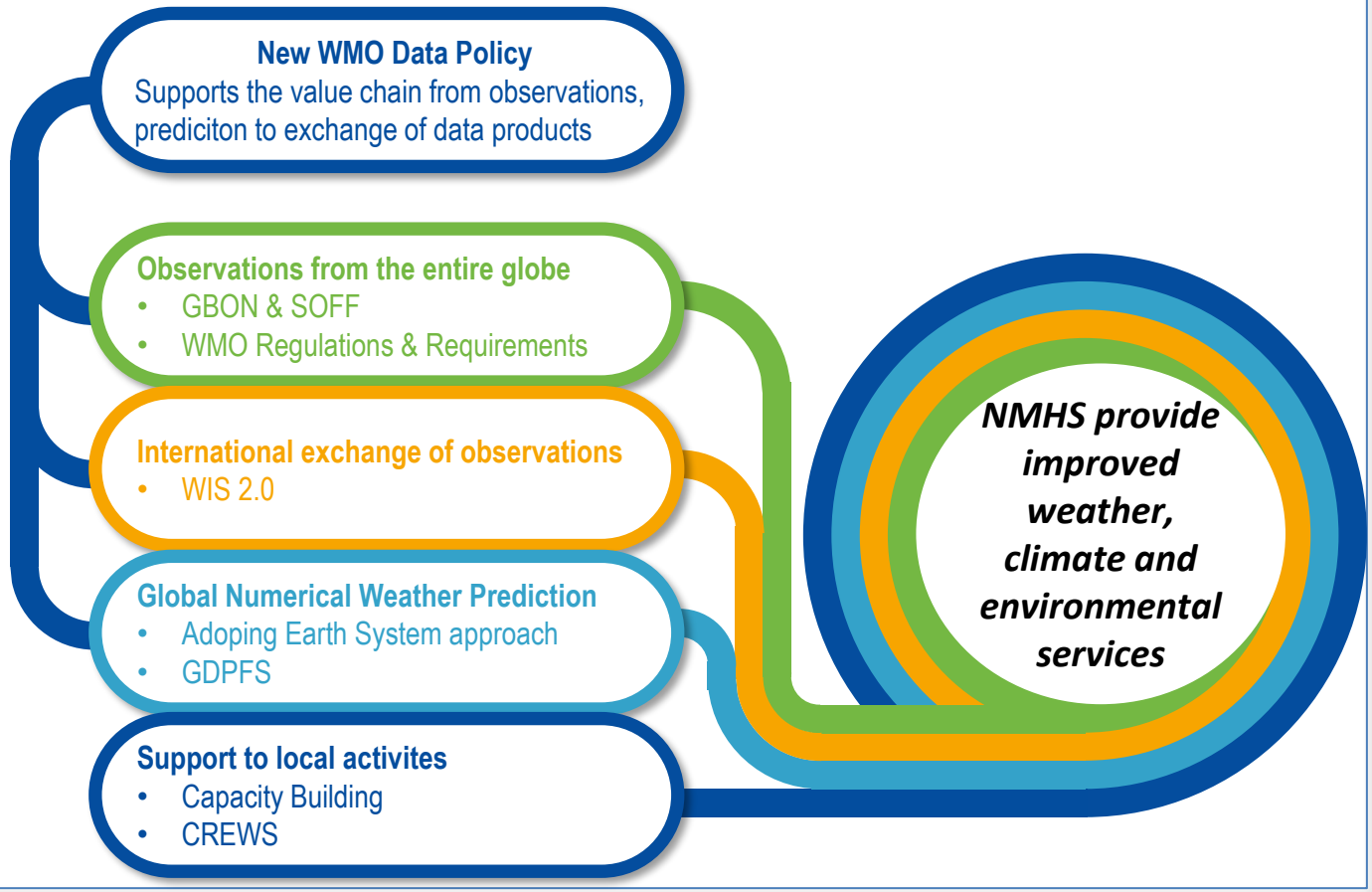
Achieving WMO's vision for the future

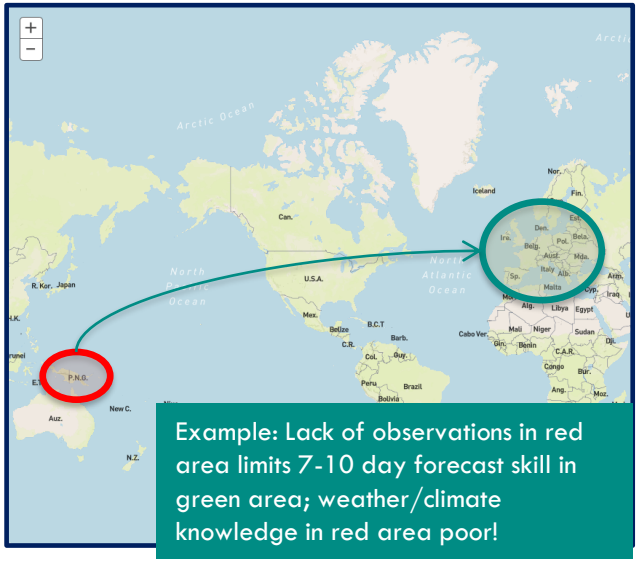
Improvements are needed to all parts of the value chain from observations to service delivery.



“Weather and climate know no boundaries”

- *the atmosphere has no horizontal boundaries*

- **<u>In order for us to predict it, weather must be modeled globally</u>,;** all modern weather prediction beyond 24 hours depends on **global Numerical Weather Prediction (NWP);**
- **NWP requires observations from the entire globe;**
- **Lack of observations is a key limiting factor to monitoring and predicting weather and climate, both locally and globally;**
- Any local lack of observations will initially lead to poor local prediction quality; over time this will spread globally.



Example: Lack of observations in red area limits 7-10 day forecast skill in green area; weather/climate knowledge in red area poor!

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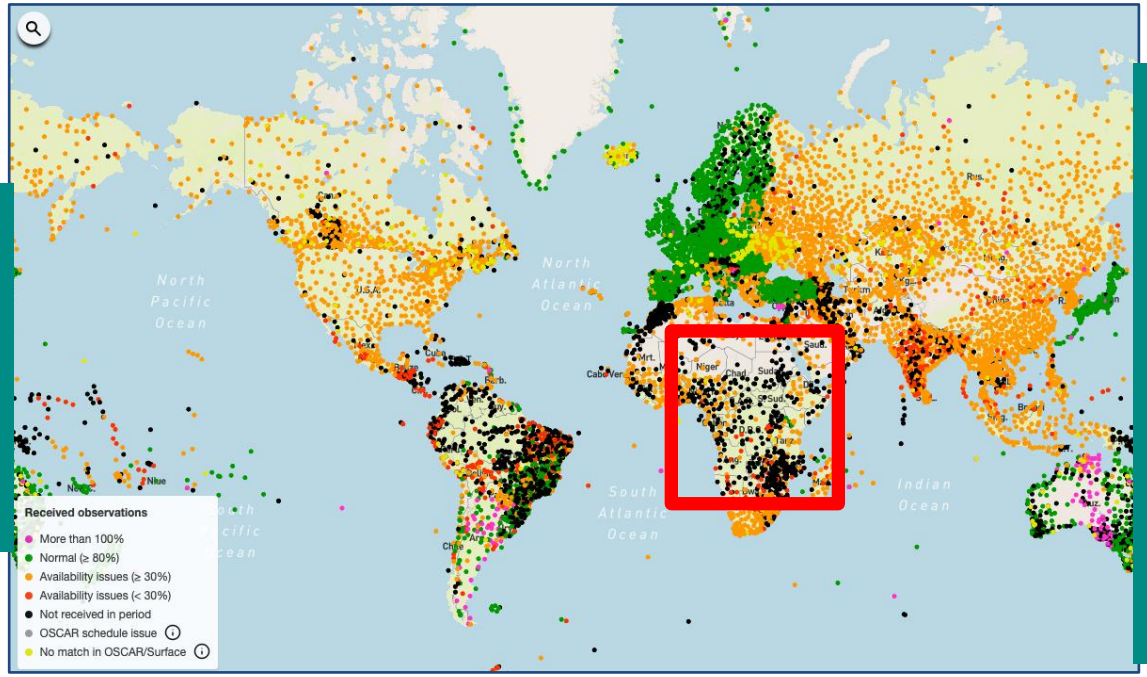
Current status of international exchange of observations for global NWP

In many areas the exchange of surface-based observations has been stagnant or declining since 1995;

Areas with red/black dots far from meeting data requirements.



Weather forecasts over areas with few observations (black dots and/or few dots) cannot be reliably verified!

Indirect verification via satellite data or reanalysis data indicate consistently poor quality of forecasts of convective weather;

Climate reanalysis fields used for monitoring, adaptation and prediction will also be of poor quality

Surface pressure observations received by global NWP Centers on Apr 27 2021, 12Z)
(source: WIGOS Data Quality Monitoring System)

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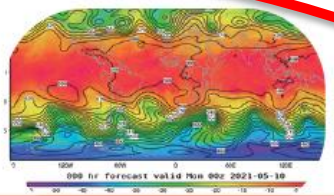
Successful application of weather and climate services depend on a functioning meteorological value chain

WMO Unified Data Policy

Observations from the entire globe

International exchange of observations



Global Numerical Weather Prediction

Weather and climate-related infrastructure - **must be designed and managed globally**

Last-mile activities undertaken primarily at regional, national and local level

Effective decision-making and action

Delivery of weather and climate services

Local data processing, forecast, warning and advisory products

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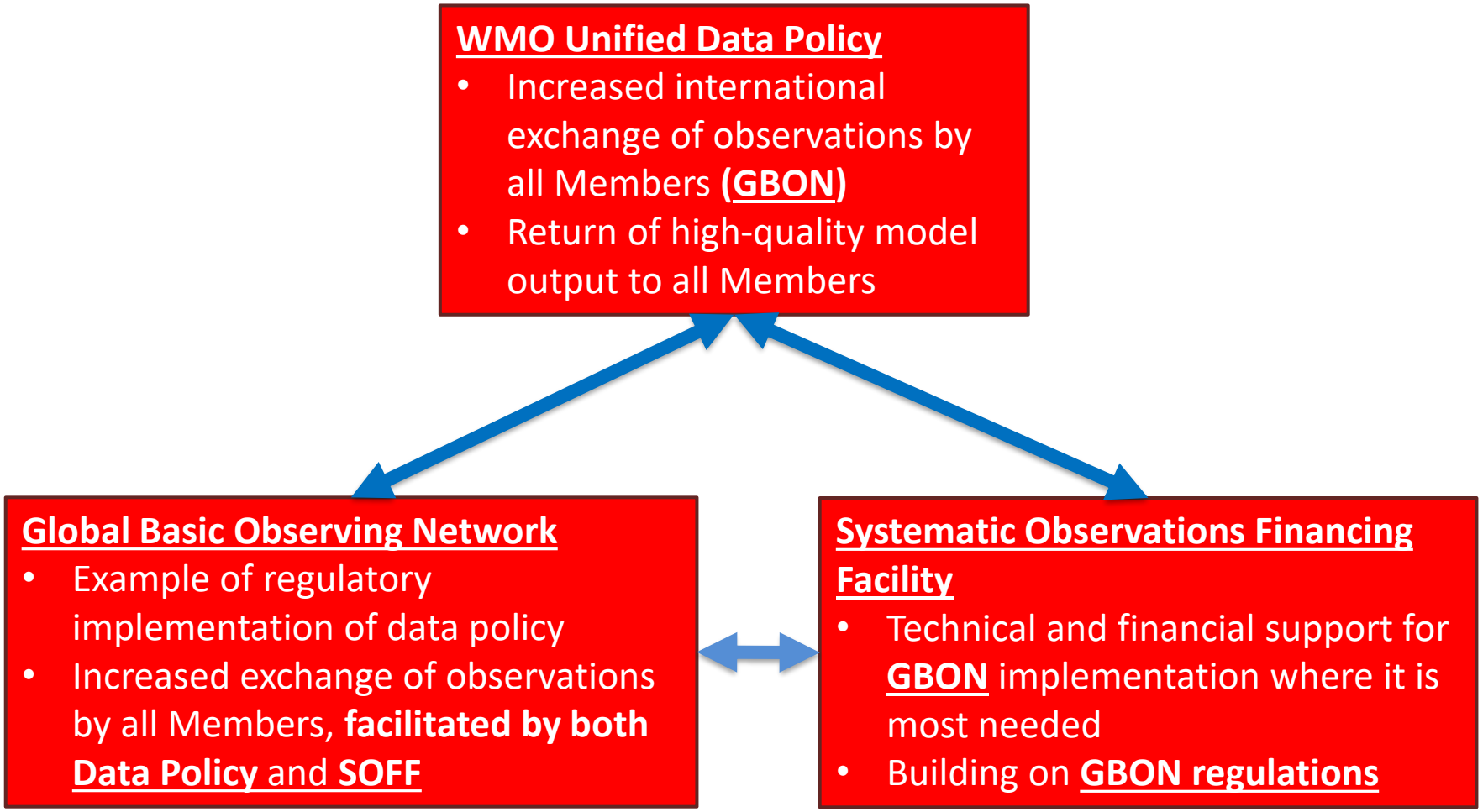
Three linked strategic WMO initiatives



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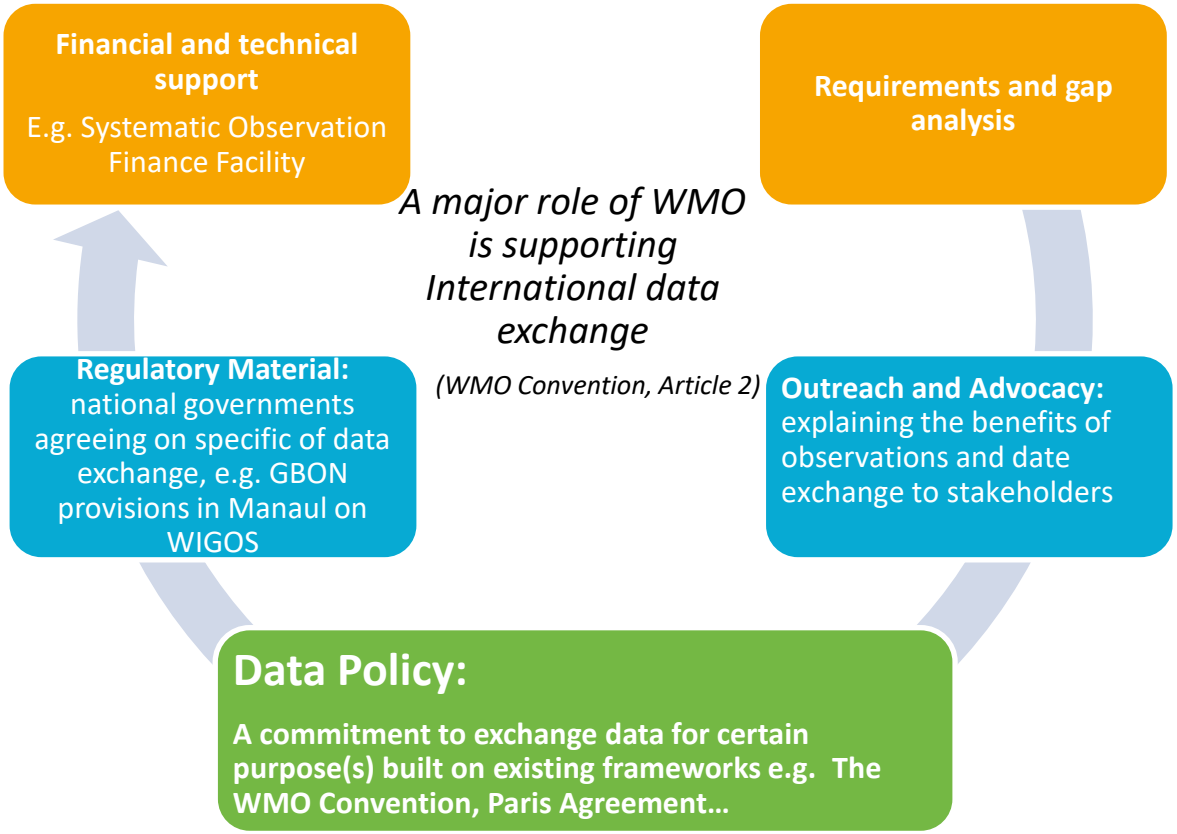
Five essential ingredients for successful data exchange



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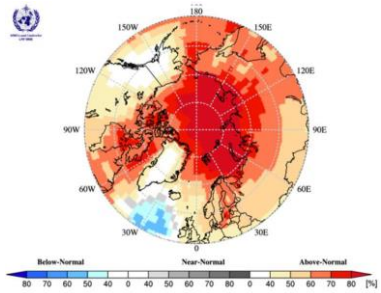
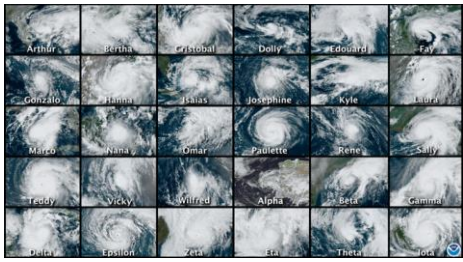
WMO adopts new ocean agenda

WMO Focus on Ocean

- **Ocean (Data) in earth system & seamless services;** interactions esp. INFCOM, SERCOM, RB, CD Panel, Ras, Regional Centres; JCB
- **Ocean-climate:** input to UNFCCC, SBSTA etc; United in Science; Global Climate Statement; Regional Climate Centres; WCRP; GCOS
- **Ocean Monitoring & Data** (inc. GOOS, OOPC, satellite, OceanOps)
- **Ocean Prediction & Services:** maritime safety (SOLAS), coastal (esp. LDCs, SIDs), extreme weather (eg hurricanes), seasonal, DRR





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Regional (Marine) Instrument Centres

- **Key role in implementation of the WMO strategy for traceability assurance.**

- **Main functions:**
  - assist Members in calibrating their national standards;
  - participate in, and/or organize, inter-laboratory comparisons;
  - participate, or assist, in the organization of workshops on calibration and maintenance;
  - provide advice on instrument performance;
  - make contribution to the quality of measurements.

WMO Regional Instrument Centres

RA I

Algiers (Algeria)
Gaborone (Botswana)
Cairo (Egypt)
Nairobi (Kenya)
Casablanca (Morocco)

RA II

Beijing (China)*
Tsukuba (Japan)*

RA III

Buenos Aires (Argentina)

RA IV

Bridgetown (Barbados)

RA V

Melbourne (Australia)*
Manila (Philippines)

RA VI

Toulouse (France)
Hamburg/Oberschleissheim (Germany)*
Bratislava (Slovakia)*
Ljubljana (Slovenia)*
Ankara (Turkey)*

WMO/IOC Regional Marine Instrument Centres

RMIC for Asia-Pacific Region

National Centre of Ocean Standards and Metrology (NCOSM, Tianjin), Ministry of Natural Resources, China

RMIC for North and Central America

National Data Buoy Center/NOAA, Mississippi, USA

Regional Marine Instrument Centres

2010 WIGOS Pilot Project

2011

2012
JCOMM-4
Certification
NDBC RA-IV
NCOSM RA-II

2016
RMICs Coordination

2019
WMO Reform
JCOMM disbandment

2021
RMIC-RA-II-6

شكرا لكم

Thank you

Gracias

Merci

Спасибо

谢谢

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