GCOS AOPC-29 meeting
(17-20 September 2024)

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Interaction of SC-ON with AOPC

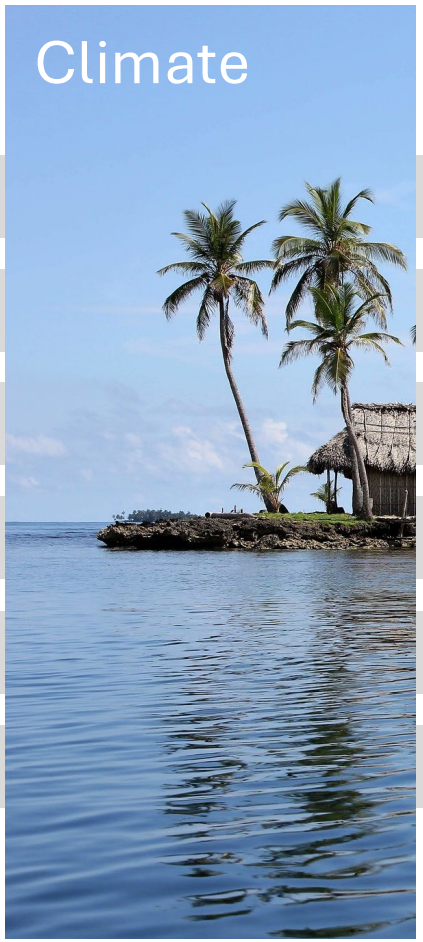
Standing Committee on Earth Observing Systems and Monitoring Networks

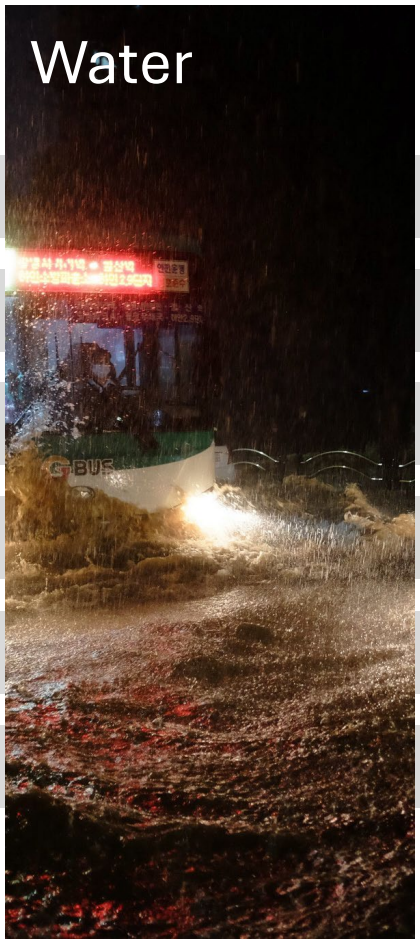
***Albert Fischer**, Director WIGOS Division, Infrastructure Department, WMO*
*on behalf of **Estelle Grüter**, SC-ON chair*

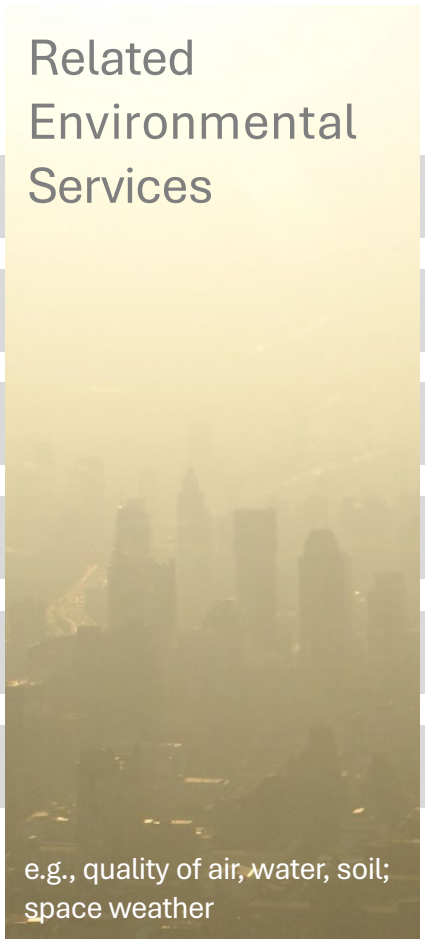
WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

Weather, climate, water applications

Drivers of an Earth System approach







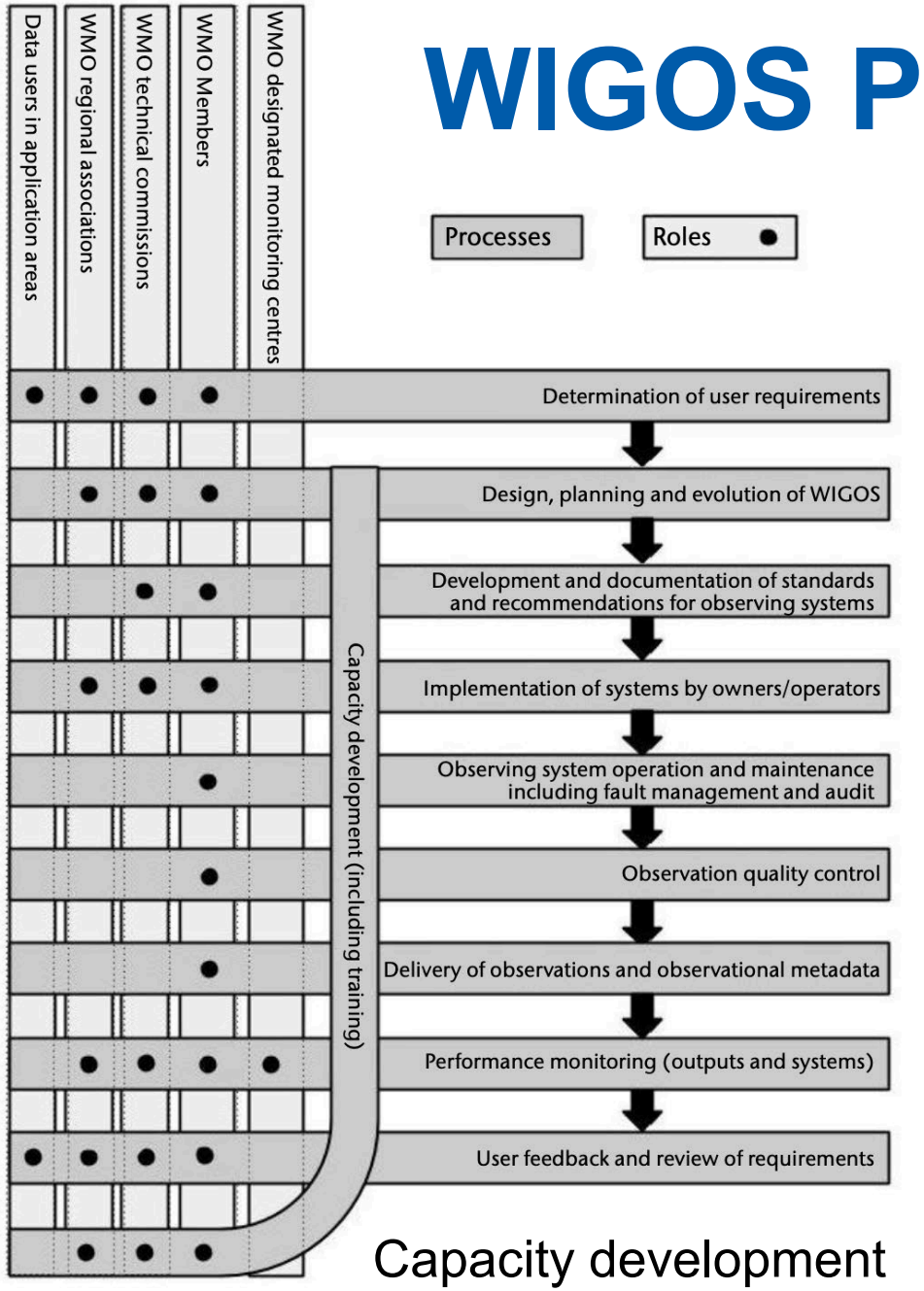
space-based

- Atmosphere
- Hydrology
- Cryosphere
- Ocean
- Terrestrial
- Space weather

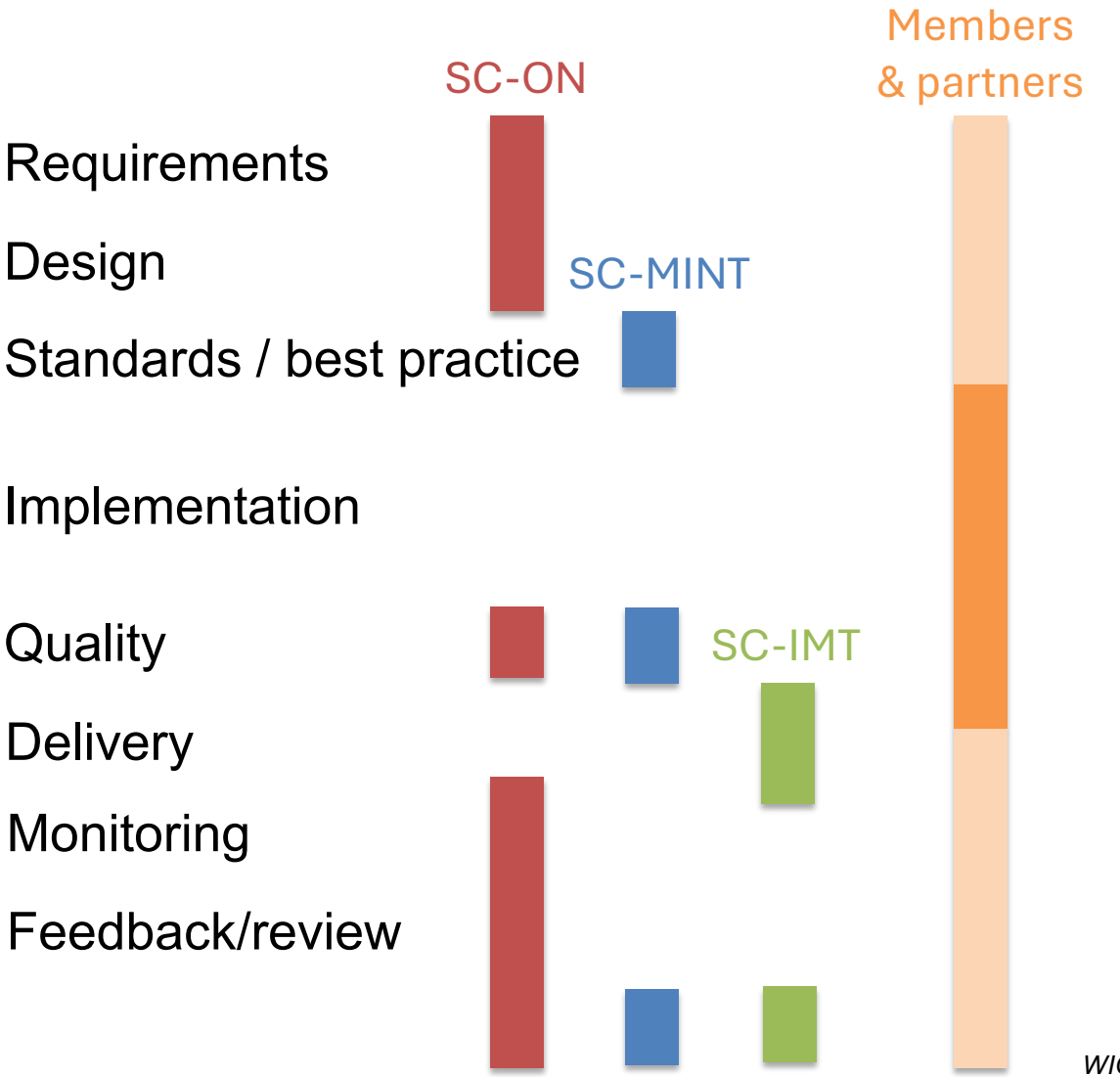
surface-based

Photos: Various authors, WMO Calendar Competition 2024, cc

WIGOS Processes and Roles



Capacity development



WIGOS Manual (WMO No.-1160)

SC-ON priorities 2024-2026

- **Update the long-term WIGOS vision – Deliverables: draft updated vision**
  - Highlighting the Integration of space-based and surface-based systems

- **Define and design implementable and monitorable observing networks – Deliverables: draft roadmap for GBON expansion (to Cg-Ext.), draft amendments to Manual and Guide**
  - RRR process – facilitating the dialogue with obs. network implementers to define monitorable observing networks
  - GBON expansion
  - RBON – networks to be defined for each priority hazard identified by RAs
  - Cryosphere networks
  - Hydrological networks – support to HydroSOS
  - GHG networks – inventory of existing obs, design of obs. Networks, requirements in various domains
  - SWx networks
  - Ocean networks
  - Define core satellite data for nowcasting and other applications

- **Implement GBON and other operation-critical observing networks – Deliverables: status report of implementation of GBON, RBON and other networks, guidance materials for GBON (e.g., phased approach), possibly draft set of benchmark**
  - Support to the SOFF compliance phase
  - RWCs establishment and operation, including quality assurance
  - WIGOS tools: OSCAR/Surface, WDQMS, Incident Management System, integrate OceanOPS, ABO, GCW and other components as appropriate
  - Cryosphere networks
  - Ocean networks
  - ABO

- Enhance WMO Members' involvement to radio-frequency protection – Deliverables: preliminary WMO position paper on WRC-27

- Facilitation of access to and use of satellite data and products – Deliverables: VLab strategy 2028-2031

SC-ON Expert Teams and Task Teams

- Expert Team on Earth Observing System Design and Evolution (ET-EOSDE)
  - Dr Erik Andersson (Andersson (ECMWF/retired) - chair
  - Dr Sid Boukabara (USA) – co-vice-chair
  - Dr Jacqueline Sugier (UK) – co-vice-chair
- Expert Team on Global Observing System (GOS) Surface-based and basic Observing Networks (ET-SON)
  - Mr Tom Butcher (UK) - co-chair
  - Ms SHI, Lijuan (China) - co-chair
- Expert Team on WIGOS Tools and Regional WIGOS Centres Operations (ET-WTR)
  - Ms Tanja KLEINERT (Germany) – Chair
  - Ms Samantha LINNERTS (South Africa) – Vice-Chair
- Expert Team on Aircraft-based Observing Systems (ET-ABO)
  - Dr. Curtis Marshall (USA) - Chair
  - Dr. Carmen Emmel (Germany) – co-vice-chair
  - Mr. Humphrey Angulu (Kenya) – co-vice-chair
- Expert Team on Space Systems and Utilization (ET-SSU)
  - Ms Fiona Smith (Australia) – Chair
  - Ms Lihang Zhou (USA) - Vice-Chair
- Expert Team on Radio Frequency Coordination (ET-RFC)
  - Mr David Franc (USA) – Chair
  - Ms Kirsty McBeath (UK) – co-vice-chair
  - Mr Alec Casey (Canada) – co-vice-chair
- Expert Team on Space Weather (ET-SWx)
  - Kirsti Kauristie (Finland) – Chair
  - Joaquim Eduardo Rezende Costa (Brazil) – Vice-chair Task Team on GCOS Surface Reference Network (TT-GSRN), joint with the Global Climate Observing System (GCOS)
  - Dr Sarah Gallagher (Ireland) - co-chair
  - Dr Tilman Holfelder (Germany) - co-chair
- Task Team on G3W Networks (TT-G3W-Networks)
  - Prabir Patra (Japan) – Chair
- Task Team on EarthHydroNet (TT-EarthHydroNet)
  - Erik Andersson (ECMWF/retired) - co-chair
- Task Team on Tiered Networks (TT-Tiered Networks) (TBC)

SC-ON / AOPC

for discussion

- GBON implementation and expansion
- WIGOS Tools

WORLD METEOROLOGICAL ORGANIZATION

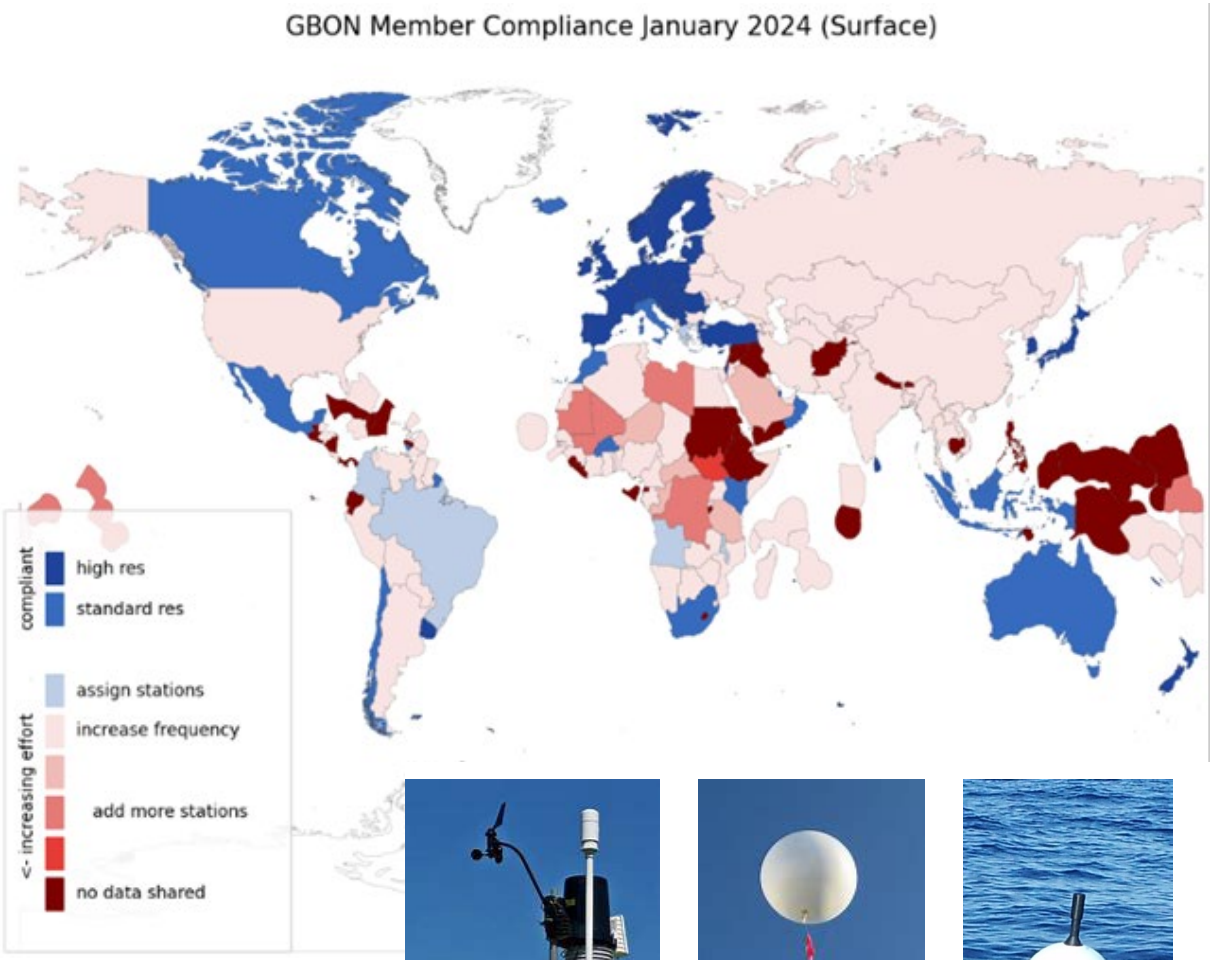
Global Basic Observing Network (GBON)

A global public good for improved weather prediction and climate reanalysis

- Worsening gaps in the basic surface-based observations that keep weather predictions on track - full implementation estimated to bring USD 5 billion in annual benefits

- Members in 2021 accepted **obligation to take and share** GBON observations at **minimum horizontal and time resolution**
  - Surface land at 200 km, hourly
  - Upper air over land at 500 km, 2x daily
  - Surface marine in EEZ at 500 km, hourly

- WMO co-created the **Systematic Observations Financing Facility (SOFF)** to help Members meet that GBON obligation, with priority on support to LDCs and SIDS



The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Meteorological Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

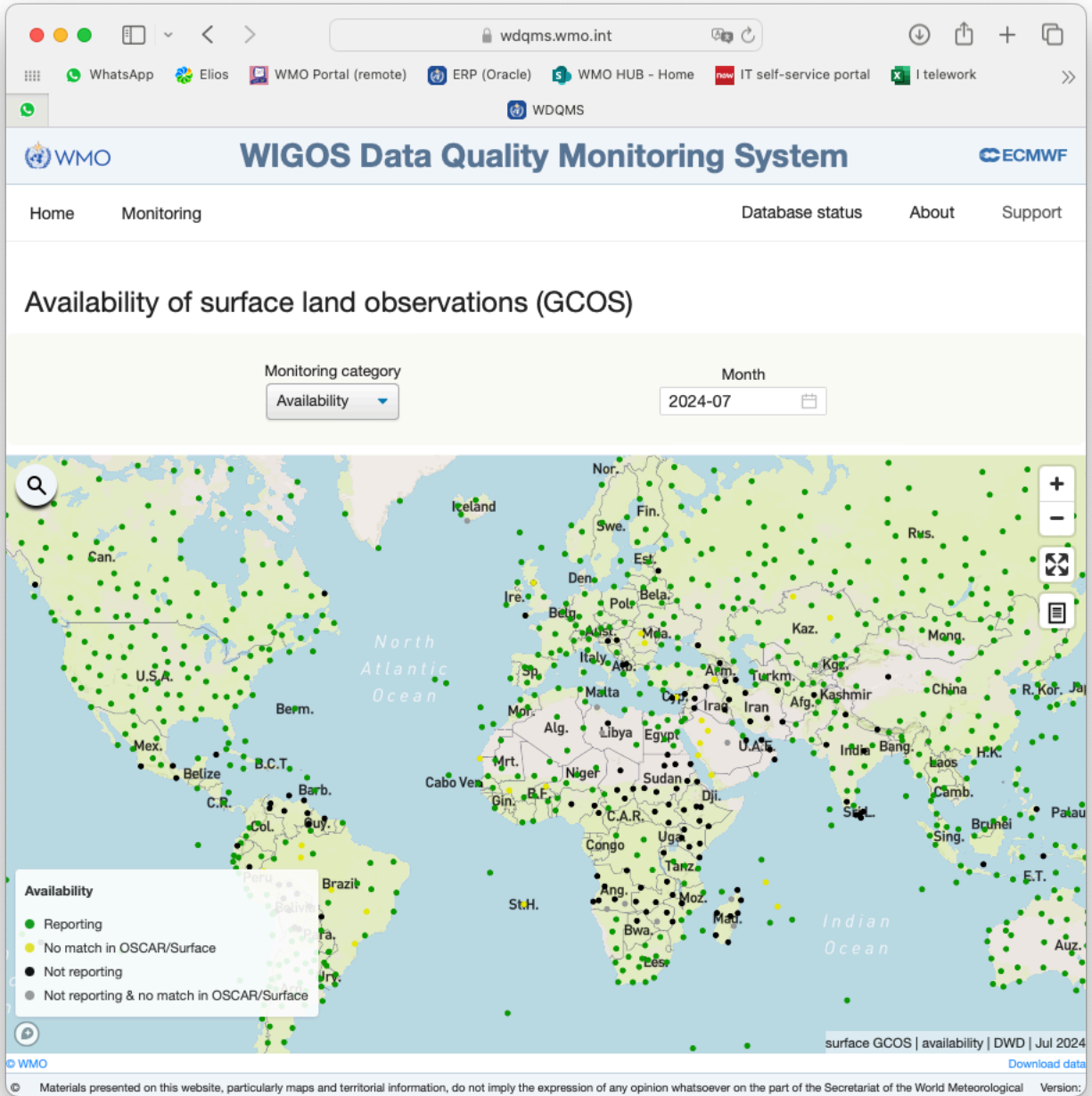
GBON and GCOS

- *Low-hanging fruit:* improve guidance on GBON to link to GCOS atmospheric networks in the choosing of GBON stations

- INFCOM-3 tasked SC-ON with preparing a phased road map for GBON development and expansion:
  - "Within the present scope of GBON for global numerical weather prediction and climate reanalysis by... considering changes... that would have high impact for **climate reanalyses**, **maximizing links with GCOS**"
  - Considering an **expansion of GBON to the climate monitoring application areas, in cooperation with GCOS, using the concept of ECVs** and in cooperation with the Global Greenhouse Gas Watch.

- **AOPC work with SC-ON (ET-EOSDE) on this roadmap**, considering some key magic ingredients:
  - feasible, expressible cost/benefit
  - Notable gap in observations in LDCs, SIDS, and eventually lower middle-income countries that SOFF could help fill
  - Clear commitment by countries to share data as core data (mandatory for exchange)
  - Compliance tracking machinery: availability, timeliness, quality

WIGOS Tools and GCOS



- Happy with engagement with ET-WTR?
- AOPC priorities for development?

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Thank you

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale