



Systematic Observations Financing Facility **Second Potential Funders' Forum**

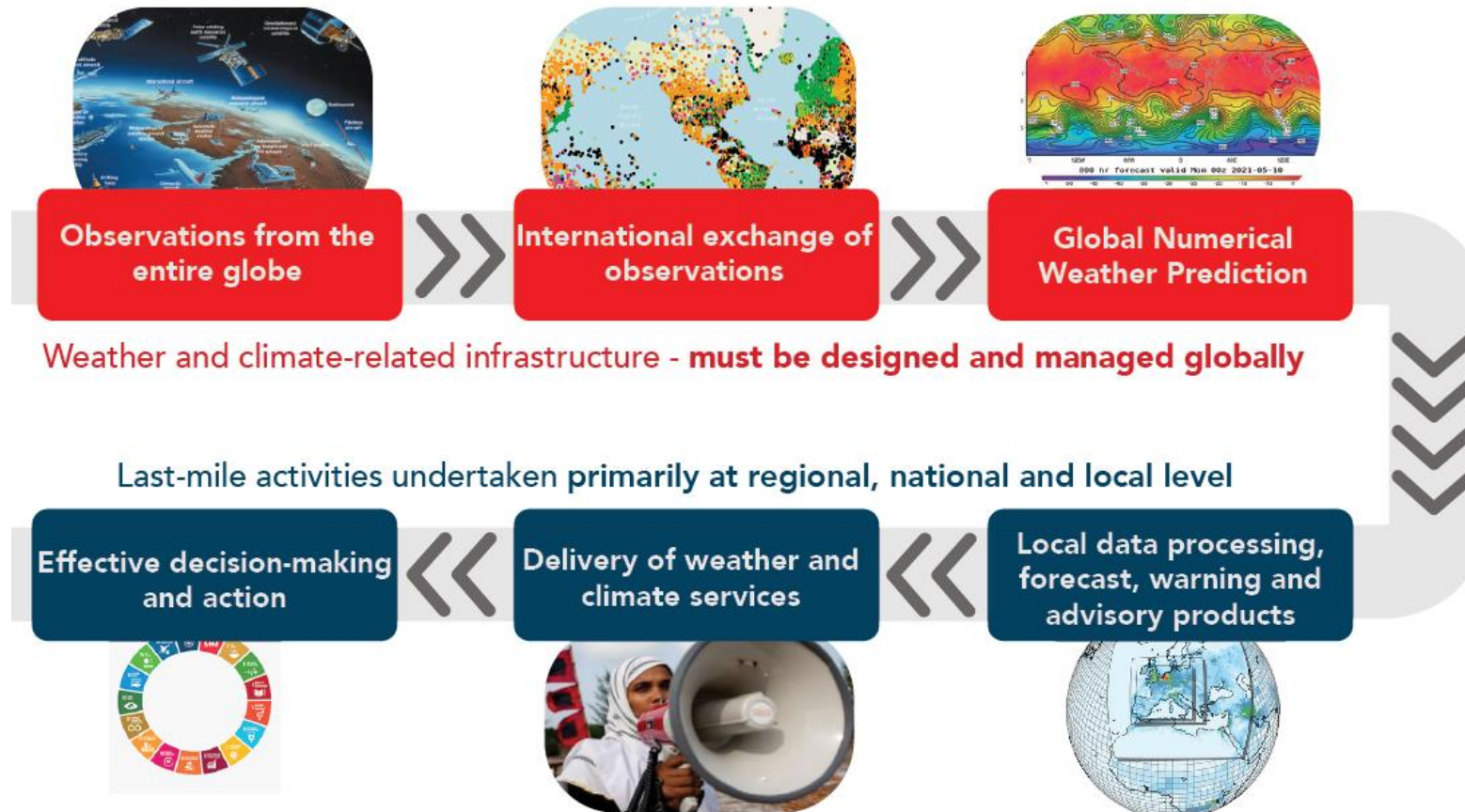
Agenda item 1 – The meteorological value chain and the role of observations

Lars Peter Riishojgaard, Director Earth System Branch

Three main points (beyond what was covered in the First Funders Forum):

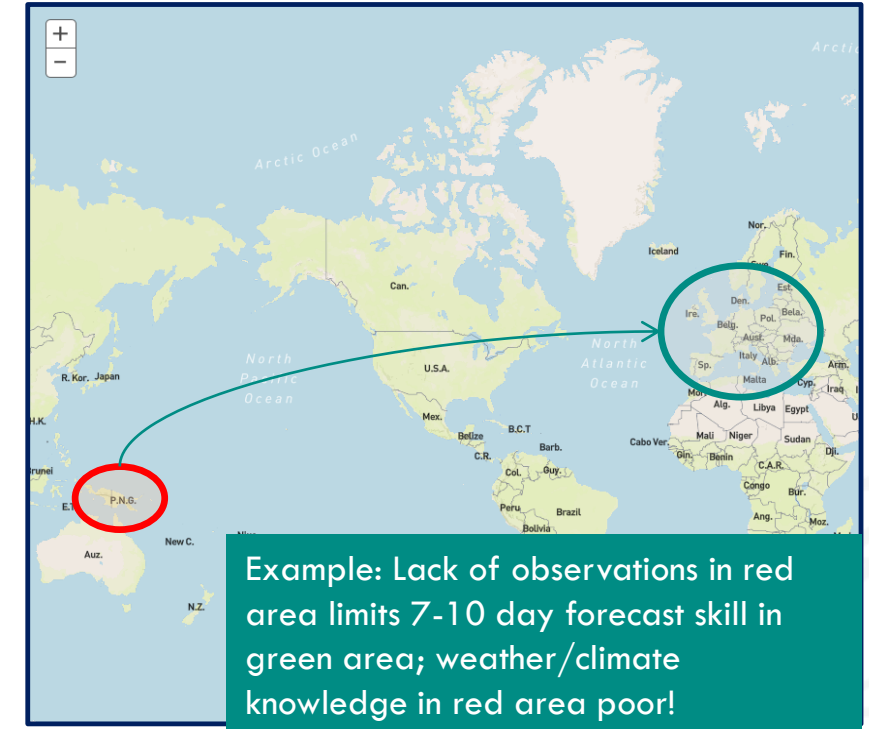
- **Role of global modeling and observations for climate monitoring, climate prediction, adaptation, ...**
- **Role of global modeling and observations underpinning local, fine-scale weather and climate information;**
- **Verification and the risks of flying blind; how can you know how well (or how poorly) you are doing in areas with no data?**

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



“Weather and climate know no boundaries”

- *the atmosphere has no horizontal boundaries*
- **In order for us to predict it, weather must be modeled globally;** 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.



Global numerical weather prediction (NWP); core capability for both weather and climate

- **Global NWP** systems are used also for **reanalysis**:
Reprocessing of multi-year sequences of past weather events using historical observations;
- **Reanalysis output has become the primary source of information about climate, climate change; used as a basis for climate prediction, projection and adaptation;**
- The dual use of NWP for weather prediction and climate analysis means that the **exact same observations are needed to improve both climate monitoring and weather prediction;**

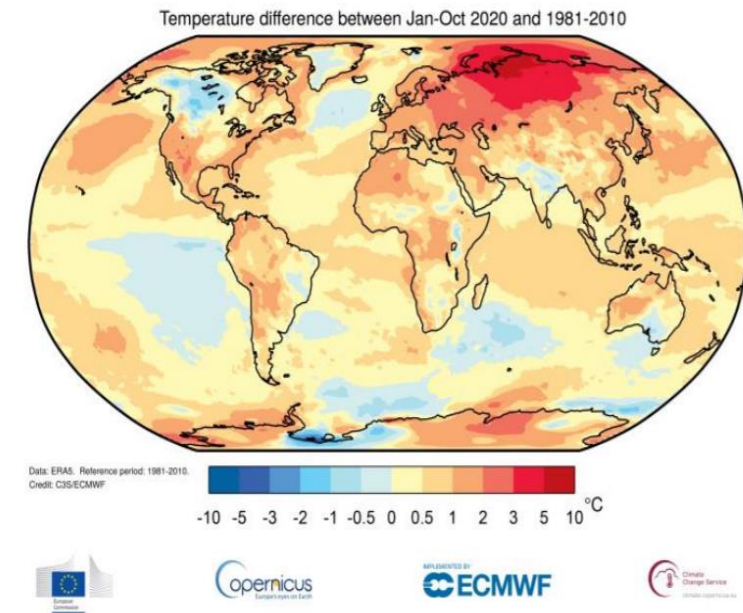
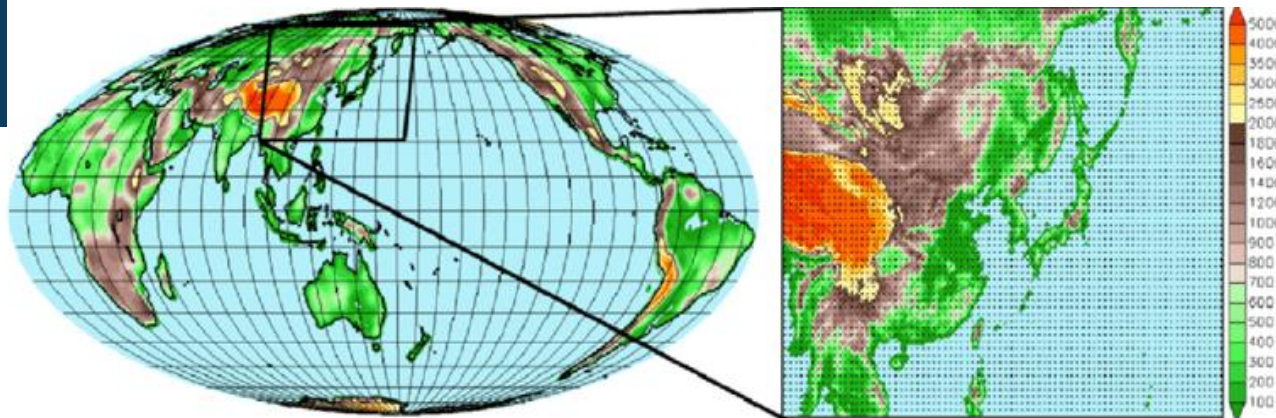


Figure 2: Temperature anomalies relative to the 1981-2010 long-term average from the ERA5 reanalysis for January to October 2020. Credit: Copernicus Climate Change Service, ECMWF.

Global NWP: A critical backbone for weather and climate also at local scales

- Weather and climate services typically require detailed, fine-scale information about local impacts;
- This can be obtained via **downscaling**, using a detailed Limited Area Model as a "magnifying glass" **within the global model**.
- **Without adequate supply of local observations to the global model, downscaling will not work!**

Global Model



Limited Area Model

(Detailed representation of local geography)

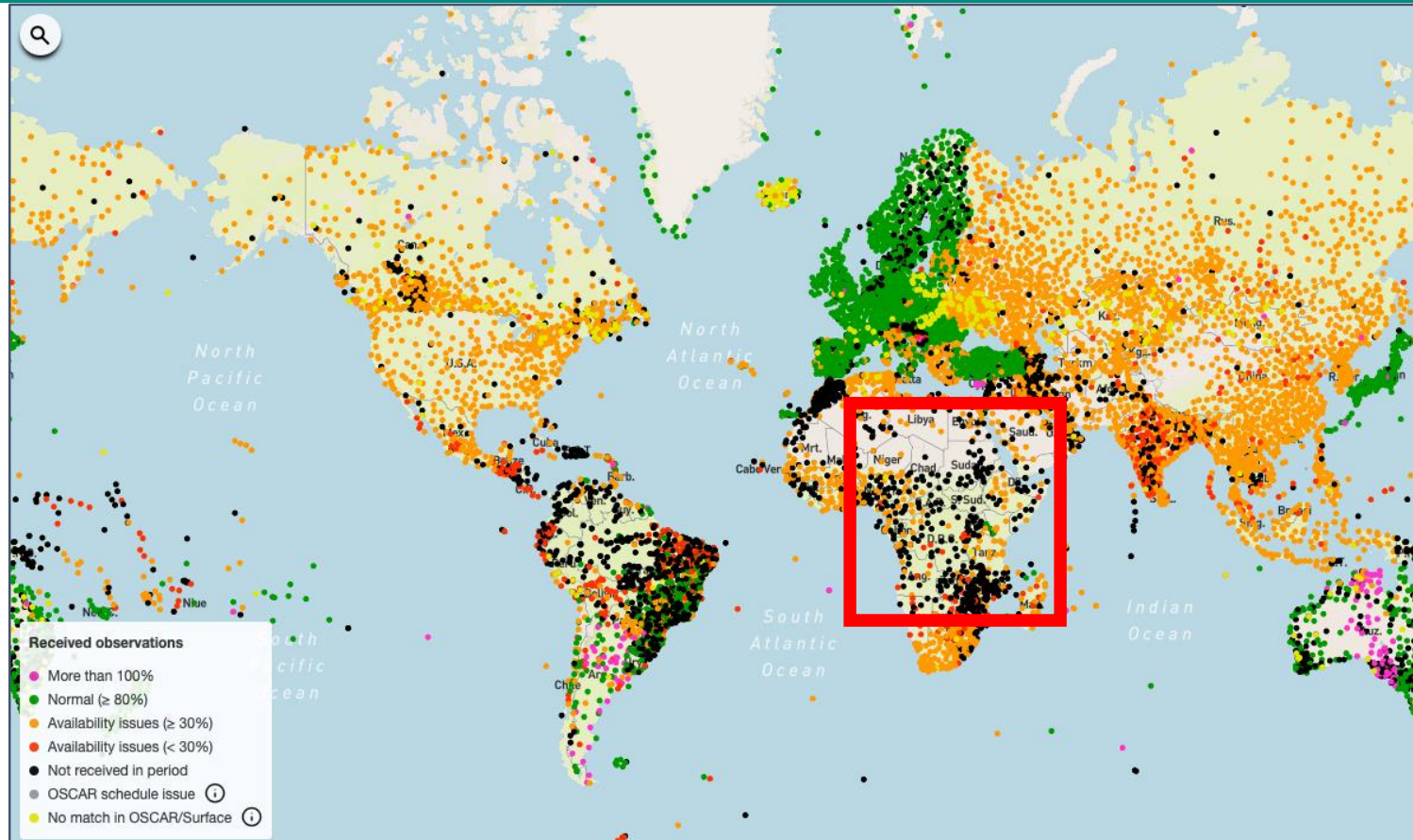
Current state of international exchange of observations;

Satellite data are very important for weather and climate and provide excellent global coverage. However,

- Not all required variables can be measured from space;
- Need to be complemented by surface-based observations, especially over land areas, snow and ice surfaces;

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;

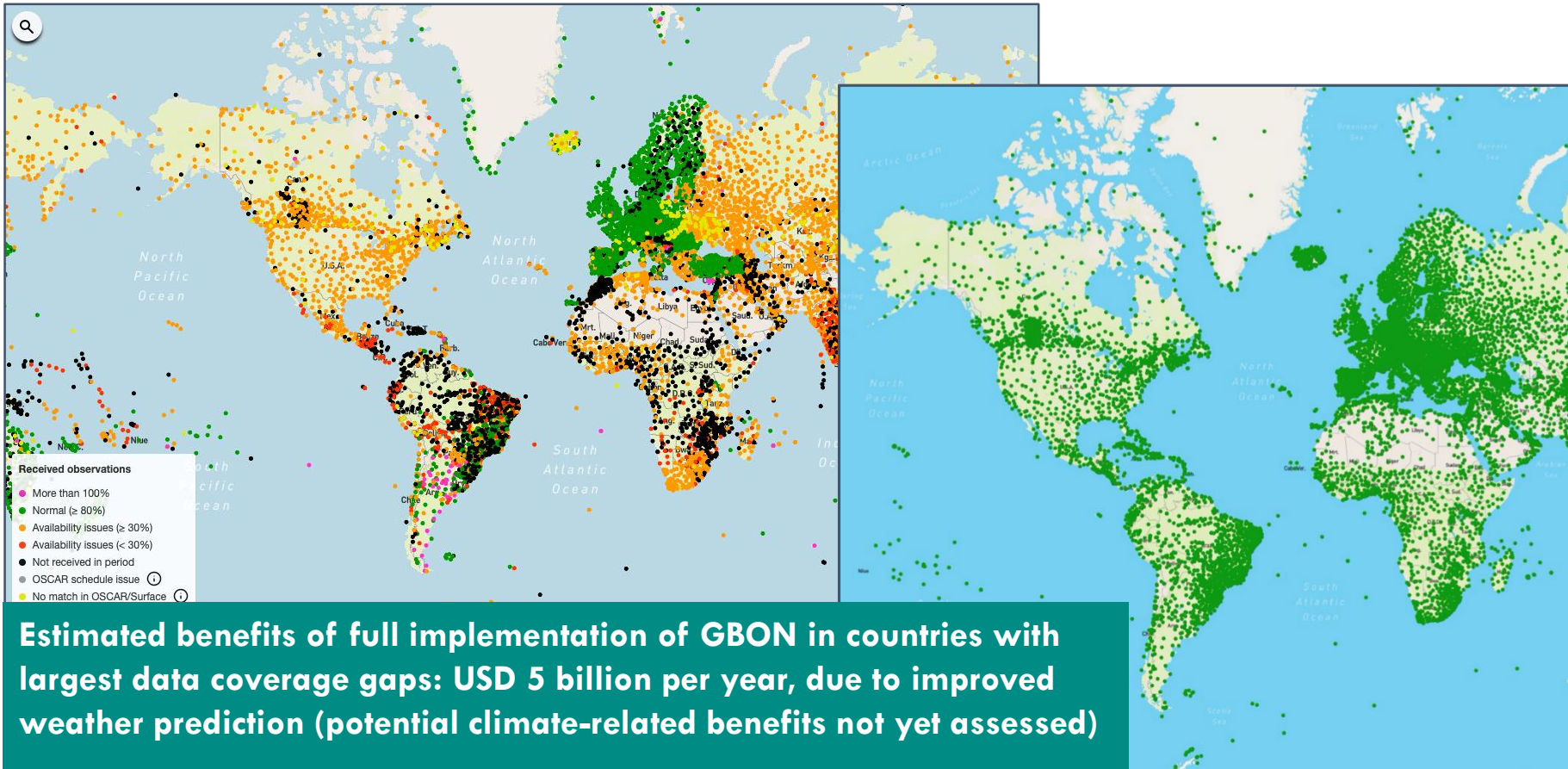
Climate reanalysis fields used for monitoring, adaptation and prediction will also be of poor quality

Surface pressure observations received by global NWP Centers on Apr 27 2021, 12Z)

(source: [WIGOS Data Quality Monitoring System](#))

WMO's Global Basic Observing Network (GBON)

- securing adequate observational input to global NWP

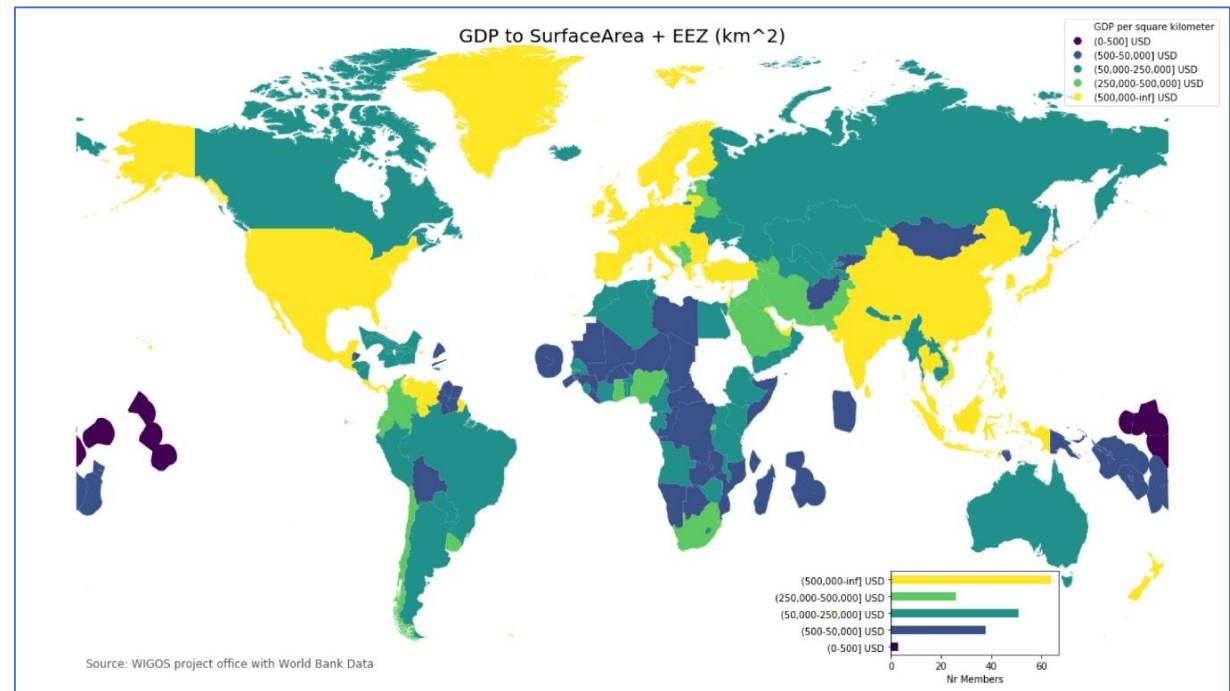
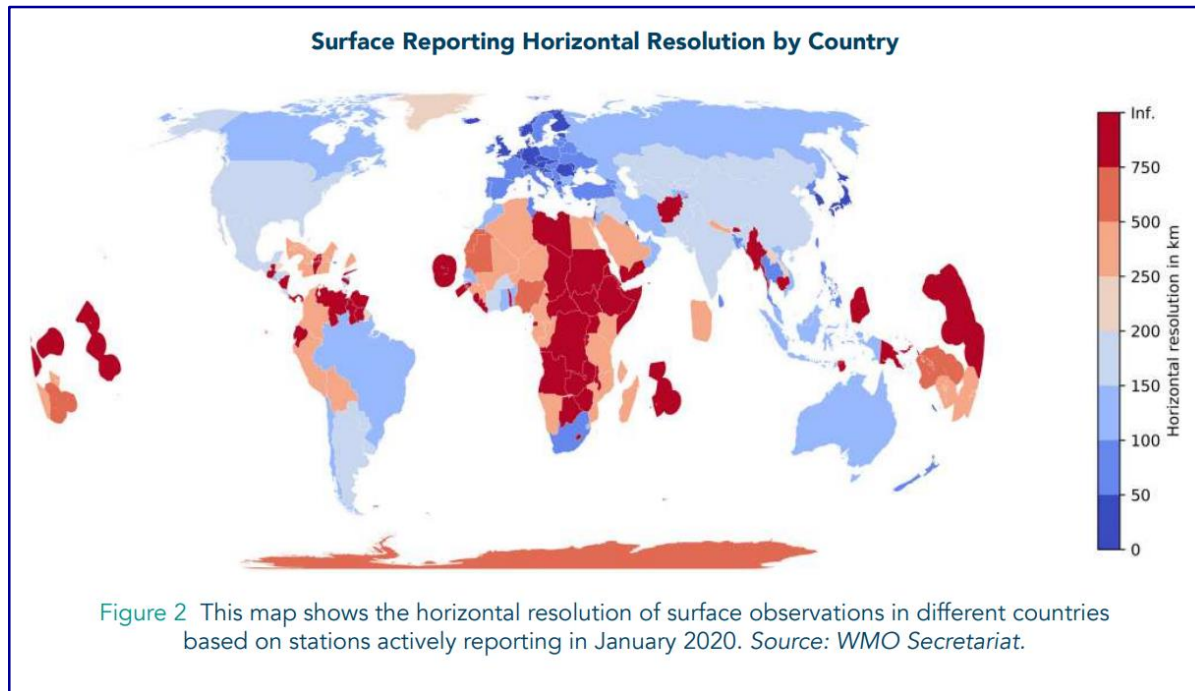


GBON: Global commitment agreed between 193 countries to turn data coverage map green;

- **Regulatory material specifying obligation to acquire and exchange certain observations at set minimum horizontal resolution and at set minimum frequency;**
- Once approved by WMO Congress, GBON can be implemented immediately in the developed world;

Density of observing network versus national resources

WMO Convention and Paris Agreement implicitly assume that observations is solely a national responsibility



- **Ability to observe (left panel):** Observing systems in countries depicted in red fail to meet minimum observations requirements for weather and climate analysis and prediction
- **Ability to pay (right panel):** Affordability of observing responsibility (GDP/km² of surface area) of countries in yellow up to ten million times higher than for countries in dark blue

Limited track record of past hydromet development projects

Basic problem: Generally, the observations that are most important for weather forecasting in any given country come from outside its borders; traditional **single-country**, last-mile focused projects therefore do not see a reasonable value proposition in investments in local observing systems.

Finance delivery problem: Project-based approach to support observation systems are generally recognized, also by donors and implementing entities as having at best short-term impact,. However...

Past experience in Africa shows that short-term internationally funded projects can temporarily boost performance of observing network; however, they do not lead to sustained data exchange: **50% decrease in upper air observations over Africa between 2015 and 2020**

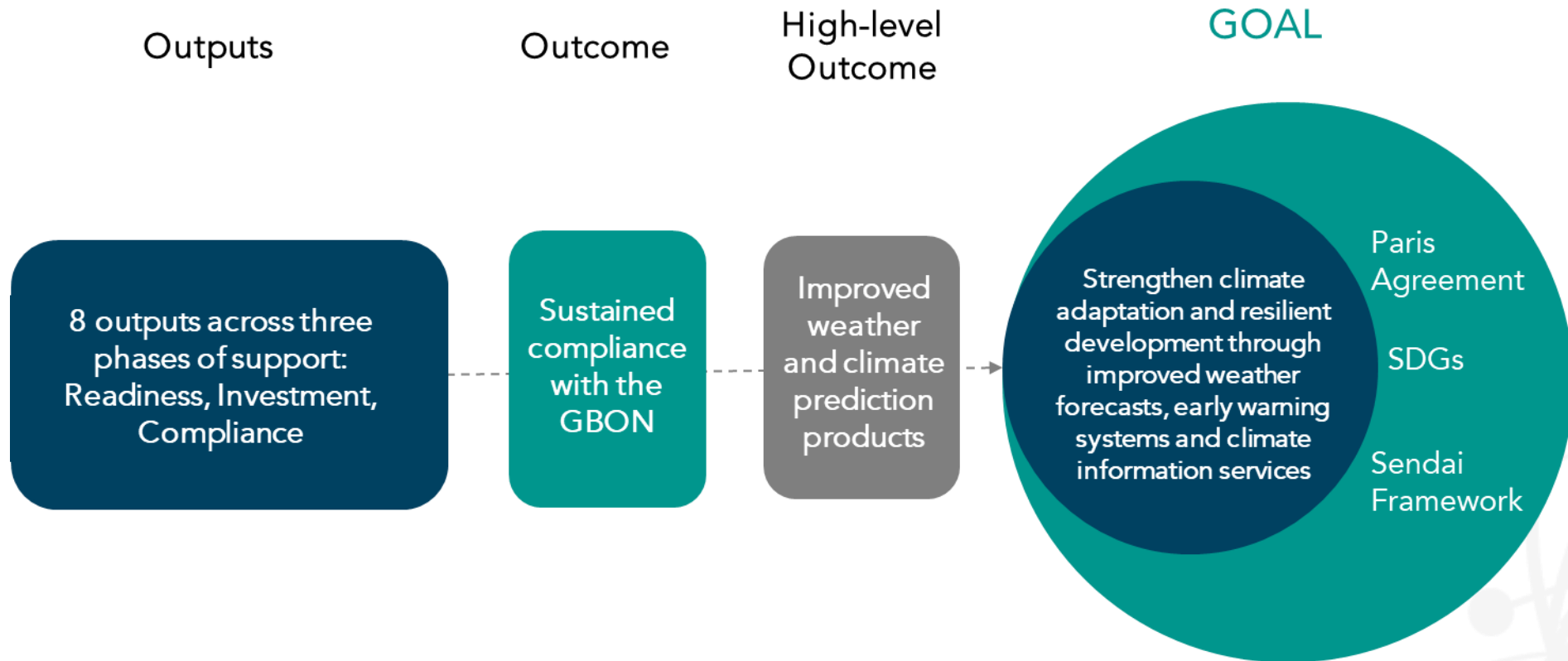


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Agenda item 3 - SOFF value proposition and institutional arrangements

Markus Repnik, Director Development Partnerships

SOFF Theory of Change



SOFF value proposition:

Effective combination of 10 features

- **Provision of innovative finance**
 - Long-term predictable grant finance – beyond short term project cycles
 - Finance for operations and maintenance – instead of only investments
 - Results-based finance – retroactive financing upon verification of data sharing
- **Global approach with sustained data exchange as measure of success**
 - GBON metrics to guide investments – ensure right level of investments
 - Long-term GBON data sharing compliance single measure of success
 - Unified investment approach to close GBON gap in one single intervention
- **Enhancement of technical competency and coordination**
 - GBON-specialized peer-to-peer technical and institutional support incl. South-South
 - Coalition of strong Implementing Entities for economies of scale
 - SOFF as centre of competency on “what does it take”
 - Effective collaboration and coordination among the main stakeholders and partners

SOFF as a “UN coalition” Fund

- **SOFF UN coalition** global initiative
- **WMO, UNEP, UNDP** as co-creators joining forces including on fundraising
- **SOFF UN Multi-partner Trust Fund** benefits from \$15 billion experience
- **UN Multi-Partner Trust Fund Office** as trustee holds the fund
- **WMO** co-decision maker and technical authority
- **UNEP** Secretariat host and IE – link to UN Environment Assembly
- **UNDP** co-chair Advisory Board and IE – link to broad development agenda
- **Stakeholders** part of governance structure – link to climate and “last mile”
- **Alliance members** as IE and/or contributors of additional resources

SOFF Steering Committee – decision making body

- **Oversees SOFF** and decides on strategy, policy, operations
- **Ensures complementarity** between SOFF and “last mile” initiatives
- **Decision makers:** funding partners and WMO
- **Non-decision makers:** Trustee, Advisory Board co-chairs, SOFF Secretariat host institution and Secretariat head, potentially CREWS
- **Decisions by consensus** among decision-making members, taking into consideration views of other Steering Committee members and recommendations of the Advisory Board

SOFF Advisory Board – multi-stakeholder body

- **Provides recommendations** and advises the Steering Committee
- **Ensures** that SOFF responds to countries' needs and creates synergies
- **Chaired by UNDP and a co-chair** elected by Advisory Board members
- **Proposed composition**
 - Beneficiary countries: LDC Group and AOSIS
 - Alliance for Hydromet Development and other UN organizations
 - SOFF-related initiatives incl REAP, GCA, InsuResilience
 - Global Producing Centers
 - Private sector: HMEI
 - Representative from CSOs

SOFF Secretariat

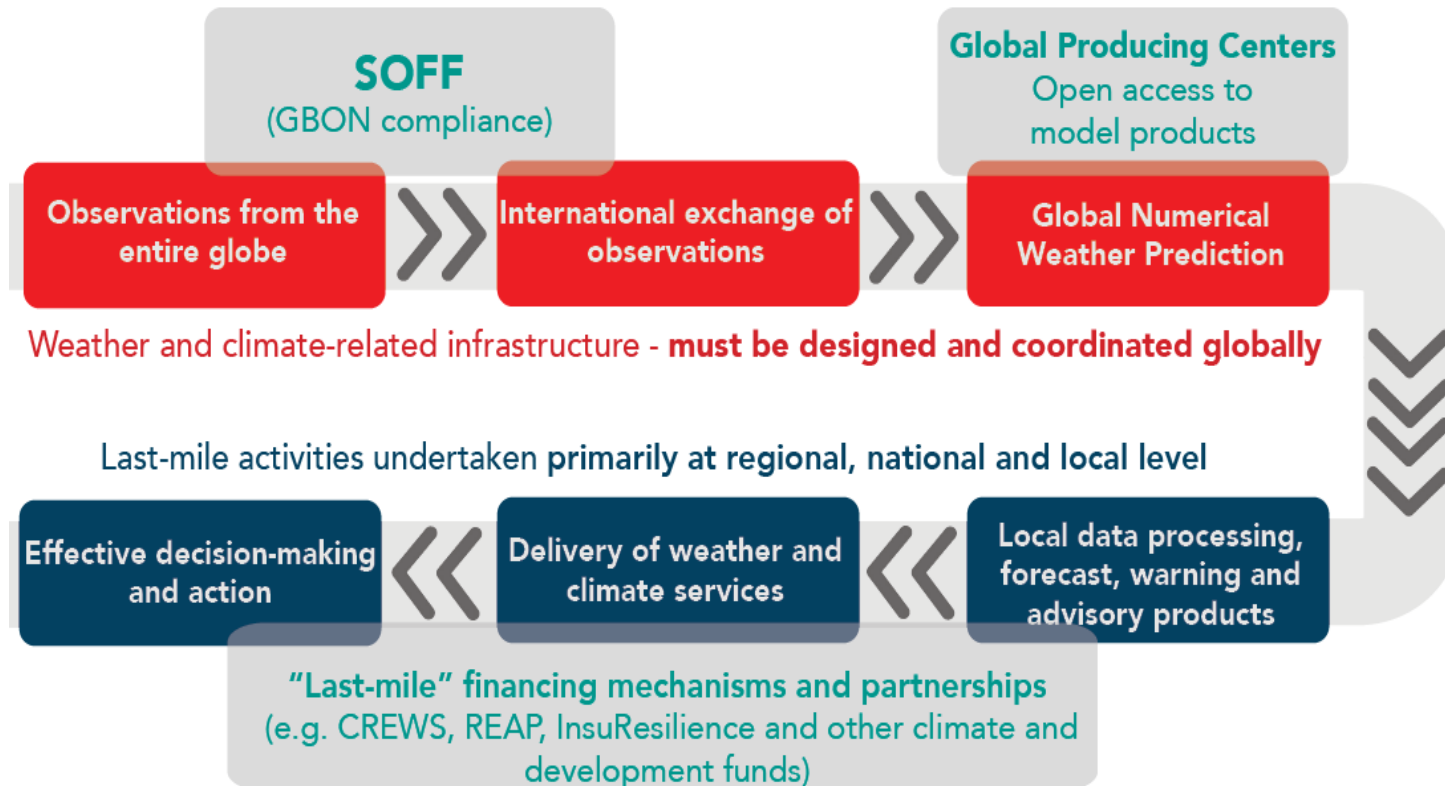
- **Accountable** to the Steering Committee
- **Supports** the Steering Committee and the Advisory Board
- **Manages** SOFF operations
- **Coordinates** and ensures coherence of SOFF operational partners
- **Administers** the provision of peer review and advisory services
- Administratively **hosted by UNEP** with potential contributions from WMO



SOFF Implementing Entities

- **Major multilateral development partners** implementing large hydromet projects
 - MDBs** (World Bank and regional development banks)
 - UN organizations** (UNDP, UNEP, WFP)
- **Members of the Alliance** for Hydromet Development
- Could **partner** with other national or international organizations

SOFF creates the foundation for “last mile” investments



SOFF funders' opportunities

- **Contribute to SOFF Trust Fund as highly visible global initiative**
 - Increase impact of own resources by blending with resources from other funders
 - Provide climate and adaptation finance through a foundational initiative
- **Decide SOFF strategy, policies, investments**
 - Direct SOFF operations and SOFF further development
- **Deploy know-how of National Meteorological Services**
 - Support effective SOFF implementation with long-term peer-to-peer support
- **Partner with Implementing Entities**
 - Bilateral agencies as potential operational partners of IE
- **Link with funders' other bilateral and multilateral investments**
 - SOFF creates basis for increased effectiveness of other investments
- **Second staff to SOFF Secretariat**
 - Strengthen SOFF Secretariat through secondments or JPOs



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Agenda item 4 - SOFF operational framework

Laura Tuck, SOFF Global Facilitator

How will SOFF support be provided?

	Main outputs	Operational Partners
Readiness	· Assessment of the whole value chain country gaps, including GBON gap	<ul style="list-style-type: none">• Peer National Met Services• Implementing Entities• WMO Technical Authority
	· Development of the GBON national contribution plan and independent verification	

How will SOFF support be provided? (2)

	Main Outputs	Operational partners
Investment	<p>Implementation of the GBON national contribution plan:</p> <ul style="list-style-type: none">• GBON infrastructure• Human and institutional capacity development	<ul style="list-style-type: none">• Peer National Met Services• Implementing Entities

How will SOFF support be provided? (3)

	Main Outputs	Operational Partners
Compliance	<p>Provision of results-based finance for O&M costs, based on data sharing (GBON compliance)</p> <ul style="list-style-type: none">• Verified through transparent, publicly available data• Annual GBON compliance and SOFF impact report published	<ul style="list-style-type: none">• Peer National Met Services• WMO Technical Authority• Global Producing Centers

What are the novel operational features of SOFF?

Phase	SOFF key novel operational features	
<p>Readiness</p>	<ul style="list-style-type: none"> ▪ Whole value chain assessment: SOFF support starts with an assessment of the whole value chain (CHD) to ensure that improvements in observations are consistent with the country's full value chain efforts ▪ GBON national contribution plan – the “funding proposal” - will be independently verified: the definition of investments and capacity needs to close the GBON gap will be technically verified by WMO 	<p style="text-align: center;">Continuous access to peer to peer technical assistance support - in particular to ensure that the data sharing works as expected.</p>
<p>Investment</p>	<ul style="list-style-type: none"> ▪ An integrated investment through a single intervention: the national GBON system will be implemented under a unified, integrated, and consistent approach ▪ Last- mile impact: SOFF investments will be embedded into broader projects that will link SOFF upstream investments with last mile interventions. 	
<p>Compliance</p>	<ul style="list-style-type: none"> ▪ Retroactive long-term results-based financing directly channeled to NMHS: Annual disbursements to the NMHS upon WMO verification of data sharing compliance. ▪ Unequivocal results and impact measuring: <ul style="list-style-type: none"> • GBON data sharing results will be technically verified by WMO in real-time • Impact of improved observations in forecast quality will be assessed 	

Sustainability, Risks and Reporting

Financial resource mobilization for long-term support

- Needs: USD 50 million annually to sustain compliance
- Through regular replenishment of supporting institution

Risks

- Contextual
- Programmatic
- Institutional

Learning & Reporting

- Lessons of implementation
- Innovations
- Compliance and impact
- Independent external evaluation



Systematic Observations Financing Facility **Second Potential Funders' Forum**

Agenda item 6 - SOFF roadmap to COP 26 and beyond

Lorena Santamaria-Rojas, WMO Development Partnerships

SOFF development milestones

- SOFF started with the **approval of GBON in 2019**
- **UNFCCC SBSTA recognized GBON** and also the need for **sustained financing**
- Alliance for Hydromet Development established the **creation of the SOFF as a commitment**
- In 2020, establishment of **multi-partner working groups – 30+ partners**
- **WMO constituency** engagement, decisions and consultations
- **SOFF First Potential Funders' Forum**

SOFF beneficiary country consultations

- **WMO constituency** – Permanent Representatives and National Meteorological and Hydrological Services which will be the most important players in the implementation of SOFF.

- **Country groups:**
 - Group of Least Developed Countries
 - Alliance of Small Island States
 - African Group of Negotiators
 - African Ministers in charge of meteorology (AMCOMET)

SOFF private sector consultations

- **Working Group on insurance sector**

Including consultations with InsuResilience.
Report published

- **Consultations with HMEI**

Initial Discussions with HMEI focusing on private sector experience in establishing, operating and maintaining basic observing systems in SIDS and LDCs and the many challenges private sector operators have seen.

Options are explored for public-private business models for the operation and maintenance of basic observing systems supported by SOFF

SOFF roadmap to COP 26

- **SOFF positioning at UNFCCC process** – continuing participating in regional/country consultations and the overall UNFCCC process, incl. consolidating SBSTA decisions and other items such as adaptation and loss and damage.
- **Launch of the Hydromet GAP Report** – 8 July at the UN High-level Political Forum
- **Continuing country consultations** – both WMO and country groups
- **Continuing consultations with other stakeholders**
- **SOFF Third and Fourth Potential Funders' Forums** (next slide)
- **SOFF legally established by end-October** following the Fourth Forum
- **SOFF announcement at COP 26**

SOFF roadmap to COP 26 - SOFF Third and Fourth Potential Funders' Forums

SOFF Third Potential Funders' Forums – Week of 27 September 2021

- **Further advanced elements of the SOFF operational and institutional framework**, including SOFF compliance definition and RBF methodology
- **Discussion paper on SOFF funding needs** and options for sequencing funding and programming of SOFF depending on funder commitments
- **Draft SOFF resource mobilization report**, presenting the proposed rationale, organization and operational modalities for SOFF, which would be endorsed by the funders at the pledging session in October

SOFF Fourth Potential Funders' Forums - Pledging conference – Week of 25 October 2021

SOFF becoming operational

- Once a **threshold for minimum initial contributions** is reached, SOFF would be made operational.
- The **financial threshold** would be jointly agreed upon with the initial funders.
- The first step of operationalization would be the **establishment and staffing of the SOFF Secretariat**.
- The SOFF Secretariat would then prepare all **basic documents for the functioning of the SOFF** for decision at the first Steering Committee meeting, including SOFF operational policies.
- SOFF is expected to be “open for business” by mid-2022.