

# GCOS Vision

## Some preliminary ideas

Han Dolman & GCOS secretariat  
(on behalf of the SC)



**GLOBAL CLIMATE  
OBSERVING SYSTEM**

KEEPING WATCH OVER OUR CLIMATE



Supported by the European Union

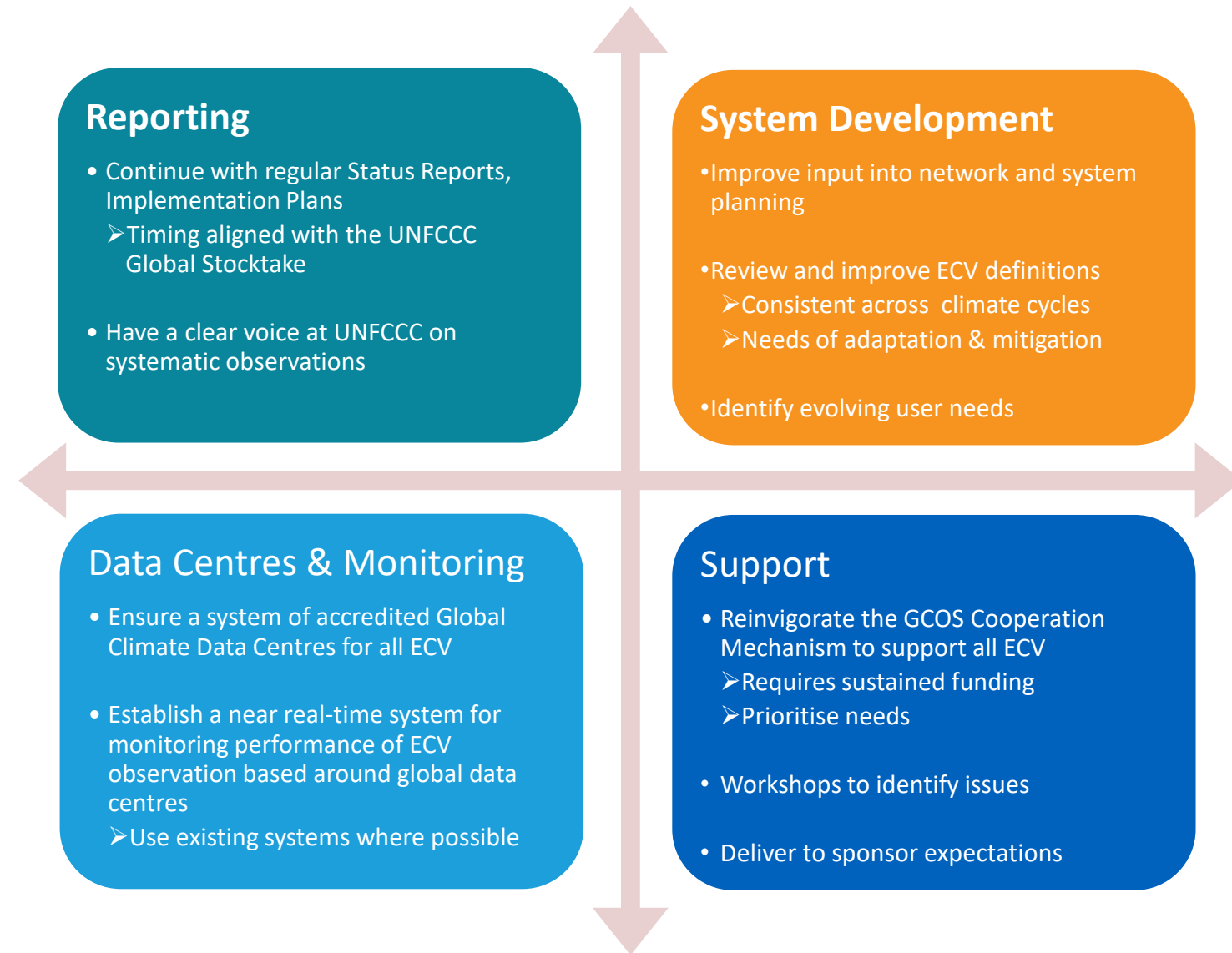


- GCOS is *the* powerful reference for the planning and developing of Climate Observing Systems and networks. GCOS is *the* accepted reference in formulating the requirements for space observations in strong and fruitful coordination with CEOS and CGMS
- A strong scientific expertise in the steering committee and the panels in combination with efficient working arrangements across the panels and the steering committee provides effectively input to the GCOS implementation plan and the GCOS status reports.
- It is also the link to the wider community in both directions: bringing in expertise from and spreading information to the community.
- GCOS is a strong infrastructure of observation networks supported by WMO which are complemented by networks of other important sponsors including space-based observations coordinated by CEOS and CGMS.
- GCOS developed and evolved the concept of Essential Climate Variables and of climate indicators which is widely endorsed by the Community and scientific programs. This is one important “heritage” of GCOS.
- GCOS reports regularly to Parties under the UNFCCC on its work and progress on its implementation plan, which is recognized by the Conference of the Parties (Decision 19/CP.22)

- Current Issues
  - The system is not complete and still has gaps
  - Stakeholder environment has changed, GCOS mandate has not (yet) the role of sponsors>JSG
  - So far GCOS has only monitors system performance every 5-6 years over all ECVs
  - Global Climate Data Centres do not exist for all ECVs
  - The requirements of Global Climate Data Centres are not well defined
  - We have no means to go to individual countries (WMO members, UNFCCC parties)
  - If GBON and SOFF are successful this will duplicate part of the GCM (now poorly funded and, in practice, limited in scope) activities

# GCOS must become more proactive in monitoring the observations of ECVs and in addressing issues in the full value chain

- GCOS mandate is to *support all aspects of ... climate-related global programmes. ... ensure the data needs are met ...*
- GCOS should, in the future, more actively support the overall system by establishing a complete network of Global Data Centres ensuring monitoring, in near-real time, system performance.
- GCOS support should include actively working with UNFCCC Parties and international organizations to improve the global climate system



- There is an urgent need to ensure a network of accredited Global Climate Data Centres covering all ECVs. Need to:
  - Establish principles and requirements
  - Incorporate existing data centres – no duplication
  - Need clear links to GCOS Expert Panels
  - Data must be Free and Open data (FAIR)
  - Arrangements must be sustainable – data is archived for the future
- Data Centres should monitor performance of observations, anticipate problems (e.g. WDQMS)
- GCOS monitors the data centres
  - Cannot address all issues but can raise them with those with resources



Country or Organisation	Networks and data centres
Germany	GTN-H, GPCC, GRDC, GSN, GRUAN, WRMC (Monitoring), Ocean Deployments
Australia	ARGO
Canada	WOUDC (Ozone, GAW), WDCRG (reactive gases, GAW), Ocean Deployments
China	Ocean Deployments
EU	Copernicus, EMODNET, Ocean Deployments
France	Hydroweb, LEGOS, OceanOPS, Ocean Deployments
India	Ocean Deployments
Italy	Ocean Deployments
Japan	GSN(monitoring), WDCGG (GHG,GAW), Ocean Deployments
Netherlands	GGMN
Norway	WDCA (Aerosols, GAW)
Russia	HYDROLARE, WRDC
South Korea	Ocean Deployments
Switzerland	GTN-G, WGMC, GEBA(Global Energy Balance Archive)
UK	Ocean Deployments
USA	NSIDC, GLIMS, NCEI, NOAA, NASA (? Aerosols), Ocean Deployments
CEOS and CEOS	Many satellite missions and data products recorded in the ECV Inventory
ECMWF	ECMWF
ESA	ISMN, CCI and CCI+
FAO	AQUASTAT

**There is already an extensive network of data centres and associated bodies that provide international contributions to the global climate observing system**

- Does not include national observations in a nation's territories
- These often have significant non-climate uses as well
- Only includes significant contributions
- Ocean deployments indicates contribution more than 1% of the global ocean system (>84 deployments).
- This list is incomplete

# GCOS and UNFCCC, an evolving relation

- GCOS' authority and recognition has evolved so have the activities under its current mandate such as provided by the UNFCCC through the COP and SBSTA, which have consistently recognized GCOS' role in coordinating and advancing Systematic Observations of climate in their Decisions and Conclusions and made direct requests to GCOS to continue its reporting cycle and report progress on a regular basis to SBSTA.
- Now the ad hoc group on observations for the Paris Agreement



# GCOS Cooperation Mechanism (GCM)

- Securing adequate funding is needed to sustain the GCM
- To secure funding a clear role needs to be articulated
  - Especially with the developmental GBON and SOFF
- The GCM should
  - **Revisit the initial aims of the GCM:** collation and coordination of existing and planned contributions to climate observations in developing countries;
    - to demonstrate what is being delivered across the board,
    - to identify overlaps, gaps, opportunities for improved efficiency,
    - to identify and inform potential donors on the on-ground/in-country priorities,
    - to link donor funds to opportunities for ongoing support/maintenance/consumables
  - Move its focus from meteorological observations (that is being taken up by GBON and the SOFF) to climate observations more generally.
  - Stage a significant effort at the UNFCCC to publicise and raise funds.
  - Consider closer links to GCOS priorities and regional work.



- Panels
- We have a fairly classic structure (three panels)
- Crosscutting issues, linkages, cycles are becoming increasingly important
- We will operate probably more with ad hoc task forces for specific themes, issues (cycles, adaption,...)
- More interaction between the panels will be needed
- Your input is requested and welcome!

Thank you



**GLOBAL CLIMATE  
OBSERVING SYSTEM**

KEEPING WATCH OVER OUR CLIMATE



WMO



IOC

International  
Science Council



UN  
environment

Supported by the European Union

