



# Director's Report

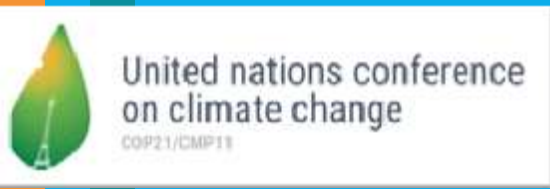
## *Agenda Item 3*

26<sup>th</sup> Steering Committee – 23 – 26 October 2018

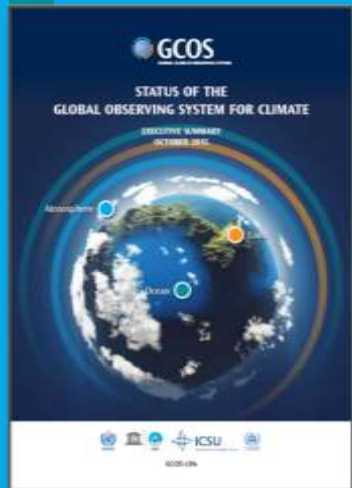
Helsinki, Finland

GCOS Secretariat, WMO

# GCOS Progress: Improving global climate observations



COP-22, Marrakech,  
Decision 19/CP.22  
SBSTA Conclusions



- Support Adaptation & Mitigation
- Water, Energy and Carbon cycles
- Additional Essential Climate Variables
- More help for networks in developing countries
- Climate Indicators

- First Regional workshop held in Fiji for Pacific Island States
- Second Regional workshop in East Africa in Uganda
- Working groups on Radar & Lightning start work
- Working group on GCOS Reference Surface Network meets for first time
- TT Adaptation



2015

2016

2017

# Strategy

The new GCOS Strategy is being considered by the partners before its final adoption.

# Strategy: Advocate - Coordinate - Communicate

## Vision

*a world where users have free access to the climate-related information they need*

## Aim

*to ensure the availability and quality of observations necessary to monitor, understand and predict the global climate system so that communities and nations can live successfully with climate variability and change*

Networks contributing to global climate observations should be:

- Free and Open
- Transparent
- Accurate
- Useful
- Timely
- Use best available science

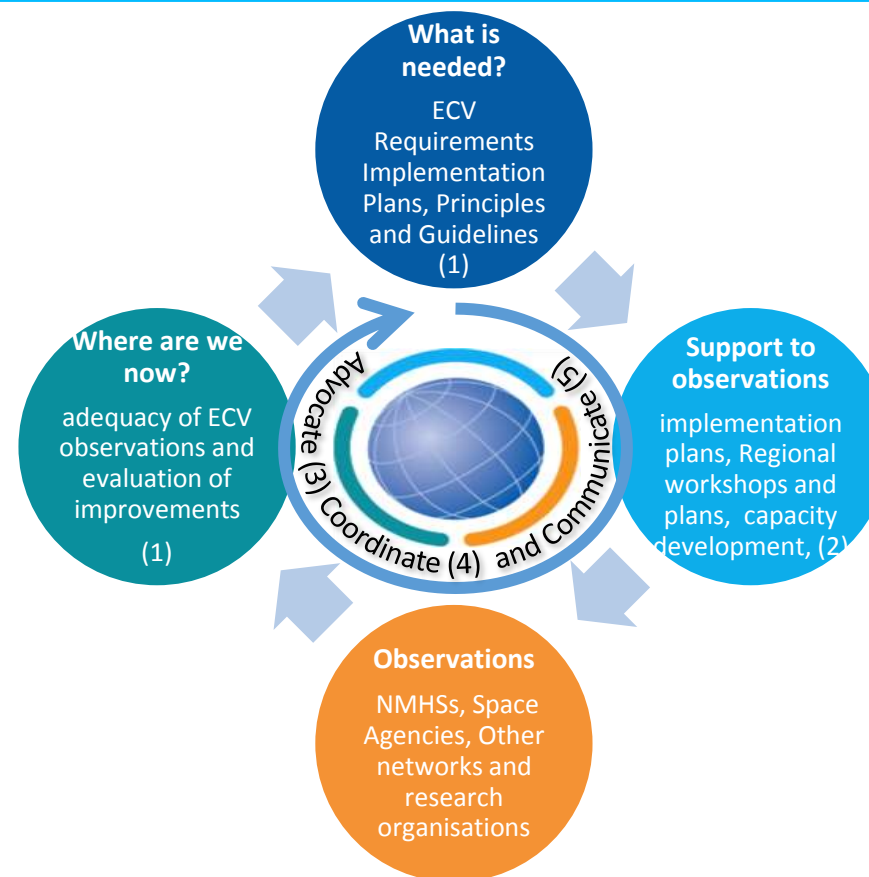
## GCOS Sponsors:



WMO



INTERNATIONAL  
COUNCIL  
FOR SCIENCE

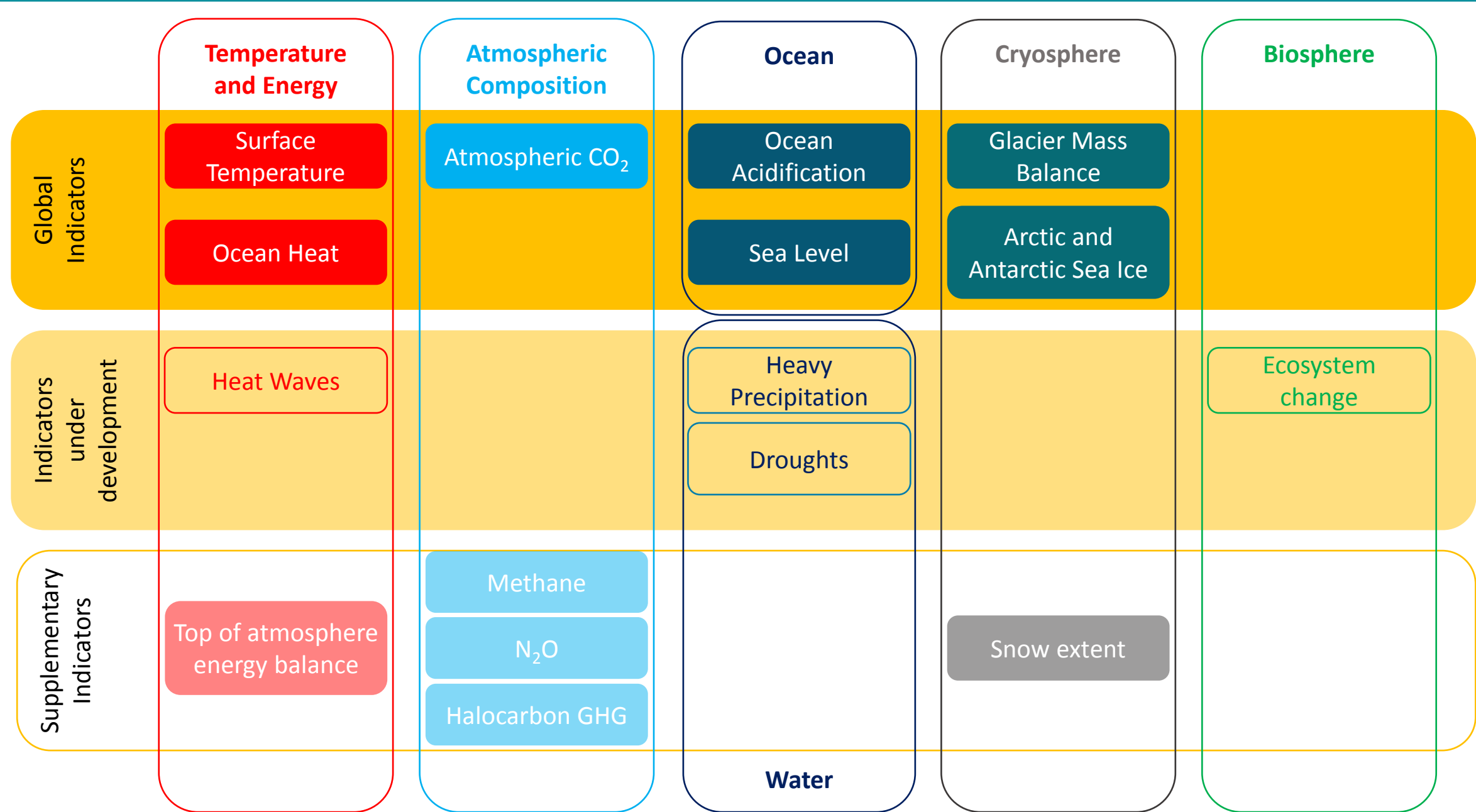


# Indicators

Part of the Communication Strategy.

For describing the rate and range of climate changes, and also becoming an input into the UNFCCC

# Climate Indicators



# Paris Agreement

A major driver for climate observation needs. Adaptation, a significant element of the new GCOS Implementation Plan is an extremely important aim of the Paris Agreement.

GCOS will submit to COP24/SBSTA49 a paper on “Systematic Observations and the Paris Agreement” (to be approved by GCOS SC-26, 22-26 October 2018)

GCOS is assuring the availability of systematic climate observations, in partnership with WCRP, underlying the needs of the Parties to the UNFCCC and the IPCC:

**Research**



World Climate Research Programme

**Assessment**



ipcc  
INTERGOVERNMENTAL PANEL ON  
climate change  
WMO UNEP

**Observations**



GCOS  
GLOBAL CLIMATE OBSERVING SYSTEM  
CEOS CGMS



WG I:  
Physical Science Basis



WG II:  
Impacts, Adaptation and  
Vulnerability



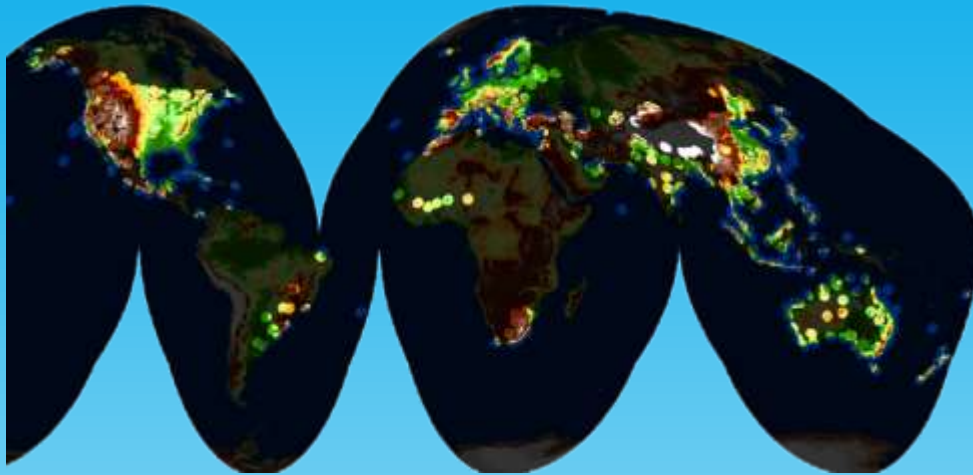
WG III:  
Mitigation of Climate Change



# GCOS Progress since SC-25: Improving global climate observations

## (1) Task teams in Lightning & Radar started work:

- Establishing global weather radar climate records. Task team met in August 2017.
- Wide scale monitoring of lightning is possible and a proxy for severe weather. Task team met in February 2018.



Radar Network

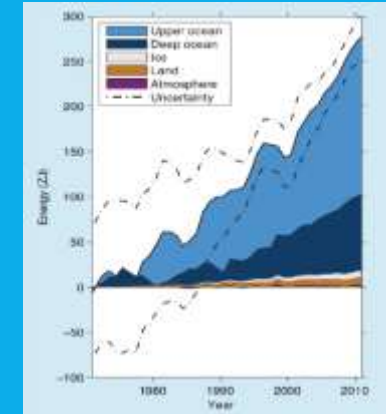


Lightning Network

# GCOS Progress since SC-25: Improving global climate observations

**(2) Review ocean observation system:  
Tracking heat and freshwater content  
changes in the ocean is essential for  
closing global energy and water budgets.  
Can observing systems meet  
requirements?**

**(3) Working group on GCOS Reference Surface  
Network met for first time. Team met in November  
2017.**



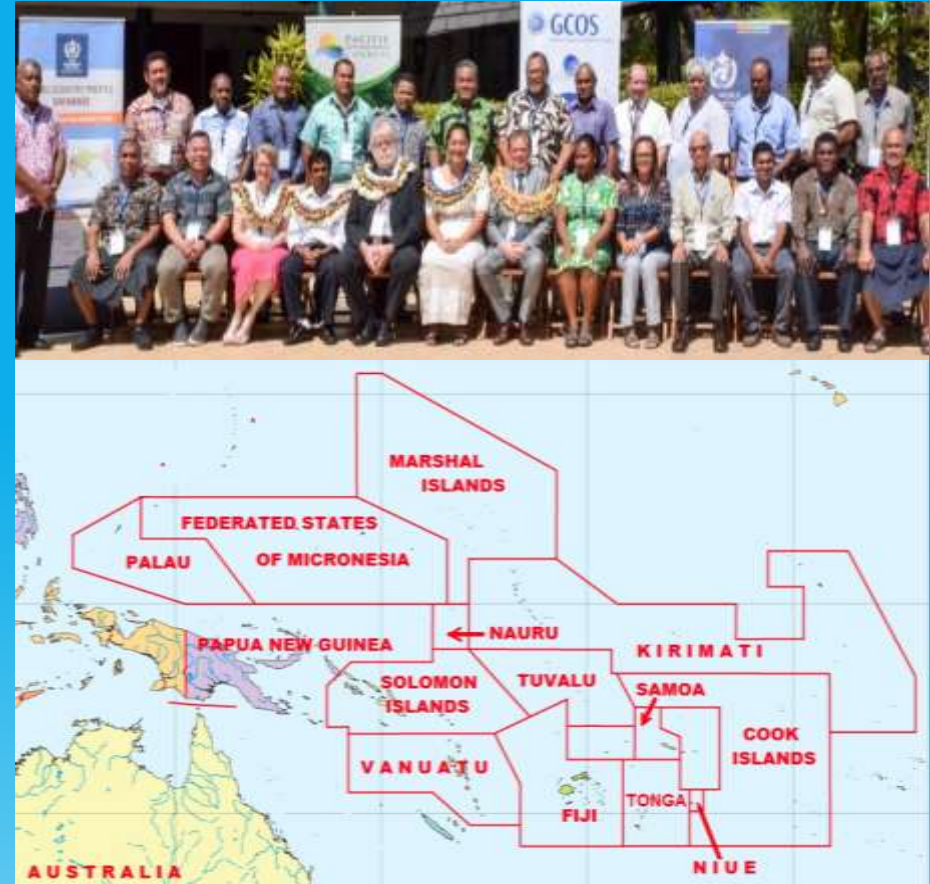
Ocean Heat Content,  
IPCC WGI Ch 3 &13



Reference Surface Network

# GCOS Progress since SC-25: Improving global climate observations

(4) First Regional workshop held in Fiji for Pacific Island States, in October 2017. Second Regional Workshop planned in Uganda, October 2018. Cooperation with WIGOS, GFCS and UNFCCC. Focus on basic climate observations (e.g., precipitation, upper-air).

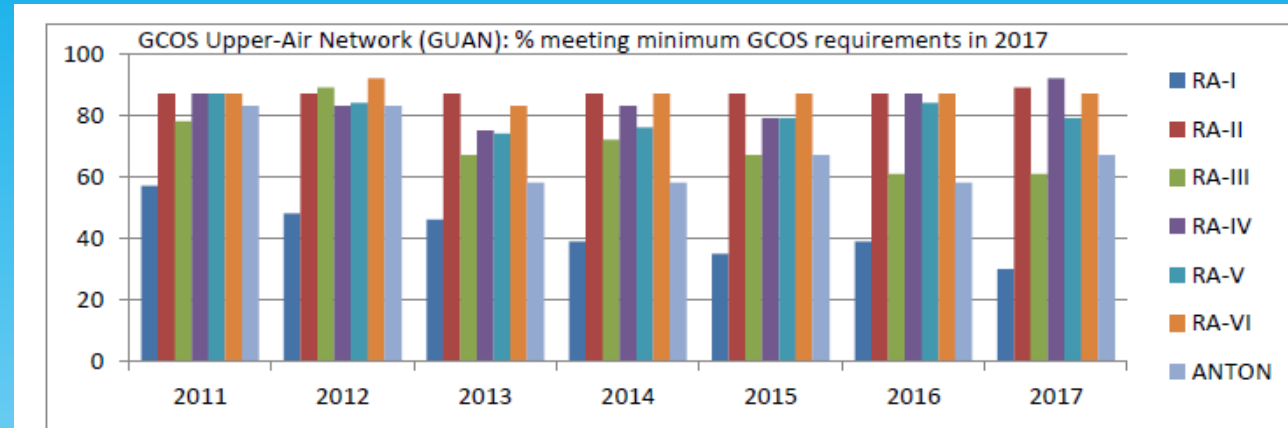
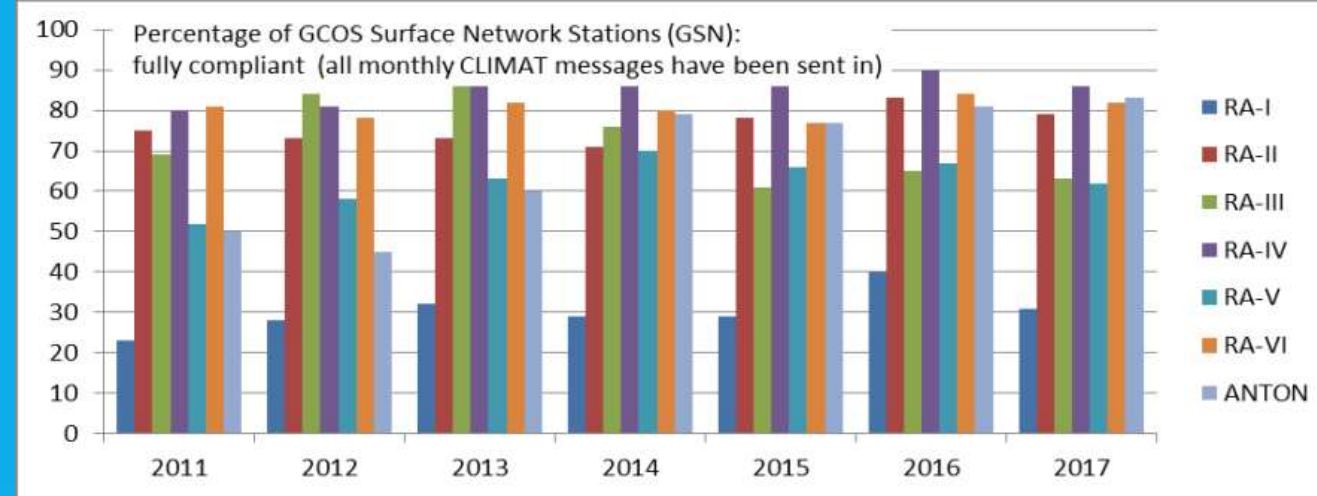


- Held jointly with the WMO Integrated Global Observing System (WIGOS) and hosted by the Fiji Meteorological Office and supported by The Secretariat of the Pacific Region Environment Programme (SPREP). The workshop developed an outline for a ***Pacific region observing network plan*** which will be presented to COP 24

# GCOS Progress since SC-25: Improving global climate observations

(5) Network Report of GSN and GUAN:  
It is getting worse.

Significant areas of GSN and GUAN are not meeting the minimum requirements, as many countries are lacking the necessary resources and technical skills to operate and maintain their stations. This will have an impact on the re-analyses and on calibration and validation activities for satellites.

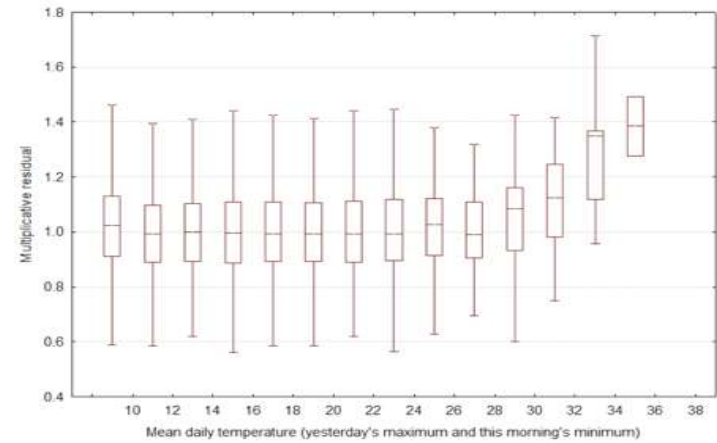




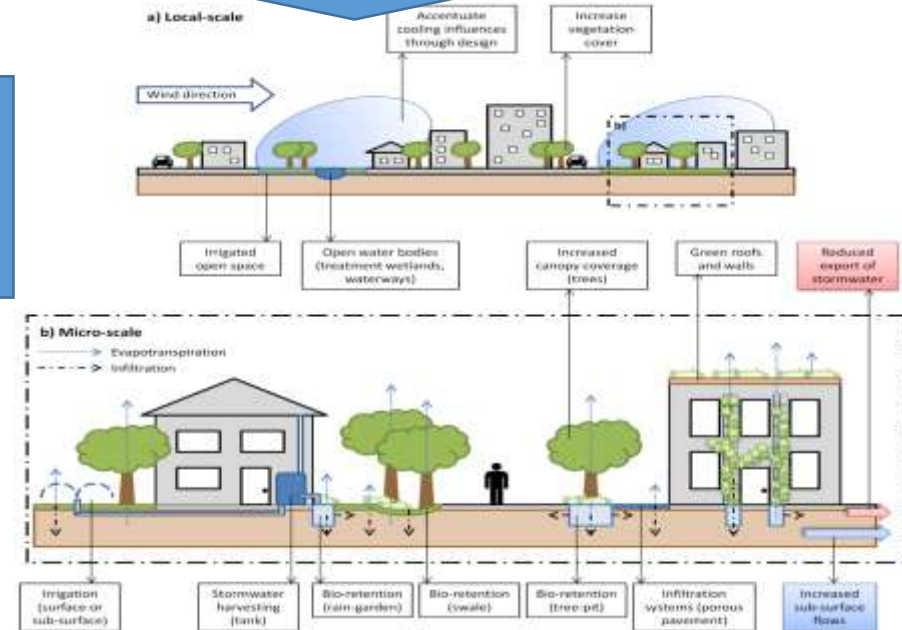
# Example of potential remote sensing of implementation of adaptation actions



Overall impact of these actions can be monitored remotely



Expected Mortality leads to Actions to cool Cities

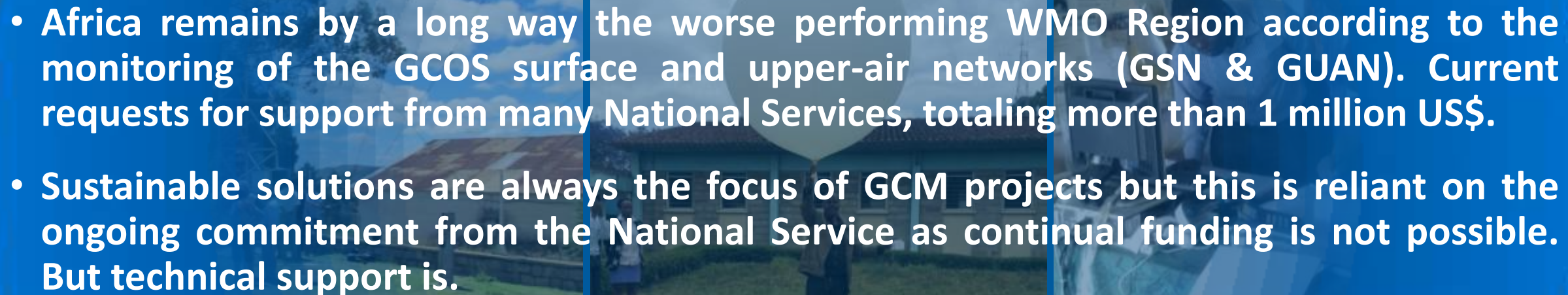


GCOS Task Team on Adaptation, Terrestrial Observation Panel for Climate, Nigel Tapper, 2018.



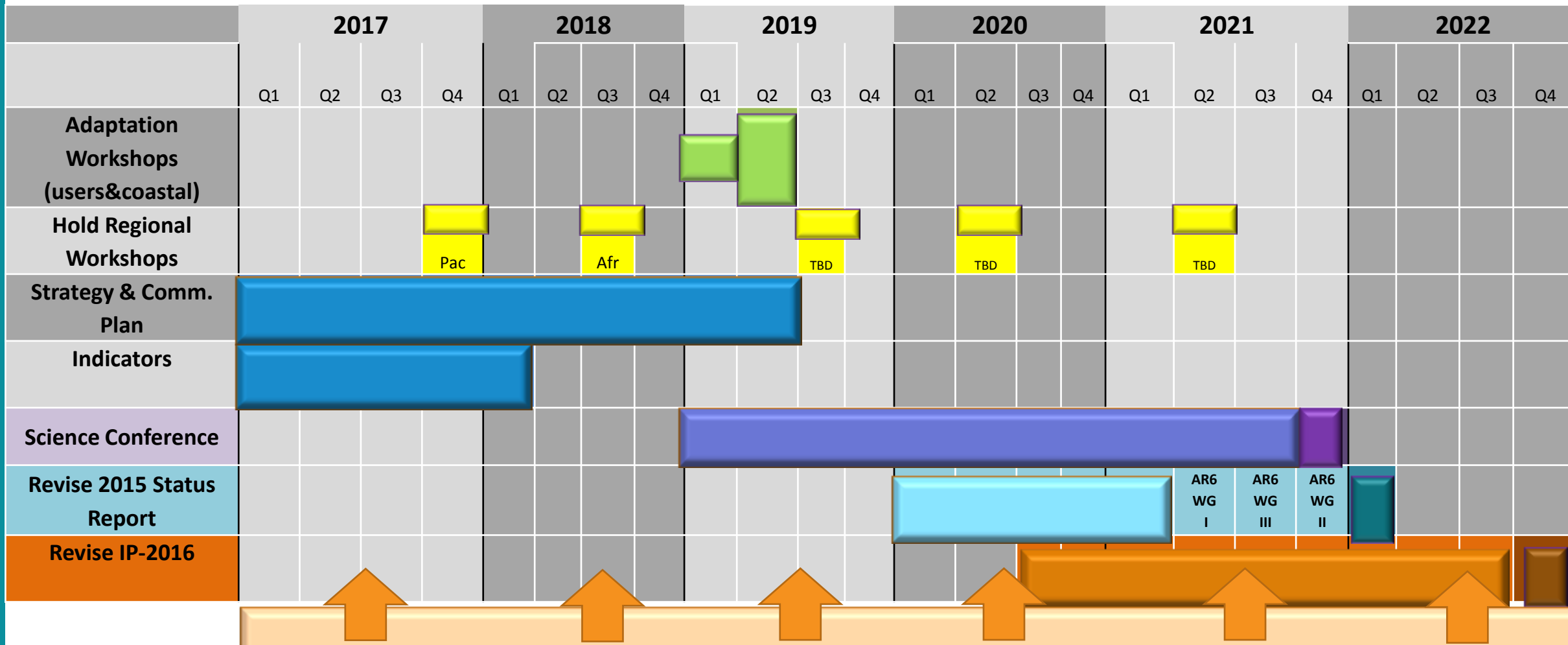
- 
- Benefit for climate observing systems, particularly in Africa but also in remote locations (Galapagos, Cook Islands, Maldives).
  - Limitations due to resources available, and direct funding to the GCM trust fund has decreased significantly in recent years.

## GCOS Cooperation Mechanism

- 
- Africa remains by a long way the worse performing WMO Region according to the monitoring of the GCOS surface and upper-air networks (GSN & GUAN). Current requests for support from many National Services, totaling more than 1 million US\$.
  - Sustainable solutions are always the focus of GCM projects but this is reliant on the ongoing commitment from the National Service as continual funding is not possible. But technical support is.

# Time Plan

## 2023 Global Stocktake



Review of ECV rqmts, Review of adequacy of ECV observations, Monitor progress on IP actions

# GCOS Programme Activities - Panels



Panel sessions in 2018:

AOPC 23<sup>rd</sup> session, 6 – 9 March 2018, Darmstadt, EUMETSAT, Germany

OOPC 21<sup>st</sup> session, 13–16 March 2018, Argentina

TOPC 20<sup>th</sup> session, 20 – 22 March 2018, Geneva, WMO, Switzerland

All GCOS Panels summit, plus CEOS-CGMS WG Climate, plus WDAC

18-22 March 2019, Marrakesh, Morocco

→ ***Agenda Items 5a (Wednesday a.m.)***



# GCOS Programme Activities – Cross Panel Activities



Planned expert team meetings on cross-panel issues in 2018, on:

1. coastal zones cross-GOOS-TOPC: OOPC is establishing a boundary currents, shelf interactions task team which will bring attention in towards the coast; for the coastal aspects, OOPC will work through the GOOS biogeochemistry and biology Panels.
2. cross-validation of ECV products: better understanding adaptation needs .Discussing future activity with WCRP's grand challenge on Sea Level Rise and Coastal Impacts, and GFCS on observations of sea level required to inform decision making.
3. complementing ECV product requirements

# GCOS Programme Activities – Cross Panel Activities



Planned expert team meetings on cross-panel issues in 2018, on:

In addition, plans are being developed inter-sessionally, led by OOPC on:

4. Review of the observing system required to track ocean heat and freshwater content
5. Development of the observing system to meet requirements for Ocean Heat Fluxes (with AOPC). Also contributing to improved tracking of climate cycles.

→ ***Agenda Item 4d (Tuesday afternoon)***

## *Supporting Parties of the UN Framework Convention on Climate Change (UNFCCC):*

SBSTA 48, Research Dialogue, 30 April – 4 May 2018, Bonn, Germany

SBSTA 49, COP24, 3 – 8 Dec 2018, Katowicz, Poland

*→ Agenda Item 6 (Wednesday afternoon)*

# *GCOS Programme Activities – Group on Earth Observations (GEO)*

Participating at a GEO workshop on Paris Agreement, 13 June 2018, Geneva

Member of the Steering Committee on GEO-Carbon

Member of the expert advisory group for streamlining GEO, 9-10 Sept 2018

no representation at the GEO Plenary.

**→ *Agenda Item 5d «relation to other partner programmes», Wednesday p.m.***

# *GCOS Programme Activities – Global Framework for Climate Services*

GCOS has organised joint workshops (Pacific / East Africa) of which GFCS had been invited to be partner.

GFCS office still has not been able to identify a representative to attend the GCOS SC as an ex-officio member (as recommended by the programme review in 2014).

C3S representation at SC is considered to be adequate to cover issues related to climate services, as C3S is operational and working also on a global scale.

**→ *Agenda Item 5d «relation to other partner programmes», Wednesday p.m.***

# GCOS Programme Activities – Intergovernmental Panel on Climate Change (IPCC)

- First Lead Author Meeting for the Elaboration of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, 7 Jun - 14 Jun 2017, Bilbao, Spain
- Second Lead Author Meeting for the Elaboration of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, 25 Sep - 28 Sep 2017, Victoria Falls, Zimbabwe
- Third, Cairns, Australia, 10-13 April 2018, and a Fourth Author Meeting, 22-26 October 2018, Rome, Italy

Lead Author: Simon Eggleston (GCOS Secretariat)

# *GCOS Programme Activities - space agencies*

- CEOS 31<sup>st</sup> Plenary, 18-19 October 2017, Rapid City, South Dakota, USA
- CEOS Strategic Implementation Team meeting, 23-27 April 2018, Boulder, CO
- CGMS Plenary, 47th session, 4-8 June 2018, Bangalore, India
- CEOS SIT, Technical Workshop, 13-14 September 2018, EUMETSAT, Darmstadt, Germany
- CEOS 32<sup>nd</sup> Plenary, 17-18 October 2018, Brussels, Belgium
  
- Joint CEOS-CGMS WG Climate is reporting to SBSTA on climate monitoring from space in response to GCOS

Next CGMS: 20-24 May 2019, Sochi, Russia

Next CEOS: 14-16 October 2019, Hanoi, Vietnam

# *GCOS Programme Activities – partner programmes*

- World Climate Research Programme, Joint Steering Committee, 16-20 April 2018, Nanjing, China
- WCRP Data Advisory Council, 7<sup>th</sup> session, 26-27 March 2018, WMO, Geneva
- Copernicus Climate Change Service, General Assembly, 25-27 September 2018, Berlin, Germany
- C3S expert panel meeting, 6-7 December 2017, Reading, UK (next one in february 2018)

→ ***Agenda Item 5d «Partnerships»***



# *GCOS Programme Activities - Regional Activities*

The GCOS Implementation Manager, Tim Oakley, is working on the GCOS System Improvement Programme with focus on Africa (a subcontractor is working on technical solutions in selected African countries).

Agenda Item 10b, Friday a.m.

Workshop:

GCOS/WIGOS/UNFCCC/GFCS Workshop on regional implementation, 9-12 October 2017, Nadi, Fiji (focus on upper-air, precip)

GCOS/WIGOS/C3S/UNFCCC/GFCS Workshop in East Africa, Entebbe, Uganda, 31 Oct – 2 Nov 2018, (focus on data management)

# *GCOS Programme Activities - Regional Activities*

Meetings for the uptake of the Regional Workshop Programme 2018 had been actually scheduled for 2017, but have to be postponed to 2018,  
And will need to be shifted to 2019:

- Task team on the design of the workshop programme (1<sup>st</sup> Quarter 2019)
- Task Team on the implementation of the workshops (2<sup>nd</sup> Quarter 2019)

# *GCOS Programme Activities – Executive Bodies*

Receiving advice and guidance from the sponsoring organisations:

- WMO meeting of all Presidents of the Regional Associations and of the Technical Commissions, 22 -25 January 2018, WMO, Geneva Switzerland
- WMO Executive Council, 70<sup>th</sup> session, 20 – 29 June 2018, WMO
- IOC EC-51 , 3-6 July 2018, Paris, France
  
- UN Environment is starting to share its agenda with GCOS, and provided since last year a few opportunities to participate and contribute. For example, UN Science & Policy Forum, 18-19 October 2018, Paris.
- D/GCOS is member of Science Committee of PROVIA

The GCOS Secretariat has developed a strategic plan, which should be the basis for the annual work plan.

→ **Agenda Item 5d «Vision of a future GCOS»**

# *GCOS Programme Activities – Key Activities in 2019*

Key activities (incomplete ) in 2019 will be to:

- Develop a regional workshop programme plan to identify needs to improve climate observing systems on a regional and local scale; engaging corresponding activities in WMO and IOC, starting 2019 ff;
- Discuss programmatic strategic priorities and alignment with GOOS (also developing a forward strategy); particularly with regard to overseeing increasingly broad synergies at the interface of the two programmes;
- Provide expertise with respect to cross-panel activities and cross-calibration issues, complement ECV product requirements, detailed adaptation needs and to agree on climate indicators to improve communication;
- Focus on developing observational requirements for adaptation;
- Start planning for the next assessment cycle (and a 2<sup>nd</sup> science conference)
- ..... Alternatives and more to be determined by the deliberations of the Steering Committee