

GCOS Networks

GCOS Secretariat
Item 6.5



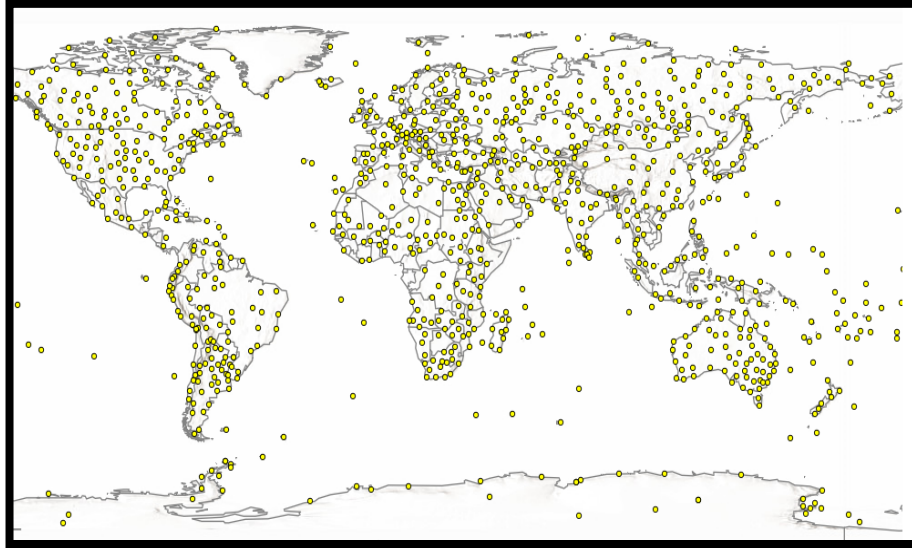
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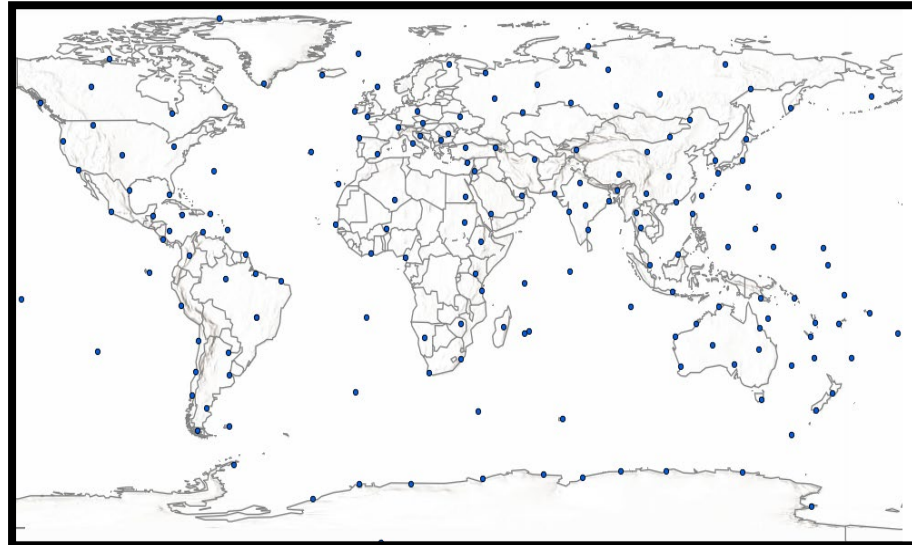
- **GCOS ‘Nominated’ Networks – GUAN; GSN; GRUAN & GSRN (*Draft decision 6*)**
- **Baseline Surface Radiation Network, BSRN (*Draft decision 7*)**
- **Global Terrestrial Networks, GTN’s (*Draft decision 8*)**
- **GCOS Cooperation Mechanism, GCM (*Draft decision 9*)**

GCOS Nominated Networks

GCOS Surface Network
(GSN) - 1023



GCOS Upper-Air Network
(GUAN) - 177



- Designed and implemented 20+ years
- Recognised 'Brand' and have successfully sustained the availability of land surface and upper-air observations (note one of the primary drivers for these networks was the threat to closure of long-term stations)
- GCOS requirements but governance through WMO technical regulations
- WMO Members commitment. 'Passive' monitoring by GCOS

GUAN Performance – 2011 to 2019

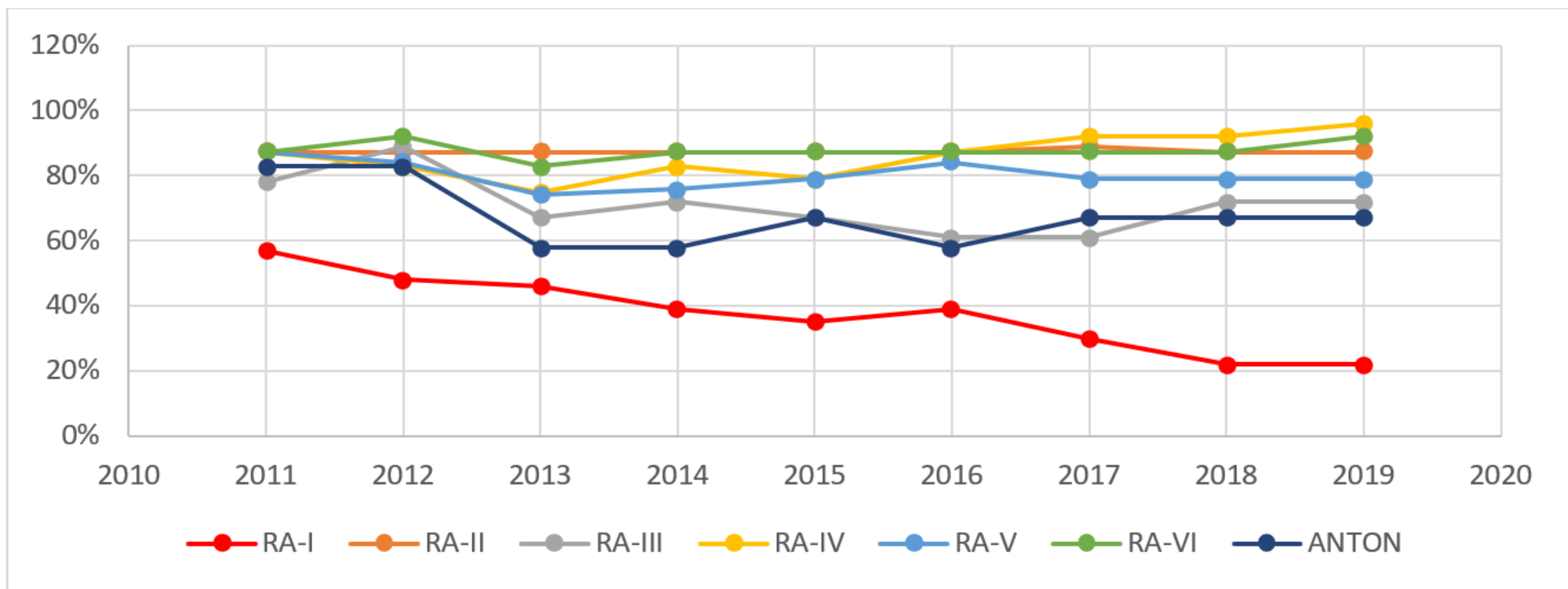
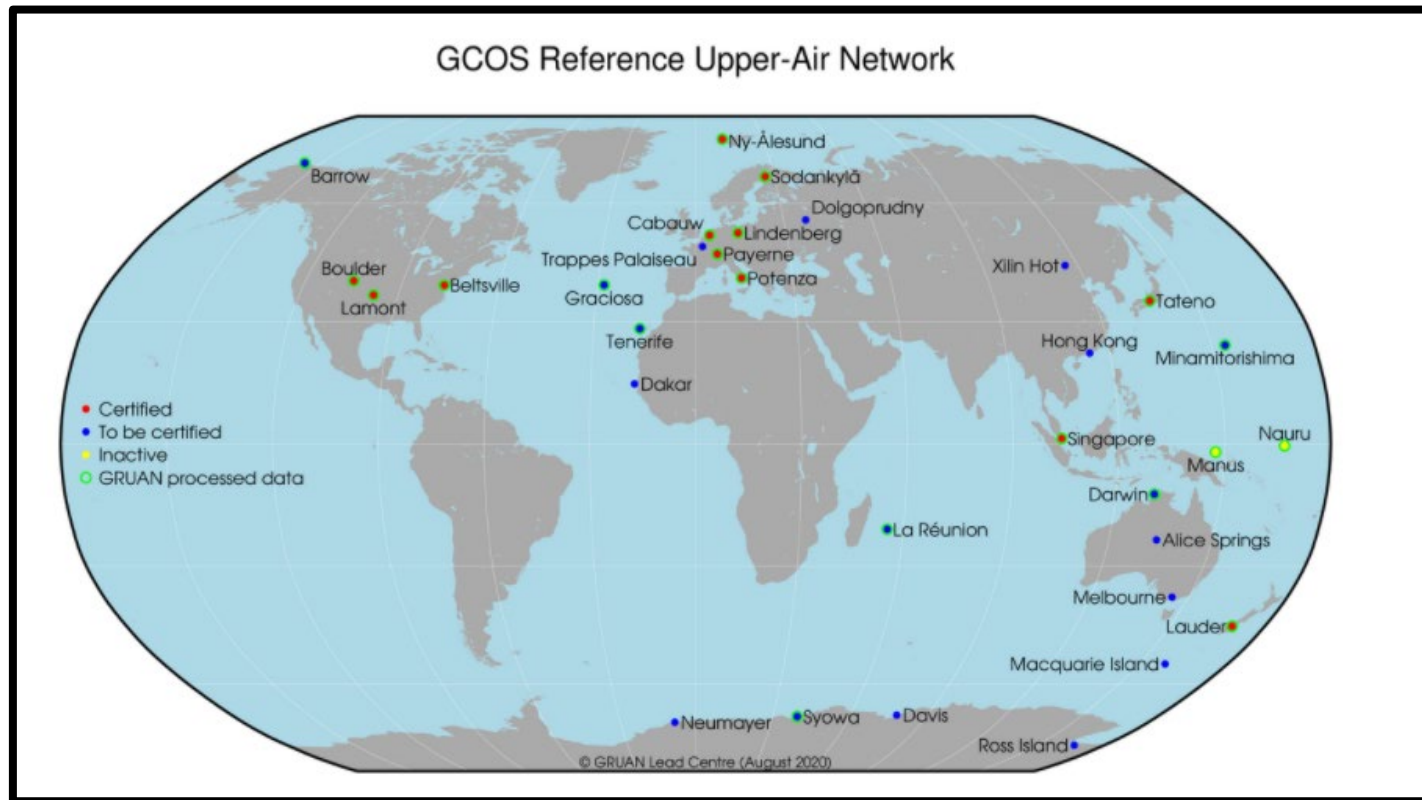


Figure 7 Percentage of dedicated upper-air stations reporting according to GUAN requirements for the different WMO regions. WMO regions: Africa (RA-I); Asia (RA-II), South America (RA-III), North America, Central America and the Caribbean (RA-IV), South-West Pacific (RA-V), Europe (RA-VI) and the Antarctic Observing Network (ANTON)./

GCOS Reference Upper Air Network



- Designed and implemented 12+ years
- Recognised 'Brand' as a reference network. Gradual global expansion but regional bias and a mix of operational/research.
- GRUAN requirements, with some governance through WMO technical regulations
- Part of the tiered network system, endorsed by GCOS (AOPC) and WMO

GCOS Reference Surface Network



- Scientific publication on the concept of a surface reference network
- GCOS AOPC TT to develop a GRSN proposal and outline implementation plan
- WMO INFCOM approved the creation of a GSRN SG and its terms of reference
- Tiered network approach and fully integrated within WIGOS

WMO's Response to persisting data coverage gap: Global Basic Observing Network (GBON)



WMO policy initiative to turn coverage map green;

- Regulatory material to clarify **obligations of WMO Members to exchange observations at set horizontal resolution and set frequency;**
- Developing Members will need help; **GBON provides benchmarks for investments in meteorological infrastructure**

- Concept approved by WMO Congress (2019) and initial requirements by INFCOM (2020)
- Focus on requirements for Global NWP but also Climate Monitoring (Reanalysis)
- Replaces some existing Global Observing System Networks (RBSN and RBCN)
- Significant overlap with GUAN and partial overlap for GSN
- No specific requirement/protection for long-term observing stations
- Linked to SOFF (Systematic Observation Financing Facility)

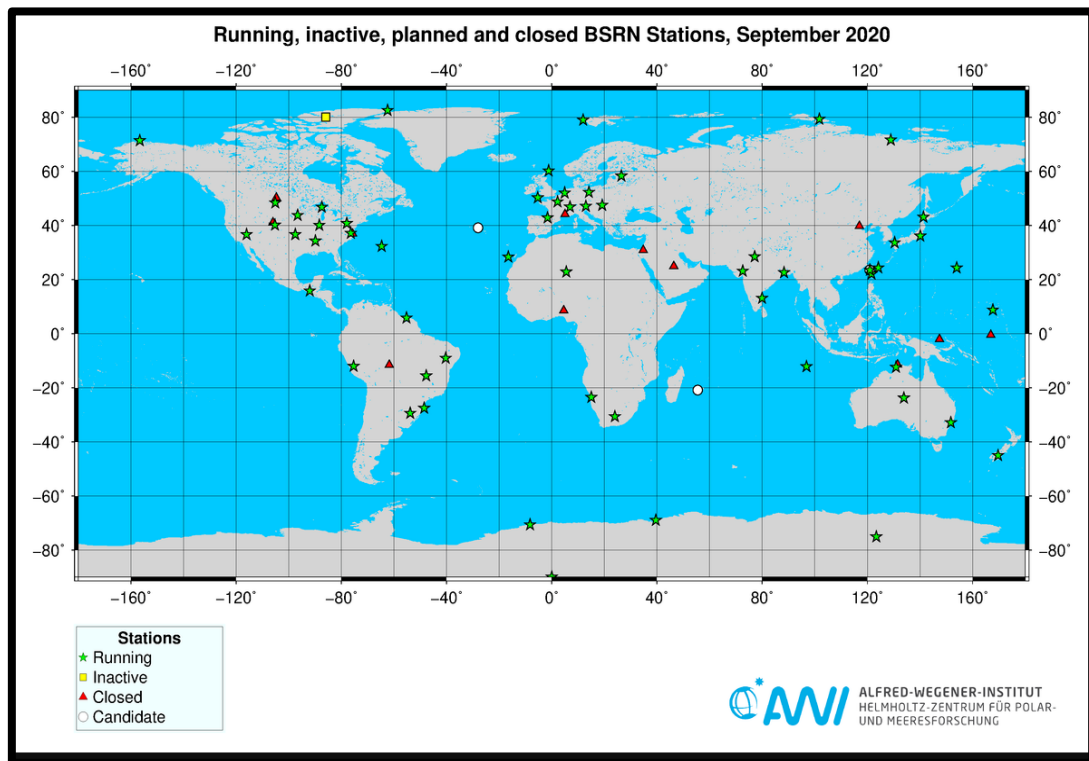


- Vision:
 - a) GCOS Reference Networks are recognised by WMO, IOC, and network operators as the highest quality observing networks with robust metrological traceability and uncertainty quantification leading to improvements in quality and stability of long-term climate records;
 - b) GCOS Baseline networks are integrated into GBON, over the next 5 years, as the minimum set of observations needed to globally monitor the climate;
 - c) The role of all the networks, and GCOS' contribution to them, is clarified;
 - d) Sustained climate networks require sustained funding for the poorest countries, through a managed financing mechanism.

DRAFT DECISION (6)

The Steering Committee decides that the GCOS Secretariat will:

- a) Collect, define and monitor deliverables and milestones for the GCOS reference networks.**
- b) As GBON and SOFF develop, establish an expert group to review how GSN and GUAN can be integrated into the GBON and what are the relevant requirements that must be maintained.**
- c) Through the development of GSRN ensure that the extension of GSRN to all domains is considered.**



Baseline Surface Radiation Network (BSRN)

- Since the agreement between WCRP and GCOS was established in 2004 (AOPC-X), much has changed. The relationship between GCOS WCRP and BSRN should be reviewed. BSRN should be linked to the GSRN.

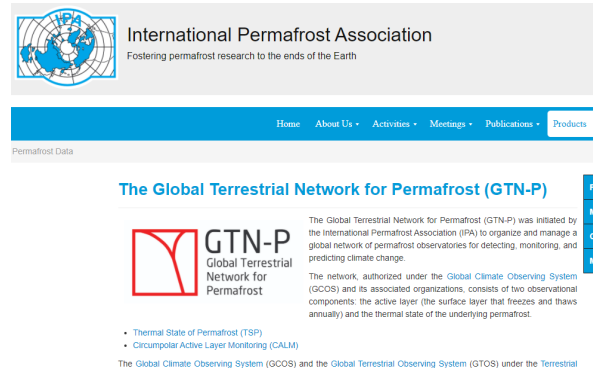
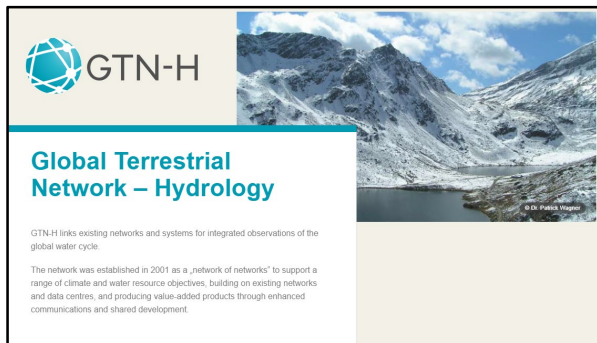
DRAFT DECISION (7)

The Steering Committee decides to jointly with WCRP, review and, if necessary, make proposals about the relationship between BSRN and GCOS

Draft Decision (8)



Global Terrestrial Network for Lakes (GTN-L)



Global terrestrial Networks (GTN).

- Following GTOS ceasing operations, the Global Terrestrial Networks have reported to GCOS. While in general, this has operated well, and the current operation of these networks is good, the situation should be reviewed to determine if there would be any benefits to either a more formal role for GCOS, or for a clearer recognition of the networks as part of GCOS.

DRAFT DECISION (8)

The Steering Committee decides that TOPC will review and, if necessary, make proposals about the relationship between the Global Terrestrial Networks and GCOS, reporting back at the next Steering Committee meeting.

GCOS Cooperation Mechanism (GCM)

- The GCM is the system improvement and resource mobilization activity of the GCOS programme. It has been established following a decision by the UNFCCC SBSTA in 2004 (UNFCCC Decision 5/CP.5) in order “to enable developing countries to collect, exchange, and utilize data on a continuing basis in pursuance of the UNFCCC”. Since then, approximately 4 million USD was raised to accomplish projects dedicated to improving climate observation systems.

GCM projects (2019/20)



Currently donations to the GCM have been small thus limiting its activities. The development of the SOFF may lead to alternative support for GBON sites. This does lead to a few possible futures for the GCM:

- a) GCM could continue as a sort of emergency support for certain sites and issues;
- b) GCM could leave the support of the GBON sites to the SOFF and concentrate on other sites and other monitoring such as hydrology, oceans, cryosphere and the biosphere;
- c) GCM could be wound-up and folded into the SOFF.

All except the last would require additional fund-raising to support GCM activities. A review of the possible options is needed to enable the Steering Committee to reach a decision on the future of the GCM.

DRAFT DECISION (9)

The Steering Committee decides to ask the GCOS Secretariat to present options regarding the future of the GCM to the next SC meeting.

Thank you



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