



GCOS SC-28

Doc. 6.5

(10.XI.2020)

Item 6.5

GCOS STEERING COMMITTEE

TWENTY-EIGHTH SESSION

GCOS SC-28, 24–26 November 2020

Virtual Session

GCOS Networks

A more proactive approach to networks

The Steering Committee is asked to decide for GCOS to take a more proactive approach to GCOS Networks.

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.

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)

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.

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.

Background

1. GUAN & GSN are a recognised brand and have sustained global networks. However, increasingly performance is degrading and coverage in several WMO regions remains poor.
2. GRUAN has had some successes but is still not fully integrated/accepted within WMO. The GSRN proposal has emphasised this again and resulted in requests for better alignment of GCOS reference networks within WMO, despite the fact that reference networks and the concept of tiered networks are included in the WIGOS manual.
3. WMO is establishing the Global Basic Observing Network (GBON). This will provide the minimum requirements needed for numerical weather prediction and reanalysis in support of climate monitoring. The GBON stations will largely overlap with GSN and GUAN.
4. Despite BSRN being a GCOS network for surface radiation, it has very little formal link to GCOS, so it is very hard to influence its evolution.
5. The GCOS Cooperation Mechanism, GCM, was established in response to a request from the UNFCCC and provides practical support to networks. This includes equipment, repairs, communication and training. However, in recent years contributions to the fund have been falling.
6. The formal relationship with the various Global Terrestrial Networks to GCOS is unclear. These were setup under GTOS and, following GTOS' demise, have reported to GCOS. These are, in general, operating well.

Issues

7. Passive monitoring of GSN and GUAN relies on WMO Members commitments, rather than a more active management approach.
8. It is unclear how the GCOS networks will align with GBON. If GBON is accepted and fully implemented, then will this make GSN and GUAN obsolete?
 - What would be the formal mechanism underlying such a decision?
 - What criteria would need to be met to determine that GSN and GUAN are fully part of GBON?

9. The GCM has insufficient funds to support the needs of GUAN and GSN. How should the GCM continue in light of WMO's SOFF proposal were that proposal to be successful and adequately supported by international donors on a sustained basis?
10. The GCM has, to date supported meteorological networks and not the other parts of the in situ global observing system.

Vision

11. In response to these issues and the need to clarify the future of the GCOS networks it is proposed that there is a clear vision for their future, as follows:
 - 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.

Actions

12. In order to achieve this vision GCOS should:
 - a) Work towards stronger management of reference networks by GCOS: Clear deliverables and milestones met by reference network lead centres;
 - b) Ensure the integration of GCOS Baseline networks into GBON, maintaining minimum climate requirements, over the next 5 years;
 - c) Clarify links between GCOS and: i) BSRN; ii) the Global Terrestrial Networks;
 - d) Drive the expansion of the reference site concept to oceans and terrestrial observations;
 - e) Determine a defined role and future for the GCM.
13. 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.
14. 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.
15. 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.
