



**GCOS STEERING COMMITTEE
THIRTIETH SESSION**

GCOS SC-30, 7–8 December 2022

Virtual Session

Panel TOR and membership

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The Steering Committee is asked to agree the revised terms of reference (ToR) for the panels and their members. The Steering Committee should also approve the initial list of ex-officio members.

DRAFT DECISION (7)

The Steering Committee approves the panel composition, the terms of reference of panel chairs and members, and the panels' term of reference contained in Annex A to Document 2.6 and agrees that it should be implemented immediately.
The Steering Committee approves the initial list of ex-officio members for the panels contained in Annex B to Doc.2.6, noting that the panel chairs may propose changes for approval by the Steering Committee in the future.

Summary:

The General Regulations on Panel Members and Chairs was approved in May 2010 and it has not changed since then.

GCOS Panels Members ToRs were approved during the GCOS-SC-27 in 2019 (Doc. 11).

The SC-23 in 2015 agreed on the AOPC, OOPC, and TOPC Terms of Reference.

These regulations and terms of reference have been updated to reflect the current situation. Significant changes include increasing the core membership of the panels to 15, increasing the length of service on the panels to 3, 6 or 9 years, and formalizing ex-officio members.

Annex A

Terms of Reference for GCOS Panels

This document defines the membership and working procedure of the expert panels of GCOS, and the terms of reference of the GCOS panels. Section one specifies the composition of the GCOS panels and contains the TOR for Panel members and chairs, which is common to all members of the GCOS panels. Section 2, 3 and 4 contain respectively the TOR for the AOPC, OOPC and TOPC.

Section 1: Terms of Reference for GCOS Panel Members and Panel Chairs and composition of GCOS panels

The GCOS panels are composed of core members and ex-officio members. The panels are led by a chair. The chair of each panel can decide to nominate a co-chair, or a deputy chair, selected from the core panel members. Ex-officio members will be appointed by relevant programmes and/or networks. The chair of a panel may invite additional experts to contribute to specific tasks.

GCOS Panel Members

1. Membership of the panels will consist of:
 - a. Up to 15 core members including the panel chair and co-chair or deputy chair;
 - b. Ex-officio members: No more than 6 or not exceeding one third of the core membership if it is less than 15;
 - c. A representative of each panel sponsor at their own expense.

Panel Chairs:

1. The Panel Chair shall be appointed by the GCOS Steering Committee with the approval of the panel sponsoring programmes of each of the panels.
2. The Panel Chair shall serve for 3 years. Subject to approval of the GCOS Steering Committee this may be extended for an additional 3-year period. After 6 years of service, the GCOS Steering Committee and the panel sponsoring programmes may approve an extraordinary 3-year extension.
3. The Panel Chair may nominate a co-chair or a deputy chair, selected from the panel members. This nomination will be subject to approval by the GCOS SC and the panel sponsoring programmes.

Panel Chairs shall:

4. Lead the panel, guiding and prioritizing the panel's agenda and work, with the support of the GCOS Secretariat.
5. Preside over the annual panel session and respond to its requests and decisions.
6. Act on behalf of the panel between meetings.
7. Present the panel's activities at the annual GCOS Steering Committee.
8. Follow up on the actions of the panel supported by the secretariats.
9. Assist the GCOS Secretariat in reviewing the membership and nominating new candidate members.

Core Members:

10. Members of the panels should be technical experts in their individual capacity. Specific duties of the panel members are specified in the Panel Member ToR (Sections 2, 3 and 4 of this document).
11. Membership should provide for geographical and gender representation.
12. New members should be selected by the Panel Chair and shall be appointed by mutual consent of the GCOS Steering Committee Chair, the Director of GCOS and the Chair(s) of the panel sponsoring programmes.
13. Members shall serve for 3 years. Subject to approval of the Panel Chair this may be extended by an additional 3 years. After 6 years of service, further extensions may be possible, but these must be approved by the GCOS Steering Committee.
14. At the request of the Panel Chair and with the approval of the GCOS Steering Committee Chair and the Chair(s) of the panel sponsoring programmes, members that will not have satisfactorily discharged the expectations as described in this section can be dismissed from the role of GCOS Panel Members at any time.
15. The GCOS Secretariat will support travel to meetings and related costs.

Members of the GCOS Panels shall:

16. Lead the evolution of sustained and systematic observations of the global climate system in accordance with their expertise, as part of a GCOS expert panel.
17. In agreement with the Panel Chair(s), take responsibility to report to the panel for one, or a few, Essential Climate Variables and/or networks on:
 - a. The ECV requirements for long-term monitoring of the Earth's climate;
 - b. The adequacy of observing networks (in-situ, satellite-based), compared with the ECV requirements;
 - c. Progress on actions contained on the latest GCOS Implementation Plan.
18. Contribute to the revision of the ECV, based on user needs for climate monitoring, adaptation and mitigation.
19. Contribute to the regular updating of the GCOS Status Report and Implementation Plan.
20. Liaise with relevant research, operational, and user communities.
21. Undertake, in agreement with the Panel Chair(s) other tasks in line with the panel Terms of Reference (Sections 2, 3 and 4)
22. The total commitment is expected to be about 10 days per year, including:
 - a. One panel meeting a year ;
 - b. Taking part in panel teleconferences as decided by the Panel Chair(s), (expected to be at least 4 times a year).

Ex-officio Members:

In addition to the Panel Core Members, related programmes/organizations/networks will be invited to nominate ex-officio experts based on the work programme of the relevant GCOS Panel. The GCOS Steering Committee shall have oversight of the ex-officio experts in the three panels.

23. Panel Chair(s) can, on annual basis, propose programmes/organizations/networks to be represented by ex-officio members at panel meetings. These proposals shall be approved by the Steering Committee.

24. Ex-officio members should be technical experts. Specific duties are the same as for a Core Members. Ex-officio members shall ensure a connection between the panel and the organization they represent and shall regularly report to the organization and to the panel.
25. Following approval of the proposed ex-officio member by the Steering Committee, the GCOS Secretariat shall inform the programme/organization/network and invite them to nominate an expert. Nominations shall be confirmed, in writing, and invitations copied to the programme/organization.
26. The duration of the ex-officio member appointment depends on the nominating organization who at any time can nominate a different expert.
27. Ex-officio members shall be invited to participate to all panel meetings.
28. In general, the nominating organization shall provide travel support to the panel meetings.

Additional experts:

29. Panel Chair(s) can, on an ad hoc basis, invite individual experts to the panel sessions and to contribute to the panel work. In general, GCOS Secretariat will not support travel to meetings and relative costs for the additional experts.

General Procedures

30. Invitations to Panel sessions should be sent out from the GCOS Secretariat to all panel members and copied to the Chair(s) of all other GCOS panels.
31. The GCOS Secretariat shall issue letters of appointment for new members on behalf of the panel sponsoring programmes.
32. The GCOS Secretariat shall issue letters of thanks for leaving members on behalf of the panel sponsoring programmes.
33. The GCOS Secretariat shall organize a panel meeting in person or by teleconference at least once a year.
34. The GCOS Secretariat shall publish a report after the panel meeting.

Section 2: The Atmospheric Observation Panel for Climate (AOPC) Terms of Reference

The Atmospheric Observation Panel for Climate was established by the GCOS Steering Committee in recognition of the need for specific scientific and technical input concerning atmospheric observations for climate. The Joint Scientific Committee of the World Climate Research Programme (WCRP), recognizing the benefits of the AOPC, agreed in 1995 to co-sponsor the panel, which was therefore renamed as the GCOS/WCRP Atmospheric Observation Panel for Climate. It meets regularly to review progress and address identified issues with the global observing system for climate.

AOPC is supported, amongst others, by the WMO Integrated Global Observing System (WIGOS) – an integrated, comprehensive, and coordinated system that comprises in-situ and space-based observations of the present WMO global observing systems. WIGOS represents an integrated framework of existing WMO observing systems and aims at providing the data required for delivery of services for all regions around the globe in an effective and efficient manner.

The goal of the AOPC is to plan, monitor and promote the atmospheric component of GCOS.

Its specific Terms of Reference are as follows:

1. To maintain and periodically review the list of GCOS Atmospheric Essential Climate Variables;

2. To liaise with relevant stakeholder bodies in order to determine and maintain the requirements for data to monitor, understand and predict the dynamical, physical and chemical state of the atmosphere and its interfaces on climate relevant time scales, on both global and regional levels;
3. To advocate for the establishment, re-establishment and maintenance of integrated observing systems to provide long-term, high-quality, consistent data and information to meet those requirements according GCOS monitoring principles;
4. To propose and promote the establishment of new systems, or enhancements to current systems and practices, to address identified deficiencies;
5. To review the current state and identify gaps and inadequacies of the atmospheric component of the global observing system;
6. To promote the maintenance of sustainable long-term observation networks and the use of best practices;
7. To promote the rehabilitation of relevant historical data sets;
8. To promote and review institutional arrangements to ensure that climate data and observations are:
 - Of the highest quality based on agreed metrics;
 - Collected in accordance with the highest standards of practice;
 - Archived and accessible to the user community.
9. To instigate the establishment of working groups and other initiatives for pursuing AOPC goals;
10. To coordinate activities with the other GCOS panels, and to liaise with WCRP steering groups and other relevant entities, such as WMO Commissions, CGMS, CEOS and space agencies on atmospheric climate observing system issues;
11. Respond to assignments from the GCOS Steering Committee;
12. To report regularly to the GCOS Steering Committee and the Joint Scientific Committee of WCRP.

Section 3: The Ocean Observations Physics and Climate Panel (OOPC) Terms of Reference

Recognizing the need for ocean observations beyond those for climate, and the increased need to connect to societal issues in the coastal zone, OOPC's role has evolved to oversee the Ocean component of the Global Climate Observing System (GCOS) and the physical variables for the Global Ocean Observing System (GOOS), while defining sustained ocean observing requirements for the World Climate Research Program (WCRP) and supporting assessments (i.e. IPCC), monitoring, projections and research.

Its specific Terms of Reference are as follows:

1. Assess, review and prioritise requirements for sustained ocean observations of physical Essential Ocean Variables (EOVs), and ocean Essential Climate Variables (ECVs) in support of GOOS, GCOS and WCRP by:
 - 1.1. Engaging the broad stakeholder community (primary scientific) to assess, review and update requirements for EOVs and ECVs;
 - 1.2. Assessing the readiness of observing technologies, identifying those that have high feasibility and high potential impact in delivering required information;

- 1.3. Assessing the adequacy of present global EOV/ECV observations to make recommendations for phased implementation, contributing to the GCOS Implementation Plan and GOOS Implementation Plan, and
- 1.4. Providing an authoritative source of guidance on the development of national coastal and ocean observing requirements and observing system implementation plans.
2. Work with the GOOS Observations Coordination Group (OCG) and other relevant regional bodies to coordinate observing networks that contribute to ocean ECVs and physics EOVs by:
 - 2.1. Encouraging GOOS Regional Alliances (GRAs) and national commitments to regional and global observing networks;
 - 2.2. Promoting common best practices and observing standards for global and national observations;
 - 2.3. Encouraging readiness of emerging networks, particularly those that fill observing gaps or lower costs per observation;
 - 2.4. Promoting data sharing for global and national observations and adherence to IOC data policy, GCOS Monitoring Principles and WMO data policy;
 - 2.5. Identifying opportunities for synergistic cooperation and/or common technical support, and
 - 2.6. Developing metrics for implementation.
3. Work with the International Ocean Data Exchange (IODE), WMO Information System (WIS), GRAs and other partner organizations (e.g. Group for Earth Observing (GEO), WCRP) to review the status of and requirements for data and information management, availability, and resultant products encouraging interoperability and stringent evaluation of fitness for purpose.
4. Help develop a process for ongoing evaluation of the observing system in liaison with users of the data, based on the optimum suite of platforms for required variables, spatial and temporal scales and accuracy through:
 - 4.1. Delivering scientific Leadership in evaluating requirements for ECVs and EOVs;
 - 4.2. Engaging with Modelling community on use of and requirements for observations for ocean model development, state estimates, ocean and climate prediction and observing system evaluation to feed back into the observing system;
 - 4.3. Providing guidance to networks on requirements for implementation.
5. Support global ocean observing activities by involved parties (national/regional activities including GRAs and global programs) through liaison and advocacy for agreed plans.
6. Report to the GOOS Steering Committee, GCOS Steering Committee and WCRP Joint Scientific Committee on the progress in implementing the ocean component of the GCOS Implementation Plan and the physics component of the GOOS Framework for Ocean Observations.
 - 6.1. Coordinate with other GCOS and GOOS Panels, and liaise with WCRP and other relevant entities such as WMO and IOC commissions on ocean observing system issues.

Section 4: Terrestrial Observation Panel for Climate (TOPC) Terms of Reference

The Terrestrial Observation Panel for Climate (TOPC) is co-sponsored by the World Climate Research Programme (WCRP). It was established to develop a balanced and integrated system of in situ, air- and space borne observations of the terrestrial ecosystems for long-term monitoring of land (biosphere, cryosphere, hydrosphere and anthroposphere) properties and attributes which: i) control the physical, biological and chemical processes affecting climate; ii) are themselves affected by climate change, are indicators of climate change and provide information on impacts of climate change; and iii) can support policy relevant decisions and

actions about, among others, climate adaptation and mitigation, global stocktake and national GHG inventories.

The Panel focuses on the identification of terrestrial observation requirements, assisting the establishment of observing networks (in-situ, air borne and satellite-based), providing guidance on observation standards and norms, facilitating access to climate data and information and its assimilation, encouraging the use of best practices and promoting climate studies and assessments.

Panel members meet regularly to review progresses and plan activities.

Its specific Terms of Reference are as follows:

1. To maintain and periodically review the list of GCOS terrestrial Essential Climate Variables (ECVs) and define their requirements;
2. To assess and monitor the adequacy of terrestrial observing networks, identify gaps, promote enhancements, and design plans for long-term sustainable systematic observations that meets users' needs;
3. To advocate for the establishment, re-establishment and maintenance of international data centres that provide long-term, high-quality and consistent data, including the rehabilitation of relevant historical data sets, that meet those requirements according GCOS monitoring principles;
4. To promote and review institutional arrangements, involving both data suppliers and user communities, to ensure that climate data and observations are:
 - Of the highest quality based on agreed metrics;
 - Collected and archived in accordance with the highest standards of practice;
 - Freely accessible.
5. To publish and update GCOS studies and planning documents, such as the implementation plan and satellite supplement;
6. To instigate the establishment of working groups and other initiatives for pursuing TOPC goals;
7. To collaborate with relevant research and operational communities, as well as data users and other stakeholders, in order to address all the above points;
8. To coordinate activities with other GCOS panels and to liaise with WCRP and other relevant global entities and programmes, such as WMO Commissions, WIGOS, GFCS, CEOS and space agencies, Future Earth, UNFCCC and IPCC, on terrestrial climate observing system issues, in order to ensure overall consistency;
9. To respond to assignments from the GCOS Steering Committee;
10. To regularly report to the GCOS Steering Committee and the Joint Scientific Committee for WCRP.

Annex B

List of ex-officio members 2022-2023

AOPC:

- GAW
- WGClimate
- C3S

OOPC:

- GOOS/OCG (GOOS Ocean Coordination Group)
- GOOS/BGC (GOOS Biogeochemistry panel)
- GOOS/BioECO (GOOS Biological and Ecosystems panel)
- GOOS/GRAs (GOOS Regional Alliances)
- WCRP/CLIVAR

TOPC:

- GCW
- WGClimate
- Global Terrestrial Network for Hydrology (GTN-H)
- Global Terrestrial Network for Glaciers (GTN-G)
- Global Terrestrial Network for Permafrost (GTN-P)

TOPC also identified the following further three networks (GTN-Lakes, GTN-Rivers, and ISMN for Soil Moisture) to be considered for future approval of the Steering Committee, depending on relevant needs and conditional to a proper rotation with other ex-officio members.
