



2nd CLIMATE OBSERVATION CONFERENCE

DARMSTADT, GERMANY
17 OCTOBER-19 OCTOBER 2022

Organised by GCOS and WMO with the support of EUMETSAT



A conference to design the pathways for GCOS implementation

- A program conceived with a large representation of Climate Observation Stakeholders
- 6 topics, 2 clusters, a World Café, many discussions and interactions

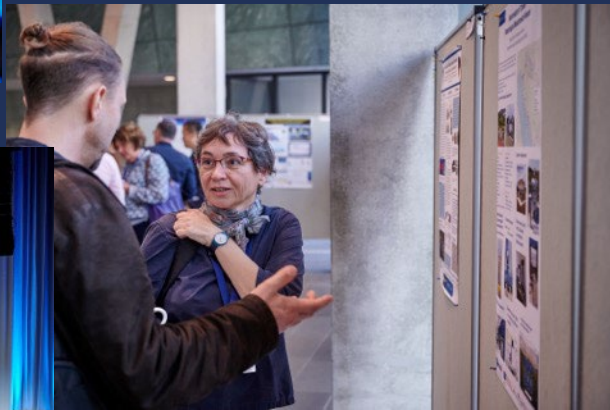
The Conference Conference Scientific Committee



1. Space and ground-based networks and observing systems – how to address improvements to better meet user needs?
2. How can climate observations enhance further the understanding of climate change, extreme events and tipping points?
3. How can global climate observations better support national and international climate policies?
4. Data processing, archiving, access, and stewardship - how can new technologies help address existing challenges?
5. Climate Data Records: what do we need to do to make this information more reliable?
6. GCOS 2050: Shaping the future Global Climate Observing System

A conference to design the pathways for GCOS implementation

- 200 submissions accepted
- 96 talks, 3 Keynote, 104 posters
- Participants:
 - ⇒ 147 in person from 29 countries
 - ⇒ More than 300 participants online
 - ⇒ Global South Early Career Researchers granted for in-person participation





The GCOS Climate Observation Conference Statement

The conference participants unanimously call for UN Member States, and relevant agencies for:

- ➔ **Sustained, long-term funding**, which is essential to ensure the continuity and expansion of observations to monitor the Essential Climate Variables. **The provision of many observations is still supported through limited-term funding, and the climate observing system remains fragile.**
- ➔ **Addressing the key gaps in observations**, that have been identified in different components of the observing system in, the atmosphere, the ocean, the cryosphere, the biosphere, the mountains, and lakes and rivers. **Priority areas for improvement are parts of the Global South, the subsurface ocean, and the polar regions.**
- ➔ **The improvement of data quality, availability, accessibility and utility.** Many climate observations are underexploited because of the lack of consistency, and clarity, in their processing, interoperability and usability. The conference has provided concrete pathways to improvements, identifying that increased effort is required to **ensure that the data can be readily used and are fit for purpose. It also recognized the importance of reference quality observations, with full traceability, and defined and quantified uncertainties.**



The GCOS Climate Observation Conference Statement (cont)

- ➔ **The creation and maintenance of climate data repositories.** To address and understand climate change, the longest possible time series need to be preserved and made available. Climate data must be made available through global data repositories, and their access must be free and unrestricted. **The conference also identified the need for increased funding to ensure data can be rescued from hard-copy, or archaic digital formats, to extend existing data time series.**
- ➔ **Addressing the emerging needs. Climate information needs are changing. As an example, the increased frequency of observations for adaptation and mitigation measures are needed urgently. The global climate observing system must evolve in response to such needs.**
- ➔ **The engagement with nations.** Many climate observations are made by national agencies. These agencies need to be supported by their governing bodies and they need to be coordinated transnationally, at regional and global level. **The benefits of climate observations need to be widely understood and the contributions of national observations to global datasets require enhancement.**
- ➔ **The improvement of regional and national climate change information. Improved understanding of the local decision-making context** and associated observational requirements, will help address the gap between the "top-down", global, production of observations and climate information, and the "bottom-up" local-scale decision making.
- ➔ **Integrated and collocated observations of the physical, chemical, and biological components of the climate system,** which will enhance our understanding on climate variability, trends and impacts, particularly on fragile ecosystems.

The GCOS Climate Observation Conference **CALL FOR ACTION**



“The conference participants call for the establishment of a **global goal on observations** under the UNFCCC. This should guide the needed “action-oriented framework for observation” to assist recognition, understanding and coordination of activities by international, regional and national stakeholders to deliver climate information on the impacts of climate change and for mitigation and adaptation action and reporting. Observations remain fundamental to the value chain of scientific knowledge and activities that support our understanding of our current and future environment and decisions on sustainable development.”



GCOS

