

GCOS Submission to SBSTA 52-55, 2021

Thank you for this opportunity to report on the Global Climate Observing System¹ (GCOS), a programme co-sponsored by WMO, IOC, ISC and UNEP.

GCOS has just published its fifth review of the state of climate observations, *The Global Climate Observing System 2021: The GCOS Status Report* and submitted it to the UNFCCC for your consideration. The executive summary of the report is also available in all the UN Languages².

The report identifies improvements since the previous status report was published in 2015 in our observational capabilities and highlights outstanding issues and gaps. The findings are presented for each Essential Climate Variable (ECV) and specific action identified in the last GCOS Implementation Plan.

Satellite observations have improved, allowing near-global coverage of many variables and providing open access to the data. There also have been many improvements to surface-based observations of individual ECVs across the atmospheric, ocean and terrestrial domains, with new technologies and approaches being developed, especially in the oceans. Archiving and online access to the observations and derived information has improved.

Overall, there are four main areas still needing improvements:

- ensuring the sustainability of observations,
- addressing of gaps in the system,
- ensuring permanent, free and unrestricted access to the observations,
- increasing support for policies driven by the UNFCCC Paris Agreement.

We will present this report during the Earth Info Day and in presentations at the WMO/IPCC/UK MetOffice pavilion.

¹ See <https://gcos.wmo.int/>

² See <https://gcos.wmo.int/en/gcos-status-report-2021>

GCOS Status reports are followed by an Implementation Plan that outlines the improvements that are needed in the global system. Work is already underway to produce the next GCOS Implementation Plan in 2022, responding to the findings of this 2021 Status Report and we encourage all to take part in the public review of this document in early 2022.

Other notable developments include:

- Together with WMO, GCOS is working on establishing a GCOS Surface Reference Network to improve the accuracy and quality of the global observation networks.
- WMO has agreed the implementation of the Global Basic Observing Network, and its funding mechanism the Systematic Observations Financing Facility (SOFF), that, while focused on weather prediction, will significantly improve observations of a few Essential Climate Variables and lead to improvements in climate prediction.
- The WMO Unified Data Policy, agreed at its Extraordinary Congress in 2021, strengthens the free and unrestricted exchange of historical Essential Climate Variables between its Members.
- [Under the umbrella of the Global Ocean Observing System \(GOOS\)](#), [pPlans](#) have been developed and are starting to be implemented to extend observations to the deep oceans, essential to fully monitoring the global carbon cycle and energy balance.
- GCOS is now actively considering how the Global Climate Observing System can support adaptation at the national and local levels. Many ECV can, with small refinements, be used as indicators to support adaptation planning or to monitoring adaptation implementation.



Unfortunately, due to the COVID epidemic, we have been unable to continue with the GCOS Regional Workshops. We will restart this programme as restrictions ease and are considering new ways to improve national engagement in GCOS.

Thank you for your attention