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## Subsidiary Body for Scientific and Technological Advice

### Sixty-first session

Baku, 11–16 November 2024

Agenda item 4

### Research and systematic observation

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### Draft conclusions proposed by the Chair

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA) recognized the vital importance of robust Earth observation systems and related long-term data records, as well as the role of related innovation and technologies, for enhanced understanding of changes in the global climate system and their attribution, mitigation and adaptation action, efforts to avert, minimize and address loss and damage, and early warning systems, and the importance of observational data, including to the work of the Intergovernmental Panel on Climate Change (IPCC).
2. The SBSTA noted with appreciation the information reported in the statements delivered at the joint opening plenary of SB 61 by representatives of the Committee on Earth Observation Satellites and the Coordination Group for Meteorological Satellites Joint Working Group on Climate, the Global Climate Observing System (GCOS), the World Climate Research Programme and the World Meteorological Organization (WMO).<sup>1</sup> The SBSTA also noted with appreciation the statement by the IPCC Chair and welcomed the ongoing work of the IPCC in the seventh assessment cycle.
3. The SBSTA took note of the informal summary report on Earth Information Day 2023.<sup>2</sup> It expressed appreciation to the SBSTA Chair and Vice-Chair and the secretariat for organizing Earth Information Day 2024,<sup>3</sup> which provided relevant updates and information and an opportunity for direct engagement between the systematic observation community and end users of climate data and information. The SBSTA thanked the representatives of the participating organizations and programmes for their valuable contributions, called for continued development of the format and organization of the event, and requested its Chair, with the assistance of the secretariat, to prepare an informal summary report on the event.
4. The SBSTA took note of the 2023 WMO Greenhouse Gas Bulletin<sup>4</sup> and the WMO *State of the Climate 2024 Update*.<sup>5</sup> It expressed utmost concern about the state of the global climate system, with record high atmospheric greenhouse gas concentrations being observed

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<sup>1</sup> The statements are available at <https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx> (in the search field, type “joint opening plenary”).

<sup>2</sup> Available at <https://unfccc.int/documents/641538>.

<sup>3</sup> See <https://unfccc.int/event/earth-information-day-2024-mandated-event>.

<sup>4</sup> WMO. 2024. *WMO Greenhouse Gas Bulletin: The State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2023*. WMO Greenhouse Gas Bulletin No. 20. Geneva: WMO. Available at <https://library.wmo.int/records/item/69057-no-20-28-october-2024>.

<sup>5</sup> WMO. 2024. *State of the Climate 2024: Update for COP29*. Geneva: WMO. Available at <https://library.wmo.int/records/item/69075-state-of-the-climate-2024>.

in 2023, with 2024 being on track to be the hottest year on record, which is primarily a result of the long-term warming caused by emissions from pre-industrial times until now. It noted the information provided on changes in the climatic system, both slow onset and extreme events, occurring globally.

5. The SBSTA welcomed the updates on the state of the global climate system and the significant progress of the systematic observation community as presented at Earth Information Day 2024, including through initiatives such as the Early Warnings for All initiative and the Systematic Observations Financing Facility. It recognized the importance of consistent, continuous and sustained long-term observations of the Earth system supported by scalable innovation and technology solutions. It also recognized the need to address data gaps, including in relation to the atmosphere, hydrosphere (including ocean and coastal regions), cryosphere, biosphere, desert and mountainous regions, and critical and vulnerable ecosystems.

6. The SBSTA noted the updated GCOS global climate monitoring principles, reflected in the *Manual on the WMO Integrated Global Observing System*,<sup>6</sup> adopted at the seventy-eighth session of the Executive Council of WMO. It encouraged Parties to consider the updated principles, recalling decision 11/CP.13, particularly paragraphs 3–4. It also encouraged Parties to nominate GCOS national coordinators, as appropriate, aiming to enhance coordination of systematic observations.

7. The SBSTA noted with appreciation the work of the Technology Executive Committee on early warning systems and the publication of a policy brief,<sup>7</sup> in collaboration with the Group on Earth Observations, on realizing early warnings for all through innovation and technology. It requested the SBSTA Chair to consider inviting relevant organizations to present on the progress in the implementation of the Early Warnings for All initiative at a subsequent Earth Information Day, as appropriate.

8. The SBSTA noted the progress under the Global Greenhouse Gas Watch initiative, aimed at establishing sustained, routine global monitoring of greenhouse gas concentrations and fluxes. It recognized that this initiative is intended to improve the quantification of both natural and anthropogenic greenhouse gas sources and sinks, and to complement emission inventories, noting that reporting and greenhouse gas inventory guidelines are as adopted under the Convention and the Paris Agreement.

9. The SBSTA emphasized the urgent need to maintain and expand systematic observations in support of adaptation, as well as deliver Early Warnings for All, a key global initiative for protecting those most vulnerable to the impacts of extreme weather and climate events.

10. The SBSTA also emphasized the continued need to address gaps in systematic observations globally, noted with appreciation the support being provided for addressing gaps in systematic observations in developing countries, also noted the continued efforts of the Systematic Observations Financing Facility, which currently prioritizes systematic observations in the least developed countries and small island developing States, and invited the Facility to consider extending its support for systematic observations to more countries. It encouraged Parties and relevant organizations to further strengthen their provision of support to the systematic observation community.

11. The SBSTA acknowledged the advancements in digital technologies and innovative systems for Earth observations, prediction and assessment, including early warning systems, such as through artificial intelligence, machine learning and other novel methods, and noted gaps in the development and deployment of solutions that can be scaled up.

12. The SBSTA noted the need to maintain, strengthen and sustain capacity for long-term data collection and data management, including data rescue, digitization, analysis, archiving

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<sup>6</sup> WMO. 2024. *Manual on the WMO Integrated Global Observing System: Annex VIII to the WMO Technical Regulations*. Geneva: WMO. Available at <https://library.wmo.int/records/item/55063-manual-on-the-wmo-integrated-global-observing-system-wmo-no-1160?offset=42>.

<sup>7</sup> Technology Executive Committee and Group on Earth Observations. 2024. *Realising Early Warnings for All: Innovation and Technology in Support of Risk-Informed Climate Resilience Policy and Action*. Bonn: UNFCCC. Available at [https://unfccc.int/tclear/tec/early\\_warning\\_systems.html](https://unfccc.int/tclear/tec/early_warning_systems.html).

and availability. It encouraged Parties and relevant organizations to continue to establish and support open data-sharing and to develop openly available, reliable, fit-for-purpose and accessible data products, as appropriate.

13. The SBSTA noted the need to maintain the integrity of Earth observation systems, and of climate data transmission and measurement systems.

14. The SBSTA invited Parties and relevant organizations to submit views on possible themes for and ways to organize Earth Information Day 2025, to be held in conjunction with SBSTA 63 (November 2025), via the submission portal<sup>8</sup> by 29 August 2025.

15. The SBSTA encouraged its Chair to consider inviting the scientific community to present at Earth Information Day on how gaps in systematic observations identified in these conclusions, as referred to in paragraphs 5, 10 and 11 above, are being addressed.

16. The SBSTA took note of the estimated budgetary implications of the activities to be undertaken by the secretariat referred to in these conclusions.

17. It requested that the actions of the secretariat called for in these conclusions be undertaken subject to the availability of financial resources.

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<sup>8</sup> <https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx>.