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## Subsidiary Body for Scientific and Technological Advice

Fifty-second to fifty-fifth session

Glasgow, 31 October to 6 November 2021

Agenda item 10(a)

**Matters related to science and review**

**Research and systematic observation**

### Research and systematic observation

#### Draft conclusions proposed by the Chair

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA) noted with appreciation the statements delivered during the World Leaders Summit stressing the importance of science in guiding climate policy and action.
2. The SBSTA welcomed the activities and information reported in the statements delivered at the May–June 2021 sessions of the subsidiary bodies by representatives of the Global Climate Observing System (GCOS) and the World Meteorological Organization (WMO) and at this session by representatives of the Committee on Earth Observation Satellites/Coordination Group for Meteorological Satellites Working Group on Climate, GCOS, the Intergovernmental Panel on Climate Change (IPCC), the International Oceanographic Commission, WMO and the World Climate Research Programme,<sup>1</sup> and the corresponding reports and submissions provided, namely the GCOS Status Report<sup>2</sup> and WMO submissions,<sup>3</sup> including the *State of the Global Climate 2021* report<sup>4</sup> and the 2020 *WMO Greenhouse Gas Bulletin*.<sup>5</sup> It noted the relevance of the reports to actions under the Convention and the Paris Agreement.
3. The SBSTA welcomed the contribution of Working Group I to the Sixth Assessment Report of the IPCC (AR6)<sup>6</sup> and the SBSTA–IPCC special event thereon held at this session. It expressed its appreciation and gratitude to the IPCC and the scientific community for preparing this contribution and looks forward to their continued work on the AR6. The

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<sup>1</sup> Available at <https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx> (selected tag: 2021; search: statement).

<sup>2</sup> GCOS. 2021. *The Status of the Global Climate Observing System 2021: The GCOS Status Report*. Geneva: WMO. Available at <https://gcos.wmo.int/en/gcos-status-report-2021>.

<sup>3</sup> Available at <http://unfccc.int/node/28981>.

<sup>4</sup> WMO. 2021. *State of the Global Climate 2021: WMO Provisional Report*. Available at [https://library.wmo.int/index.php?lvl=notice\\_display&id=21982#.YYBvSCDLdPY](https://library.wmo.int/index.php?lvl=notice_display&id=21982#.YYBvSCDLdPY).

<sup>5</sup> WMO. 2021. *The State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2020*. WMO Greenhouse Gas Bulletin. Geneva: WMO. Available at [https://library.wmo.int/index.php?lvl=notice\\_display&id=21975#.YX2WJp7MLFg](https://library.wmo.int/index.php?lvl=notice_display&id=21975#.YX2WJp7MLFg).

<sup>6</sup> IPCC. 2021. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. V Masson-Delmotte, P Zhai, A Pirani, et al. (eds.). Cambridge: Cambridge University Press. Available at <https://www.ipcc.ch/report/ar6/wg1/>.



SBSTA appreciated the dedication of the IPCC experts in continuing their work during the coronavirus disease 2019 pandemic.

4. The SBSTA noted with concern the state of the global climate system, as conveyed at Earth Information Days 2020 and 2021 and in the contribution of Working Group I to the AR6.

5. The SBSTA expressed its appreciation to participating research programmes and organizations for their contributions to the twelfth<sup>7</sup> and thirteenth<sup>8</sup> meetings of the research dialogue and Earth Information Days 2020<sup>9</sup> and 2021.<sup>10</sup>

6. The SBSTA welcomed the reports by its Chair on the events referred to in paragraph 5 above. It invited its Chair to prepare, with the assistance of the secretariat, a summary report on Earth Information Day 2021.

7. The SBSTA noted the significant progress in the work of the research and systematic observation community aimed at strengthening the global response to the threat of climate change, as discussed at the events, and the value of continuing the rich exchanges at future events.

8. The SBSTA also noted the importance of broadening representation at future mandated events by increasing the participation of experts from a wide range of developing countries and geographical regions as well as of representatives of youth and knowledge holders, including local communities and indigenous peoples.

9. The SBSTA encouraged Parties and relevant organizations to strengthen support for sustained systematic observations of the climate system for monitoring changes in the atmosphere, ocean and cryosphere, and on land, including by improving the density of observations in areas of poor coverage, developing and providing long-term data sets and facilitating free and open access to data.

10. The SBSTA welcomed the outcomes of the extraordinary session of the World Meteorological Congress,<sup>11</sup> particularly resolution 1 on the WMO unified data policy, resolution 2 on the Global Basic Observing Network and resolution 3 on the Systematic Observations Financing Facility, and encouraged Parties and relevant organizations to support the Facility in order to enhance and sustain implementation of the Global Basic Observing Network in developing countries, including the least developed countries (LDCs) and small island developing States (SIDS).

11. The SBSTA also encouraged Parties and relevant organizations to strengthen systematic observation and research, and address related gaps and needs, including with regard to:

(a) Promoting exchange of usable and accessible scientific information and other relevant knowledge and guidance at the science–policy interface, including in support of implementation of the Convention and the Paris Agreement;

(b) Connecting knowledge holders, innovators and technical experts with decision makers in an equitable and participatory manner so as to increase understanding and use of knowledge, products, tools and climate services that inform risk assessment and management;

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<sup>7</sup> The agenda, presentations, summary report and related information are available at <https://unfccc.int/topics/science/events-meetings/research-dialogue/twelfth-meeting-of-the-research-dialogue>.

<sup>8</sup> The agenda, presentations, summary report and related information are available at <https://unfccc.int/event/thirteenth-meeting-of-the-research-dialogue>.

<sup>9</sup> The agenda, presentations, informal summary report and related information are available at <https://unfccc.int/event/earth-information-day-2020>.

<sup>10</sup> The agenda, presentations and related information are available at <https://unfccc.int/event/earth-information-day-2021>.

<sup>11</sup> See <https://public.wmo.int/en/events/constituent-bodies/cg-ext2021>.

(c) Furthering the contribution of youth and local, indigenous and traditional knowledge to understanding climate change and its consequences, and weaving such knowledge into decision-making;

(d) Understanding the opportunities for and challenges of implementing nature-based solutions in land and ocean ecosystems for supporting adaptation and mitigation action;

(e) Improving the performance, development and application of regional and subregional climate models and other downscaling methods in order to improve understanding of local climate-related risks and inform regional, national and local decision-making, including in developing countries with high mountain areas, particularly the LDCs and SIDS;

(f) Recognizing and fostering education as a means to build capacity for climate research in diverse communities, including in the LDCs and SIDS;

(g) Addressing capacity-building requirements of developing countries;

(h) Continuing to make advances in climate model simulations, analysis, and methods combining multiple lines of evidence on a wider range of climate variables to improve parameterization of the physical climate system and understanding of scenarios;

(i) Addressing the sensitivities of climate simulations to scenarios and parameterizations.

12. The SBSTA noted the importance of building partnerships as a basis for strengthening understanding and collaboration at the national and regional level, including to facilitate cooperation on addressing key issues such as the ocean and cryosphere. In this regard, it recognized the work of WMO regional climate centres, and work by the Group on Earth Observations on developing relevant knowledge products, indicators, applications and services, notably biosphere observations for ocean and land.

13. The SBSTA encouraged Parties and relevant organizations to support and catalyse the strengthening of data sets for national-level impact analyses and adaptation plans, particularly for the LDCs and SIDS.

14. The SBSTA noted the need for further understanding of gaps in knowledge, including on both tipping points and incremental transformations in the climate system, including in the cryosphere and ocean, as highlighted at Earth Information Day 2021.

15. The SBSTA invited Parties and relevant organizations to submit, via the submission portal,<sup>12</sup> views on possible themes for the fourteenth meeting of the research dialogue, to be held in conjunction with SBSTA 56 (June 2022), by 28 February 2022, and for Earth Information Day 2022, to be held in conjunction with SBSTA 57 (November 2022), by 31 August 2022.

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<sup>12</sup> <https://www4.unfccc.int/sites/submissionsstaging/Pages/Home.aspx>.