

FCCC/SBSTA/1999/CRP.3
31 October 1999

ENGLISH ONLY

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE

Eleventh session

Bonn, 25 October - 5 November 1999

Agenda item 12

RESEARCH AND SYSTEMATIC OBSERVATION

Draft conclusions by the Chairman

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA) took note of the information provided by the secretariat on research and systematic observation in documents FCCC/SBSTA/1999/10, FCCC/SBSTA/1999/13/Add.2 and FCCC/SBI/1999/11.
2. The SBSTA recommended a draft decision for adoption by the Conference of the Parties (COP) at its fifth session (see annex to these conclusions and the guidelines attached thereto).
3. The SBSTA took note with appreciation of the statements made by the representatives of the Global Climate Observing System (GCOS), the Global Ocean Observing System (GOOS) and the Global Environment Facility (GEF).

[For the text of the draft decision mentioned in paragraph 2 above, see the annex below and the guidelines attached thereto]

Annex

Decision _/CP. 5

RESEARCH AND SYSTEMATIC OBSERVATION

The Conference of the Parties,

Recalling Articles 4.1(g), 4.1(h) and 5 of the United Nations Framework Convention on Climate Change,

Recalling also its decisions 8/CP.3, 2/CP.4, and 14/CP.4,

1. *Recognizes* the need to identify the priority capacity-building needs related to participation in systematic observation;
2. *Invites* the secretariat of the Global Climate Observing System (GCOS), in consultation with relevant regional and international bodies, including the Global Environment Facility, to organize regional workshops on this issue;
3. *Urges* Parties to actively support and participate in these regional workshops;
4. *Invites* the secretariat of the GCOS to continue to assist and facilitate the establishment of an appropriate intergovernmental process to identify the priorities for action to improve global observing systems for climate and options for their financial support;
5. *Requests* the GCOS secretariat to report on this matter to the Subsidiary Body for Scientific and Technological Advice at its twelfth session;
6. *Urges* Parties to address deficiencies in the climate observing networks and invites them, in consultation with the GCOS secretariat, to bring forward specific proposals for that purpose and to identify the capacity-building needs and funding required in developing countries to enable them to collect, exchange and utilize data on a continuing basis in pursuance of the Convention;
7. *Decides* to adopt the UNFCCC reporting guidelines on global climate observing systems;¹
8. *Invites* all Parties to provide detailed reports on systematic observation in accordance with these guidelines, for Annex I Parties in conjunction with their national communications, pursuant to decision _/CP.5,² and on a voluntary basis for Parties not included in Annex I to the Convention;

¹ FCCC/CP/1999/L./Add.1.

² Draft decision to be recommended to COP 5 on guidelines for the preparation of national communications by Parties included in Annex I to the Convention (FCCC/SBSTA/1999/CRP.4).

9. *Invites* the Convention secretariat, in conjunction with the GCOS secretariat, to develop a process for synthesizing and analysing the information submitted in accordance with the UNFCCC reporting guidelines on global climate observing systems.

UNFCCC REPORTING GUIDELINES ON GLOBAL CLIMATE OBSERVING SYSTEMS

I. INTRODUCTION

A. Objective

1. The purpose of these guidelines for reporting on global climate observing systems for Annex I and, as appropriate, non-Annex I Parties to the Convention, is to assist Parties in reporting their actions with regard to global climate observing systems, development of observational networks and, as appropriate, support for non-Annex I Parties to the Convention, as defined in Articles 4.1(g) and (h), 5 and 12.1(b) of the Convention.

B. Structure

2. The information identified in these guidelines shall be communicated by the Party in a single document and submitted to the Conference of the Parties through the secretariat, and shall be in one of the official languages of the United Nations. Parties may include a reference to a national focal point and/or web site where additional copies may be obtained. The length of the report may be decided by the submitting Party but every effort shall be made to avoid over-lengthy reports. Parties also should provide an electronic version of their reports to the secretariat.

II. REPORTING

A. General approach to systematic observation

3. Parties shall describe the status of their national programme for systematic observation to meet the needs for meteorological, atmospheric, oceanographic and terrestrial observations of the climate system as identified by the Global Climate Observing System (GCOS)¹ and its partner programmes in line with Article 5 of the Convention. A list of the technical acronyms used in these guidelines is given in appendix 1.

¹ As agreed by the responsible agencies (World Meteorological Organization (WMO), Intergovernmental Oceanographic Commission (IOC) of UNESCO, United Nations Environment Programme (UNEP) and International Council for Science (ICSU)), the GCOS is made up of the climate observing components of the World Weather Watch (WWW), Global Atmosphere Watch (GAW), World Hydrological Cycle Observing System (WHYCOS), Global Ocean Observing System (GOOS), Global Terrestrial Observing System (GTOS), and relevant observation systems established under the World Climate Research Programme (WCRP) and the International Geosphere-Biosphere Programme (IGBP).

4. In describing their national programme, Parties should, where relevant, report on the following:

(a) Existing national plans and their availability, the time frame for their implementation and specific commitments to address GCOS requirements;² Parties should also list and describe the responsibilities of the ministries and agencies, including space agencies, responsible for implementing the plans;

(b) Parties may, if they so wish, provide additional information to that sought in the guidelines, including maps of networks and participation in other relevant programmes, such as the Integrated Global Observing Strategy (IGOS).

5. Parties should describe the extent to which national data on systematic observations are exchanged with other Parties and provided to international data centres. Parties should describe any barriers to the exchange of data or provision of data to international data centres. Parties should, as necessary, describe any national policy or guidance relevant to the exchange of data relevant to meeting the needs of the UNFCCC.

6. Parties should describe actual and/or planned activities for capacity-building in developing countries related to collection, exchange and/or utilization of data to meet local, regional and international needs.

7. Parties should describe actual and/or planned actions since the publication of the previous national communication to strengthen international and intergovernmental programmes related to global climate observing systems.

8. Where information required in these guidelines cannot be provided, Parties should report on any difficulties encountered, needs that should be met to facilitate improved reporting, and steps taken to improve availability of information.

B. Meteorological and atmospheric observation

9. Parties shall, to the extent possible, describe their participation in GCOS, through their provision of meteorological and atmospheric observations including: the GCOS Surface Network (GSN),³ GCOS Upper Air Network (GUAN)⁴ and Global Atmosphere Watch

² Plan for the Global Climate Observing System (GCOS), Version 1.0, May 1995 GCOS-14 (WMO/TD-No. 681).

³ Initial selection of a GCOS Surface Network, February 1997. GCOS-34 (WMO/TD No. 799). See also <http://www.wmo.ch/web/gcos/gcoshome.html> for details of GSN and GUAN requirements.

⁴ Report of the GCOS Atmospheric Observation Panel, second session. Tokyo, 1995. GCOS-17 (WMO/TD No. 696) See also <http://www.wmo.ch/web/gcos/gcoshome.html> for details of GSN and GUAN documents.

(GAW).⁵ Parties should describe to what extent the observations correspond to the GCOS/GOOS/GTOS climate monitoring principles (appendix 2) and relevant best practices.⁶

10. In describing their national programmes, Parties should, where relevant, report on the following: international data exchange; the provision of metadata to the World Data Centres; and participation in, and support for, international quality control and archiving programmes.

11. Parties should, in order to facilitate integration of national reports, complete table 1.

Table 1. Participation in the global atmospheric observing systems

| | GSN | GUAN | GAW | Other* |
|--|-----|------|-----|--------|
| How many stations are the responsibility of the Party? | | | | |
| How many of those are operating now? | | | | |
| How many of those are operating to GCOS standards now? | | | | |
| How many are expected to be operating in 2005? | | | | |
| How many are providing data to international data centres now? | | | | |

Note: * Provide brief details

C. Oceanographic observations

12. Parties shall, where relevant and to the extent possible, describe their participation in GCOS and GOOS through their provision of oceanographic observations⁷ including, for example, sea surface temperature, sea level, temperature and salinity profiles, energy and carbon flux data. Parties should describe to what extent the observations correspond to the GCOS/GOOS/GTOS climate monitoring principles (appendix 2) and other relevant best practices.

13. In describing their national programmes, Parties should, where relevant, report on the following: international data exchange; and their participation in, and support for, international quality control and archiving programmes.

14. Parties should, in order to facilitate integration of national reports, complete table 2.

⁵ GAW requirements are specified by the WMO Executive Council Panel of Experts on Environmental Pollution and Atmospheric Chemistry and its best practices are guided by GAW Quality Assurance/Science Activity Centres and calibration centres. See also http://www.wmo.ch/web/arep/gaw_home.html.

⁶ GSN and GUAN best practices are given in the WMO Manual on the Global Observing System, sections 2.10.3.17 and 2.10.4.9 respectively.

⁷ The GOOS 1998. *IOC1998, IOC, Paris*. See also http://ioc.unesco.org/goos/act_pl.htm for details of ocean observation requirements and for guidance on best practices.

Table 2. Participation in the global oceanographic observing systems

| | VOS | SOOP | TIDE GAUGES | SFC DRIFTERS | SUB-SFC FLOATS | MOORED BUOYS | ASAP |
|--|-----|------|-------------|--------------|----------------|--------------|------|
| For how many platforms is the Party responsible? | | | | | | | |
| How many are providing data to international data centres? | | | | | | | |
| How many are expected to be operating in 2005? | | | | | | | |

Note: See appendix 1 for explanation of acronyms

D. Terrestrial observations

15. Parties should describe their participation in GCOS and GTOS programmes for terrestrial observations⁸ including the Global Terrestrial Network - Glaciers (GTN-G),⁹ Global Terrestrial Network - Permafrost (GTN-P),¹⁰ and the Global Terrestrial Network - Carbon (FLUXNET),¹¹ and other networks monitoring land-use, land cover, land-use change and forestry, fire distribution, CO₂ flux, and snow and ice extent. Additionally, a general description of programmes for hydrological systems should be given. Parties should describe to what extent the observations correspond to the GCOS/GOOS/GTOS climate monitoring principles (appendix 2) and relevant best practices.¹⁰

16. In describing their national programmes, Parties should, where relevant, report on the following: international data exchange; the provision of metadata for these networks; and participation in international quality control and archiving programmes, including hosting international archiving and/or quality assurance and quality control centres.

17. Parties should, in order to facilitate integration of national reports, complete table 3.

⁸ GCOS/GTOS Plan for Terrestrial Climate-related Observations, version 2.0, June 1997. GWS-32 (WMO/TD. No 796). See also http://www.wmo.ch/web/gcos/pub/topv2_1.html# contents for a general outline of terrestrial observations requirements.

⁹ Report of GCOS/GTOS Terrestrial Observation Panel for Climate (TOPC). Birmingham, July 1999. See <http://www.geo.unizh.ch/wgms/> for guidance on GTN-G requirements and best practices.

¹⁰ See <http://www.geography.uc.edu/~kenhinke/CALM/> for guidance on GTN-P requirements and best practices

¹¹ Report of GCOS/GTOS Terrestrial Observation Panel for Climate (TOPC). Birmingham, July 1999. See <http://www-eosdis.ornl.gov/FLUXNET/fluxnet.html> for guidance on FLUXNET requirements and best practices.

Table 3. Participation in the global terrestrial observing systems

| | GTN-P | GTN-G | FLUXNET | Other |
|--|-------|-------|---------|-------|
| How many sites are the responsibility of the Party? | | | | |
| How many of those are operating now? | | | | |
| How many are providing data to international data centres now? | | | | |
| How many are expected to be operating in 2005? | | | | |

E. Space-based observing programmes¹²

18. Parties should, where relevant, provide information on their participation in national and international space-based observing programmes or programmes using satellite data to derive climate-related information.

19. Parties should include the following information: summary description of space series, missions, and/or instruments; mechanisms for access to data and products by international programmes in relation to climate change; mechanisms for archiving, quality assurance and quality control; major domains of applications (atmosphere, ocean, terrestrial); and prospects for long-term continuity, including expected overall lifetime of observational programme. Parties should describe to what extent the observations correspond to the GCOS/GOOS/GTOS climate monitoring principles (appendix 2) and relevant best practices.

20. Where space activities are undertaken jointly with other parties or multinational bodies, Parties should either list participating parties or should refer to the report of another party in which the information can be found.

21. Parties should include in their reports information on climate-related space activities in which the private sector is partly or wholly involved.

¹² Refer to GCOS-15 (WMO/TD No 685). The GCOS Plan for Space-based Observations, Version 1.0, June 1995 (GCOS-15) is available at <http://www.wmo.ch/web/gcos/publist2.html#plan> while GCOS space-based observations requirements can be found by specifying GCOS as the user in http://sat.wmo.ch/stations/_asp_htx_idc/Requirementsearch.asp

Appendix I

DEFINITION OF ACRONYMS USED IN THE GUIDELINES

| | |
|--------------|--|
| ASAP | Automated Shipboard Aerological Programme |
| FLUXNET | Global Terrestrial Network - Carbon |
| GAW | Global Atmosphere Watch of WMO |
| GCOS | Global Climate Observing System |
| GOOS | Global Ocean Observing System |
| GSN | GCOS Surface Network |
| GTN-G | Global Terrestrial Network - Glaciers |
| GTN-P | Global Terrestrial Network - Permafrost |
| GTOS | Global Terrestrial Observation System |
| GUAN | GCOS Upper Air Network |
| ICSU | International Council for Science |
| IGBP | International Geosphere-Biosphere Programme |
| IGOS | Integrated Global Observing Strategy |
| IOC | Intergovernmental Oceanographic Commission of UNESCO |
| SFC Drifters | Surface Drifters |
| SOOP | Ship of Opportunity Programme |
| Sub-SFC | Sub-surface |
| UNEP | United Nations Environment Programme |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| VOS | Volunteer Observing Ship |
| WCRP | World Climate Research Programme |
| WHYCOS | World Hydrological Cycle Observing System |
| WMO | World Meteorological Organization |
| WWW | World Weather Watch of WMO |

Appendix 2

GCOS/GOOS/GTOS CLIMATE MONITORING PRINCIPLES¹

1. Assess the impact of new systems or changes to existing systems prior to implementation.
2. Require a suitable period of overlap for new and old observing systems.
3. Treat the results of calibration, validation, algorithm changes, and data homogeneity assessments with the same care as data.
4. Ensure a capability to routinely assess the quality and homogeneity, including high-resolution data and related descriptive information, of data on extreme events.
5. Integrate environmental climate-monitoring products and assessments, such as IPCC assessments, into global observing priorities.
6. Maintain uninterrupted stations and observing systems.
7. Give a high priority to additional observations in data-poor regions and regions sensitive to change.
8. Provide long-term requirements at the outset of new system design and implementation to network operators, designers and instrument engineers.
9. Promote the conversion of research observing systems to long-term operations in a carefully planned manner.
10. Data management systems that facilitate access, use and interpretation are essential.

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¹ GCOS-39 (WMO/TD-No.87) (UNEP/DEIA/MR.97-8) (GOOS-11) (GTOS-11) Report of the GCOS/GOOS/GTOS Panel, third session (Tokyo, Japan, 15-18 July, 1997).