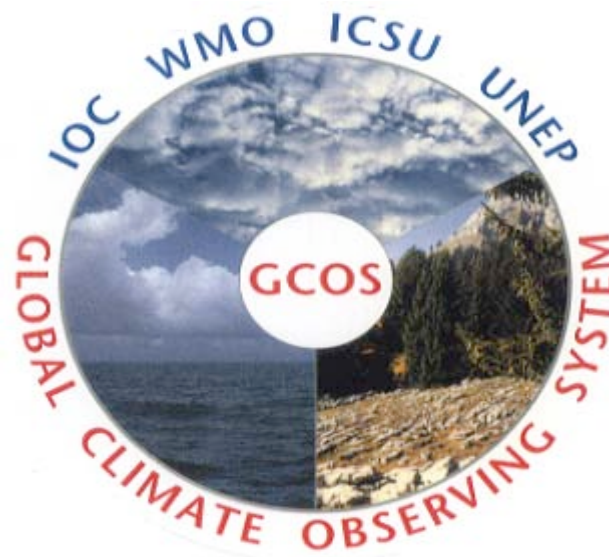


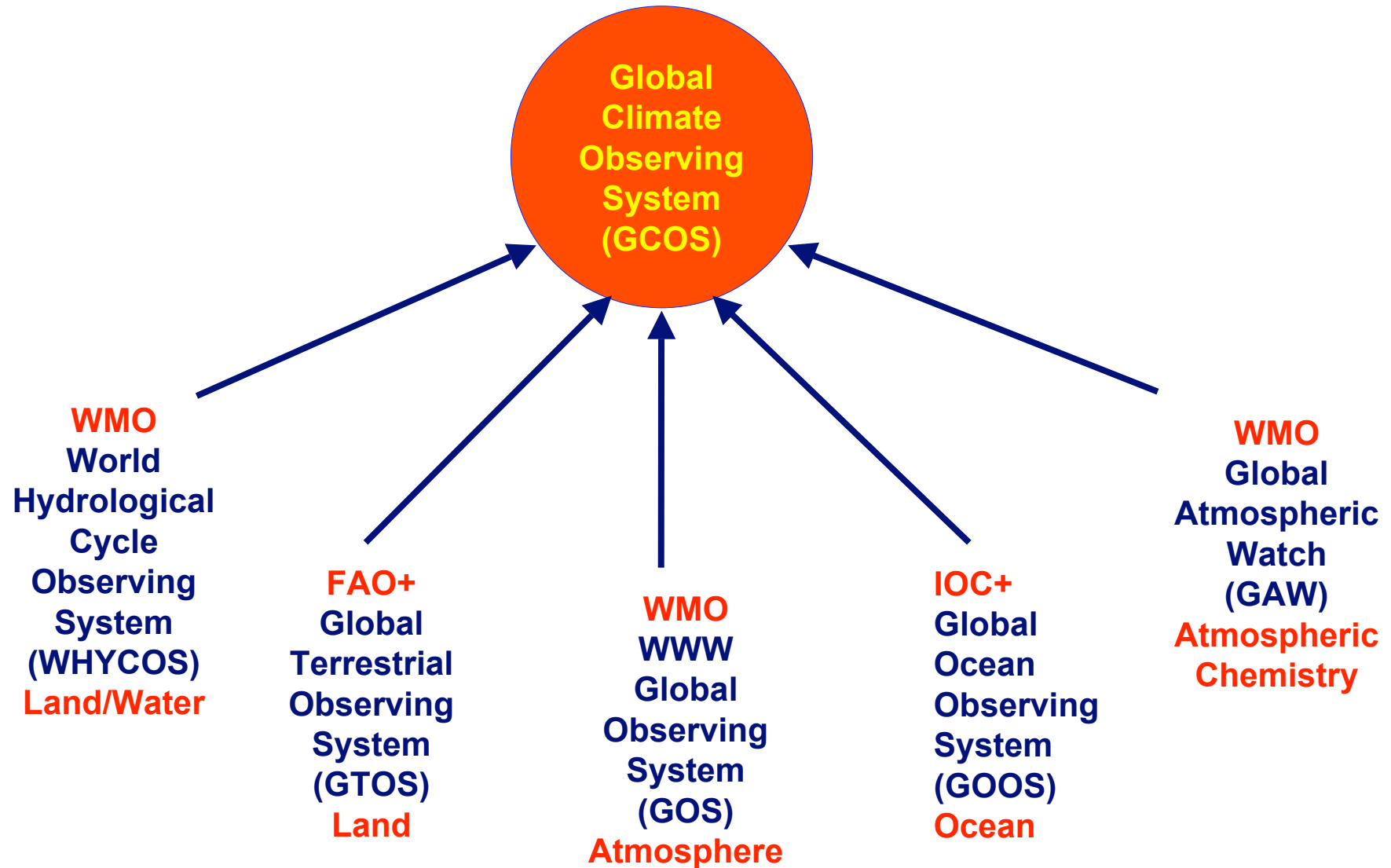


Report to 8th session of OOPC



**By Dr. Alan R. Thomas,
Director, GCOS Secretariat**

The GCOS is comprised of the climate components of the domain based observing systems including both satellite and *in situ* observations



UNFCCC/COP and GCOS

Decision 5/CP.5: Research and Systematic Observation

- ◆ Invites Parties to provide detailed reports on global climate observing systems by Nov 2001, using guidelines developed by GCOS
 - Completed Second Report on the Adequacy of the Global Observing Systems for Climate
 - Endorsed by WMO Congress & SBSTA 18
- ◆ Requests GCOS Secretariat to organize regional workshops to identify priority capacity-building needs and deficiencies in climate observing systems
 - Completed 5 Regional Workshops & 4 Action Plans
- ◆ Urges Parties to address deficiencies in observing systems, capacity building needs and funding options
 - Support for voluntary GCOS funding mechanism

GCOS Regional Workshop Programme

- ◆ **Objective - to identify the priority capacity-building needs related to participation in systematic observation**
- ◆ **Pilot Phase completed - Regional Workshops and Action Plans for Pacific Islands and Eastern and Southern Africa**
- ◆ **Full Project implemented from 2002 to 2005**
 - **GEF/UNDP National Communications Support Program**
 - **Completed Central America & Caribbean, East & Southeast Asia, West & Central Africa**
 - **Future - South America, Mediterranean region, Indian Ocean, Eastern and Central Europe, Central Asia**
- ◆ **Issue - link Regional Action Plans to resource mobilisation strategy**

Second Report on the Adequacy of the Global Observing Systems for Climate to the UNFCCC

- ◆ **Goals of the Second Adequacy Report were to:**
 - Determine progress since the first Adequacy Report (COP-4);
 - Determine the degree to which current networks / systems meet scientific requirements and observing principles;
 - Assess how well current and planned systems meet the needs of the Convention.

- ◆ **Basis for Action**
 - Based on national reports to UNFCCC / COP and other information
 - Involve international experts (including IPCC experts) in analysing the adequacy of the current global observing systems for climate;
 - Integrated approach to global climate observing systems, including the exploitation of new and emerging methods.

- ◆ **Final Report available - <http://www.wmo.ch/web/gcos>**

Second Adequacy Report

Key Milestones

- ◆ 1-3 July 2002 - GCOS Science Panel chairs finalise information base / define critical questions for meeting with IPCC experts.
- ◆ 12-14 August 2002 - Meeting with IPCC experts on needs of Convention and metrics for observing systems as in TAR.
- ◆ 14-18 October 2002 - Meeting of authors to organise, assemble and review initial Adequacy analyses.
- ◆ 20 Dec 2002 - 7Mar 2003 - Open review of the draft Adequacy Report (GCOS homepage) - available to Parties to SBSTA.
- ◆ 12-14 March 2003 – Final review of Report
- ◆ 7-10 April 2003 – Endorsement of Report by GCOS SC
- ◆ 2 June 2003 – Final Report available for SBSTA 18 (avail on GCOS homepage on 30 April 2003)

Main Conclusions from Report

- ◆ **Full implementation of integrated global observing systems for climate, sustained on the basis of a mix of high-quality satellite and *in situ* measurements, dedicated infrastructure and targeted capacity-building will require commitment of all Nations.**
 - **Achieving global coverage and climate-quality observations for the essential climate variables (see Table 1) is essential to meet the needs of the UNFCCC and IPCC.**
 - **Adherence to the principles of free and unrestricted exchange of data, particularly for the Essential Climate Variables (See Table 1).**
 - **Adherence to the GCOS Climate Monitoring Principles for global climate observations from both *in situ* networks and satellites.**
 - **Ensure that observations and associated metadata, including historical observations, are available at international data centres.**

Table 1: Essential Climate Variables

◆ Atmospheric

- **Surface** – Air temperature, Precipitation, Air pressure, Surface radiation budget, Wind speed and direction, Water vapour
- **Upper Air** – Earth radiation budget (including solar irradiance), Upper-air temperature (including MSU radiances), Wind speed and direction, Water vapour, Cloud properties
- **Composition** – Carbon dioxide, Methane, Ozone, Other long-lived greenhouse gases, Aerosol properties.

◆ Oceanic

- **Surface** – Sea-surface temperature, Sea-surface salinity, Sea level, Sea state, Sea ice, Current, Ocean colour (for biological activity), Carbon dioxide partial pressure
- **Sub-surface:** Temperature, Salinity, Current, Nutrients, Carbon, Ocean tracers, Phytoplankton

◆ Terrestrial

- River discharge, Water use, Ground water, Lake levels, Snow cover, Glaciers and ice caps, Permafrost and seasonally-frozen ground, Albedo, Land cover (including vegetation type), Fraction of absorbed photosynthetically active radiation (FAPAR), Leaf area index (LAI), Biomass, Fire disturbance.

Integrated Global Climate-quality Products

- ◆ **Internationally-coordinated re-analysis - monitoring climate trends, ocean re-analysis, and atmospheric composition and other aspects of climate forcing.**
- ◆ **Integrated global climate products (Table 2)**
Variables:
 - **Largely dependent upon satellite observations).**
 - **Benefiting from the reanalysis of homogeneous historical data**
 - **Adherence to the GCOS Climate Monitoring Principles for *in situ* and satellite systems**
 - **Accessible to all Parties.**
- ◆ **Developing an implementation strategy could be an important role for the Integrated Global Observing Strategy (IGOS) Partners.**

Table 2: Variables largely dependent upon satellite observations

◆ **Atmospheric**

- Precipitation, Earth radiation budget (including solar irradiance), Upper-air temperature (including MSU radiances), Wind speed and direction (especially over the oceans), Water vapour, Cloud properties, Carbon dioxide, Ozone, Aerosol properties.

◆ **Oceanic**

- Sea-surface temperature, Sea level, Sea ice, Ocean colour (for biological activity).

◆ **Terrestrial**

- Snow cover, Glaciers and ice caps, Albedo, Land cover (including vegetation type), Fraction of absorbed photosynthetically active radiation (FAPAR), Fire disturbance.

SBSTA 18 Conclusions re 2AR

- ◆ **2AR “provides an opportunity to build momentum among governments to improve the global observing systems for climate, but that work remains**
 - **Identity priorities for actions,**
 - **Remedy deficiencies within the domain-based networks,**
 - **Estimate the cost implications**

- ◆ **Agreed to consider 4 overarching recommendations from GCOS SC in its further work.**
 - **Data exchange and availability,**
 - **Integrated global climate-quality products,**
 - **Capacity building and systems improvements,**
 - **Observing standards – terrestrial but needs in other domains**

SBSTA 18 Conclusions re 2AR

- ◆ **High-quality data essential to the Convention. Urged Parties to address, as a high priority, the availability of data :**
 - **Many data collected are not being received by global data centres;**
 - **Valuable historical data sets exist, but digitized and quality-controlled.**
- ◆ **Invited the GCOS Secretariat, with WMO, to prepare an analysis of specific data problems and options for SBSTA-20 (June 2004).**
 - **Comment on the accessibility of data from global data centres.**
- ◆ **Global observing systems for climate are not designed to meet all needs for climate change impacts. to climate change.**
 - **Examine the potential to enhance links with, or establish, specialised networks in regions vulnerable to climate change.**
- ◆ **Parties to submit views on the priorities for actions arising from 2AR to assist in developing a GCOS Implementation Plan.**
 - **GCOS secretariat to compile and synthesize into report to SBSTA-19.**

SBSTA 18 Conclusions re 2AR

- ◆ **Draft Decision for COP-9: GCOS to coordinate development of a five-year implementation plan for the integrated global observing systems for climate, using a mix of high-quality satellite and in-situ measurements, dedicated infrastructure and targeted capacity-building. The plan would:**
 - **Draw on the second adequacy report and the views of Parties;**
 - **Take into consideration existing global, regional and national plans, programmes and initiatives;**
 - **Be based on extensive consultations with a broad range of scientists and data users;**
 - **Include indicators for measuring its implementation;**
 - **Identify resource requirements and funding options;**
- ◆ **GCOS secretariat to inform the SBSTA-21 (Dec 2004) on the development of the implementation plan**

Resource Mobilization

- ◆ **Report on progress made towards funding the initial ocean climate observing system with GOOS.**
- ◆ **GCOS funding mechanism**
 - **Established as a separate trust fund in GCOS (Donor Fund);**
 - **Independent of the UNFCCC (no direct relationship to the GEF);**
 - **Administered under the authority of a Donor Board with outcomes monitored by the appropriate GCOS Science Panel.**
- ◆ **Current implementation activities using support from USA and other Annex I countries**
 - **AOPC identified 10 high priority GUAN stations**
 - **Station improvements / bulk purchase of consumables / GAW upgrades**

Issues for OOPC

- ◆ **Implementation Plan - mechanism**
 - **Integrated products**
 - **Observing standards – JCOMM**
 - **Priorities for system improvements**
- ◆ **GCOS funding mechanism**
 - **Define critical needs in developing countries**
- ◆ **Report to SBSTA 22 (June 2005)**
 - **Progress made towards funding the initial ocean climate observing system**