



Photo credit: Pene Lefale, 2007

GCOS was established in 1992 by the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization, the United Nations Environment Programme and the International Council for Science. Its purpose is to meet the full range of national and international requirements for climate observations, especially the needs of the World Climate Research Programme, the Intergovernmental Panel on Climate Change and the United Nations Framework Convention on Climate Change. GCOS is built on the IOC-led Global Ocean Observing System, the Global Terrestrial Observing System, led by the Food and Agriculture Organization of the United Nations, and the WMO Integrated Global Observing System. GCOS has been recognized as the climate observation component of the Global Earth Observation System of Systems.

*The Parties shall:
Support international and intergovernmental efforts
to strengthen systematic observation... particularly in
developing countries...*

From UNFCCC Article 5

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GCOS
Global Climate Observing System



GCOS Cooperation Mechanism

Improving climate observations for sustainable development and adaptation to climate change



SUPPORTING THE IMPLEMENTATION OF UNFCCC ARTICLE 5



There is a notable lack of geographical balance in the data and literature on observed changes in natural and managed systems, with a marked scarcity from developing countries.

IPCC, 2007



Glacier measurements, Mount St Helens

The **Global Climate Observing System (GCOS)** mission is to ensure the availability and quality of the atmospheric, oceanic, terrestrial and related earth observations needed for monitoring, understanding, predicting and protecting the global climate system and providing communities and nations with assistance to live successfully with natural climate variability and human-induced climate change. GCOS has strong links with the United Nations Framework Convention on Climate Change (UNFCCC) and works to help the Parties to the Convention improve their climate observing networks. In many developing countries, the lack of financial resources and technical expertise limits what can be done to make the needed improvements to observing networks.

Managing the impacts of climate change will present major challenges for developing countries. The information needed to design effective policies for mitigating the effects of, and adapting to, climate change and facilitating sustainable development fundamentally depends on the availability of climate observations. However, such observations must be of a high quality, be available for long periods and have sufficient density to be useful in decision-making. Generating the quantity of high-quality observations needed will be difficult for many developing countries unless they are provided with some assistance.

The **GCOS Cooperation Mechanism (GCM)** was established to identify and make the most effective use of available resources for improving climate observing systems in developing countries, particularly to enable them to collect, exchange and utilize data on a continuing basis in pursuance of the UNFCCC. In recent years, several countries have provided funds and participated on the Donor Board. The GCOS sponsors are seeking additional countries and organizations to help address the considerable and growing demands for improved climate observing networks in developing countries.

- Decisions for:**
- Agriculture
 - Disaster risk reduction
 - Drought management
 - Ecosystems
 - Energy
 - Health
 - Water
 - Sustainable development

What *is urgently needed is a commitment by nations to provide global coverage for the key variables, to halt and reverse the degradation of existing observing systems, and to exchange information more effectively... A positive response to this challenge would significantly advance the implementation of an effective observing system for climate and support the objectives of the UNFCCC.*

Report on the Adequacy of GCOS, 1998



Installation of a weather station in Zambia, 2006



Successful renovation of an upper-air station in Madagascar, 2006

GCM projects



Training workshop on climate observations held in the Maldives, 2004



Climate data archive waiting for rescue and digitization in Tanzania, 2004

Why participate in the GCM?

- The GCM is an effective and proven way to address national, regional and global needs for climate observations and to direct funds to the highest priority needs.
- The GCM addresses the G8 Gleneagles Plan of Action commitment to support the climate observing needs of developing countries.
- The GCM directly contributes to fulfilling the repeated requests of the Conference of the Parties to the UNFCCC to provide financial and technical support to developing countries to improve their climate observing systems.
- Improved networks in developing countries also contribute to meeting developed countries' needs for improved global networks.

Successful GCM implementation projects include the following:

- **New upper-air systems:** Maldives, Peru, Zimbabwe, Armenia
- **Hydrogen generators:** Kenya, Côte d'Ivoire, Galapagos Islands
- **Technical support projects:** Caribbean, Southern Africa
- **Technical workshops:** Argentina, Morocco, Namibia

Much remains to be done

The GCOS Regional Action Plans for 10 developing regions of the world detail priority needs for improvements in atmospheric, oceanic and terrestrial observing systems totalling more than US\$ 200 million. Common needs include sustaining and improving operational observing networks; recovering historical data; and education, training and capacity-building. More information can be found on the GCOS Website (<http://gcos.wmo.int>).



Photo credit: Gene Iwatsubo, USGS