

Newsletter – 2 / 2011

Welcome to the 8th issue of the GCOS newsletter!

Scientific Highlights

First GCOS Reference Upper-Air Network (GRUAN) production data available

A significant milestone has been the processing and dissemination of the first operational data that follow the GRUAN definition of reference measurements. These first data are based on radiosonde measurements and are being processed at the GRUAN Lead Centre in Lindenberg, Germany, operated by the Deutscher Wetter Dienst. Currently, GRUAN is composed of 15 stations committed to making reference-quality observations. First sounding data from Tateno (Japan), Cabauw (The Netherlands), and Lindenberg (Germany) are available from the US National Climatic Data Centre (NCDC): <ftp://ftp.ncdc.noaa.gov/pub/data/gruan>. Research data from Sodankylä (Finland), Potenza (Italy), and Boulder (USA) are available as well at current frequency of the observations. Data from other sites will follow soon.

For further information visit the GRUAN homepage: <http://www.gruan.org>, or the GRUAN Communication Platform (blog) at: <http://gruan.wordpress.com>.

Observing Domains, Networks and Measuring Systems

Global Runoff Data Centre (GRDC)

The Global Runoff Data Centre (GRDC), operating under the auspices of the WMO, is an international archive that holds a unique collection of river discharge data provided mainly by National Hydrological Services. The collected data at daily or monthly intervals from more than 7700 stations in 157 countries add up to around 310000 station-years of data with an average record length of 40 years. The GRDC provides discharge data and data products for non-commercial applications with the aim of fostering multinational and global hydrological studies amongst scientists who analyze global climate trends and assess environmental impacts and risks.

The 10th GRDC Steering Committee Meeting was held 15-17 June 2011 at the Federal Institute of Hydrology in Koblenz, Germany. The meeting was dedicated to reporting on GRDC activities, as well as on activities of collaborating programmes, projects, and partner data centres. The WMO representative, Wolfgang Grabs (Chief, Hydrological Forecasting and Water Resources Division), delivered a presentation on behalf of the GCOS Secretariat. The Head of the GRDC, Ulrich Looser, is a member of the GCOS/GTOS/WCRP Terrestrial Observation Panel for Climate (TOPC). For more information visit the GRDC website: <http://grdc.bafg.de>

HYDROLARE

The 3rd meeting of the International Data Centre on Hydrology of Lakes and Reservoirs (HYDROLARE) Steering Committee was held at the State Hydrological Institute (SHI) in St. Petersburg, Russia, 5-7 July 2011. Dr Alexander Zaytsev, member of the GCOS Steering Committee, represented GCOS at that meeting. Main objectives of the Steering Committee meeting were to discuss the current activities, in particular, the development of the HYDROLARE web-portal and the generation of products and services in view of adoption of a HYDROLARE work plan and agreement on related milestones to be achieved in cooperation with international partners, including space agencies. The Laboratoire d'Etudes en Géophysiques et Océanographie Spatiales (LEGOS) provides support through research projects using satellite imagery data and by maintaining a hydrological database called HYDROWEB. A respective letter of agreement with SHI will be signed in 2011. Further information about the centre and its activities can be found under: www.hydrolare.ru.

GCOS Cooperation Mechanism

The GCOS Cooperation Mechanism (GCM) was established in 2002/2003 as a multi-governmental funding mechanism to identify and make the most effective use of resources available for improving global observing systems for climate in developing countries, particularly in order “to enable them to collect, exchange, and utilize data on a continuing basis in pursuance of the UNFCCC.” A number of implementation and renovation projects recently funded by donor countries to the GCM can be found under the item “Implementation Projects” below.

The 7th Meeting of the GCOS Cooperation Mechanism ([GCM](#)) Board will be held on 19 September 2011 at the European Centre for Medium-Range Weather Forecasts ([ECMWF](#)) in Reading, UK, immediately preceding the 19th session of the GCOS Steering Committee.

Implementation Projects

Several projects aimed at expanding and improving the GCOS Upper-Air and Surface Networks (GUAN and GSN) have been undertaken in recent months:

- Radiosondes were provided to the GUAN stations at Dar es Salaam (Tanzania), Vacoas (Mauritius), and Khartoum (Sudan), funded by Switzerland.
- Japan has agreed to fund renovation of the upper-air station at Rarotonga and two surface stations on the Cook Islands. This will be done by the New Zealand Met Service.
- Support was provided to several GUAN stations that have experienced equipment failures. Replacement parts and actual repair missions were provided to Vacoas (Mauritius) and to Gan (Maldives). The unit at Gan, which suffered a computer virus problem, has been corrected; the unit at Vacoas still needs a replacement control board.
- Last year, a local contract was awarded to repair and renovate the observatory building at the high mountain GSN station at Mt. Aragats (Armenia). The work was delayed over the winter and due to the increased cost, a contract modification became necessary. The work has resumed now and will be finished in the summer.
- A project to renovate three GSN stations and to provide telecommunications equipment to the Democratic Republic of Congo has been initiated. This project is funded by the Netherlands
- A renovation project for 11 GSN stations in Madagascar has begun. It is being managed by the UK Met Office and funded by the Netherlands. The requisition of equipment should start soon, and the project is expected to be completed this autumn.
- The requisition of instrument shelters for Angola has been completed; a company in South Africa was awarded the contract.

Following GCOS implementation activities, Sudan, as well as the Democratic Republic of Congo, have been producing monthly CLIMAT messages since the beginning of the year.

More information on recent and ongoing renovation and technical support projects can be found at: <http://www.ncdc.noaa.gov/oa/usgcos/renovationprojects.htm>.

Evaluation of satellite-related global climate data sets

GCOS, together with World Climate Research Programme ([WCRP](#)), aims to ensure that climate data records and derived products are quality-assessed by the international scientific community to ensure their wide recognition and acceptance by users. In 2010, GCOS and WCRP called in a joint letter for a systematic international approach to foster transparency, traceability, and sound scientific judgment in the generation of climate data records. In order to move this process forward, the GCOS/WCRP Observation and Assimilation Panel ([WOAP](#)) will convene workshops to promote the inter-comparison and evaluation of satellite and *in-situ* datasets suitable for climate studies with the goal to develop an inventory. The European Space Agency ([ESA](#)) kindly offered to host the first WOAP workshop on ‘*Evaluation of Satellite-Related Global Climate Datasets*’ in Frascati, Italy. This workshop was held from 18-20 April 2011 to assess a number of key satellite-related global climate datasets against the GCOS guidelines. Participants were experts in the generation of specified ECV products and representatives of the modeling, analysis, and diagnostic communities. The products and outcomes of this workshop are:

- A technical report on detailed assessments of existing datasets for key ECVs relative to the GCOS guideline for the generation of satellite-based datasets and products meeting GCOS requirements
- A framework for an inventory of all ECV datasets that includes indices of the maturity and uncertainties of each product
- The identification of best practices in evaluating and inter-comparing global climate datasets, especially where there are more than one dataset for a given parameter

The meeting report will soon be available

Sponsoring Organizations & Partners

WMO Congress and Executive Council

The [16th World Meteorological Congress](#) assembled 16 May - 3 June in Geneva, Switzerland, followed by the 63rd Session of WMO’s Executive Council. Dr David Grimes of the Canadian Meteorological Service was

elected new President of WMO, and Mr Michel Jarraud was re-appointed as Secretary-General. The Congress endorsed the initiative to develop a Global Framework for Climate Services ([GFCS](#)) in response to the urgent needs of society for user-friendly climate information and services as one of the top five WMO priorities in the next four years. The other priorities are: enhancing contributions to disaster risk reduction; improving observation and information systems; strengthening the capacity of developing countries to share in scientific advances and their applications; and providing more efficient meteorological services for the aviation sector. The Congress also called for improving climate data management and the associated analysis tools, and strengthening the exchange of the data and products needed for user-oriented climate services. GCOS held a side event, titled '*Climate Observations for all Domains*' on 2 June. On the same day, Prof. Adrian Simmons, Chairman of the GCOS Steering Committee, delivered a scientific lecture. An extraordinary session of the World Meteorological Congress will be held from 26 Oct to 2 Nov 2012, with participation of all relevant stakeholders, including other UN bodies, who will review and adopt the draft GFCS implementation plan that is now being prepared. The Congress further adopted a restructured and strengthened World Climate Programme ([WCP](#)), which is expected to be a key programme in the delivery of the GFCS. The WCP's responsibilities include climate observations and monitoring, climate research activities, and support for sustained operational climate services, including the establishment of a global network of Regional Climate Centres. GCOS also became a component of the reconstituted WCP. The Congress recognized the fundamental importance of the GCOS programme for the GFCS, praised the successful GCOS Cooperation Mechanism ([GCM](#)), and encouraged the GCOS Secretariat to continue to improve surface station systems, upper-air station networks, and other observing systems, in particular in developing regions and Small Island Developing States. Furthermore, the Congress decided that priority shall be given to the WMO Integrated Global Observing System ([WIGOS](#)) to enable it to become operational by 2016. Noting also the unparalleled demand for authoritative information on the state of the world's snow and ice resources, Congress agreed to embark on the development of the Global Cryosphere Watch ([GCW](#)), in collaboration with international partners.

Assembly of the Intergovernmental Oceanographic Commission (IOC) of UNESCO

The [26th IOC Assembly](#), held 22 June to 5 July 2011 in Paris, France resolved to reconstitute the Global Ocean Observing System ([GOOS](#)) governance, with the goal of strengthening the observing system and streamlining its organization. The [new structure of GOOS](#) will follow the advice given by a post-Ocean Obs '09 working group, which has recommended establishment of a new [Framework for Ocean Observing](#). Within this new structure, existing GOOS intergovernmental and scientific committees will be replaced by a GOOS Steering Committee (GSC), which will guide GOOS implementation and report directly to the IOC Assembly. This new GSC will work closely with all relevant ocean-observing communities to constructively plan and move forward implement a Global Ocean Observing System that responds to both scientific and societal requirements. Read more [here](#).

New WMO Observing Requirements Database on-line

The new WMO Database for Observational Data Requirements is now on-line. This database is the official repository of requirements for observation of physical variables in support of WMO Programmes and Co-sponsored Programmes. These requirements are maintained by focal points designated for each application area and build the foundation for the so-called Rolling Requirements Review ([RRR](#)) process, overseen by the Expert Team on Evolution of the Global Observing Systems of WMO's Commission for Basic Systems ([CBS](#)). Access the new database here: <http://www.wmo-sat.info/db/>.

GCOS Secretariat

GCOS and UNFCCC

The Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UN Framework Convention on Climate Change ([UNFCCC](#)) met for its 34th Session from 6-16 June in Bonn, Germany. In conjunction with the Session, a workshop addressing research issues was held on 8 June. SBSTA organizes a regular research dialogue under the agenda item '*Research and Systematic Observation.*' This item plays an important role in informing the UNFCCC on relevant developments in climate change research activities. This year, the UNFCCC Secretariat invited a GCOS representative to participate and to contribute its view on matters relevant to climate observations. The workshop and dialogue were organized around three major themes:

- Understanding the science: recent climate change research findings and uncertainty management;
- Communicating climate change science; and
- Building capacity for research in developing countries.

Workshop participants concluded that there is a need for sustained observations in specific regions, in particular in Africa and the Himalayas. It was also stressed that there is an urgent research need to study the connection

between climate change and extreme weather events. Further, it was pointed out that there is a need to facilitate the improvement of ocean observations, and that the implementation of the Global Ocean Observing System has not progressed as much over the past few years as anticipated. Reference was made to the need in the atmospheric domain to support the fast-track projects to improve GSN and GUAN stations.

Detailed information is available on:

http://unfccc.int/methods_and_science/research_and_systematic_observation/items/3461.php

On 8 June, a Side Event titled “*Climate Services for Adaptation*” was organized by WMO’s Climate Prediction and Adaptation Branch. Dr Carolin Richter, Director of the GCOS Secretariat, delivered a presentation on the ‘*Role and value of systematic observations in adaptation.*’ She was followed by Mr Peter Holmgren ([FAO](#)) with a talk on climate services for the agriculture sector and by Mr Stefan Rösner ([DWD](#)), speaking on the Climate Services Information System

AOPC

The 16th session of the Atmospheric Observation Panel for Climate ([AOPC](#)) was held from 7-11 February 2011 at WMO in Geneva, Switzerland. The main goals of the meeting were to assess the development and performance of existing GCOS networks, the implementation of the newly established GCOS Reference Upper-Air Network (GRUAN), and the space agencies’ efforts to generate satellite-based climate data records. The panel further discussed new approaches of modelling urban climates and urbanization influences on surface temperature. For more information see the Summary Report and Recommendations ([GCOS-148](#)) and the meeting homepage: <http://www.wmo.int/pages/prog/gcos/index.php?name=AOPC-XVI>.

OOPC

The sustained global ocean observing system for climate is designed to provide data and information products for climate monitoring and forecasting, climate assessment, and climate research. It is also the foundation for global operational oceanography, including global weather prediction and marine forecasting and global and coastal ocean prediction. The 15th Meeting of the GCOS/WCRP Ocean Observations Panel for Climate ([OOPC](#)) was held 1-2 April 2011 at UNESCO headquarters in Paris in conjunction with the ‘[Deep Ocean Observing Strategy Workshop](#)’. Find more information and the meeting documents here: <http://www.ioc-goos.org/oopc-15>

Deep Ocean Observing Strategy

The ‘[Deep Ocean Observing Strategy Workshop](#)’ was held 30 March to 1 April 2011 in Paris, France. The purpose of the Strategy Workshop was to launch a process for developing a deep ocean (defined as oceans below 2000 meters) observing strategy (DOOS) to be implemented in phases over the next eight years, with a target of substantial progress by the time of the *OceanObs’19* Conference and a timeline for reaching important intermediate goals. The principal areas to be addressed in the strategy will be climate, carbon and biogeochemistry, and biodiversity and ecosystems, with the possibility of adding additional disciplines. The observing systems that would make up the core components of the strategy include the Global Ocean Ship-Based Hydrographic Investigations Program (GO-SHIP) and OceanSITES, for which plans already exist, and Deep Argo and deep gliders, for which plans are yet to be developed. A biodiversity component is also considered important. The proposed timeline suggests that within two years the developers of the DOOS would like to have the strategy incorporated into the plans and documents of the GCOS Programme, the Climate Variability and Predictability ([CLIVAR](#)) Programme, and Integrated Marine Biogeochemistry and Ecosystem Research ([IMBER](#)) and Census of Marine Life ([COML](#)) Programmes. By the time of *OceanObs’19* it is hoped that sustained global coverage will be in sight. Priority goals for the global ocean observing systems are:

- 100% implementation of initial system by 2015, as called for by *OceanObs’09*.
- Deep ocean observations to address gaps in monitoring of net transport of mass, heat, and freshwater.
- Ocean reference stations - surface flux and transport stations in boundary currents to address gaps in understanding air-sea interactions in mid-latitudes and in regions where high spatial resolution is necessary, and for providing data for assimilation into weather, ocean, and climate models and for assessing their products.
- Biogeochemical observations for carbon uptake and ecosystems – e.g., improved knowledge of dissolved oxygen and sea surface salinity - and improved coordination between satellite and *in-situ* observations of key ECVs.

TOPC

The Terrestrial Observation Panel for Climate ([TOPC](#)) was set up to develop a balanced and integrated system of *in-situ* and satellite observations of the terrestrial ecosystem. The Panel focuses on identifying terrestrial observation requirements, assisting the establishment of observing networks for climate, providing guidance on observation standards and norms, facilitating access to climate data and information and its assimilation, and promoting climate studies and assessments. TOPC is jointly sponsored by GCOS, the Global Terrestrial Observing System ([GTOS](#)) of FAO, and the World Climate Research Programme ([WCRP](#)).

The 13th Session of the TOPC was held 10-11 March 2010 at WMO Headquarters in Geneva, Switzerland. It focused on the status of the Global Terrestrial Networks, on the need for standardization of terrestrial observations, and on ways to establish a reference network for ecosystem sites. The observation of soil moisture was discussed as it became an Essential Climate Variable ([ECV](#)) in the 2010 update of the GCOS Implementation Plan. Panel members were further briefed on the Group on Earth Observation ([GEO](#)) Forest Carbon Tracking and on activities of the UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries ([REDD](#)).

Find the meeting report here: <http://www.wmo.int/pages/prog/gcos/Publications/gcos-147.pdf>

Calendar Highlights in 2011 and 2012

- Meeting of the GCOS Cooperation Mechanism ([GCM](#)) Donor Board, ECMWF, Reading, UK, 19 Sept
- 19th Session of the GCOS Steering Committee, SC-XIX, ECMWF, Reading, UK, 19-23 Sept
- [30th ICSU General Assembly, Rome, Italy, 26-30 Sept](#)
- [39th Coordination Group for Meteorological Satellites \(CGMS\) Meeting, St. Petersburg, Russia, 3-7 Oct](#)
- UNFCCC Workshop on the Identification of Gaps and Challenges in the Implementation of Risk Management Approaches with the Adverse Effects of Climate Change, Lima, Peru, 10-12 Oct
- CBS Lead Centres for GCOS Meeting, Hamburg Germany, 10-14 Oct
- Climate Change and Development for Africa Conference, Addis Ababa, Ethiopia, 17-19 Oct
- [Quality Assurance Framework for Earth Observation \(QA4EO\) Workshop on Providing Quality Information in Harmonised Earth Observation Data, Harwell, UK, 18-20 Oct](#)
- [WCRP Open Science Conference Denver \(OSC\), USA, 24-28 Oct](#)
- 25th Plenary of the Committee on Earth Observation Satellites ([CEOS](#)), 8-9 Nov
- 34th Session of the IPCC Plenary, Kampala, Uganda, 14-17 Nov
- [8th GEO-Plenary, Istanbul, Turkey, 16-17 Nov](#)
- [17th UNFCCC Conference of the Parties \(COP 17\), Durban, South Africa, 28 Nov - 9 Dec](#)
- [ICSU Conference 'Planet Under Pressure,' London, UK, 26-29 Mar 2012](#)
- Extraordinary Session of WMO Congress, Geneva, Switzerland, 26 Oct - 2 Nov 2012

People

Dr Alverson to move to UNEP

The 26th Assembly of the Intergovernmental Oceanographic Commission ([IOC](#)) of UNESCO formally thanked Dr Keith Alverson, Head of the IOC Ocean Observations and Services Section since 2004, for his years of dedication to the Global Ocean Observing System ([GOOS](#)) Project Office and to the goal of creating an efficient sustained Global Ocean Observation System. Dr Alverson is now moving to the United Nations Environment Programme ([UNEP](#)) in Nairobi where he will head the division of Climate Change and Adaptation. Dr Albert Fischer will assume the duties of Acting Director, while recruitment is underway.

Executive Director of the International Council for Science (ICSU)

Dr Deliang Chen has announced his decision to step down as ICSU's Executive Director as of 31 December 2011. He will return to his previous life as Professor of Physical Meteorology at the University of Gothenburg, Sweden. During two and a half years of Prof Chen's leadership, ICSU made significant progress in developing new partnerships and projects and in instigating the [ICSU Earth Visioning Process](#).

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