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GEO Secretariat inaugurated

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News in brief

WMO El Niño update

Warmer-than-normal sea-surface temperatures (SSTs) prevailed in the central equatorial Pacific for much of 2004 and early 2005. The surface waters of the central Pacific have now been warmer than average since 2001: such a prolonged period of warmth is highly unusual.

An expert interpretation of recent tendencies in SSTs and model projections suggest that the current situation is predominantly neutral. Some warming at the surface in the eastern equatorial Pacific is expected during the next few months, due largely to an eastward propagation of the subsurface conditions observed in the Pacific Ocean.

The meteorological and oceanographic data that allow El Niño and La Niña episodes to be monitored and forecast are drawn from national and international observing systems. The exchange and processing of the data are carried out under programmes coordinated by WMO.

Continuation of the currently neutral conditions or the development of basin-wide El Niño conditions are considered about equally likely outcomes over the next few months. La Niña conditions are considered unlikely.

Data assimilation

Humankind needs better predictive capabilities and operational potential to reduce and mitigate natural disasters, and to improve understanding and society's response to environmental change. Data assimilation is a critical bridge between rapidly progressing information technologies, an increasing volume of observational data and the utilization of data in various domains of the Earth system.

Through the framework of WMO, all nations, especially developing and least developed countries, may benefit, directly or indirectly, from comprehensive and effective information and prooducts in support of safety of life and property and socio-economic development.

The Other Side of Paradise

The WMO film *The Other Side of Paradise* was chosen as an exhibit in Stories from the Field, the First United Nations Documentary Film Festival.

The Festival took place in May and featured film screenings, panel discussions with the filmmakers and award presentations.

The Other Side of Paradise was conceived and created by WMO as a contribution to the International Meeting to Review the Implementation of the Programme of Action for the Sustainable Development of Small Island Development States (Mauritius, January 2005), where it was premiered. It was also shown at the World Conference on Disaster Reduction (Kobe, Japan, January 2005).

Small tropical islands are a tourists' paradise but they mostly lie in areas prone to severe weather events and are highly vulnerable to the potential impacts of climate change.

Safeguarding the ozone layer and the global climate system

After 20 years of protecting the ozone layer with a new generation of chemicals, governments are now having to confront the fact that these ozone-friendly substitutes for chlorofluorocarbons (CFCs) also happen to be greenhouse gases that contribute to global warming.

Although climate change and ozone destruction may appear as being different issues, our use of certain chemicals links them together.

To assess the extent of the problem and the available solutions, the WMO/UNEP Intergovernmental Panel on Climate Change (IPCC), in collaboration with the Technology

and Economic Assessment Panel, has produced a special report entitled "Safeguarding the ozone layer and the global climate system: issues related to hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs)".

Flood management in Kenya

Integrated Flood Management (IFM) is flood management in the context of Integrated Water Resources Management. As one of the leaders in promulgating IFM as a means of attaining sustainable socio-economic development, WMO has initiated a pilot project to assist the Kenyan Ministry of Water and Irrigation develop a Flood Management Strategy for the Lake Victoria basin.

Work on the strategy was carried out in close collaboration with a team of local technicians and involved information gathering and interaction with regional stakeholders and policy-makers.

The strategy covers all rivers and sub-catchments in the Lake Victoria basin. The project was launched on 16 February.

Climate change and variability and natural disasters in agriculture

WMO is promoting studies of the potential impacts of climate change and variability and natural disasters on agriculture, rangelands, forestry and fisheries. These include studies of mitigation and adaptation strategies.

Three project areas have been identified where assessment capabilities of impacts are particularly critical: impacts of natural disasters; the contribution of agriculture to the state of climate; and climate forecasts for users.

Case-studies on specific topics in each area will be carried out in different regions.

Climate predictions for agriculture

Adaptation of food production, particularly in areas where climate variability is large, holds the key to improving food security. The range of adaptation options for agriculture, forestry and fisheries is increasing, thanks to technological advances. These include increasingly accurate seasonal-to-interannual climate forecasts. Many developing countries, however, have limited access to these technologies and appropriate information on how to implement them.

WMO is encouraging new approaches to climate modelling, as well as agricultural applications and systems management. Large-scale seasonal-to-interannual forecasts need to be downscaled in a reliable and practical manner for local applications and users need to be trained in their use.

The war against locusts

Experts from National Meteorological and Hydrological Services and National Locust Control Centres (LCCs) of 11 countries in Africa met recently to discuss roles and responsibilities for more effective coordination and planning in the event of further locust outbreaks during the upcoming rainy season.

Of particular concern was the dissemination of daily weather data to the LCCs and other international organizations and the potential use of advanced weather forecast model products for locust monitoring and control.

Climate-change indices

WMO facilitates work on a regional basis to establish climate-change indices. In particular, there is an interest to derive indices from daily data, especially measures of changes in extremes and to fill in blank data areas in the "global" analysis of climate indices. In this way, confidence in local analyses will be increased as they will be placed in a larger, regional context that includes results from neighbouring stations and countries.

Such work is a good beginning for international cooperation: regional research synergies are enhanced by sharing insights, while analyses between neighbouring countries will be improved, together with the appreciation for data and data archaeology.

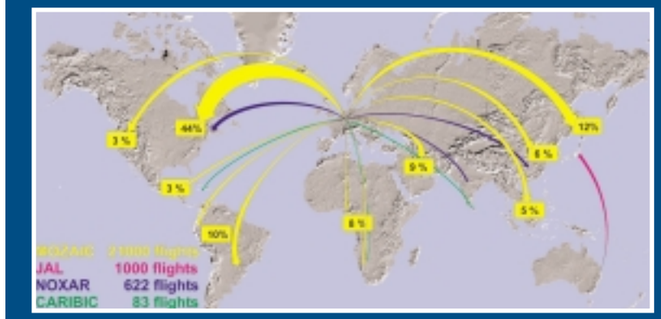
An overarching aim is to make available the data and indices in the analysis available to researchers everywhere.

Recent publications in agrometeorology

Applications of Climate Forecasts for Agriculture. Proceedings of an Expert Group Meeting for Regional Association I (Africa) (WMO/TD-1223, AGM-7) [E]

Servicios de Información y Predicción del Clima y Aplicaciones Agrometeorológicas para los Países Andinos: Actas de la Reunión Técnica (WMO/TD No. 1234, AGM-6) [S]

Observations from commercial aircraft



MOZAIC flight tracks (in yellow) with Airbus A-340 aircraft operated by Lufthansa (3), Austrian (1) and Air France (1). Other commercial aircraft tracks are also depicted.

A three-year 5-million euro infrastructure project entitled "Integration of routine Aircraft measurements into a Global Observing System" (IAGOS) has been launched by the European Commission. Its aim is to sustain and improve measurements of atmospheric composition from commercial aircraft that began 10 years ago as a series of research projects (MOZAIC).

The project is a key component of WMO's strategy for Integrated Global Atmospheric Chemistry Observations (IGACO).

Chemical observations of the atmosphere are critical for improving the scientific understanding of chemistry-climate interactions, particularly those associated with the roles of clouds and aerosols, for improving weather forecasts and addressing air-pollution impacts on human health.

The dataset collected in MOZAIC from more than 20 000 long-haul flights provides a wealth of information on the composition of the upper troposphere/lower stratosphere and tropospheric profiles for the testing of global and regional chemistry-transport models.

Building on MOZAIC, IAGOS is designed to build the capability for observations of atmospheric composition, aerosols and cloud particles from commercial aircraft.

Central activities are worldwide aeronautical certification for installation and deployment on long-haul aircraft and real-time data delivery to National Meteorological Services.

Ground-based in situ and remote sensing observations of atmospheric composition will be merged with routine aircraft and satellite measurements through the use of "smart interpolators" in a similar fashion to that already done in numerical weather prediction.

The WMO Global Atmosphere Watch Programme (GAW) is the designated lead in the implementation of the IGACO strategy. GAW will evolve to meet the observational needs and challenges of climate change, ozone depletion, air quality and long range transport of air pollution.

The future for climate research

Coordinated Observation and Prediction of the Earth System (COPES) is a new strategic framework for climate research for the next 10 years. It addresses new opportunities and challenges in determining the predictability of climate and the effect of human activities on climate.

COPES will provide a framework for ensuring collaboration among nations and synergy across various climate research activities. It will build new tools to describe and analyse climate variability and change and their combined effects and assess why those effects are occurring. It will also build improved and more comprehensive climate system models and will make climate predictions of greater utility from weeks to centuries and on global to regional scales.

Finally, it will enable improved climate-change assessments for use in widespread applications in all socio-economic sectors.

Regional Climate Centre

A pilot project in the form of a Regional Climate Centre for Central America will focus on data, services, research and development and capacity building. It will enhance products developed by Members of the region, including seasonal and interannual forecasts, forecast verifications and climate analyses.

Countries will benefit from more targeted climate forecasts, particularly for El Niño and La Niña events.

METEOREX

In May, WMO organized in Bucharest, Romania, a technical conference and an exhibition that promoted the interaction of manufacturers and users of meteorological instruments and observing systems.

A total of 254 experts from 71 countries participated in the conference that discussed meteorological and environmental instruments and methods of observation. Some 64 exhibitors participated in the conjointly organized Exhibition of Meteorological Instruments, Related Equipment and Services (METEOREX 2005)—the largest such event in the world.

Homogeneous and accurate measurements

Understanding the Earth's climatic system, its variability and change is only possible with homogeneous and accurate data measured worldwide. Intercomparisons of the instruments that measure the data are therefore essential.

WMO has initiated a new schedule of intercomparisons. The first took place with 19 pairs of rainfall intensity gauges from 18 manufacturers in three laboratories in three countries.

The next intercomparison was of six radiosonde systems. Divided into two groups, these were launched successively on 2 000 g balloons at four successive launch times.

WMO carries out intercomparisons of meteorological instruments and systems to ensure homogeneous and accurate measurements.

The results of the tests are currently being analysed.

Training in meteorology

Several participants from south-eastern European countries recently received training in radar meteorology and nowcasting. The course also included severe weather forecasting and satellite meteorology.

WMO co-sponsored a refresher training course on techniques of weather forecasting at the WMO Regional Meteorological Training Centre, Buenos Aires, Argentina.

At the WMO Regional Meteorological Training Centre, St Petersburg, Russian Federation, trainers in meteorology took a course in computerized methods and technologies, including distance learning.

Tropical cyclones: forecasts and warnings

National Meteorological and Hydrological Services play a key role in reducing vulnerability to natural hazards. This is done, not only through forecasts, but also through the dissemination of warnings, community education and collaboration with emergency managers.

WMO contributes to this process by promoting research and organizing training for tropical cyclone forecasters from all over the world. The aim is to upgrade their capabilities so that they may provide accurate, early and timely warnings about impending tropical cyclone disasters and associated storm surge.

The training covers forecasting techniques, track prediction, intensity forecasting, meteorological satellites and instruments, cyclone genesis and

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The full version of this newsletter may be found on the WMO homepage:
www.wmo.int/meteoworld

We would welcome feedback about MeteoWorld and look forward to receiving your comments:

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Group on Earth Observations

The intergovernmental Group on Earth Observations (GEO) held its first meeting (GEO-I) at WMO Headquarters on 3 and 4 May. Some 200 government representatives of 60 nations and the European Commission and more than 40 international and intergovernmental organizations participated.

The GEO Secretariat has been established as an independent intergovernmental body to oversee the fulfilment of a 10-year implementation plan to create a Global Earth Observation System of Systems (GEOSS). It is being set up at WMO Headquarters and was formally inaugurated on 4 May.

GEO-I delegates elected an Executive Committee to oversee the administrative workings of GEO. It will consist of 12 Members representing developing and developed countries and various regions of the world as follows: Brazil, Germany, Honduras, Italy, Japan, Morocco, Russian Federation and Thailand. Included in the Executive Committee are four Co-chairs (China, the European Commission, South Africa and the USA).

The benefits of GEOSS will range from disaster prevention, climate monitoring and environmental preservation to improved socio-economic development.

WMO will be fully involved in the planning and implementation of GEOSS and will encourage National Meteorological and Hydrological Services to participate so that they may take full advantage.

structure, radar, strike probabilities, monitoring and the formulation and issue of warnings.

Aviation meteorology: accreditation

A major focus of recent attention has been the qualifications and training of aeronautical meteorological personnel.

It is recognized that the range of aeronautical meteorological duties, and the types of personnel who carry out those duties, vary considerably from country to country, as do the mechanisms used to qualify the staff concerned and the means of assessing their competencies.

WMO will prepare advice concerning the procedures to be followed by National Meteorological Services with respect to the training and qualifications of aeronautical meteorological personnel.

Education for development

The United Nations Decade of Education for Sustainable Development has been launched.

Some of the areas in which WMO, together with its partners, has a key role to play are education as a means of: ensuring a sustainable livelihood; cleaner solutions for industry and the environment; biodiversity; water and sanitation; sustainable energy management; and ocean conservation.

It will be necessary to re-orient formal education and training through open and distance learning methods.

Stakeholders will need to develop their own strategies and action plans for the Decade according to national requirements.

Managing water resources

If surface- and groundwater are not managed wisely, water will become an even more limited and fragile resource than it is today. Integrated water-resources management can help reconcile conflicting uses of water and provide communities with the opportunity to utilize their sometimes scarce water resources optimally.

WMO and the National Meteorological and Hydrological Services have a primordial role to play in water quantity and quality assessment. Monitoring is the information backbone and knowledge base for integrated water-resources management and for building resilience in society against water-related hazards.

Many countries lack adequate water-monitoring programmes. WMO assists countries in improving the availability and reliability of water data for a wide range of uses.

Some coming events

13-16 July: Regional Technical Meeting on CLIPS and Agrometeorological Applications for the Mercosur Countries, Sao Paulo, Brazil

25-29 July: Third Regional Workshop on Storm Surge and Wave Forecasting: A Hands-on Forecast Training Laboratory, Beijing, China

20 August-9 September: Thirteenth Brazilian Meteorological Congress, Fortaleza (Ceara), Brazil

5-6 September: Technical Conference on International Cooperation in Meteorology and Hydrology in RA VI, Heidelberg, Germany

19-23 September: International Workshop on Flash Flood Forecasting, San José, Costa Rica

Preparing the forecasts

WMO ensures that atmospheric analyses and weather and climate products are prepared and made available to Member countries in a useful and cost-effective fashion.

Functions of WMO's Global Data Processing and Forecasting System (GDPFS) include the preparation of products derived from Numerical Weather Prediction (NWP) systems for nowcasting (0-2 hours ahead) up to long-range forecasts (1 month-2 years ahead).

These tailored, value-added products are used for a wide range of purposes such as marine and aviation safety and environmental quality monitoring.

Standards for verifying the accuracy and reliability of products are constantly under review for improving forecast product quality—which has, on average, increased by two days over the last 20 years.

WMO promotes new forecasting techniques by facilitating discussions and organizing training so that developing countries may make the best use of the new techniques and products available. These include forecasts of risk and warnings of severe weather.