WORLD Climate NEWS

World Meteorological Organization

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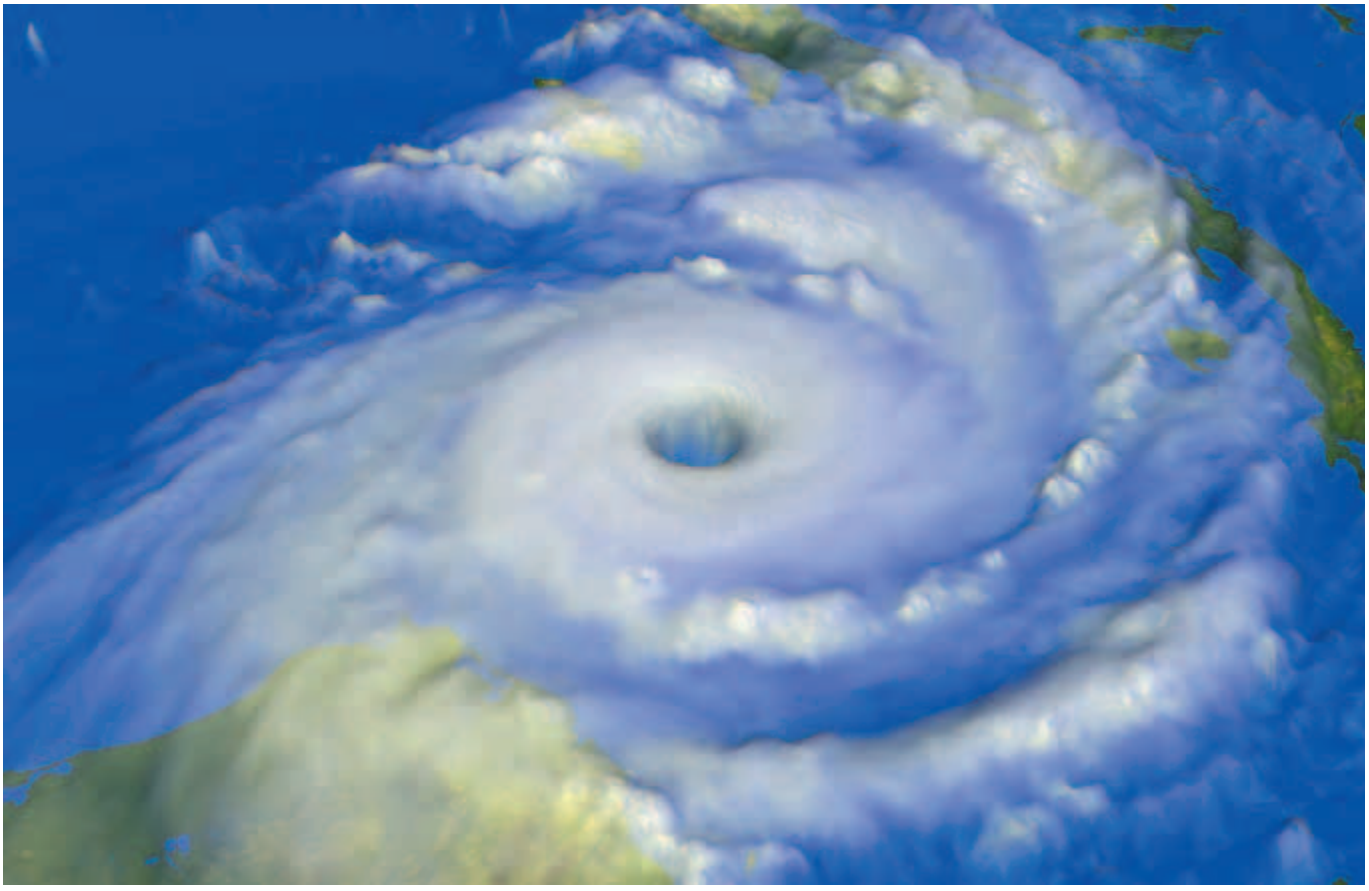
Weather • Climate • Water



Hurricane Mitch approaching Central America on 26 October 1998
NASA/Goddard Space Flight Center, Scientific Visualization Studio

Natural disasters—see page 3

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CALENDAR

21-23 January
Geneva, Switzerland
Twenty-fourth Inter-Agency Meeting on Outer Space Activities

2-4 February
Melbourne, Australia
Sixth International Symposium on the Hydrological Applications of Weather Radar

16-20 February
Beijing, China
Expert Group Meeting on the Reduction of the Impact of Natural Disasters and Mitigation of Extreme Events in Agriculture, Rangelands, Forestry and Fisheries

13-24 April
Miami, USA
Workshop on Hurricane Forecasting and Warning, and Public Weather Services

20-22 April
San Francisco, USA
XVth Global Warming International Conference & Expo

25-29 May
Ohrid, The Former Yugoslav Republic of Macedonia
Conference on Water Observation and Information System for Decision Support

1-8 June
Kos, Greece
International Quadrennial Ozone Symposium

8-18 June
Geneva, Switzerland
Executive Council—fifty-sixth session

14-17 June
Helsinki, Finland
Seventh International Winds Workshop

Foreword

Meteorological and hydrological hazards are the most frequently and extensively observed natural hazards. According to the Belgian Centre for Research on the Epidemiology of Disasters, they were responsible, over the period 1993-2002, for 86 per cent of the 531 000 deaths related to natural disasters and about 63 per cent of related property damage, amounting to more than US$ 630 billion. Droughts, floods and tropical cyclones cause the most significant impacts on human life and property.

Despite the increase in the occurrence of natural disasters, loss of life from such disasters is decreasing at the global level, thanks to progress made in disaster prevention, preparedness and management. Nevertheless, economic losses and the number of people affected are on the increase. This increase is undermining the welfare of populations and is having repercussions on sustainable development and the eradication of poverty in many parts of the world.

WMO considers that the role of science and technology in natural disaster reduction is essential and participates actively in international efforts such as those of the International Strategy for Disaster Reduction. In this context, WMO encourages and supports the disaster mitigation activities of National Meteorological and Hydrological Services, whose ability to monitor and predict extreme phenomena and issue effective warnings is unique and of increasing significance.

In order to further contribute to the protection of life and property and the welfare of populations, Fourteenth World Meteorological Congress, held in Geneva in May 2003, decided to initiate a major new WMO Programme on Natural Disaster Prevention and Mitigation. This new crosscutting programme will ensure the synergistic implementation of WMO programmes, thus contributing to the sustainable development of WMO Members and helping the international community mitigate the effects of natural disasters. It will also enhance WMO's role and visibility in dealing with natural disaster reduction through its participation in high-level global forums and related activities.

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NATURAL DISASTERS

Although scientific and engineering techniques have developed remarkably in the 20th century, we have not yet succeeded in preventing natural hazards nor in insulating humans from their effects. On the contrary, as population increases and more land is utilized, more people are at risk from natural hazards.

Between the 1970s and 1990s, deaths from natural disasters fell from 2 million a decade to fewer than 800 000. Yet the number of people affected tripled to 2 000 million. Economic losses multiplied five times, to some US$ 629 000 million in the 1990s.

There is great geographical inequality in the places where natural disasters occur. The greatest difference is that between developed and developing countries. Some 95 per cent of the deaths caused by natural hazards occur in developing countries, and natural hazards rarely cause large numbers of deaths in industrialized countries. For example, recent hurricanes in the USA or typhoons in Japan did not cause more than 500 deaths. Even devastating category 5 hurricane *Andrew* in 1992 caused fewer than 100 deaths in the USA. On the other hand, category 5 hurricane *Mitch* in 1998 caused more than 10 000 deaths in Central America. In Bangladesh, an estimated 500 000 people were killed by a 1970 cyclone and 140 000 by a 1991 cyclone.

Why are developing countries so vulnerable? The economic situation of developing countries is one of the most significant factors. Governments and most people in developing countries cannot afford to prepare for natural hazards. Lack of technologies and education, both of which are associated with economic hardship, are other obstacles.

Mitigating the effects of natural hazards in the developing countries requires a different perspective than in developed

The International Strategy for Disaster Reduction

The International Strategy for Disaster Reduction (ISDR) aims at building disaster-resilient communities by prompting increased awareness of the importance of disaster reduction as part of sustainable development, with the goal of reducing human, social, economic and environmental losses from natural hazards and related technological and environmental disasters. Its Secretariat serves as the focal point within the UN system for the coordination of strategies and programmes for natural disaster reduction. A Task Force is composed of representatives from UN bodies, regional entities, civil society and professional sectors. Working Groups of the Task Force include one on Climate and Disasters, chaired by WMO; one on Early Warning, chaired by UNEP; one on Risk, Vulnerability and Impact Assessment, chaired by UNDP; and one on Wildland Fires, chaired by the Global Fire Monitoring Center.

WMO and natural disasters

WMO is participating in all the ISDR working groups. Regular El Niño monitoring, El Niño outlooks and the establishment of the International Research Centre for El Niño in collaboration with the Government of Ecuador are tangible results of the activities carried out. Projects to establish climate watch systems and on linking climate and disasters databases on floods are being developed.

WMO helped the ISDR Secretariat prepare for the World Summit on Sustainable Development and contributed to the ISDR publication *Living with Risk.*

WMO's relevant scientific and technical programmes have contributed to global capacities in the detection, forecasting and early warning of hazards, as well as helping minimize their adverse consequences through the application of science and technology.

(continued overleaf)

Damage from hydrometeorological disasters (1992–2001, US$ million)

	Africa	*Americas*	*Asia*	*Europe*	*Oceania*	*High human development*	*Medium human development*	*Low human development*	*Total*
Avalanches/ landslides	0	1 066	370	24.7	0	232.9	1 22.0	0	1 460.8
Droughts/ famine	380.9	3 161.4	12 304.0	9 546.6	4 203.0	14 213.6	15 029.1	353.2	29 595.9
Extreme temperatures	0.8	7 374.0	3 950.0	937.6	0	8 269.3	3 993.1	0	12 262.4
Floods	892.8	31 184.2	105 113.2	30 653.4	792.9	57 404.4	88 247.9	22 984.1	168 636.4
Forest/ scrub fires	3.5	3 206.6	18 989.3	189.2	226.7	3 460.0	19 145.6	9.7	22 615.3
Wind-storms	756.6	100 060.5	37 720.4	15 497.9	3 264.8	113 517.6	36 309.9	7 472.7	157 300.2
Other	5.2	104.0	0.3	0	120.0	120.0	106.0	3.5	229.5
Total	**2 039.8**	**146 156.6**	**178 447.2**	**56 849.4**	**8 607.4**	**197 217.8**	**164 059.5**	**30 823.2**	**392 100.5**

(continued from page 3)

countries. Understanding complex social aspects of the developing country is crucial, as well as an examination of the physical mechanism of the hazard itself. Because disaster risk is the product of hazard (extreme events) and vulnerability (human factors), reducing vulnerability is a key to reducing risk.

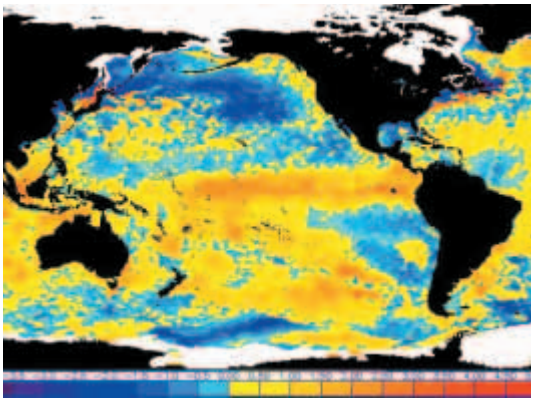
We are also facing emerging threats related to climate change. Global warming not only produces stronger storms and sea-level rise but may also trigger rapid environmental change. For example, over the next 100 years, global surface temperatures are projected to climb at a rate without precedent in the past 10 000 years. Sea-levels are projected to rise. The impacts will be most serious in developing countries. Global cooperation and collaboration is essential. It is expected that UN agencies such as WMO should lead the movement to create a safer world in the 21st century.

WMO is also a Special Supporting Organization of the International Consortium on Landslides. This Consortium was established by international experts in the field and aims at promoting landslide research and capacity building.

WMO's Fourteenth Congress decided to initiate a new programme on Natural Disaster Prevention and Mitigation as a crosscutting programme. Its purpose is to ensure the integration of WMO activities in disaster prevention and mitigation, and to coordinate WMO activities with those of other organizations. The programme includes a new WMO project on Natural Disaster Reduction in Coastal Lowlands.

TOWARDS AN EL NIÑO INDEX

The US National Oceanographic and Atmospheric Administration (NOAA), in collaboration with experts of the Scripps Institute of Oceanography, the Center for Ocean-Land-Atmosphere Studies, the Center for Ocean-Atmospheric Prediction Studies, the International Research Institute for Climate Prediction, the National Center for Atmospheric Research and the University of Washington, has agreed on a primary index for assessing the state of the ENSO cycle. Based on the index, NOAA has developed operational definitions for El Niño and La Niña. The index and definitions have been used by NOAA operationally since 1 September 2003.



NOAA satellite image of El Niño, 6 January 2003. The warm sea-surface temperatures in the eastern Pacific Ocean are represented in red.

Source: NOAA

WMO's Commission for Climatology (CCl) has expressed interest in NOAA's definitions and use of the index. CCl will be organizing a meeting of global experts to review the NOAA work and to determine if the index and definitions will meet global needs concerning El Niño/La Niña. CCl's main concern is that this work may be appropriate for the USA and perhaps even North America, but may not meet the needs of the rest of the world for a common standard. However, CCl concurs with CLIVAR's Working Group on Seasonal to Interannual Prediction (WGSIP) that no widely accepted definition of El Niño exists, and that a widely accepted definition may have a real-time benefit. WGSIP concluded that the Niño 3.4 index contains the basic information on the state of the tropical Pacific Ocean as it affects El Niño and La Niña and relates to global climate.

The index is defined as three-month averages of sea-surface temperature departures from normal for a critical region of the equatorial Pacific (Nino 3.4 region; 120°W-170°W, 5°N-5°S). This region of the tropical Pacific contains the equatorial cold tongue, a band of cool water that extends along the Equator from the coast of South America to the central Pacific Ocean. Departures from average sea-surface temperatures in this region are critically important in determining major shifts in the pattern of tropical rainfall, which influence the jet streams and patterns of temperature and precipitation around the world.

NOAA's operational definitions for El Niño and La Niña are:

El Niño

A phenomenon in the equatorial Pacific Ocean characterized by a positive sea-surface temperature departure from normal (for the 1971-2000 base period) in the Niño 3.4 region greater than or equal in magnitude to 0.5°C, averaged over three consecutive months.

La Niña

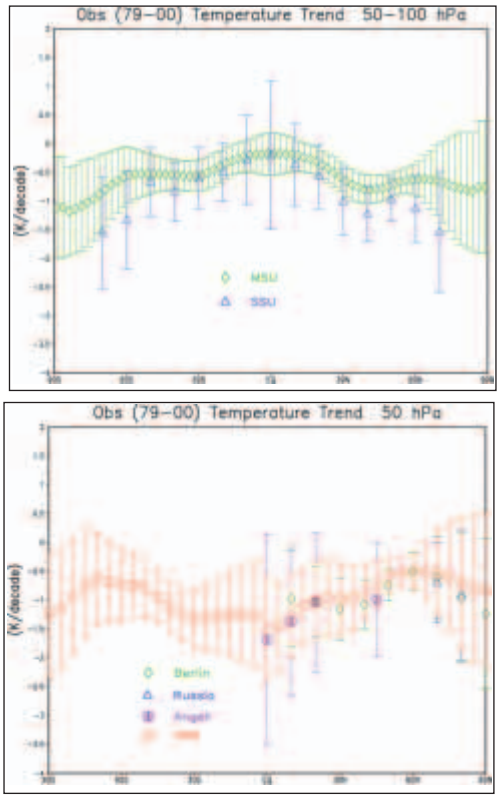
A phenomenon in the equatorial Pacific Ocean characterized by a negative sea surface temperature departure from normal (for the 1971-2000 base period) in the Niño 3.4 region greater than or equal in magnitude to 0.5°C, averaged over three consecutive months.

NOAA issues assessments of ENSO's status in the Monthly Climate Diagnostic Bulletin, the ENSO Diagnostic Discussion, and the Weekly ENSO update. Currently, NOAA is engaged in dialogue with the international meteorological community for global acceptance of the index.

DECREASING TEMPERATURES IN THE STRATOSPHERE

At the fifty-fifth Session of the WMO Executive Council, a group of scientists from SPARC (Stratospheric Processes and their Role in Climate—a project of the WMO/Intergovernmental Oceanographic Commission/International Council for Science World Climate Research Programme) received the 2003 Norbert Gerbier-MUMM International Award for an assessment of stratospheric temperature trends. The initial estimates were made for the period 1979-1994. More recent studies by SPARC have extended the analysis until the year 2000. Both satellite and non-satellite trend estimates for the more recent studies were statistically more significant than the results for 1979-1994 and exhibited similar behaviour. The results strongly support the notion that the global lower stratosphere has cooled over the past two decades. This has several potential climate-related implications, including a somewhat smaller potential for ozone recovery. A SPARC report on assessment of stratospheric temperature trends is being prepared.

Other recent SPARC outputs include stratospheric reference climatology and a contribution to the WMO/UNEP Ozone Assessment 2002. SPARC is also due to produce an aerosol assessment report and reviews on the Arctic Oscillation/North Atlantic Oscillation, gravity-wave parameterizations in atmospheric general circulation models, and chemistry-climate interactions.



Trends in the zonal, annual-mean lower stratosphere temperatures, as obtained from the MSU and SSU 15X satellite datasets (above). Vertical bars indicate 2-sigma uncertainty estimates.

Trends in the zonal, annual-mean lower stratosphere temperatures, as obtained from non-satellite datasets (below). Vertical bars indicate 2-sigma uncertainty estimates.

Source: V. Ramaswamy, M. E. Gelman, M. D. Schwarzkopf, and J.-J. R. Lin, An update of stratospheric temperature trends. *SPARC Newsletter* No. 18, 7-9, 2002.

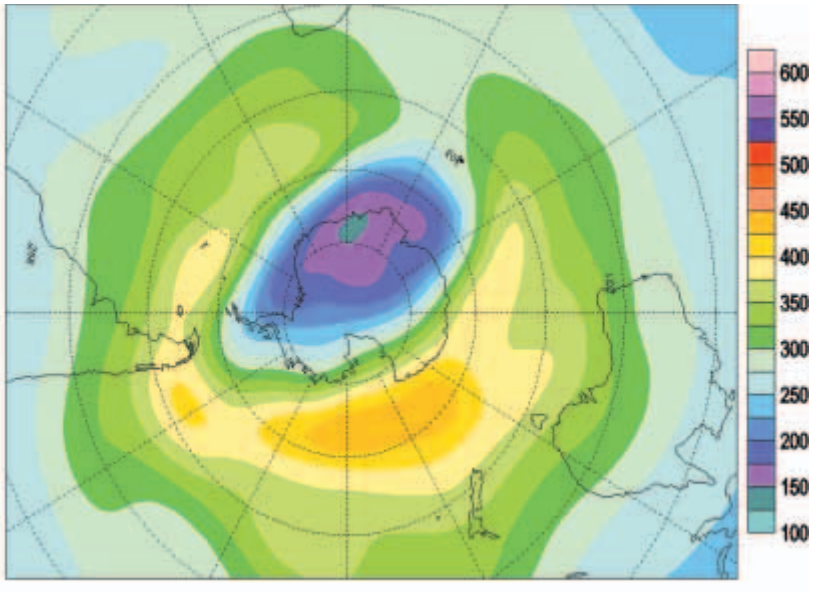
Sources:
Initial publication:
Stratospheric temperature trends: observations and model simulations. *Reviews of Geophysics,* 39(1), 71-122, 2001.
V. Ramaswamy, M.-L. Chanin, J. Angell, J. Barnett, D. Gaffen, M. Gelman, P. Keckhut, Y. Koshelkov, K. Labitzke, J.-J. R. Lin, A. O'Neill, J. Nash, W. Randel, R. Rood, K. Shine, M. Shiotani and R. Swinbank.

OZONE UPDATE

In September 2003, the Antarctic ozone hole covered an area of 28 million km^2, matching the record set in the year 2000. As then, the hole decreased rapidly in size during October.

Three of the past four years have had ozone holes larger than ever observed prior to 2000, while the ozone hole in 2002 was the smallest since 1988. Such wide variations arise from year-to-year differences in meteorological conditions in the stratosphere rather than changes in the total amount of ozone-depleting substances in the stratosphere. Measurements made at many of the WMO Global Atmosphere Watch stations indicate that the total amount of ozone-depleting substances had reached or nearly reached a maximum.

The present scientific consensus is that if there is full compliance with present international agreements which phase out production of almost all ozone-depleting compounds, the ozone layer will remain particularly vulnerable for another decade but will return to pre-ozone hole values in about 50 years.



Extent and depth of the ozone hole, 24 October 2003

Source: Meteorological Service of Canada, http://exp-studies.tor.ec.gc.ca/cgi-bin/selectMap

CLIVAR update

The CLIVAR Scientific Steering Group used its meeting in May 2003 in Victoria, Canada, to take stock of CLIVAR before the first International CLIVAR Science Conference (Baltimore, Maryland, United States, 21-25 June 2004, see http://www.clivar2004.org).

There was considerable discussion as to how to bring together the regional components of the programme in a global synthesis. A key component for a global synthesis is re-analysis of past observations into global fields. Atmospheric re-analyses are well established, but there is also a need for ocean re-analyses, high-resolution land-surface reanalyses and reanalyses using coupled systems. CLIVAR is anxious to develop wider activity on ocean reanalyses and synthesis in support of climate research and as a complement to the Global Ocean Data Assimilation Experiment.

The Variability of the American Monsoon Systems (VAMOS) Panel has been active in initiating activities in South, Central and North America. The SALLJEX (South American Low Level Jet Experiment) field phase came to a successful conclusion and plans for a North American Monsoon Experiment (NAME) are underway. Discussions are taking place on a major study of the La Plata Basin. The African Monsoon Multidisciplinary Analysis (AMMA) project is continuing to gain momentum and an *Atlas of African Climate Variability* is being produced.

THE GCOS SECOND ADEQUACY REPORT—AND BEYOND

Many nations, individually and collectively, have recognized that global observations are a critical element in the decision-making process for assessing the impacts of, and possible adaptation strategies to, natural disasters and climate change, and for furthering sustainable development. An international strategy to address these global issues must include a coordinated global observing system and will require concerted actions by nations and international organizations over the next 10 years.

Second Adequacy Report

The Global Climate Observing System (GCOS), on behalf of its sponsors (WMO, the Intergovernmental Oceanographic Commission, UNEP and the International Council for Science), recently completed an assessment of progress in, plans for and the adequacy of observing systems to meet the needs of the UN Framework Convention on Climate Change (UNFCCC), called the *Second Report on the Adequacy of the Global Observing Systems for Climate in support of the UNFCCC*. Although addressing climate explicitly, recommendations from the Report have broader applications. The four primary recommendations from the Report are that:

- Routine availability of **integrated global products*** generated from satellite and in situ observations or from the re-analysis of homogeneous historical data would be a major advance in meeting the needs of a broad range of users as well as the UNFCCC. To do this, specific deficiencies in the domain based in situ observing networks would have to be addressed.

- **Capacity building and system improvements** in developing countries are essential to a truly global observing system. Improving the baseline systems in developing countries should be a priority for developed nations, which should establish voluntary donor funding for improvements in least developed countries and small island developing States.

- **Observing standards** for datasets and products, especially for the terrestrial domain, must be improved, if long-term change is to be observed. This will require concerted action by nations in association with the relevant international organizations.

- **Free and unrestricted exchange of data** is a necessity for generating products (such as datasets, predictions and assessments) to respond to global and regional social issues. The Report defines a set of essential climate variables* that nations must exchange to meet the needs of the UNFCCC for assessing the regional impacts of climate. Reporting by Parties on data availability in their national communications to the UNFCCC would provide for transparency and be a useful mechanism in addressing these issues.

Beyond the Second Adequacy Report

WMO Congress strongly endorsed the conclusions of the report and urged all Members to implement its recommendations as a matter of urgency, and to help other Members do likewise.

The UNFCCC's Subsidiary Body on Scientific and Technological Advice noted in its 18th session that the report "provides an opportunity to build momentum among governments to improve the global observing systems for climate". It also proposed that the full Conference of Parties adopt a decision which requests GCOS "to coordinate the development of a phased five- to 10-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".

GCOS has begun to prepare an implementation plan for which it will seek help from the scientific, especially the IPCC, community. The plan will be completed within a year and will be a GCOS contribution to the evolving international framework for Global Earth Observations.

* See *Second Adequacy Report* for a list of priority products and essential climate variables on the GCOS home page: http://www.wmo.ch/web/gcos/

PROVENTION

The World Bank launched the ProVention Consortium on 3 February 2000 as a global coalition of governments, international organizations, academic institutions, the private sector and civil society organizations, aimed at reducing the impacts of disasters in developing countries.

The Consortium includes a Presiding Council, a Steering Committee and a Secretariat, which serves as the administrative unit, implementing Steering Committee decisions. The Secretariat is funded by the World Bank and is responsible for fund raising to support ProVention activities, which have a separate budget. The World Bank, the United Kingdom Department for International Development and the Swiss and Norwegian Governments are regular contributors. WMO is a member of the Consortium and was designated to participate in the Steering Committee.

Consortium activities focus on the links between disasters, poverty and the environment, and fall into four general categories: hazard and risk identification; risk reduction; implementation of mechanisms to transfer or share the risks that cannot be reduced; and information sharing on disaster risk management, awareness raising and training. Some projects involve a mix of these activities.

Goal

The goal of ProVention is to support developing countries to reduce the risk of natural and technological disasters and their social, economic and environmental impacts.

Objectives

- Forge linkages, partnerships and closer interaction between members of the Consortium;
- Develop and demonstrate innovative approaches to the practice of disaster risk management;
- Advocate disaster risk management amongst senior policy-makers in international organizations, national governments and the private sector;
- Share knowledge and information about best practices, tools and resources for disaster risk management.

The World Bank hosted the Secretariat for the first three years. During that period, research, pilot and demonstration projects were carried out, education and training activities were developed, and workshops and conferences were organized.

Since March 2003, the Secretariat has been hosted by the International Federation of Red Cross and Red Crescent Societies (IFRC). The IFRC is expected to help broaden the membership of ProVention to include more civil society organizations, involve community-based activities and take the Consortium agenda forward to the regional and local level.

GENDER AND CLIMATE FORECASTS

Attempts to improve the dissemination of climate forecasts must take into account not only requirements at the community level, but also who does the farming, who uses the climate information and, in particular, their gender. It is often assumed that improvement in forecast accuracy automatically improves the utility of forecasts but this is not necessarily the case; many factors must be taken into account when tailoring products and their dissemination to users.

The forecasting community tries hard to cater for user interests in the generation, communication and application of seasonal climate information. But these efforts tend to focus on the"community" scale. A recent study made in conjunction with the PRESAO Forum (Seasonal climate predictions for West Africa) showed that the information generated by the Forum was not made available to everyone in the target villages. For instance, in one village, women were not informed about a forecast dissemination meeting. In other villages lower caste families were excluded, as was a section housing families opposed to the village leader.

A case study (Archer, 2003) in Mangondi village, Limpopo Province, South Africa, where 85 per cent of the farmers are female, has characterized

The Earth Observation Summit

On the initiative of the US Government, the Earth Observation Summit was held in Washington, DC on 31 July 2003 with 33 countries (plus the European Commission) and 30 international agencies represented. The purpose was to promote a comprehensive, coordinated and sustainable Earth observation system to address global challenges and meet international treaty obligations.

The Summit adopted a Declaration which:

- Affirmed the need for timely, high-quality, long-term global information as a basis for sound decision-making;
- Called for improved coordination of systems for observations of the Earth and to fill data gaps;
- Highlighted the need to assist developing countries to sustain their observing systems by addressing capacity building;
- Affirmed the exchange of data from observation systems in a full and open manner with minimum delay and cost;
- Requested the preparation of a 10-year implementation plan.

The Summit also established an ad hoc Group on Earth Observations, which it entrusted with the preparation of the implementation plan, building on existing systems and initiatives. A framework will be prepared for a second ministerial conference, to be held in Tokyo during the second quarter of 2004.

household access to, and uptake of, seasonal climate forecasts, and tried to assess household requirements in terms of forecast design and dissemination. The results show that gender and relationship of the farmer to the head of household were significant factors in relation to forecast design and dissemination. Specifically, a farmer who is head of the household prefers radio as a medium of dissemination. Farmers who are wives, mothers or children of heads of the household prefer that seasonal forecasts be provided through the extension officer. Interviews showed that women preferred this medium because they like to ask questions and because their schedules are not flexible enough to be able to sit and listen to a radio programme at a fixed time.

Research into women farmers as users of climate information is ongoing. Only by applying this "gender lens" to our efforts to provide climate forecasts can we hope to serve our entire user community.

This article is based on a contribution from E. Archer of the University of Cape Town, South Africa

Sources: Archer, E., 2003: Identifying underserved end-user groups in the provision of climate information. *Bulletin of the American Meteorological Society* (in press).

Improving flood forecasting

Floods continue to be among the most damaging of natural disasters worldwide. Improved flood forecasting and response require enhanced cooperation between National Meteorological and Hydrological Services. In particular, weather forecasting products and climate outlooks are needed, which can be directly used in physically based hydrological forecasting models, while the hydrological models need to be adapted to make use of those inputs. Hydrological Services also need accurate meteorological information on the probability of the occurrence of flood events in order to provide enhanced flood forecasting services.

A WMO Action Programme on Flood Forecasting and Warning began in April 2003. Its principal objective is to contribute to the improvement of meteorological services in detecting flood-critical situations and the improvement of hydrological services in using meteorological forecasting information and climate outlooks to provide accurate and timely flood forecasting services to the public and disaster managers active in flood emergency preparedness and response.

The action programme also aims also to provide guidance and expertise with regard to priority activities related to flood forecasting and warning for the new WMO Programme on Natural Disaster Prevention and Mitigation.

CLIMATE OUTLOOK FORUMS

Climate Outlook Forums (COFs) are regional or subregional workshops in which climate experts and other researchers dealing with climate information and prediction develop a consensus climate outlook for (a) season(s). They also give guidance in the interpretation and dissemination of the forecasts to users. The participation of users in these forums has enabled users to understand the processes involved in producing the forecasts, and has also enabled experts to understand user requirements.

The results of these COFs are climate forecasts focused on mitigating extreme climate events, such as floods and droughts. The forecasts play an important role in decision-making in activities such as agricultural planning, water-resources management, livestock and the health sector and, therefore, in planning for sustainable socio-economic development.

Regional specialized centres in various countries have played key roles in the organization and overall implementation of these forums and have strong linkages with other stakeholders or partners, such as the International Research Institute for Climate Prediction, the US National Oceanic and Atmospheric Administration, USAID.

The forums have become regular meetings in some regions such as West Africa, Eastern Africa, southern Africa, Central America, South America and the Pacific. The table below lists some of the COFs in 2003 (see also page 10).

Climate Outlook Forums 2003

3-5 March	11th COF Greater Horn of Africa	Entebbe, Uganda
6-7 March	18th COF South-eastern South America	Buenos Aires, Argentina
7-9 April	9th COF Central American Countries	San Pedro Sula, Honduras
5-12 May	6th COF West Africa	Niamey, Niger
16-17 June	19th COF South-eastern South America	Montevideo, Uruguay
14-16 July	10th COF Central American Countries	Sta. Lucía Cotzumalguapa, Guatemala
25-28 August	12th COF Greater Horn of Africa	Nairobi, Kenya
1-5 September	7th COF Southern Africa	Lusaka, Zambia
5-11 October	2nd COF Central Africa	Libreville, Gabon
11-14 November	11th COF Central American Countries	San Salvador, El Salvador
17-21 November	3rd COF Western Coast of South America	Guayaquil, Ecuador
11 December	20th COF South-eastern South America	Curitiba, Brazil

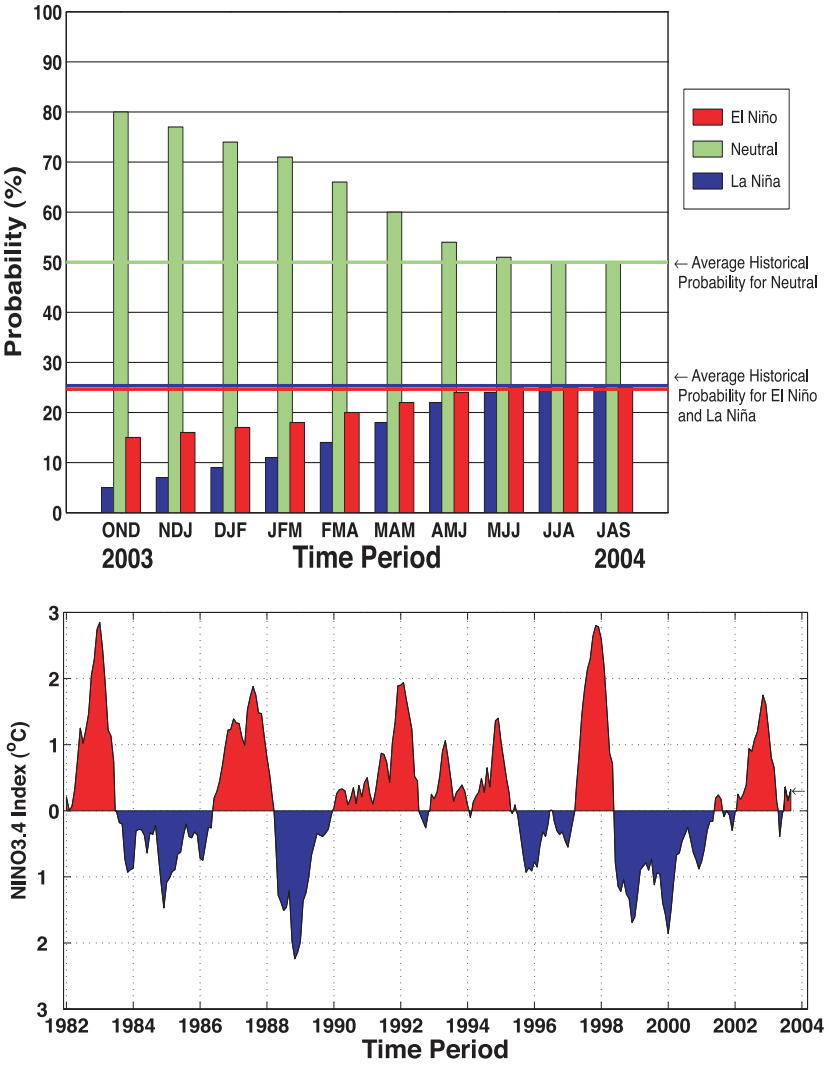
EL NIÑO UPDATE

WMO and the International Research Institute for Climate Prediction (IRI) , as members of the ISDR Working Group on Climate and Disasters (see page 3), have been coordinating the production of a regular statement on the outlook for El Niño development. Each time a new statement is judged necessary, the coordinators interact with major climate centres to consolidate available information into a concise statement.

The forecasting of Pacific Ocean developments is undertaken in a number of ways. Complex computer models project the evolution of the tropical Pacific Ocean from its currently observed state. Statistical forecast models can also capture some of the precursors of such developments. Expert analysis of the current situation adds further value, especially in interpreting the implications of the evolving situation below the ocean surface. All forecast methods try to incorporate the effects of ocean-atmosphere interactions within the climate system.

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 in collaboration with other UN agencies.

In 2003, four El Niño outlook statements were produced. The El Niño Update is released every three to four months and is distributed in three languages (English, French and Spanish).



Probabilistic ENSO forecast and Historical Sea Surface Temperature Index, based on sea-surface temperature departures from the long-term average over the Niño 3.4 region

Source: IRI Website
http://iri.columbia.edu/climate/ENSO/currentinfo/QuickLook.html

As of September 2003, overall conditions in the tropical Pacific were near-neutral. Observations and forecasts indicated the likelihood of near-neutral conditions continuing into the first few months of 2004.

REDUCING EL NIÑO IMPACTS IN LATIN AMERICA

After the devastating El Niño of 1997/1998, 17 Latin American countries requested the Inter-American Development Bank (IDB) to develop a project on means to reduce El Niño's negative impacts. The IDB requested technical support from WMO, which agreed to act as Executing Agency.

The general objective of this technical cooperation project is to design a regional early waning system to reduce the adverse socio-economic impacts of El Niño/Southern Oscillation (ENSO) in Latin America and the Caribbean. The feasibility of such a system will be analysed from the technical, economic, social and institutional points of view, in selected countries and regions.

Specific objectives are to:

- Evaluate the institutional and technical capability in all countries of the region to anticipate and cope with El Niño's consequences;

For your diary …

World Meteorological Day will be celebrated on 23 March. Taking place between the two sessions of the World Summit on the Information Society (Geneva 2003 and Tunis 2005), WMD'04 will be devoted to the theme of "Weather, climate and water in the information age". WMD'04 will show how information and communication technologies contribute to the collection, processing and exchange of information on weather, climate and water, and how they can help prevent the negative effects of natural disasters on people and property. There will be a message from the Secretary-General, a brochure, a press release, a 15-minute film, a poster and a special segment on the WMO Website.

World Day for Water, commonly called World Water Day (WWD), on 22 March has a special significance for WMO this year as it has been designated by the UN General Assembly to lead, together with UN/ISDR, the global awareness campaign. The theme is "Water and disasters" with the slogan "Be informed, be prepared". The aim is to enhance awareness about how improved early warning and preparedness can mitigate the impacts of water-related disasters and reduce risk and vulnerability. An information package will cover UN activities on natural disasters—floods, droughts, tropical cyclones, storm surges, landslides, debris and mudflows, snowstorms and avalanches—as well as technical hazards, such as dam bursts and the accidental industrial pollution of water.

- Identify, by groups of countries, the more vulnerable economic sectors and population groups;
- Analyse the economic value of improved early warning systems as compared to the existing situation;
- Prepare project proposals for improved early warning systems in selected countries.

The Japan Special Fund, which is administered by the IDB, provided a grant of US$ 998 000 for the project, which was carried out by WMO with the participation of the International Food Policy Research Institute, the International Research Institute for Climate Prediction, the US National Oceanic and Atmospheric Administration and regional and national institutions, including NMSs of the region.

Under the study, project proposals on climate information systems for decision-making in socio-economic sectors affected by ENSO and other climate extremes were completed for Central America, Colombia and Mexico.

OUTLOOK FORUMS IN AFRICA

Twelfth Climate Outlook Forum for the Greater Horn of Africa 25-27 August 2003, Nairobi, Kenya

This forum was convened to formulate guidance for the September-December 2003 rainfall season in the Greater Horn of Africa (GHA). The Forum was organized jointly by the Drought Monitoring Centre, Nairobi (DMCN), WMO and the International Research Institute for Climate Prediction (IRI) within the framework of a USAID-funded project. Participants included climate scientists from 10 GHA countries, other experts and users.

The Forum concluded that there was an increased likelihood of near- to below-normal rainfall over eastern and southern parts of the United Republic of Tanzania, eastern and north-western Kenya, central and north-western Ethiopia, much of Somalia, parts of eastern Sudan, much of Eritrea, western Rwanda and Burundi, and extreme south-western Uganda, as well as eastern and southern parts of the Lake Victoria basin. Episodic wet spells are, however, common during some seasons with deficient rainfall. Probabilities of near- to above-normal rainfall favoured the Red Sea coast of Sudan and Eritrea, much of southern Sudan, southern Ethiopia, parts of western Somalia, much of Uganda, eastern Rwanda and Burundi, parts of western Kenya and northern and western parts of the United Republic of Tanzania. Some of these areas have experienced drought for several seasons and below normal rainfall is expected in the coming season. The impacts of accumulated rainfall deficits may therefore be exacerbated.

Seventh Climate Outlook Forum for Southern Africa (SARCOF-7) September 2003, Lusaka, Zambia

SARCOF-7 was organized by the Drought Monitoring Centre in Harare in collaboration with the Zambia Meteorological Department, IRI and WMO. The objective was to discuss prospects for the October 2003-March 2004 rainfall season over southern African countries and to project their potential impacts on regional food security, health and other weather-sensitive sectors. The meeting brought together more than 100 climate scientists, media representatives, water-resources experts and participants from international organizations and donors.

The meeting concluded that the south-western and eastern parts of the region (South Africa, northern Mozambique and Malawi, Seychelles, the south of the United Republic of Tanzania and Namibia) were likely to receive normal to below-normal rainfall during October-December 2003, while the rest of the region was likely to experience normal to above-normal rainfall. During January-March 2004, there were high probabilities of normal conditions across much of southern Africa. However, there would be a chance of rainfall sliding into the below-normal category over south-western and central Botswana, southern Namibia and western South Africa.

A significant achievement was the establishment of a network of climate journalists, whose aim is to promote and coordinate the dissemination of weather- and climate-related information in the southern African region in a professional manner.

THE ASIA PACIFIC NETWORK

The Asia-Pacific Network for Global Change Research (APN) is an intergovernmental network whose mission is to foster global change research in the Asia-Pacific region, increase developing country participation in that research, and strengthen interactions between the science community and policy-makers.

Its primary purpose is to provide an input to policy-making through the integration of the natural and social sciences. Accordingly, understanding the human dimensions of global change lies at the core of APN's concerns.

APN activities include:

- Supporting collaborative research and training activities;
- Organizing scoping workshops to develop new research projects;
- Disseminating global change information to scientists and policy makers; and
- Providing opportunities for policy-makers and scientists to discuss regional research priorities and other global change issues.

APN supports research, dialogue and training to address key aspects of the climate challenge in the region. A high-priority goal is to improve the scientific capabilities of nations and, with this in mind, APN has launched a new five-year programme on scientific capacity building/enhancement for sustainable development in developing countries (CAPaBLE). This programme is expected to improve decision-making in the target areas in relation to climate change and water and food security.

APN believes that working in partnership with other organizations involved in global change research is essential for maximizing available resources and delivering optimum results. In particular, APN cooperates closely with the System for Analysis, Research, and Training, the International Geosphere-Biosphere Programme, the International Human Dimensions Programme on Global Environmental Change, DIVERSITAS and the World Climate Research Programme ((WCRP)—see page 5).

Several APN-funded projects have been carried out in close collaboration with the WCRP. For example, climate extreme indices and indicators for monitoring trends in climate extremes; applying climate information to enhance the resilience of farming systems exposed to climatic risk in South and South-East Asia; and climate variability and trends in Oceania.

Further information:
E-mail: info@apn.gr.jp
Website: http://www.apn.gr.jp

TOWARDS REGIONAL CLIMATE CENTRES

WMO is moving forward to establish Regional Climate Centres (RCCs). RCCs will provide the guidance needed by National Meteorological and Hydrological Services (NMHSs) as they generate climatological products and long-range predictions. The RCC concept was endorsed by Fourteenth World Meteorological Congress in May 2003. WMO regional associations have begun considering the needs and requirements of their Members for RCC functions, and are drafting appropriate plans.

RCCs will enhance the way the NMHSs provide climate services, especially in developing countries. RCCs' basic functions include providing regional climate monitoring analyses and predictions, coordinating regional NMHSs and global product providers, providing regional data management services, assisting with training and capacity building, and coordinating and conducting research and development. The emerging designs are either based on, or incorporate, centres that are already providing some or all of the services needed.

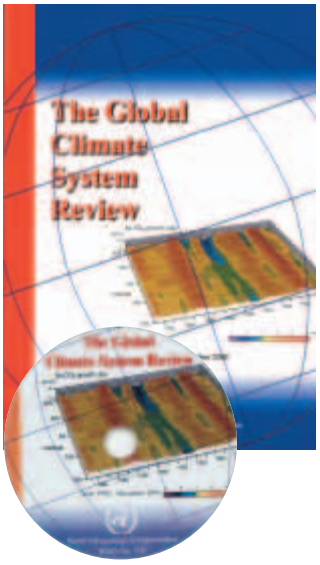
Initial experience showed that more information and a more complete understanding of the process of establishing RCCs was necessary. Consequently, the WMO World Climate Programme recently held a meeting to review progress made by each Region, assess each Region's needs and capabilities, and standardize a process to designate and operate an RCC.

GCOS Regional Workshop Programme Update

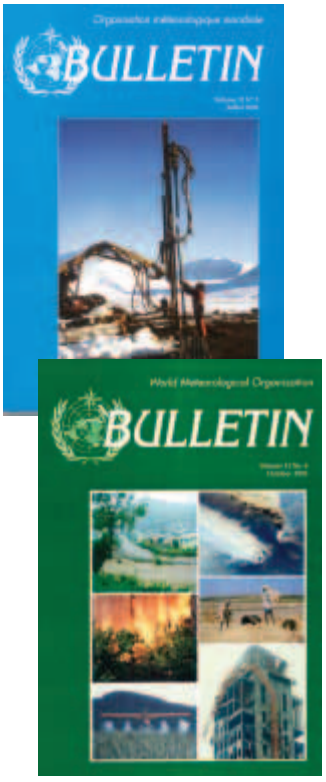
The Global Climate Observing System (GCOS) initiated a Regional Workshop Programme in mid-2000 to improve climate observing systems in developing countries. This programme was developed in response to a request from the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC). The specific objectives of each workshop are to assess the contribution of each region to GCOS baseline networks; to help participants understand guidelines for reporting on systematic observations to the UNFCCC; to identify national and regional needs and deficiencies for climate data; and to initiate the development of a regional Action Plan for improving climate observing systems.

Six of the regional workshops in the 10-workshop programme had been completed by November 2003, including those for the Pacific Islands, eastern and southern Africa, Central America and the Caribbean, East and South-East Asia, West and Central Africa, and South America. In addition, Regional Action Plans have been completed for five of these regions. GCOS expects to hold regional workshops in 2004 for the countries of Central Asia and for those of South and South-West Asia.

The implementation of proposals contained in these plans is a priority but the resources available to implement projects are limited.



The seventh edition of The Global Climate System Review (December 1996-December 2001) was published in print form and on CD-ROM in English.



The WMO Bulletin is issued in English, French, Russian and Spanish versions. July 2003 edition (theme: "Our future climate") and October 2003 edition (theme: "Socio-economic benefits of meteorological and hydrological services and products")

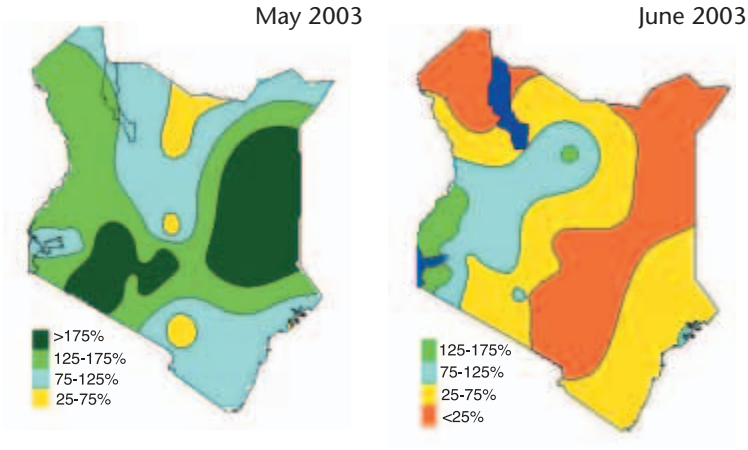
FLOODS AND DROUGHTS IN KENYA

The onset of the Long Rains (March-May) was delayed in Kenya in 2003. Intense rainfall started in mid-April and continued into May over some parts of the country. Episodic heavy rainfall was experienced from mid-April into May, causing severe flooding in western, central, eastern and northern coastal parts of Kenya, in some cases persisting for several days.

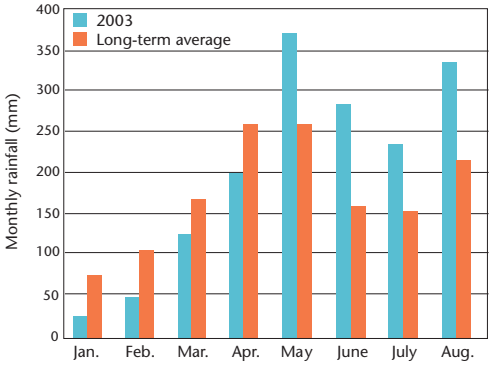
Significant rainfall continued into June over parts of western Kenya, exacerbating the flooding which had begun in May. In some areas of western Kenya, very intense rainfall lasting for a day or two occurred in June, worsening flooding, especially over the low-lying downstream regions of some of the main rivers. The worst hit areas were the Kano plains in Nyanza Province and Budalangi in Western Province.

The flooding destroyed homes, schools, other social amenities, property and basic infrastructure such as roads, bridges and dykes. Thousands of people were forced to flee their homes, and there was loss of human and animal life through drowning and from lightning. Farmland was submerged and food stores damaged. Flash floods caused landslides and massive soil erosion; damage to river banks and water-supply pipes led to acute water shortages.

However, parts of the south-eastern lowlands, north-eastern districts and the coastal regions received less-than-normal rainfall. As a result, there was increased demand for food relief over some parts of the region, and very low river and groundwater levels led to severe water shortages, high rates of malnutrition, the death of livestock and an increase in water-related diseases due to lack of potable water.



Maps above show rainfall (per cent deviation from normal) for May and June 2003. Bar chart below shows monthly rainfall over Kakamega in 2003 compared to the long-term mean.



WMO's Website address has been changed. It is now:
http://www.wmo.int

E-mail addresses of WMO staff now take the form of:
jsmith@wmo.int
where 'j' stands for the first initial and 'smith' for the surname

World Climate News can be accessed on the Internet (http://www.wmo.int, then select "Catalogue of the WMO Publications"). Printed copies are sent only on specific request. Please fill in this form below and send to WMO (see page 2).

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