



**Issue #21**

**September 2002**

Editorial  
***El Niño Has Arrived***

The statement “El Niño has arrived” has a double meaning. It means that El Niño conditions have been identified, including sea surface temperature changes in the central Pacific and a movement of the Southern Oscillation Index into the warm episode range. Just about every forecast group has noted the very high probability of the full development of a weak to moderate El Niño event for the end of 2002 and into at least the first part of 2003.

Some of its expected impacts in certain locations have already begun to show up: severe drought has hit Australia (and projections of wheat production in the country have been revised downward); fires and haze have reappeared in Indonesia (a classic occurrence during an El Niño event); parts of India are undergoing severe drought; Zimbabwe is experiencing severe food shortages and will likely move into El Niño-related drought conditions during the 2002–03 growing season.

The phrase “El Niño has arrived” has a second meaning as well. It has achieved global notoriety. El Niño has become a publicly recognized phenomenon that can spawn climate-related problems in, for example, the United States. It has become a household word – even if only a few households really know much about this air-sea interaction in the tropical Pacific. That’s good news from the vantage point of the research and

research applications communities – good news with a down side. With acceptance (i.e., familiarity) by the public, the phenomenon becomes less newsworthy. Abetting the reduced newsworthiness of this El Niño is the projection that it is likely to be a weak to moderate event. That means people will look back at what happened in their region during the 1997–98 El Niño and are likely to expect less severe impacts than those that occurred a few years ago. I don’t think we know enough about the impacts of weak to moderate El Niño events to warrant the complacency that seems to have emerged with familiarity with the phenomenon.

There is a reason for using the word “complacency.” A search on the Internet or in various newspapers around the country for articles about El Niño show only old leftovers from the 1997–98 event, if one excludes forecasts. There are not many who are reporting on the likely event or its potential impacts. The clarion calls from various sources seem to be muted at best or, at worst, nonexistent.

It seems that a new challenge has emerged for those people concerned about getting society ready to cope with disasters: how to keep the public and various government agencies in a proactive mode with respect to societal preparations for El Niño’s possible impacts.

**--Michael H. Glantz**

## THANKS FOR YOUR INPUT!

Please send news items, publications, websites, and articles of interest to our readers to the address below by **30 November 2002**. This newsletter values input from its readers, which has now reached over 2,000. If you are interested in receiving the newsletter on line only, please subscribe there. You will be notified electronically when a new issue is released. Feedback is encouraged!

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## CURRENT STATE OF THE TROPICAL PACIFIC

(from the Climate Prediction Center's *Climate Diagnostics Bulletin*) [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

A Pacific basin warm episode (El Niño) prevailed during July, as SST anomalies remained greater than +1°C throughout the central equatorial Pacific. The Madden-Julian Oscillation (MJO) continues to be a major source of week-to-week and month-to-month variability in the atmospheric circulation of the tropics and subtropics. The MJO contributed to a substantial weakening of the low-level easterly winds throughout the equatorial Pacific during July. As a consequence, drier-than-average conditions were observed over Indonesia and portions of Southeast Asia/India, with drier-than-average conditions expected to continue over Indonesia and eastern Australia during the next several months, and wetter-than-average conditions over southeastern South America. Since

March 2002 the Southern Oscillation Index (SOI) has been consistently negative. Most coupled and statistical model forecasts indicate that El Niño conditions are likely to continue through the end of 2002 and into early 2003. Although there is considerable uncertainty in the forecasts about the timing and intensity of the peak of this warm episode, all of the forecasts indicate that it will be a weak to moderate event. It is important to add that the global impacts of this warm episode should be correspondingly weaker than those observed during the very strong 1997–98 El Niño. For more information, see the website or contact [vernon.kousky@noaa.gov](mailto:vernon.kousky@noaa.gov)

## THE 2002–03 EL NIÑO ... SO FAR!

According to the WMO's latest *El Niño Outlook* (produced with input from more than a dozen organizations), the now-developing El Niño event has already demonstrated some of its own distinguishing features. In recent months, the sea surface temperatures across much of the central equatorial Pacific have been about 1°C warmer than normal. Since the warmth has been present since May, it is probable that some atypical climate patterns observed since that time have at least in part been related to these changes in the tropical Pacific. These would include the unusual nature of the summer monsoon season across the Indian Subcontinent, notably the rainfall deficits in central and southern parts, contrasting with excessive rainfall in the northeast, and the dry conditions over Indonesia and across large tracts of the Australian continent.

While some further modest warming in the central and eastern equatorial Pacific is possible, the event is not expected to reach the level of the very strong El Niño of 1997–98. Nonetheless, conditions in

the tropical Pacific are expected to be sufficiently anomalous to create substantial consequences in some regions. Because there are many factors involved in regional climate variability other than an El Niño event, it is important for those considering response strategies to consult their national meteorological services to assess the possible effects of the event on local weather conditions and seasonal behavior. The entire *Outlook* can be viewed at [www.wmo.ch](http://www.wmo.ch) (click on "What's New").

## **EL NIÑO AND ARID ECOSYSTEMS**

A new project supported by the European Commission studies the rainfall association of ENSO to possible reduction of desertification processes in semiarid ecosystems of Chile and Peru. Usually dry conditions are periodically interrupted by a dramatic increase in rainfall during El Niño events. Controlled field experiments are under way to investigate the rainfall threshold, necessary to trigger the successful tree regeneration under different herbivory and shade conditions. Also tree-ring studies are used to analyze the relationship between natural establishment of trees and past rainy El Niño events. These results could allow the development of innovative, relatively cheap ways to implement reforestation programs and combat desertification. This project is being carried out by Wageningen University (Netherlands), along with universities in Spain, Chile, and Peru. For more information, see the website at [www.biouls.cl/enso/](http://www.biouls.cl/enso/) or write to Dr. Milena Holmgren, Wageningen University, Forest Ecology and Forest Management Group, PO Box 342, 6700 AH Wageningen, Netherlands; tel: 31-317-478043; email [Milena.Holmgren@btbo.bosb.wau.nl](mailto:Milena.Holmgren@btbo.bosb.wau.nl)

## **IGBP PHASE II AND SCOR**

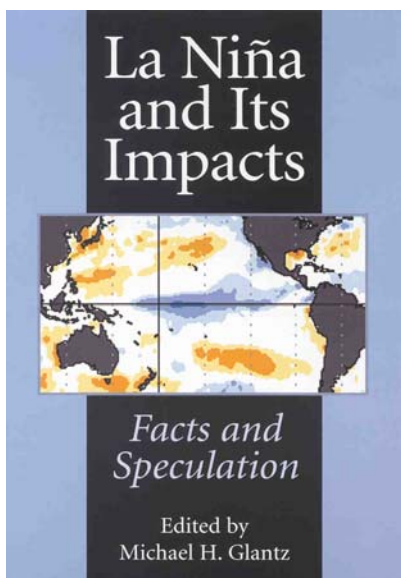
The International Geosphere–Biosphere Programme (IGBP) is now entering its second decade of global change research (Phase II), with a new structure to be launched in early 2003. SCOR (Scientific Committee on Oceanic Research) is assisting IGBP in developing the ocean component of IGBP's Phase II. SCOR and IGBP have initiated an Ocean Futures Transition Team to develop a new project, which will interface closely with ongoing IGBP projects. The team is headed by Julie Hall, National Institute of Water and Atmospheric Research, Hamilton, New Zealand, and will develop a new SCOR/IGBP activity in ocean biogeochemistry and ecosystems for the next 8 years of ocean research. This new activity is being developed in harmony with GLOBEC (Global Ocean Ecosystem Dynamics), which will help to design and implement the activity. For more information, contact Julie Hall at [j.hall@niwa.cri.nz](mailto:j.hall@niwa.cri.nz) or visit [www.igbp.kva.se](http://www.igbp.kva.se)

## **PASSIONFISH AND SUSTAINABLE FISHERIES**

Passionfish brings together diverse stakeholders to address two key problems: troubled marine ecosystems and collapsed communications between various individuals and entities. Passionfish fosters dialogue and shows that the sea's bounty can be sustainable as long as commerce and conservation work together. Passionfish is a non-partisan public education and media project of The Tides Center, a fiscal sponsor of non-profit organizations nationwide. For more information, see the website at [www.passionfish.org](http://www.passionfish.org), write to Patti Parisi, 827 Warfield Ave., Suite 9, Oakland, CA 94610, or email her at [info@passionfish.org](mailto:info@passionfish.org)

## EL NIÑO'S POWERFUL REACH

The Smithsonian National Museum of Natural History in Washington, DC, USA, opened a new exhibit on El Niño, "El Niño's Powerful Reach." It will be on view through June 2003. By utilizing ground-based and satellite images, this exhibit aims to advance public understanding of how the earth's components work as a system. The exhibit also features interpretative stations with text, graphics, video, visualizations, and objects from the Museum's collection to aid in telling the story of El Niño. See the website at [www.mnh.si.edu/exhibits/global\\_links/](http://www.mnh.si.edu/exhibits/global_links/)



### BOOK ON LA NIÑA NOW AVAILABLE

The United Nations University Press has just released a new book, *La Niña and Its Impacts: Facts and Speculation*, edited by Michael Glantz. The book, based on a "La Niña Summit" held at the National Center for Atmospheric Research in Boulder, Colorado in July 1998, presents updated as well as new contributions about the science, impacts, and forecasting of La Niña and offers a current glimpse of the state of scientific knowledge about cold events. For early orders, UNU Press is offering a 10% discount from the

US\$21.95 (plus shipping) price for orders received before 15 October. For more information see the website at [www.unu.edu/unupress/](http://www.unu.edu/unupress/) or email [sales@hq.unu.edu](mailto:sales@hq.unu.edu). Please indicate "early order" when placing an order. The UNUP is located at 43-70, Jingumae 5-chome, Shibuya-ku, Tokyo 150-8925, Japan; tel: 81-3-3499-2811; fax: 81-3-3406-7345.

### HOWARD CATTLE, NEW ICPO DIRECTOR

The International CLIVAR Project Office (ICPO) has appointed Howard Cattle to succeed John Gould as Director. Gould plans to spend the next year at Scripps Institution of Oceanography working on the development of the Argo project. Dr. Cattle was previously Head of Ocean Applications at the UK Meteorological Office in Bracknell. His background in meteorology, oceanography, forecasting, and management make him well suited for his new position. For more information, see the CLIVAR website at [www.clivar.org](http://www.clivar.org)

### WHAT IS CliC?

CliC (Climate and Cryosphere) is a core project of the World Climate Research Programme. CliC addresses the entire cryosphere (defined as surface water in solid form), which is strongly influenced by temperature, solar radiation and precipitation and, in turn, influences each of these properties. Parts of the cryosphere are strongly influenced by changes in climate and, therefore, may act as an early indicator of both natural and human-induced climate changes. CliC and CLIVAR have recently formed a panel that is charged with refining and implementing the science plans of CLIVAR and CliC in the Southern Ocean sector. For more information, see the website at [www.clivar.org/organization/southern](http://www.clivar.org/organization/southern) or download the WCRP Informal

## **FORECASTING FLOODS IN BANGLADESH**

A project called "Climate Forecasting in Bangladesh" (CFAB) has been implemented to study and provide short- and long-range forecasts of flood probability in Bangladesh's river delta. CFAB aims to create and increase collaboration between international and national partners in flood forecasting, as well as to develop techniques for the application of flood forecasts in agriculture, precipitation forecasting and disease, and build capacity in the Bangladesh Meteorological Department to produce flood prediction forecasts. A workshop is planned in Bangladesh for December 2002 to evaluate the results of experimental forecasts within the user community. It is anticipated that by 2003, "real-time" experimental forecasts will be generated. For more information, contact Project Manager Abdul Latif Khan, Asian Disaster Preparedness Center, PO Box 4, Klong Luang, Pathumthani 12120, Thailand; email [adpc@ait.ac.th](mailto:adpc@ait.ac.th)

## **LOWER ATLANTIC HURRICANE FREQUENCY FOR 2002**

Below-average Atlantic basin hurricane activity is now envisioned for 2002 by William Gray, Chris Landsea, and Philip Klotzbach of the Department of Atmospheric Science, Colorado State University, Colorado. Starting this year, the CSU team will issue a September-only forecast, as well as a revised seasonal outlook that will utilize data through August. The current update extends the steady downward series of adjustments from the team's earlier seasonal forecasts for 2002 in response to global conditions that have become steadily less favorable for Atlantic

hurricane activity (e.g., a developing El Niño). The current and prior forecasts are available at [tropical.atmos.colostate.edu/forecasts/](http://tropical.atmos.colostate.edu/forecasts/). According to Gray, a cooling of Atlantic basin sea surface temperatures, a large increase in Atlantic sea surface pressure, and a strengthening of tropical Atlantic easterly trade winds all contribute to the possible reduction in Atlantic hurricane activity.



## **JMA REANALYSIS PROJECT**

The JMA (Japan Meteorological Agency) is planning a 25-year reanalysis project (1979–2004) that will form the basis of a dynamical seasonal prediction project and global warming study for advanced operational climate monitoring services at JMA. The Agency is providing the data assimilation expertise and the forecast system, and the Central Research Institute of the Electric Power Industry, a private foundation, will furnish the computer resources. The project is expected to be completed by 2005, with the products available to scientific groups. For more information, see WMO Report WMO/TD No. 1105, or contact JMA, 1-3-4 Ote-machi, Chiyoda-ku, Tokyo 100-8122, Japan.

## **CLIMATE INTO THE 21ST CENTURY**

A forthcoming new WMO book, *Climate Into the 21st Century*, was born during discussions among members of the WMO Commission for Climatology. The project began with the formation of an international Task Team to develop the project and see it to completion. The challenge required a highly selective synthesis of the meteorological, hydrological, and oceanographic processes on the planet for the past 100

years. Five sections comprise a number of two-page spreads that cover topics relevant to each section, covering a diverse range of topics including: what is climate, effects of volcanoes on climate, El Niño/La Niña, and modeling the climate system. The book is published by Cambridge University Press and expected to be released in December 2002. See the Cambridge website for more information at [books.cambridge.org/0521792029.htm](http://books.cambridge.org/0521792029.htm)

## **JOB AND FELLOWSHIP OPPORTUNITIES**

The System for Analysis, Research and Training (START) has opportunities for the **Fellowship/Visiting Scientist Program**. The program is designed to increase the number of developing country scientists who serve as active partners in global change research. START Fellowships are offered at the graduate and post-graduate levels to young scientists from Africa, Asia, and Oceania. The START Visiting Scientist Award allows more senior scientists from developing countries the opportunity to undertake short-term visits to major international laboratories. To apply, please download the application form from the website at [www.start.org/Fellowships/app\\_guide.html](http://www.start.org/Fellowships/app_guide.html) or contact Ms. Amy Freise, Program Coordinator, International START Secretariat, 2000 Florida Ave. NW, Suite 200, Washington, DC 20009; tel: 1-202-462-2213; fax: 1-202-457-5859; email: [afreise@agu.org](mailto:afreise@agu.org). The application deadline is 1 November 2002.

The Large Lakes Observatory of the University of Minnesota Duluth (LLO) seeks a **research associate in physical limnology/oceanography** to replace a faculty member who is on a temporary leave of absence. The incumbent is expected to carry out research activities at LLO. Applicants must possess a PhD in limnology, oceanography or a related

field at the time of the appointment. Demonstrated research expertise in physical limnology or oceanography is expected (e.g., publications in refereed journals). Applicants must submit a letter or e-mail of interest, curriculum vita, and the names and contact information of three referees to Professor Brian May, Chair, LLO Research Associate Search Committee, Large Lakes Observatory, University of Minnesota Duluth, 1049 University Drive, Duluth, MN 55812; email: [bmay@d.umn.edu](mailto:bmay@d.umn.edu)

The Joint Institute for the Study of the Atmosphere and Ocean (JISAO) at the University of Washington, and the National Oceanic and Atmospheric Administration's Alaska Fisheries Science Center (AFSC) will have a **research position** available in Autumn, 2002. The appointment will be made through the School of Fisheries at the University of Washington in Seattle. The position will involve the development and evaluation of ecological indices for the ecosystems of the North Pacific, particularly the Gulf of Alaska, Bering Sea and Aleutian Islands. The incumbent will also provide an important liaison role in coordinating index development and communication of results to the North Pacific Fishery Management Council by periodically holding meetings of researchers involved in index development and will serve as lead editor of the Ecosystem Considerations report. Candidates must have a PhD in Fisheries, Fisheries Oceanography, Quantitative Ecology, Statistics, or related field and should have experience in the use of statistics in the analysis of ecological data. Send a summary of research experience, a curriculum vitae, and a list of three references via surface mail or email to: Pat Livingston, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115; email: [Pat.Livingston@noaa.gov](mailto:Pat.Livingston@noaa.gov)



## SUMMARIES OF PAST MEETINGS

The **CLIVAR Scientific Steering Group** (SSG) met 21–24 May 2002 in Xi'an, P.R. China, which is home to the Chinese Academy of Sciences' Institute of Earth Environment. The SSG discussed how to assist CLIVAR and China approach global integration. One vital activity in this regard is reanalysis for both the atmosphere and ocean. Discussion was held on how to use the TOGA heritage in initiating reanalysis as an integration tool. A workshop will be developed, which will involve GEWEX scientists and should contribute to the success of the WCRP/GEWEX Coordinated Enhanced Observing Period monsoon focus. For more information, contact the International CLIVAR Project Office at [icpo@soc.soton.ac.uk](mailto:icpo@soc.soton.ac.uk)

The **Workshop and Conference on El Niño & Tropical Ocean-Atmosphere Interactions** was held 3–14 June 2002 in Trieste, Italy. Sponsored by the Abdus Salam International Centre for Theoretical Physics (ICTP), the purpose of the workshop was to introduce students, post-doctoral fellows and young scientists to tropical ocean-atmosphere interactions. The conference aimed to synthesize recent results on El Niño and related phenomena. The main topics were: how did the El Niño of 1997-98 evolve? Is El Niño changing? and the future of El Niño studies. For more information, contact the Abdus Salam ICTP El Niño 2002, c/o P. Pieri, Strada Costiera 11, 34014 Trieste, Italy; tel: 39-040-2240-374; fax: 39-040-2240-449; email: [smr1411@ictp.trieste.it](mailto:smr1411@ictp.trieste.it); web: [www.ictp.trieste.it/~pwc/](http://www.ictp.trieste.it/~pwc/)

The **4<sup>th</sup> Paleoclimate Modeling Intercomparison Project (PMIP) Workshop** was held 22–26 June 2002 in Cambridge, United Kingdom. The objectives of the workshop were to decide if a new intercomparison project for the mid- Holocene using coupled ocean-

atmosphere and/or atmosphere-ocean-vegetation models should be started; to discuss the goals of such model-model and model-data comparisons; to define possible additional intercomparison simulations; and to discuss possible additional PMIP simulations for the early Holocene and glacial inception. For more information, contact Della Fitzgerald, Department of Meteorology, University of Reading, Earley Gate, PO Box 243, Reading RG6 6BB UK; tel: +44 (0) 118 931 8954; fax: +44 (0) 118 931 8905; email: [d.c.fitzgerald@reading.ac.uk](mailto:d.c.fitzgerald@reading.ac.uk)

The **International Workshop on Small-Scale Sea Ice-Ocean Modeling (SIOM) for Nearshore Beaufort and Chukchi Seas** was held 8–9 August 2002 in Fairbanks, Alaska. The workshop brought together leading experts to discuss the present status and future direction of small-scale and regional sea-ice-ocean modeling. The workshop produced recommendations on the best modeling approaches based on the current research in small-scale and regional ice-ocean modeling in polar and subpolar regions. For more information, contact Ms. Kathy Glodowski, International Arctic Research Center-Frontier, University of Alaska, 930 Koyukuk Dr., Fairbanks, AK 99775; tel: 1-907-474-1960; fax: 1-907-474-2643; email: [katcam@iarc.uaf.edu](mailto:katcam@iarc.uaf.edu); web: [www.frontier.iarc.uaf.edu/SIOM-Workshop-02/](http://www.frontier.iarc.uaf.edu/SIOM-Workshop-02/)

The **Ocean Carbon Cycle and Climate Summer School Program** was held 5–16 August 2002 in Ankara, Turkey. Organized by the NATO Advanced Study Institute, this intensive summer school aimed to introduce participants to recent developments in understanding the ocean carbon cycle and its connections to climate change. The program encompassed observational advances, interpretations of new data and improved mechanistic understanding through modeling. The program was intended for students pursuing research toward a PhD and young scientists at the postdoctoral

level. For more information, visit the program website at [www.ims.metu.edu.tr/ASI](http://www.ims.metu.edu.tr/ASI)

## **ANNOUNCEMENTS OF UPCOMING MEETINGS**

The **Fourth International Conference on Environmental Problems in Coastal Regions** will be held *16–18 September 2002* in Rhodes, Greece. The conference is organized by the Wessex Institute of Technology, UK, and sponsored by ASCE UK International Group. Coastal Environment 2002 will address the subjects of monitoring, analysis, and modeling of coastal regions, including air and ground phenomena. The conference will focus on topics that prevent, alleviate or minimize environmental problems, allowing a balanced use of the coastal regions as a common resource around the world. Due to the ecological, social, economic and cultural interests within the coastal zone, almost all activities or actions within this area generate conflicts among different interested parties. Effective strategies for management should therefore consider the coast as a dynamic, integrated system in which inputs, outputs and re-circulation of matter and energy control the environmental quality. For more information, contact Gabriella Cossutta, Conference Secretariat, Coastal Environment 2002, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA; Tel: 44-238-029-3223; Fax: 44-238-029-2853; email: [gcossutta@wessex.ac.uk](mailto:gcossutta@wessex.ac.uk); web: [www.wessex.ac.uk/conferences/2002/coastal02/](http://www.wessex.ac.uk/conferences/2002/coastal02/)

The **2nd Open Science Meeting: Comparative Ecosystems and Climate Change** will be held *15–18 October 2002* in Qingdao, P. R. China. The meeting is organized by the International Global Ocean Ecosystem Dynamics (GLOBEC). The primary goal of GLOBEC is to advance our understanding of the

structure and functioning of the global ocean ecosystem, its major subsystems and its response to physical forcing so that a capability can be developed to forecast the responses of the marine ecosystem to global change. The first meeting was held in the context of the development of the GLOBEC Implementation Plan, and the second is intended as a mechanism to renew the activities of the program since its international implementation in 1999 and to discuss new implementation strategies. Topics to be discussed include: decadal/centennial variability in marine ecosystems: a comparative approach; Antarctic marine ecosystems and global change; modeling of transport processes and early fish life history; regional and mesoscale coupled physical–biological models; comparative studies of North Atlantic ecosystems; social impacts from changes in marine ecosystem structure; ENSO and decadal scale variability in North Pacific ecosystems (joint with PICES). For more information about this meeting, contact GLOBEC IPO, Prospect Place, Plymouth, UK, PL1 3DH; fax: 44-1752 633160 or visit the website at: [www.pml.ac.uk/globec/](http://www.pml.ac.uk/globec/)

The **Chapman Conference on Continent-Ocean Interactions within the East Asian Marginal Seas** will be held *11–14 November 2002* in San Diego, California USA. The marginal seas of the Asian continent represent natural laboratories for the study of a wide variety of geologic processes. These basins form the transition zone between the world's largest continent and largest ocean and are major repositories of information on the interaction between the two within the tectonic, geologic, and climatic spheres. This meeting brings together an international and multidisciplinary group of ocean and earth sciences researchers to examine the origin and development of these basins in order to foster interaction between normally separate communities such as tectonic and oceanographic researchers. The meeting will focus on



the Andaman Sea, the South China Sea and its associated Malaysian basins, the East China Sea, the Okinawa Trough, the Yellow Sea, the Sea of Japan and the Sea of Okhotsk. Understanding how the evolution of Asia and the Pacific Ocean affects the marginal seas is a key goal of the meeting. For more information, contact AGU at tel: 1-202-777-7332 or fax: 1-202-328-0566; email: meetinginfo@agu.org or visit the website: [www.agu.org/meetings/cc02ccall.html](http://www.agu.org/meetings/cc02ccall.html)

**The Fourth European Conference on Applied Climatology: Climate-related Risk Assessment and Sustainable Development in the 21<sup>st</sup> Century** will be held *12–15 November 2002* in Brussels, Belgium. This international climate conference will address issues of global change, its impacts in the different fields of human activities and deals further with the assessment of climate-related risks. The needs for identifying, and subsequently reducing and mitigating climate-related risks will be stressed. For further information, please contact ECAC-2002, c/o Royal Meteorological Institute of Belgium, avenue Circulaire 3, B-1180, Brussels, Belgium; email: ECAC-2002@oma.be; web: [www.meteo.be/ECAC-2002/index.html](http://www.meteo.be/ECAC-2002/index.html)

**WOCE (World Ocean Circulation Experiment) and Beyond: The WOCE Final Conference** will be held *18–22 November 2002* in San Antonio, Texas. The accomplishments of the World Ocean Circulation Experiment will be recognized and the era of the new quantitative oceanography ushered in. Themes to be addressed include: new global perspectives; the oceans' roles in property transports and exchanges with the atmosphere; the insights WOCE has produced regarding how the ocean works, what are the remaining problems; what we know about the ocean's role in climate, and the next main objectives. The conference will celebrate WOCE accomplishments, recognize its contributions to ocean and climate

science, and herald the quantitative oceanography that has developed during the WOCE period. For more information please contact the US WOCE Office, Dept of Oceanography, 3146 TAMU, College Station, TX 77843-3146; tel: 1-979-845-1443; email: [woce2002@tamu.edu](mailto:woce2002@tamu.edu); web: [www.woce2002.tamu.edu](http://www.woce2002.tamu.edu)

**The International Conference On Preventing And Fighting Hydrological Disasters** will take place from *21–22 November 2002* in Timisoara, Romania. The event will examine natural and accidental floods, hydrological drought, water quality and the impact of these on the environment, as well as policies and strategies in global and regional water resources management. For more information contact: Gheorghe Cretu, Conference Secretariat; tel/fax: 40-56-221481; e-mail: [gcr@mail.dnttm.ro](mailto:gcr@mail.dnttm.ro); web: [www.utt.ro/pfhd/](http://www.utt.ro/pfhd/)

**Pacem in Maribus (Peace on the Ocean)** will be held *8–14 December 2002* in Cape Town, South Africa. PIM2002 is an annual conference dealing with issues pertaining to the ocean. The conference is called "The Ocean in the New Economy" and seeks to explore problems created within the oceans by the new economy and, more importantly, to identify opportunities for sustainable use that arise out of interactions between the new economy and the Global Ocean. For more information, contact the Secretariat PIM 2002, PO Box 2760, Clareinch 7740, South Africa; tel: 27 21 683 5522; fax: +27 21 674 3269; email: [pim2002@uwc.ac.za](mailto:pim2002@uwc.ac.za); web: [www.ioinst.org/pim2002/](http://www.ioinst.org/pim2002/)

**OCEANS: Ocean Biogeochemistry and Ecosystems Analysis** will be held *7–10 January 2003* in Paris, France. This international multidisciplinary project will build upon previous and ongoing research programs in biogeochemical cycles, ocean ecosystems, climate variability, and anthropogenic impacts. The primary goal of OCEANS is to understand the role of the ocean in the

earth system response to global change, focusing on biogeochemical cycles, marine food webs and their interactions. It will encompass three overlapping questions: How does global change impact marine biogeochemical cycles and ecosystem dynamics? How do these impacts alter the mechanistic relationships between elemental cycling and ecosystem dynamics? What are the feedback mechanisms to the earth system from these changes? For more information, contact Elizabeth Gross, Finance Officer, Scientific Committee on Oceanic Research, Dept. of Earth and Planetary Sciences, The Johns Hopkins University, Baltimore, MD 21218; email: scor@dmv.com; [www.igbp.kva.se/obe/](http://www.igbp.kva.se/obe/)

The **Third World Water Forum** will be held *16–23 March 2003* in Kyoto, Japan. Taking up the spirit of the 2nd World Water Forum, the 3rd World Water Forum is intended to be open to all stakeholders, to stimulate global awareness of water problems, to help generate action from the debates and ideas centered around the World Water Vision, and to contribute to concrete solutions of world water problems. A major focus will be on climate variability and change. A Ministerial Conference will be held during the Forum, where Ministers will work toward framing and adopting a political declaration concerning global water problems. For more information, contact the Forum Secretariat, 5th FL. 2-2-4 Kojimachi Chiyoda-ku, Tokyo, 102-0083, Japan; tel: 81-3-5212-1645; fax: 81-3-5212-1649; email: [office@waterforum3.com](mailto:office@waterforum3.com); web: <http://www.worldwaterforum.org>

The **7th International Conference On Southern Hemisphere Meteorology And Oceanography: Southern Ocean Weather and Climate Variability: Regional and Global Effects** will be held *24–28 March 2003* in Wellington, New Zealand. Sessions will focus on topics including: the southern oceans, Antarctica and the cryosphere, atmospheric

chemistry and trace gases, and climate and culture. The conference organizers aim to take an inclusive view of weather and climate, encompassing all aspects of atmospheric and ocean sciences, and human responses and impacts upon climate variability and change. For further information, contact Jim Renwick, NIWA, PO Box 14901, Wellington, New Zealand; email: [j.renwick@niwa.cri.nz](mailto:j.renwick@niwa.cri.nz); or George Kiladis, Aeronomy Laboratory, R/AL3, NOAA, 325 Broadway, Boulder, Colorado, 80305-3328, USA; email: [gkiladis@al.noaa.gov](mailto:gkiladis@al.noaa.gov); web: [metsoc.rsnz.govt.nz/7icshmo/](http://metsoc.rsnz.govt.nz/7icshmo/)

**The Role of Zooplankton in Global Ecosystem Dynamics: Comparative Studies from the World Oceans** will be held *20–23 May 2003* in Gijon, Spain. Organized by the International Council for the Exploration of the Seas (ICES), the North Pacific Marine Science Organization (PICES), and the International Global Ocean Ecosystem Dynamics (GLOBEC), the symposium will define current zooplankton ecology and determine key research initiatives to be pursued in the 21<sup>st</sup> century. A major focus of the meeting will be the effect of climate variability and global climate change on zooplankton, with an emphasis on the need for comparative studies between ocean basins. For further information, contact the PICES Secretariat, Institute of Ocean Sciences, PO Box 6000, Sidney, BC, Canada. V8L 4B2; tel: 1-250-363-6366; fax: 1-250-363-6827; email: [secretariat@pices.int](mailto:secretariat@pices.int); web: [www.pices.int/meetings/gijon/gijon.asp](http://www.pices.int/meetings/gijon/gijon.asp)

The **Fourteenth Global Warming International Conference & Expo (GWXIV)** will be held *27–30 May 2003* in Boston, MA. The meeting will be called “Extreme Events & Energy, Agricultural and Natural Resource Management” and is intended for government, industry, and academic participants and will focus on scientific data and policy analysis. The subject categories include: the US Role in

Future Climate Mitigation, El Niño-like Climate Change, Floods & Drought, Sea Level Rise, Coastal Regions Emergency Preparedness, Coral Reefs, Climate Networks (Ocean, Polar Region, Forests), Climate Change and Fire Impacts on Forestry, the Role of the Media, Education, Infectious Disease, and Global Warming and Public Health. For more information, contact GWXIV International Conference Program Committee, c/o The Global Warming International Center, 22W381 75th Street, Naperville IL 60565; tel: 1-630-910-1551; fax: 1-630-910-1561; email: gw14@globalwarming.net; web: www.globalwarming.net

**Coastal Zone 03** will be held 13–17 July 2003 in Baltimore, Maryland. The conference will have four overarching themes: Port and harbor management, Regional land management, Management responses to coastal hazards, and Management of aquatic resources. The conference aims to revisit coastal management history, look at where present management is, and decide in what future direction it is headed. Each participant is expected to leave with a working document that will help in guiding future coastal management decisions. For more information, contact Gale Peek, Coastal Zone 03 conference manager at Gale.Peek@noaa.gov; tel: 1-843-740-1231; web: www.csc.noaa.gov/cz2003/

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### Books

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## **WEB RESOURCES**

**[iri.columbia.edu/climate/ENSO/currentinfo/QuickLook.html](http://iri.columbia.edu/climate/ENSO/currentinfo/QuickLook.html)**

The International Research Institute (IRI) for climate prediction compiles a monthly summary page of the status of El Niño, La Niña, and the Southern Oscillation (ENSO).

**[www.helcom.fi](http://www.helcom.fi)**

The Helsinki Commission website contains insight into the environmental issues affecting the Baltic Sea, and has recently added an Atlas of the 62 Baltic Protected Areas.

**[www.epa.gov/globalwarming/kids/animations.html](http://www.epa.gov/globalwarming/kids/animations.html)**

This EPA Global Warming site is entirely for kids. It answers such questions as “what is the climate system,” “what is global warming,” and “what can you do.” The site also contains great animations about global warming and other earth processes as well as a quiz.

**[www.clivar.org/publications/journals/literature.htm](http://www.clivar.org/publications/journals/literature.htm)**

The International Research Programme on Climate Variability and Predictability (CLIVAR) is in the process of compiling a comprehensive bibliography of papers resulting from CLIVAR research. The site contains a collection of articles that appear in a small number of journals that have high reputation and wide readership among the climate research community.

**[www.woce.org/publications/index.html](http://www.woce.org/publications/index.html)**

This portion of the World Ocean Circulation Experiment (WOCE) website contains newsletters, reports and a comprehensive bibliography started in 1994 which contains over 6000 articles.

**[www.thewaterpage.com/el\\_nino.htm](http://www.thewaterpage.com/el_nino.htm)**

The Water Page is an independent initiative dedicated to the promotion of sustainable water resources management and use. A particular emphasis is placed on the development, utilization, and protection of water in Africa and other developing regions. This page gives a description of El Niño and La Niña.

**[www.coaps.fsu.edu/Publications](http://www.coaps.fsu.edu/Publications)**

The Center for Ocean-Atmospheric Prediction Studies at Florida State University performs research in air-sea interaction and predictions of social-economic consequences of the ocean-atmospheric interactions. The site contains information on the Center’s research as well as a comprehensive searchable bibliography.



## THE ENSO SIGNAL

The El Niño-Southern Oscillation (ENSO) Signal will be published four times a year by the Environmental and Societal Impacts Group at the National Center for Atmospheric Research, with financial support from the National Oceanic and Atmospheric Administration's Office of Global Programs. It is available both in hard copy and an electronic version.

The *ENSO Signal* is intended for those interested in the ENSO cycle and its impacts on ecosystems and societies. We intend to provide news items, publications, web sites, and articles of interest to our readers. Please give any feedback about the Signal to the Managing Editor. It is published quarterly free of charge. Subscribe on line or at the address below. For the next issue, please send any materials for inclusion by **30 November 2002**.

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With financial support from:

*NOAA's Office of Global Programs*

*Environmental & Societal Impacts Group,  
National Center for Atmospheric  
Research (NCAR is sponsored by the  
National Science Foundation)*

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## ENSO = El Niño-Southern Oscillation



The ENSO Signal is published by the Environmental and Societal Impacts Group (ESIG), National Center for Atmospheric Research (NCAR) in cooperation with the National Oceanic and Atmospheric Administration. NCAR is sponsored by the National Science Foundation.