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Editorial

*El Niño Awareness is Up, and So Are the
SSTs in the Central Pacific*

A recent Associated Press article noted that “officials in Malaysia are preparing for the possible arrival of El Niño later this year . . . and are launching contingency plans and mitigation measures to avert possible disasters in the future.”

No doubt many governments, like Malaysia, and especially their attentive citizens, are more aware of El Niño (and La Niña) now than just five years ago. This steplike shift in awareness represents a great step forward for societies’ abilities to cope with El Niño events.

In the highly unlikely case that nothing more were to happen to the learning process about El Niño, what has already been learned in the past few decades has proven to be extremely beneficial and well worth the research efforts.

Governments have learned the hard way that ENSO’s extremes can negatively influence development plans and prospects, livelihoods, mortality, morbidity and migration rates around the globe.

In addition to numerous articles on ENSO-related issues, a growing number of books seek to tease out of historical records how El Niño impacted the course of history: was a particular defeat in battle somehow related to El Niño? Did a civilization collapse because of an El Niño-related drought or flood? Did El Niño play a role in colonialism and the “making of the Third World”?

Now a new phase has emerged. It involves the more difficult task of providing detail and convincing potential users of El Niño information to use it (i.e., retailing). It involves putting details into the forecasts that are of concern to a wide range of forecast users, details about timing and magnitude, teleconnections (linkages with distant weather or climatic extreme events), details about its possible impacts on society, environment, and economy.

This phase is a difficult one. It involves “retailing” ENSO information (including, but not limited to, forecasts) to all levels of society, from local to global and to all weather-sensitive socio-economic sectors. There are many sectors of society that can benefit from El Niño information, but the problem is that the number of people who are knowledgeable about ENSO and the use of ENSO information in decision-making is still quite small compared to the task at hand. What to do?

Perhaps those who know about ENSO and what its extremes can do to societies can identify ways to help educate the educators in countries known to be in the El Niño “line of fire” (Philippines, Vietnam, Indonesia, Peru, Ecuador, Brazil, Mozambique, and so forth). That might require developing funding programs that target ENSO education from elementary to post-secondary schools. This would bring a climate dimension to education. We have to start somewhere: why not at the beginning of the educational cycle?

--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 April 2002**. This newsletter values input from its readers, which has now reached over 2,000. If you are interested in receiving the newsletter only on line, 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

The evolution toward a warm episode in the tropical Pacific continued during December 2001, as enhanced convection developed over the equatorial central Pacific for the first time since the 1997–98 episode. In addition, the Tahiti-Darwin Southern Oscillation Index (SOI) and the equatorial SOI were the lowest since early 1998. By early January 2002, equatorial sea surface temperature (SST) anomalies increased to +1°C at the Date Line. The latest statistical and coupled model predictions show a spread ranging from near-normal to moderate warm episode conditions over the next 3–6 months. All of these prediction techniques have difficulty in making skillful forecasts during ENSO transition periods. Considering the observed oceanic and atmospheric circulation patterns and their recent evolution, it seems most likely that

warm-episode conditions will develop in the tropical Pacific during the next 3–6 months. Forecasts for the evolution of ENSO are updated monthly in the CPC's *Forecast Forum* at www.cpc.ncep.noaa.gov/products/analysis_monitoring/bulletin/forecast.html

CORRECTION

In our last *ENSO Signal*, we inadvertently provided an incorrect link in our “Web Resources” section to the Experimental Climate Prediction Center. The correct URL is **ecpc.ucsd.edu**



EL NIÑO SSTs SET TO MUSIC

Design Rhythmics
Sonification Research

Lab has developed 3 “sonifications” of scientific research. Created by computer scientist and musician Marty Quinn, these sonifications demonstrate how data can be turned into music. The “El Niño SST Fluctuations” represents SSTs related to El Niño effects in the equatorial Pacific from 1868 to 1997. Depending on musical training, the listener is able to tell what year it is just by listening to the notes in the chord. Available on the website at www.quinnarts.com/srl/elniño.html in non-CD quality. A CD is available for purchase. Write to Quinn Arts, 92 High Rd., Lee, NH 03824; tel: 1-603 659-5239. Marty would be interested to hear from all listeners at mwcquinn@nh.ultranet.com

JASON-1 LAUNCHED

Jason-1 is the first follow-on satellite to the TOPEX/Poseidon mission, which began in 1992 and has helped to improve understanding of ocean circulation and its effects on climate. The Jason-1 satellite was launched on 7 December 2001 and has begun six months of instrument calibrations with the TOPEX/Poseidon spacecraft. Jason-1 is a joint NASA/

French Space Agency oceanography satellite that will allow mission scientists to calibrate and validate its measurements with those of TOPEX/Poseidon, in order to improve climate predictions and observing events such as El Niño. A comprehensive website gives up-to-date information on the mission status: topex-www.jpl.nasa.gov/mission/jason-1-launch.html

CORAL REEF QUESTIONNAIRE

Here is a chance to participate in an initial assessment of environmental factors and their contributions to coral bleaching resistance and resilience! This will be conducted using the results of a questionnaire, which is based on a list of environmental factors. Responses will allow the testing of a range of hypotheses that various environmental factors actually confer bleaching resistance and recovery. The process is intended to help define additional criteria that might be factored into the design and selection of new coral reef MPAs (marine protected areas). This activity is a contribution to the International Biodiversity Observation Year (2001–2002). Access is at www.reefbase.org/questionnaire

RAINFALL AND EL NIÑO POSTER

The Long Paddock website contains a large amount of climatological and pastoral information in the form of reports, graphs and maps, some dating back to 1900, for Australia. The Long Paddock has a poster that shows yearly maps of rainfall relative to historical records. These can be studied with an associated graph, which plots the rise and fall of the Southern Oscillation Index (SOI). This poster is a useful educational tool for anyone interested in climate. It is available through the website at www.nrm.qld.gov.au/longpdk or by mail

order from Product Distribution Dept. of Natural Resources & Mines, Locked Bag 40, Coorparoo Delivery Centre, Queensland 4151, Australia; tel: 61-7-3227-6626; fax: 61-7-3896-3510.

MORE ON ENSO AND RAINFALL

A paper written by Simon Mason (Scripps Institute of Oceanography) and Lisa Goddard (International Research Institute) examines the percentages of times that seasonal precipitation over land areas was above, near, and below normal during the 8 strongest El Niño and La Niña events. One of their key points is that the global impact of La Niña seems to be at least as widespread as that of El Niño. Also, there are a number of asymmetries in El Niño and La Niña event responses, and it should not be assumed that the typical climate anomaly of one ENSO extreme is likely to be the opposite of the other extreme. They note that, on a global basis, El Niño events are predominantly associated with below-normal seasonal rainfall over land, whereas La Niña events result in a wider extent of above-normal rainfall.

Mason, S.J. and L. Goddard, 2001: Probabilistic precipitation anomalies associated with ENSO. *Bulletin of the American Meteorological Society*, **82**(4), 619–638.



COSMIC (Constellation Observing System for Meteorology, Ionosphere, & Climate) is a collaborative science project between the US and Taiwan. Its goal is to launch a constellation of six spacecraft in 2005 that will collect atmospheric remote-sensing data for weather prediction and climate research. Atmospheric radio

occultation soundings will be collected under all weather conditions. The mission life of the COSMIC satellites is estimated to be about five years. COSMIC data will be freely available to the international scientific community in near real time. See the COSMIC website at www.cosmic.ucar.edu

EL NIÑO AND PAPUA NEW GUINEA

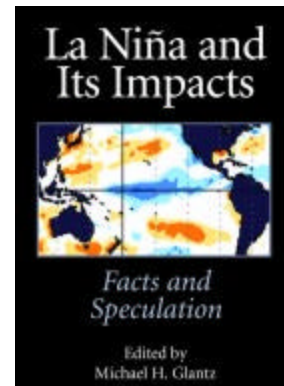
Papua New Guinea (PNG), one of the poorest countries in the world, is in El Niño's line of fire. And an El Niño has been forecast for several months from now. It is important to prepare for the possible impacts of El Niño on PNG and other vulnerable countries. A good place to start is the Virtual Library developed by the Australian National University: coombs.anu.edu.au/SpecialProj/PNG/Index.htm



OCEAN.US UPDATE

Ocean.US is a communications nexus for promoting and facilitating an integrated and sustained ocean observing system. It was created in 2000 by the National Oceanographic Partnership Program. Information from this system will serve national needs for detecting and forecasting oceanic components of climate variability, among others. The website is free and open to the public, and contains a searchable database of scientists worldwide, as well as bulletin boards for announcements on jobs, workshops, conferences, etc. To obtain a login name and password, email support@ocean.us.net or call 1-540-885-5800.

Ocean.US is coordinating awards for feasibility and design studies to develop a global data collection service based on the Iridium satellite system. Omnet, Inc. has been funded to plan the development of the shore-based physical and management structure. For more information, write to omnet.service@omnet.com or Bob Heinmiller at r.heinmiller@omnet.com



BOOK ON LA NIÑA TO BE RELEASED SOON

Michael Glantz has edited a book, *La Niña and Its Impacts: Facts and Speculation*, sparked by a La Niña Summit of researchers, forecasters, and users of forecasts, held in July 1998. While people have become familiar with El Niño and its impacts, its counterpart, La Niña, is not so well known. New studies have suggested that, for many societies, La Niña's impacts can be as devastating as those of El Niño, or more so. This book presents updated papers to introduce the reader to the science and impacts of La Niña. The book will be out in spring 2002 by the UN University Press. An abstract is available on line at www.unu.edu/unupress/new/ab-nina.html or contact D. Jan Stewart at ESIG/NCAR, PO Box 3000, Boulder, CO 80307 USA; email jan@ucar.edu

EL NIÑO AND DISEASE

In a collaborative study, NASA climatologists and US military health specialists have found that the worst outbreaks of *Bartonellosis*, an insect-borne disease fatal to humans, appear to be closely related to El Niño events. The group studied 2 regions in Peru: Caraz and Cuzco. The deadliest recent outbreak in these regions was during December 1997 to May 1998, which corresponds to the 1997–98 El Niño event. This research was supported by NASA's Earth Observing System/Interdisciplinary Science investigation on hydrological processes and climate, and the Global Modeling and Analysis Program of NASA, Earth Science Enterprise, and a NOAA grant. For more information, see the website at www.gsfc.nasa.gov/news-release/releases/2002/02-017.htm

AMS POLICY FORUM

The American Meteorological Society (AMS) held its second Presidential Policy Forum on 16 January 2002, on "Society and The Society: How can the American Meteorological Society Better Serve Society's Needs?" The forum was designed to expand AMS members' knowledge of the types of services that can better serve the needs of the larger society, as well as to examine the role of the AMS in providing atmospheric information for the betterment of society. Two panels were asked to comment on trends in the meteorological needs of society and how the AMS may expand its services and science to better comply with the needs of society at large. The AMS is also revamping its *Bulletin*. For more information, see the website at www.ametsoc.org/ams/meet/82annual/82dailyevents/presidentialforum2002.html



ARGO UPDATE

Argo is a broad-scale array of temperature and salinity floats in the global oceans and is part of the integrated global observation strategy. Since the project began in 2000, 310 floats have become operational and fill 10% of the network. A primary focus of Argo is to enhance seasonal-to-decadal climate variability and predictability. International planning for Argo is coordinated by the Argo Science Team. The 4th meeting of the International Argo Science Team will be 12–14 March 2002 at CSIRO Marine Research, Hobart, Australia. More information about the meeting is available at www.marine.csiro.au/~wijffels/iast-4/ The Argo Information Centre is now on line at w3.jcommops.org:2005 and will give Argo Status Reports on a regular basis.

STOIC: STUDY OF TROPICAL OCEANS IN COUPLED MODELS

A paper published in the January 2002 issue of *Climate Dynamics* by Davey and colleagues describes the behavior of 23 dynamical ocean-atmosphere models in the context of comparison with observations in a common framework. The models vary widely in design, components and purpose; however, several common features are apparent. For example, interannual variability is commonly too weak in the models: in particular, wind stress variability is low in the equatorial Pacific. The results for the fields examined indicate that several substantial model improvements are

needed, particularly with regard to surface wind stress. Contact the corresponding author at mike.davey@metoffice.com

Davey et al., 2002: STOIC: A study of coupled model climatology and variability in tropical ocean regions. *Climate Dynamics*, **18**, 403–420.



CLIVAR WORKING GROUP

CLIVAR (Climate Variability & Predictability) has established a Working Group on Seasonal-to-Interannual Prediction (WGSIP), and one of its key tasks is to improve seasonal predictions (for example, ENSO). Steve Zebiak, Director of Modeling and Prediction at the International Research Institute for climate prediction (IRI) in Palisades, NY is the Chair of the WGSIP. For more information, see the website at www.clivar.org/organization/wgsip/index.htm or contact Zebiak at steve@iri.columbia.edu. Address for IRI is 226 Monell Bldg., PO Box 1000, Palisades, NY 10964-8000 USA; tel: 1-845-680-4497.

EMPLOYMENT OPPORTUNITIES

The UCAR Visiting Scientist Program, in cooperation with the National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), Office of Hydrology (OH), is seeking a **research scientist** to participate on a team conducting applied research, development and implementation of ensemble hydrologic forecasting

techniques to produce probabilistic streamflow forecasts. Qualified applicants must have a Master's or PhD in physical or natural science, or engineering, with an emphasis in hydrology and/or statistics. Screening of applicants will begin 15 April 2002. Send application materials to: UCAR Visiting Scientist Programs, PO Box 3000, Boulder, CO 80307-3000. For more information, contact the UCAR Visiting Scientist Programs, tel: 1-303-497-8649; email: vsp@ucar.edu; web: www.vsp.ucar.edu

The Department of Civil and Environmental Engineering wishes to appoint a **postdoctoral fellow** to be involved in the development and completion of current project research in Management and Operation of Irrigation Schemes in Vietnam. The position is for 6 months (with a further 6 months possible subject to funding). The applicant should have a background in agricultural or irrigation engineering, water resources engineering/management or related field, hold a PhD in that discipline and/or extensive work experience in the same field. For more information, contact Associate Professor Hector M. Malano, Project Leader, Dept. of Civil and Environmental Engineering, University of Melbourne, VIC 3010; tel: 61-3-8344-6645; fax: 61-3-8344-6868; email: h.malano@devtech.unimelb.edu.au. Please include a curriculum vitae and names of two referees in the application.

The Oceanographic Center of Nova Southeastern University invites applications for a **faculty position in any area of physical oceanography**. The successful applicant will have a PhD in oceanography or related science and will be expected to develop an externally funded research program. Applicants should send a curriculum vitae, a statement of research and teaching interests, and the names and contact information of 3 potential referees to: Sean Kennan, Physical Oceanography Search Committee, Position No. 999027,

Office of Human Resources, Nova Southeastern University, 3301 College Ave., Fort Lauderdale, FL 33314. For more information, visit the department website at www.nova.edu/ocean

SUMMARIES OF PAST MEETINGS

The Reykjavik Conference On Responsible Fisheries In The Marine Ecosystem met from 1–4 October 2001 in Reykjavik, Iceland. The conference was organized by the Government of Iceland and the UN Food and Agriculture Organization (FAO), and was co-sponsored by the Government of Norway. The meeting was attended by representatives from FAO and other UN Member States, intergovernmental and nongovernmental organizations (NGOs), academic and scientific institutions, and industry. Participants focused on key scientific issues for ecosystem-based fisheries management, including the dynamics of marine ecosystems, the role of people in marine ecosystems, and methods to incorporate ecosystem considerations into fisheries management. Delegates approved the *Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem*. The Declaration will be submitted to the World Summit on Sustainable Development for its consideration. For more information, visit the conference website at: www.refisheries2001.org/

The Global Conference on Oceans and Coasts at Rio+10: Toward the 2002 World Summit on Sustainable Development: Assessing Progress, Addressing Continuing and New Challenges was held 3–7 December 2001 in Paris, France. The conference involved participants from 59 countries: ocean experts from governments, members of NGOs and academic institutions, and members of intergovernmental, international, and

regional organizations. Conference participants sought to: provide an overall assessment of progress achieved on oceans and coasts in the ten years since the UN Conference on Environment and Development (UNCED); identify new and continuing challenges; examine cross-cutting issues among various ocean and coastal sectors; consider options for concerted action on outstanding cross-sectoral issues; and provide recommendations for the oceans and coasts agenda of the World Summit on Sustainable Development (WSSD). For more information, visit the conference website at www.udel.edu/CMS/csmp/rio+10/ or contact the conference secretariat, Julian Barbieri, IOC, UNESCO, 1 rue Miollis, 75732 Paris Cedex 15, France; tel: 331-45-683938; fax: 331-45-685810; email: j.barbieri@unesco.org

The International Conference on Freshwater was held 3–7 December 2001 in Bonn, Germany. The conference brought together government delegates from 118 countries, including 46 Ministers, representatives from 47 international organizations and delegates of 73 organizations from major groups and civil society. It was a meeting appropriate for the age of global partnerships as it demonstrated that governments, the private sector, civil society and local and grassroots initiatives can work together in a spirit of partnership while acknowledging the differences in their mandates, roles and responsibilities. The conference reviewed the role of water in sustainable development, took stock of progress in the implementation of Agenda 21 and identified how this implementation can improve. The conference recommended priority actions under the following three headings: governance, mobilizing financial resources, and capacity building and sharing knowledge. For more details, visit the conference web site at www.water-2001.de or contact the Secretariat of the International

Conference on Freshwater, Tulpenfeld 7, 53113 Bonn, Germany; tel: 49-228-28046-55; fax 49-228-28046-60; email: info@water-2001.de

An International Forum on Perspectives of the Oceanic and Atmospheric Conditions in the Southeastern Pacific was held 7–11 January 2002 in Lima, Peru. Three events were organized by IMARPE (Instituto del Mar del Peru), including a Panel on “Current State of Oceanographic Research in Peru and its Perspectives.” Topics included a diagnosis of the marine environment, the biological consequences of El Niño in the Humboldt Current ecosystem, the El Niño phenomenon and its impact in fishery resources, and the state of the art of oceanographic research in Peru. Conclusions from the workshop are posted in the IMARPE website at www.imarpe.gob.pe/imarpe/conclu_erfen.php (in Spanish). For more information, contact Carmen Grados at cgrados@imarpe.gob.pe

The Indochina Global Change Network (IGCN) held a **Workshop on the Development of Seasonal Forecasting for the Indochina Region** 21–25 January 2002 in Hanoi, Vietnam. The development of regional capacity with regard to short-term prediction of El Niño and La Niña impacts was emphasized, as was the development and use of statistical and model-based forecasts of the effects of these ENSO events on the climate of Southeast Asia. The workshop took place against the backdrop of a possible emergence of an El Niño event during 2002. The proceedings will be placed on the *Tiempo* website at www.cru.uea.ac.uk/tiempo/annex/ in the near future, or write to Nguyen Huu Ninh, IGCN/CERED, A01, K40, 279/24 Giang Vo, Hanoi, Vietnam.

ANNOUNCEMENTS OF UPCOMING MEETINGS

The **19th Annual Pacific Climate Workshop on Climate Variability of the Eastern North Pacific and Western North America** will be held 3–6 March 2002 in Pacific Grove, California USA. The workshop will address multidisciplinary issues of climate variability, from weather to geological timescales, with a focus on the Pacific and the western Americas. Special sessions are planned to address direct and indirect solar influences on climate, and climate and oceanic biology. For further information, contact Janice Tomson, PACLIM, PO Box 8306, Long Beach, CA 90808; tel: 1-562-938-4448; fax: 1-562-938-9253; email: jtomson@lbcc.cc.ca.us; web: meteora.ucsd.edu/paclim

The **Operational Oceanography Symposium** will be held 5–7 March 2002 in London, United Kingdom. This international symposium will address operational oceanography from a remote sensing perspective. It is intended for professionals who are interested in operational oceanography programs. Special sub-sessions include: Sea Ice Information - Emerging Technologies and Services; Ocean Models for Defense-Related Initiatives; and Emerging Satellite Sensors & Programs. For more information, contact the AMRS Association, NSCC, 5685 Leeds Street; PO Box 1153, Halifax, Nova Scotia, Canada, B3J 2X1; tel: 1-902-491-2160; fax: 1-902-491-2162; email: events@waterobserver.org; web: www.waterobserver.org

The **International Conference on Flood Estimation** will be held 6–8 March 2002 in Bern, Switzerland. The conference is aimed at presenting and discussing the latest developments within the field of flood estimation for micro- and meso-scale catchments. Apart from hydrologic

aspects of model evolution and questions in connection with regionalization of floods, the practical use of models will be given priority. Presentations cover both practical knowledge and recommendations. For more information, contact the International Conference on Flood Estimation, Federal Office for Water and Geology and Hydrology Group of Berne University, CH-3003 Berne, Switzerland; tel: 41 31 324 27 48; fax: 41 31 324 76 81; email floodestimation@bwg.admin.ch; web: hydrant.unibe.ch/veranstaltungen/flood/flood01.htm

The **World Water Congress 2002** will take place *7–12 April 2002* in Melbourne, Australia. Organized by the International Water Association, it will focus on four main themes: water, waste, odor and the business of the environment. Within the water theme, the focus will be on issues such as water cycle management in Southeast Asia, climate change and water supply and drought management. For more information, contact the Event Manager and Secretariat, Quitz Event Management, PO Box 632, Willoughby NSW 2068 Australia; tel: 61-2-9410-1302; fax: 61-2-9410-0036; email: quitz@bigpond.net.au; web: www.enviroaust.net

The **Workshop on Sea- Ice Extent and the Global Climate System** will be held *15–17 April 2002* in Toulouse, France. The objectives of the workshop are to identify diagnostic opportunities provided by sea-ice data sets in the context of climate variations over interannual to century timescales, to examine the limitations of these sea-ice data sets, to seek strategies for minimizing these limitations in diagnostic applications and in future monitoring; and to highlight potential uses of available sea-ice data in applications ranging from forecasting to the simulation of climate by global coupled models. Issues of particular interest are the synthesis of data sets from different sources, and the assimilation of sea-ice data into re-analyses and other reconstructions of

historical and paleoclimate variations. For more information, contact the International ACSYS/CIIC Project Office, Polar Environmental Centre, NO-9296 Tromsø, Norway; tel: 47-77-750150; fax: 47-77-750501; email: tordis@npolar.no; web: acsys.npolar.no/meetings/toulouse/ice.htm

The **European Geophysical Society XXVII General Assembly** will be held *21–26 April 2002* in Nice, France. It is devoted to the stochastic and nonlinear dynamics of the El Niño-Southern Oscillation (ENSO) phenomenon. Contributions in which new perspectives on the ENSO phenomenon and its predictability are proposed and discussed are especially encouraged. At the core of the Assembly will be: what causes ENSO irregularity, can we quantify the role of nonlinearities and noise, how likely and predictable are regime changes of ENSO and what determines their physics, have recent changes in ENSO dynamics been generated within the tropics or the extratropics? In addition to climate modelers, scientists from the fields of paleo-ENSO reconstructions, dynamical systems analysis, nonlinear time series analysis and those who have some bright new ideas on the subject are invited. For more information, contact the EGS Office, Max-Planck-Str. 13, 37191 Katlenburg-Lindau, Germany; tel: 49-5556-1440; fax: 49-5556-4709; email: egs.registration@copernicus.org; web: ww.copernicus.org/EGS/egsga/nice02/nice02.htm

The **Conference and Workshop on Climate Variability and Change and Their Health Effects in the Caribbean** will take place *20–24 May 2002* in Bridgetown, Barbados. The conference is sponsored by the Pan-American Health Organization (PAHO) and the World Health Organization (WHO) under the auspices of the Interagency Network on Climate and Human Health. The conference will consider climate variability and climate change, health status in the Caribbean region, linkages between

climate and human health; and public health policies and strategies for adaptation to climate variability and change. For more information, contact the PAHO/WHO, Office of Caribbean Program Coordination, PO Box 508, Bridgetown, Barbados; tel: 1-246-426-3860; fax: 1-246-436-9779; email: cpcadmin@cpc.paho.org; web: www.pahocpc.org/whatsnew/climate_health_conf/chcw.htm

The Quaternary Climatic Changes and Environmental Crises in the Mediterranean Region will be held *July 15–18, 2002* in Madrid, Spain. This meeting will be based on four sections: paleo-bio indicators, geochemical indicators, and isotopic geochronology; environmental crises and human evolution, marine and terrestrial records as proxy of environmental changes, and paleoclimatic records from the Iberian Peninsula; sea-level changes, catchment and neotectonics, and paleohydrology; and climate models. For more information, contact Ana Valdeolmillos Rodríguez, Departamento de Geología. Edificio de Ciencias, Campus Universitario. Universidad de Alcalá, 28871 Alcalá de Henares, Madrid, Spain; tel: 34 91 885 49 55; fax: 34 91 885 50 90; email: climatic.changes@uah.es; web: www2.alcala.es/qchange2002/

The Third International Conference on Water Resources and Environment Research will be held *22–25 July 2002* in Dresden, Germany, and is the third international conference in a series on water resources and environmental research. The aim of the conference is to encourage and facilitate interdisciplinary communication among scientists, engineers and professionals working in the fields of ecological systems, sustainable management, development of water resources and conservation of natural systems. For more information, contact Cathleen Schimmek or Gisela Schöler, Conference Secretariat ICWRER 2002, Institute of Hydrology and

Meteorology, Dresden University of Technology, Wuerzburger Str. 46, D-01187 Dresden, Germany; tel: 49-351-463-3931; fax: 49-351-463-7162; email: icwrer2002@mailbox.tu-dresden.de; web: www.tu-dresden.de/fghhihm/normal/frame.htm

The Stockholm Water Symposium: Balancing Competing Water Uses: Present Status and New Prospects will take place *12-15 August 2002* in Stockholm, Sweden. The aim of the 2002 Symposium is to highlight the present status of the situation in different parts of the world, to debate what will be needed to perform the necessary balancing and to improve water use performance, and to indicate new prospects in terms of cases where balancing is already practiced or planned. For more information, contact the Stockholm International Water Institute (Symposium Secretariat), Sveavägen 59, SE-113 59 Stockholm, Sweden; tel: 46 8 522 139 75; fax: 46 8 522 139 61; email: sympos@siwi.org; web: www.sivi.org/sws2002/sws2002.html

The Conference on Fisheries in the Global Economy will be held *19–22 August 2002* in Wellington, New Zealand. Organized by the International Institute of Fisheries Economics and Trade (IIFET), this event will provide a forum for participants to consider the future management of fisheries. Themes will include: future paths for rights-based fisheries management, co-management, rules-based reform; economic solutions to customary, aboriginal, and traditional fishing rights issues; fisheries management through Regional Fisheries Organizations (RFOs); and ecosystem and oceans policy approaches to fisheries management. For more information contact the IIFET Secretariat, Oregon State University, Dept. of Ag. and Resource Economics, Corvallis, OR 97331-3601, USA; tel: 1-541-737-1414; fax: 1-541-737-2563; email: Ann.L.Shriver@oregonstate.edu; or

Bruce Shallard and Associates, PO Box 27409, Wellington, New Zealand, tel: 64 4 389 3487, fax: 64 4 389 3457; email: bruce.shallard@xtra.co.nz; web: www.iifet2002.com

Goddard, L., and S.J. Mason, 2001: **Sensitivity of Seasonal Climate Forecasts to Persisted SST Anomalies.** IRI Technical Report No. 01-04, Columbia Earth Institute, International Research Institute. On line at iri.columbia.edu/outreach/publication/report/01-04/

RECENT PUBLICATIONS

Books

D'Aleo, J.S. and P.G. Grube, 2002: **The Oryx Resource Guide to El Niño and La Niña.** Contact Oryx Press, Greenwood Publishing Group, Inc., 88 Post Road West, Westport, CT 06881; tel: 1-203-226-3571; web: www.greenwood.com

Glynn, P.W. and S.B. Colley, 2001: **A Collection of Studies on the Effects of the 1997–98 El Niño-Southern Oscillation Event on Corals and Coral Reefs in the Eastern Tropical Pacific.** Rosenstiel School of Marine & Atmospheric Science Library, 4600 Rickenbacker Causeway, Miami, FL 33149; tel: 1-305-361-4000; fx: 1-305-361-4711; web: www.rsmas.miami.edu

Siedler, G., J. Church, and J. Gould (Eds.), 2001: **Ocean Circulation and Climate.** Contact Academic Press, Inc., Customer Services Department, Foots Cray High Street, Sidcup, Kent, DA14 5HP, UK, tel: 44-208-308-5700; fx: 44-208-308-5702; web: www.apcatalog.com

Reports

Dolman, A.J. et al., 2001: **Representation of the Seasonal Hydrological Cycle in Climate and Weather Prediction Models in West Europe,** Report No. 410 200 080. Contact the Dutch National Research Programme, Antonie van Leeuwenhoeklaan 9, PO Box 1, 3720 BA Bilthoven, The Netherlands; tel: 31-30-2742970; fx: 31-30-2744436; web: www.nop.nl

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www.cnn.com/SPECIALS/el.nino/fire.rain/index2.html

A clickable interactive map with detailed information on El Niño's effect on a particular region or country.

www.grg.sr.unh.edu/ccrc

The Climate Change Research Center (CCRC) is devoted to the retrieval and interpretation of global change records that document climate and the influence of human activities on our environment.

www.wildweather.com

The latest weather-related headlines from around the world. The goal of this site is to keep a steady stream of new material, with daily updates on severe weather news, and frequent new features.

jisao.washington.edu/main.html

The Joint Institute for the Study of the Atmosphere and the Oceans provides climate data, El Niño and climate prediction and impact information.

iridl.ldeo.columbia.edu/maproom/.ENSO/

The IRI Map Rooms offer many detailed analyses of current global and regional climate, as well as historical data. Many of the maps are linked directly to the IRI Data Library. Maps are categorized according to "Global," "Regional," and "ENSO."

iri.columbia.edu/outreach/publication/irireport/SWAsia/

A new report entitled "The Drought and Humanitarian Crisis in Central and Southwest Asia: A Climate Perspective. Heidi Cullen, a scientist from the Environmental and Societal Impacts Group contributed to this report.

www.cru.uea.ac.uk/tiempo/floor0/recent/issue3839/index.htm

The quarterly bulletin *Tiempo* promotes communication between the nations of the North and South on climate change, and provides authoritative and timely information on relevant scientific, technical and policy matters.

www.nrm.qld.gov.au/longpdk/latest/latest.htm

This website is produced by the Queensland Centre for Climate Applications and presents daily calculations and interpretations of the Southern Oscillation Index.

www.pbs.org/wgbh/nova/elnino/

An interactive site by NOVA Online (produced for PBS) called "Tracking El Niño." Anatomy of El Niño, chasing El Niño and El Niño's reach are all part of this fun and informative site.

www.ncar.ucar.edu/ncar/factsheet.htm

This site contains some highlights from NCAR's recent climate research, including new simulations, politics, flood damage and climate, the atmosphere's role and El Niño through the ages.

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The ENSO (El Niño-Southern Oscillation) 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.

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