



Network Newsletter

and

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Editorial **Value of Value Studies**

I have just returned from a meeting in another country about forecasts and other meteorological information and their value to society. It was mostly a technical meeting attended by scientists, managers of science, science students, and the like. There were a few social scientists and a slightly larger number of attendees interested in the application of scientific research to decisionmaking, usually policymaking.

Almost all presentations that explicitly referred to the value of their work stated that value in terms of economics benefit. One participant, for example, said his government was concerned only with the bottom line – that is, the financial aspects of climate information in general and forecasts specifically. Many of us who do climate-related impact assessments have fallen into the trap of trying to provide such cost-accounting numbers to meteorological services which they in turn use to justify more funding for research, observations, and especially monitoring.

But what about the ever-present but difficult-to-quantify social costs? How do you put a dollar amount on misery, loss of life, forced internal or transboundary migration, or breakup of families? How do you put a cost on inequity that often accompanies a climate- or weather-related hazard or forecast of that hazard? How do you put a cost on unwanted environmentally induced changes in agriculture? One standard fallback position, it seems to me, has been to look at the “willingness to pay” studies: what are people willing to pay for certain climate and weather services? I would imagine that such responses would be dependent on timing. By that, I mean willingness to pay is probably high during or right after the occurrence of a disaster – and perhaps very low during periods of benign weather and climate.

I felt that there was a disconnect at this meeting between what the scientists saw as value of their services to address societal needs and the actual value of those services. Are we asking the right questions to get resolution to the question of value? More importantly, are we as impact researchers preparing our findings for the wrong target audiences? Should we be intensifying our efforts to demonstrate not simply the value,

for example, of forecasts in this or that location, but to take a step back to demonstrate the value to society of undertaking value studies that go well beyond just providing a bottom-line cost or benefit ratio? Should we be educating decisionmakers in key positions, and those who advise them, about the value of socioeconomic, ethical, and equity aspects of value assessments?

Some decades ago, an American bank robber was allegedly asked when captured, “Why do you rob banks?” He answered, “Because that’s where the money is.” Using his comment as an analogue, why are we so focused on selling such broad-gauged, multifaceted climate- and weather-impact studies to the meteorological community, which must in turn “sell” their recommendations (using their jargon and rationale, not ours) to those who provide them with their budgets? In the US, this might include going directly to the various departments of Interior, Commerce, Energy, Health and Human Services, Homeland Security, Education, etc.

The fact is that weather and climate information and services are, wittingly or unwittingly, part of a nation’s formal or informal early warning strategy to protect itself from climate- and weather-related surprises and its citizens from harm. Arguments made directly by social scientists about their value studies may arguably be more credible, since they (for the most part) are not selling the value of their own disciplines to society: they work in a multidisciplinary mode and therefore are likely to have multiple sectoral or disciplinary loyalties.

This is not a statement against cost-benefit or other bottom-line quantitative economic value studies. No doubt we need them. But policymakers and society as a whole need much more than that. It is an argument for broader assessments that address aspects of costs and benefits that do not necessarily lend themselves to quantification. It is also an argument for demonstrating societal value, in its encompassing and relevant sense, to those decision- and policymakers whose decisions can make a difference in gaining financial support for such value studies directly, if we can prove that value studies have value to *them*, as well as to society and meteorology in general.

--Michael H. Glantz



Environmental & Societal Impacts Group (ESIG)
National Center for Atmospheric Research (NCAR)
PO Box 3000, Boulder, CO 80307
www.esig.ucar.edu/newshp • jan@ucar.edu

LET'S HEAR FROM YOU!!

This newsletter depends on YOUR input. Please send relevant information that comes across your desk, whether it is a news item, meeting, job opening, or publication, to the address on the back cover. Information to be included in the next newsletter must be received by **30 June 2004**. If you prefer to receive the newsletter on line, please let us know at www.esig.ucar.edu/newshp and you will be reminded when a new issue is released. Thanks again for your contributions!

STATE OF NATION'S ECOSYSTEMS

In September 2002, the Heinz Center released *The State of the Nation's Ecosystems*, the product of five years of work involving 150 individuals from environmental organizations, businesses, universities, and federal, state and local governments. The Annual Update 2003 provides new data for 25 indicators and first-time data on one indicator, and revised one-fourth of the indicators included in the initial 2002 report. The Heinz Center is currently working to produce the next full edition in 2007. It will provide annual updates for each intervening year. See the website at www.heinzctr.org/ecosystems/ to view or download the 2002 report and learn about the Strategic Plan for the 2007 edition. The H. John Heinz Center for Science, Economics and the Environment is located at 1001 Pennsylvania Ave. NW, Suite 735, Washington, DC 20004; tel: 1-202-737-6307.

SCIENCE AND DEVELOPMENT NETWORK

The Science and Development Network (scidev.net) was created to enhance the provision of reliable and authoritative information on science- and technology-related issues that impact the economic and social development of developing countries. This is achieved through a free-access website and by building regional networks of individuals and institutions, as well as by organizing capacity-building workshops and other events in the developing world. The Network recently completed an e-guide to science communication to provide a "one-stop shop" to original articles and links. The website includes practical guidance on science reporting, dealing with the media, interacting with policymakers, and provides a wide range of contacts. The website is backed by two scientific journals, *Nature* and *Science*, and the Third World Academy of Sciences. For more

information, register with SciDev and view the e-guide at www.scidev.net/scicomm or contact Barbara.Keating@scidev.net

WATER WEB PORTAL

The International Water Management Institute (IWMI) is a nonprofit scientific research organization that specializes in agricultural water use and integrated management of water and land resources. IWMI has launched a large-scale regional assessment to unite the scientific community and civil society organizations across India, Pakistan, and Afghanistan in a common effort to find ways to mitigate the effects of the recurrent droughts that periodically devastate the region. A new website will serve as a portal for drought-related studies, news, and information across the southwest Asian region. The drought project has two principal aims: to review the current status of drought research and management in the region, and then identify gaps in order to develop interim recommendations to improve drought management for regional governments, relief agencies, and local communities. IWMI will subsequently develop a more extensive research proposal to create an effective long-term drought management program for the region. See the website at www.iwmi.cgiar.org/droughtassessment/ or write to the Principal Scientist, Vladimir Smakhtin at v.smakhtin@cgiar.org

ENVIRONMENT AND HUMAN SECURITY PROGRAMME (UNU-EHS)

As the latest edition to the UN University's global network of research and training institutes, the UNU Environment and Human Security Programme (UNU-EHS) will be up and running by mid-2004 in Bonn, Germany. The UNU has appointed Dr. Janos Bogardi, chief of UNESCO's Division of Water Services, as the founding director. UNU-EHS aims to provide research-based, policy-relevant advice and training to enhance the coping capacity of societies to catastrophic events. As its priority, UNU-EHS will focus on human and environmental security and vulnerability assessment in floodplains and deltas, with particular emphasis on urban settlements. For more information, write to Dr. Bogardi at info@ehs.unu.edu

MILLENNIUM PROJECT UPDATE

The Millennium Project was commissioned in 2000 by the UN's Secretary-General, with support from the UN Development Programme (UNDP) to analyze policy options to achieve the Millennium Development Goals (MDGs), which set targets for reducing poverty, hunger, disease, illiteracy, environmental degradation, and

discrimination against women by 2015. The Project has recently issued Interim Reports for the 10 Task Force areas, which were written by representatives from academia, the public and private sectors, civil society organizations, and UN agencies. The members of each Task Force were selected on the basis of their technical expertise and practical experience. The Millennium Project is directed by Professor Jeffrey Sachs of the Earth Institute at Columbia University in New York. The three-year initiative will be completed by 30 June 2005 and will present its Interim findings to the Secretary-General and UNDP Administrator in mid-2004. To access the 10 Task Force Interim Reports in PDF, visit the website at www.unmillenniumproject.org or write to One UN Plaza, 21st Floor, Room 2160, New York, NY 10017; or email info@unmillenniumproject.org



WSIS ON THE ROAD TO TUNIS

The World Summit on the Information Society (WSIS) finished its first phase in Geneva, Switzerland in December 2003 and will hold the second phase in Tunis in 2005. WSIS recognizes that the modern world is being transformed by the global Information Society and that information and communication technologies (ICTs) drive new ways of conducting our lives, including knowledge dissemination, social interaction, political engagement, media, education, health, and more. ICTs are powerful tools to achieve MDGs (see above article) in the alleviation of poverty, hunger and disease, if access is universal and affordable. Also, any policy framework must be transparent, predictable, and encourage competition. The report from the first phase is now available on the website at www.itu.int/wsisis. The road to Tunis entails a process of monitoring and evaluation to come up with a concrete set of deliverables that can be achieved in time for the Tunis meeting in 2005. Working groups will provide inputs through the preparatory process, and steps will be taken to bridge the "digital divide" and hasten the achievement of the MDGs with the help of ICTs. For more information, see the website or write to: Executive Secretariat, World Summit on the Information Society, International Telecommunication Union, Place des Nations, 1211 Geneva 20, Switzerland.

AD HOC GROUP ON EARTH OBSERVATIONS

Gaps in understanding the earth's complex natural systems limit our knowledge of how to address many concerns, such as drought, disease outbreaks,

agricultural production, and energy challenges, among others. At a Summit in mid-2003, 33 nations and the European Commission adopted a Declaration that affirms political commitment to move toward the development of a comprehensive, coordinated, and sustained earth observation system or systems. To further this goal, the Summit participants launched the intergovernmental ad-hoc Group on Earth Observations (GEO) to develop a ten-year Implementation Plan. The group, co-chaired by the United States, the European Commission, Japan, and South Africa, began by organizing five subgroups, as well as a Secretariat to support its activities. GEO hopes to integrate existing networks that monitor land, sea, and sky, as well as to identify remaining observational gaps. A framework for the Implementation Plan will be presented in Tokyo in Spring 2004, and the full plan will be presented at a GEO ministerial Summit in late 2004. For more information, contact the GEO Secretariat Office, HCHB 6526, 1401 Constitution Ave. NW, Washington, DC 20230, or visit the website at earthobservations.org or email geosec@noaa.gov

IMPORTANT ANNOUNCEMENT NOAA'S HUMAN DIMENSIONS PROGRAM

The US President's FY2005 budget includes a reduction of approximately US\$9 million to the Climate and Global Change Program. This reflects a constrained NOAA budget with increasing needs. Unfortunately, the reduction will eliminate three "social science" oriented programs: (1) Human Dimensions of Global Change Research Program; (2) Health and Climate Variability Program; and (3) Environment, Science, and Development Program (i.e., all of NOAA's open competition social science application programs). Until a final budget is negotiated between the Administration and Congress, NOAA has been instructed to proceed with the FY05 announcement. For further information, investigators may contact program manager Nancy Beller-Simms (Nancy.Beller-Simms@noaa.gov, 301-427-2089 ext. 180, fax: 301-427-2082) or see www.ogp.noaa.gov/mpe/csi/econhd/index.htm

LESOTHO ATLAS OF SUSTAINABLE DEVELOPMENT

This Atlas serves as an important tool for researchers, decision makers, planners and academia alike and presents through maps and analytical texts a clear overview of current trends in the field of sustainable development in Lesotho. It demonstrates the position of

specific problems, outlines the obstacles to effective solutions and charts the way to overcome them. Indicators of the social environment, such as adolescent health, child labor, violence against women etc., have also been mapped. Selected environmental indicators are also included. The book is entitled *Lesotho Atlas of Sustainable Development* by Dr. D.M. Bohra, Sustainable Development Analyst. Cost is US\$95 or equivalent, including postage and handling. Payment can be made by Draft/Cheque to Gautam Jain, and mailed to him at PO Box 2852, Santa Clara, CA 95055, or email atlaslesotho@yahoo.com

IJWRD SEEKS SUBMISSIONS

The International Journal of Water Resources Development (IJWRD) is seeking submissions for a special issue on water and disasters. Contributions are encouraged in case histories, theoretical investigations, policy perspectives, institutional or risk analyses, or other discussions of hydrological disasters. The peer-reviewed issue will be released in June 2005. The deadline for submission of papers is 1 June 2004. Complete information is available from Chennat Gopalakrishnan, University of Hawaii, 1910 East-West Rd., Sherman Lab 118, Honolulu, HI 96822; tel: 1-808-956-7497; email chennat@hawaii.edu, or website at www.tandf.co.uk/journals/authors/cijwauth.asp

GOLDMAN ENVIRONMENTAL PRIZE WINNER



Maria Elena Foronda, 2003 Goldman Environmental Prize Winner, Central and South America (Peru). Photo credit: David Mertz

The Goldman Environmental Prize is the world's largest prize for grassroots environmentalists. Each of the winners, chosen from the earth's six inhabited continents, demonstrates exceptional courage and commitment, often working at great risk to protect our environment and, in the process, inspiring others to do the same. Maria Elena Foronda Farro in Chimbote, Peru won the Prize in 2003 for her campaign to clean up Peru's fishmeal industry, which dumps untreated industrial waste into the environment, causing cholera outbreaks, skin diseases, and pollution problems in Peru's coastal cities. Foronda has successfully forged partnerships between community groups, fishmeal

producers, and the government to institute sustainable, environmentally sound and profitable business practices for fishmeal production. She founded and directs Natura, an environmental group in Peru. As a result of her work, 8 factories in the Chimbote region have invested in environmentally friendly technologies. In late April, the 2004 winners will be announced. For more information, see the website at www.goldmanprize.org

THE SEED INITIATIVE

A new initiative was created in January 2004 to reward people and organizations that are working in partnership, and to reward the innovators who are forging new strategies for the sustainable use of our natural resources. A key aspect of the new initiative is that it will not award outcomes, but rather innovative partnership proposals. The Seed Awards will generate publicity for the partnership approach and inspiration for entrepreneurial activity. Every two years, 5 to 10 partnerships, depending on funding, will receive individually targeted support to help ensure their success, with the results used to inspire innovation in others. The founding partners of the Seed Initiative are the Stakeholder Forum, the UN Environment Programme, and the World Conservation Union (IUCN). The first round of submissions for the awards will be accepted between May and December 2004, with the awards presented at the UN Commission for Sustainable Development meeting in April 2005. For more information, see the website at www.seedawards.org or write to Peter Ritchie, Seed Initiative Focal Point, c/o Stakeholder Forum for Our Common Future, 7 Holyrood St., London SE1 2EL, UK; email info@seedinit.org

CSD PARTNERSHIPS DATABASE

In February 2004, the Commission on Sustainable Development (CSD) launched a new on-line database of CSD-registered partnerships for sustainable development. It contains more than 260 partnership initiatives that have been initiated in the context of the 2002 World Summit on Sustainable Development (WSSD). The database aims to increase the sharing of experience and knowledge required to implement sustainable development practices, as well as assist individual partnership initiatives to attract new partners and donors. The database can be searched by geographic scope or theme. Additional features will be added during the next few months. See the website at www.un.org/esa/sustdev/partnerships for more information, or write to the Partnerships Team, CSD Secretariat, UN Division for Sustainable Development, Two UN Plaza, DC 2-2210, New York, NY 10017; email beyondwssd@un.org

INTERNATIONAL CLIMATE SYMBOL

Climate change has become an increasingly important problem across the world. Organizations communicate about the issue from different perspectives: impacts, causes, and solutions. How can we make all these different messages reinforce each other without losing the identity of the different organizations? The International Climate Symbol expresses the concern for the issue of climate change and the willingness to solve the problem. The more the symbol shows up, the more the communications will reinforce each other. All non-commercial organizations, such as nongovernmental organizations, governments and municipalities, academic and research institutions and individuals can use the symbol to express their concern about climate change and express a willingness to solve the problem. The UN Environment Programme, the World Wildlife Fund, Greenpeace, and the Netherlands Ministry of Housing, Spatial Planning and the Environment have initiated the development of the International Climate Symbol. You can download the symbol from the website at www.saveourclimate.org or email eweiden@wwf.nl



40 YEARS OF DISASTER RESEARCH

The Disaster Research Center (DRC) at the University of Delaware (UD) in Newark is celebrating four decades of research into the societal effects of disasters. DRC was established 40 years ago by Enrico Quarantelli and Russell Dynes, now research professors emeriti at UD. The DRC was the first social science research center in the world devoted to the study of disasters. The celebration scheduled for the end of April 2004 will also introduce Havidan Rodriguez, professor of sociology and criminal justice, as the DRC's new director. Under Rodriguez, the Center's focus will expand to include the investigation of emergency weather warnings, urban search and rescue teams, and evacuation behavior during emergencies. For more information, see the UD website at www.udel.edu/DRC or write to the Disaster Research Center, 87 E. Main St., Newark, DE 19716-2581; email drc-mail@udel.edu

CAN WINDMILLS ACT AS ECOSYSTEMS?

Denmark generates 20 percent of its total energy production from wind power plants, and also features them on postcards as a symbol for an environmentally conscious country. Danish advocates suggest that offshore wind farm projects are successful because they

pay careful attention to the concerns of the local communities and environmentalists. Sweden has approximately 20 windmills in operation along its coastlines and on land, which account for a small percentage of Sweden's total power. Scientists at Stockholm University have been studying the effects of 12 wind power plants anchored off the coastline of Kalmarsund, Sweden, since July 2003. They found that the structures, jutting from concrete platforms in the ocean, promote marine diversity and act as small ecosystems. Thousands of fish have begun making their "homes" amid the structures, and mollusks are attaching themselves to the structures as well. Putting the windmills offshore, typically several kilometers away, also generates more wind and therefore more electricity. An added benefit to offshore wind farms is that they appear to function as an artificial reef. For more information about wind energy, see the website of the European Wind Energy Association (EWEA) at www.ewea.org

EARTH DAY NETWORK

Since April 22, 1970, Earth Day has been an annual event for people around the world to celebrate the Earth and help to create a sustainable society. Earth Day Network (EDN) coordinates Earth Day events and activities worldwide. Although Earth Day is officially April 22, many communities also celebrate Earth Week or Earth Month with a series of environmental activities during April. More than 5,000 groups in 184 countries form the EDN, comprised of environmental advocates, businesses, city and local governments, parents, teachers, and students. Earth Day broadens the base of support for environmental programs, rekindles public commitment, and involves a wide range of participants. To become involved in your community, see the EDN website at www.earthday.net or contact them at EDN, 1616 P St. NW, Suite 200, Washington, DC 20036 USA.

HAZARDS CENTER UPDATES

The Natural Hazards Center at the University of Colorado has revamped its website, in conjunction with the release of a new improved version of its online bibliographic database, HazLit. This database now allows simple and complex searches based on author, title, date of publication, and keywords. The Center has also recently welcomed a new Director, Kathleen Tierney, a nationally recognized expert on the human and social dimensions of hazards, disasters, and risks. The *Natural Hazards Observer*, the Center's informative newsletter, also has a new look. For more information, see the website at www.colorado.edu/hazards or write to Natural Hazards Research and Applications Information Center, University of Colorado, 482 UCB, Boulder, CO 80309-0482; email hazctr@colorado.edu



ENSO = El Niño–Southern Oscillation

(www.esig.ucar.edu/signal)

CURRENT STATE OF THE TROPICAL PACIFIC

(From the Climate Prediction Center's *ENSO Diagnostic Discussion*) www.cpc.ncep.noaa.gov (as of 11 March 2004)

Sea surface temperature (SST) anomalies decreased in most of the equatorial Pacific during February. By early March, near-average or slightly cooler-than-average SSTs were observed. Certain average atmospheric patterns have become apparent since last November, including drier-than-average conditions over the central equatorial Pacific, which are consistent with the observed decrease in SST anomalies in the Nino3.4 region. Given the recent trends and observed oceanic and atmospheric patterns, it is likely that ENSO-neutral conditions will continue for the next three to six months.

AUSTRALIAN BUREAU MOVING

In mid-2004, the Bureau of Meteorology (BOM) of the Government of Australia will move its Head Office and Victoria Regional Office to new premises. The new street address will be 700 Collins St., Docklands 3008. The postal addresses and main switchboard numbers will not change. They are: Head Office, GPO Box 1289K, Melbourne 3001; tel: 3-9669-4000; Regional Office, GPO Box 1636M, Melbourne 3001; tel: 3-9669-4000.

FIRE DANGER RATING SYSTEM

The Malaysian Meteorological Service (MMS) has assumed responsibility for the production of daily fire danger maps for the Southeast Asian (SEA) region. In 1997-98, extensive forest fires in the region caused widespread haze. In response, a monitoring and warning system for forest fires needed to be developed. Adopted from the Canadian Forest Fire Danger Rating System, the SEA Fire Danger Rating System (FDRS) was initially produced daily by the Canadian Forest Service, but beginning late in 2003, the MMS took over this responsibility. The FDRS monitors vegetation fire risk and supplies information to assist in fire management. The new regional fire danger maps can be viewed at the MMS FDRS website at www.kjc.gov.my/english/service/climate_menu.html and also provides links to other important services.

STATISTICS RESEARCH OFFERS NEW EI NIÑO FORECAST

A statistical model that forecasts SSTs in the tropical Pacific Ocean gives scientists a new way to quantify the uncertainty surrounding El Niño. This model is unique in that it includes detailed measures for uncertainty. Drawing on historical wind, air pressure, and SSTs, the model forecasts El Niño six months in advance and provides a range of probable SSTs in each forecast. In the last five years, only once did the actual temperature not fit within the model's predicted range. For the first time, a tool based on the model is available on the Web so that scientists and the public can view animations of El Niño forecasts from 1985 through May 2004 and compare those forecasts to observed temperatures in the tropical Pacific Ocean. The website grew out of a paper that began with a project between Noel Cressie at Ohio State University and Christopher Wikle when Wikle was a postdoctoral researcher in the Geophysical Statistics Project at the National Center for Atmospheric Research. The website is available at www.stat.ohio-state.edu/~sses/collab_ens0.php and shows the most recent SST anomaly forecast using the model (August 2004).

“DEAD ZONES” HIGHLIGHTED IN UNEP YEAR BOOK

The UN Environment Programme (UNEP) reports that sea areas starved of oxygen may damage fish stocks more than overfishing. The extent of these oxygen-starved “dead zones” in the world's oceans now number around 150, which is double the number identified in 1990. The issue was identified as a key emerging problem in the Global Environment Year Book 2003, a recently released health report from UNEP. The spread of these “dead zones” is closely related to the overuse of agricultural fertilizers, which contain nitrogen. On land, nitrogen significantly boosts plant growth, but when it washes into the sea in runoff, it triggers an explosive bloom of phytoplankton or microscopic algae. The phytoplankton then depletes the oxygen and suffocates other marine life. UNEP has made the Year Book available on its website at www.unep.org/GEO and will continue to offer Year Books that highlight the most significant environmental developments of the previous year. For more information, write to UNEP, Division of Early Warning and Assessment (DEWA), PO Box 30552, Nairobi 00100, Kenya.



NCAR



CIIFEN

JOINT NCAR AND CIIFEN ACTIVITY

CIIFEN (Central Internacional para la Investigación del Fenómeno de El Niño) and NCAR (National Center for Atmospheric Research) are organizing a workshop entitled "El Niño Early Warning for Sustainable Development in Pacific Rim Countries and Islands." There is considerable (and growing) interest around the globe in Early Warning Systems (EWSs) for a wide range of hazards and threats, both natural and anthropogenic. Many researchers are interested in EWSs to improve their efforts to study ecosystem responses, including human responses, to various "shocks." Many EWSs are related to hydro-meteorological events such as droughts, floods, fires, frost, disease outbreaks, and ENSO events. Participants to this workshop, to be held in the Galapagos in mid-September 2004, will be drawn from different disciplines, countries, and organizations that deal with either early warning systems or sustainable development in Pacific Rim countries and islands. In addition to identifying how El Niño forecasts and knowledge can be used to foster sustainable development, the workshop organizers and supporters seek to foster interactions by physical and social scientists in the Pacific Rim countries and islands. The organizers are seeking support to bring participants from Asia, as well as from Latin America and Europe, to the meeting. The Pacific Ocean has long been viewed as a divide between countries on the Pacific Rim. This workshop aims to make it a bridge. For more information, please contact Michael Glantz (glantz@ucar.edu) or D.Jan Stewart (jan@ucar.edu) at NCAR, or Jose Luis Santos, CIIFEN, at jlsantos@espol.edu.ec

SEA LEVEL RISE AND MELTING GLACIERS

An article that appeared in *Nature* in March concludes that the oceans rose at a global average rate of 1.5–2 millimeters a year (translating to 6–8 inches per century). However, a combination of estimates of the volume increase due to ocean warming and mass increase due to melting glaciers falls short of that figure. New data in the article confirm the accepted figure and point as well to the source of the sea level rise. The authors analyzed sea level measurements at tide gauges, combined with observations of temperature and salinity in the Pacific and Atlantic oceans close to the gauges. They found that gauge-determined rates of sea level rise are two to three

times higher than the rates due to volume change from temperature and salinity data. This suggests that mass increase played a larger role in twentieth-century global sea level rise than ocean warming. For more information, see the article below, or contact the first author, Laury Miller, at laury.miller@noaa.gov

Miller, L., and B.C. Douglas, 2004: Mass and volume contributions to twentieth-century global sea level rise. *Nature*, **428**, 406–409.

UPDATES ON NOAA'S EI NIÑO PAGE

NOAA's El Niño Page has recently added an Impacts page that gives a one-stop website for information on El Niño impacts in the United States, the world, on humans and society, and marine life. They have also updated their page with El Niño 3-D animations from the Pacific Marine Environmental Labs. To see the website, visit www.elnino.noaa.gov

JOB AND FELLOWSHIP OPPORTUNITIES

The UCAR Visiting Scientist Program is recruiting a scientist for a position at the **National Ice Center (NIC)**, located in Suitland, Maryland. The NIC mission is to provide near real-time support to vessels operating in ice-infested waters and to monitor synoptically the ice cover in the polar seas and the Great Lakes. The NIC Science Department currently works in a Linux and Windows development environment. The program offers up to a 3-year visiting research appointment. The applicant must have a strong working knowledge of ice physics, remote sensing and/or ice modeling, and a willingness to develop, test, and validate new algorithms. The position is available immediately and will remain open until filled. Screening of applicants begins **15 May 2004**. Full text announcement is located at www.vsp.ucar.edu or email vsp@ucar.edu

The Natural Hazards Center, in partnership with the National Science Foundation and the Public Entity Risk Institute (PERI) has launched a dissertation fellowship program in any aspect of natural and human-made hazards, risks, and disasters. The goal of the program, entitled **National PERISHIP Awards**, is to foster development of the next generation of interdisciplinary hazards scholars who can offer wide-ranging contributions to hazards research. Applications for the first round of fellows are due **1 July 2004**. Complete information is available at www.cudenver.edu/periship or www.colorado.edu/hazards/specialprojects.html or write to Audre Hoffman, PERI, 11350 Random Hills Rd. #210, Fairfax, VA; email periship@riskinstitute.org

UCAR is recruiting postdoctoral scientists and short-term senior visitors to work in Princeton, New Jersey at NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) as part of the Climate Change Research Initiative. GFDL conducts fundamental and applied oceanic and atmospheric research on a variety of problems of importance to society. GFDL has reorganized to develop a new generation of climate and earth system models to support its research for the coming decade. These positions are intended to expedite the development of this new generation of climate models, as well as the climate change research conducted with them. Application deadlines are **15 May** and **15 November**. Send applications to Meg Austin, Director, UCAR/VSP, PO Box 3000, Boulder, CO 80307. Full text of the announcement is available at www.vsp.ucar.edu

Past Meetings

Drylands in the New Millennium

When: 12–15 August 2003

Where: Tashkent, Uzbekistan

Contact: email: info@millenniumassessment.org;
web: www.millenniumassessment.org/en/

Snow Watch 2002 Workshop and Workshop on Assessing Global Glacier Recession

When: December 2003

Where: World Data Center for Glaciology, Boulder, CO

Contact: Roger G. Barry, Glaciological Data Center;
web: www.nsidc.org/pubs/gd/; email: rbarry@kryos.colorado.edu

ASEAN Committee on Disaster Management

When: 9–10 December 2003

Where: Bandar Seri Begawan, Brunei

Contact: ACDM Secretariat, c/o Brunei Fire Services Department, Berakas BB 3510, Bandar Seri Begawan - Negara Brunei Darussalam; email: info@acdm.net or secretariat@acdm.net; web: www.unisdr.org

A Strategic Approach to the Sustainable Development of Small Island States

When: 26–30 January 2004

Where: Nassau, Bahamas

Contact: The Bahamas Environment, Science and Technology (BEST) Commission, PO Box CB-10980, Nassau, The Bahamas; tel: 242-322-4546; fax: 242-326-3509; email: bestnbs@hotmail.com; web: www.best.bs/bpoa_meeting.htm

National Conference on Science, Policy and the Environment

When: 29–30 January 2004

Where: Washington, DC

Contact: 1707 H Street NW, Suite 200, Washington, DC 20006; tel: 202-530-5810; email:

conference@NCSEonline.org; web: www.ncseonline.org/NCSEconference

Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity

When: 9–20 February 2004

Where: Kuala Lumpur, Malaysia

Contact: Secretariat of the Convention on Biological Diversity, 393, Saint Jacques St., Ste. 300, Montreal, Quebec, Canada, H2Y 1N9; tel: 514-288-2220; fax: 514-288-6588; email: secretariat@biodiv.org; web: www.biodiv.org/meetings/cop-07

Online Forum Debates: US Role in International Climate Regime

When: 26 February–5 March 2004

Where: Internet

Contact: Niklas Höhne, Ecofys GmbH, Eupener Str. 59, 50933 Köln, Germany; tel: +49 (0) 221-510907-41; fax: +49 (0) 221-510907-49; email: hoehne@ecofys.de; web: www.fiacc.net

International Forum on Partnerships for Sustainable Development

When: 4–6 March 2004

Where: Rome, Italy

Contact: Gloria Visconti, Italian Ministry for the Environment and Territory; tel: 39-06-5722-8121; fax: 39-06-5722-8180; email: visconti.gloria@minambiente.it; web: www.minambiente.it/Sito/settori_azione/pia/att/forum_svs.asp

Climate Prediction Applications Science Workshop: Research And Applications On Use And Impacts

When: 9–11 March 2004

Where: Tallahassee, Florida

Contact: Ruth Pryor; tel: 850-644-2100; email: pryor@coaps.fsu.edu; web: climateservices.coaps.fsu.edu

Bridging Scales And Epistemologies: Linking Local Knowledge And Global Science In Multi-Scale Assessments

When: 17–20 March 2004

Where: Alexandria, Egypt

Contact: Chan Wai Leng, Program Assistant, Millennium Ecosystem Assessment, c/o WorldFish Center, PO Box 500, GPO, 10670 Penang, Malaysia; tel: 60 4 626 1606; fax: 60 4 626 5530; email: w.chan@cgiar.org; www.millenniumassessment.org/en/about.meetings.bridging.aspx

Conference and Exhibition on Global Wind Power 2004

When: 28–31 March 2004

Where: Chicago, Illinois

Contact: Global Windpower 2004, c/o RCS, 2368 Eastman Avenue, Suite 11, Ventura, CA 93003; fax:

805-654-1676; email: windmail@awea.org; web:
www.awea.org/global04.html

Upcoming Meetings

The Ocean in a High-CO₂ World will be held 10–12 May 2004 in Paris, France. The symposium will address the biological and biogeochemical consequences of increasing atmospheric and oceanic CO₂ levels, and possible strategies for mitigating such increases. Papers from the symposium will be published in a special issue of the *Journal of Geophysical Research-Oceans* and research priorities will be published separately for the benefit of ocean scientists and research program managers worldwide. For more information, contact Phyllis Steiner, SCOR, Dept. of Earth and Planetary Sciences, The Johns Hopkins University, Baltimore, MD 21218; fax: +1-410-516-4019; email scor@jhu.edu; ioc.unesco.org/iocweb/co2panel/HighOceanCO2.htm

The Second Annual Brussels Climate Change Conference will be held 11–12 May 2004 in Brussels, Belgium. The conference will take stock of recent EU and international developments. It will review recent EU initiatives, such as the latest EU policy developments, implementation of the EU emissions trading scheme and potential impacts on the industrial and power sector. It will also examine the approaches and policies of the EU's main trading partners such as the US, Japan, Canada, Russia or Australia. In particular, this will contain an evaluation of the emerging carbon markets, including overall size, liquidity, price levels, etc. For more information, contact Mark Kinloch, EU Conferences Ltd, tel: 44-1495-300-012; fax: 44-1495-309-372; email mark.kinloch@euconferences.com; web: www.euconferences.com/fraclimate04.htm

The Influence of Climate Change on North Atlantic Fish Stocks will be held 11-14 May 2004 in Bergen, Norway. The main objective of the Symposium is to present current knowledge of climate impact on fish stocks and how this may be used in fisheries advice and management. The symposium will address the following topics: the impact of climate on distribution and migration of fish populations; the effect of climate variability on growth, maturity, recruitment and mortality; the role of zooplankton in climate-fish relations; taking account of climate in the evaluation of the state of fish stocks; managing fish stocks under future climate scenarios and in the face of climatic uncertainty. For more information, contact the Institute of Marine Research, Kari Østervold Toft, PO Box 1870, Nordnes, N-5817 Bergen, Norway; tel: +47 55 23 85 38; fax: +47 55 23 85 86; email karit@imr.no; web: www.imr.no/2004symposium/index.php

Human Dimensions of Climate and Environmental Change in Central Asia will be held 21-22 May 2004 in

Grand Rapids, Michigan. The goal of this workshop is to discuss human-environmental interactions in arid and semi-arid environments of the world at various scales in the context of global climate and environmental change, and more specifically, to assess the human dimensions of climate and environmental change in Central Asia. Workshop topics include but are not limited to environmental issues of Central Asia, climate change in arid and semi-arid environments, water resources and irrigation, desertification control, implications of climate and environmental change for human health, environmental public policy, regional responses to global climate change with particular emphasis on arid environments and the Central Asian region. For more information, contact Cindy Zehner, Geography and Planning Department, 1138 AuSable Hall, 1 Campus Drive, Allendale, MI 49401; email: lioubime@gvsu.edu; www4.gvsu.edu/lioubime/CentralA_files/a_call_for_papers_and_participat.htm

The 9th International Meeting on Statistical Climatology will be held 24-28 May 2004 in Cape Town, South Africa. The IMSC provides a forum for climatologists to present statistical problems in climatology and consider the methods that are currently used to deal with these problems. Techniques tailored by climatologists for the specific needs of climatology are also presented. Statisticians will present new, state-of-the-art techniques developed within mathematical statistics and other scientific fields. By discussing the needs of climatology and the possibilities offered by modern statistics, synergetic effects are obtained, advancing the methodical basis of climatology and helping statistics to focus on relevant problems. For more information, contact Global Conferences, Ground Floor, House Vincent, 10 Brodie Road, Wynberg, 7800, Cape Town, South Africa; tel: 27(0) 21 762 8600; fax: 27(0) 21 762 8606; email: imsc@globalconf.co.za; web: www.csag.uct.ac.za/IMSC

The International Water Demand Management Conference will be held 30 May-3 June 2004 in Dead Sea, Jordan. The goals of the conference are to provide a forum for regional and international practitioners and experts in water issues to share concepts, research, technologies, and experiences on the most efficient use of water in the domestic, industrial, and agricultural sector. It also serves to provide water consumers, specifically industry, and commercial agencies a forum where they can learn how new conservation technologies can reduce their costs, as well as save the region water. For more information, contact Ms. Thuraya Hussein; tel: 00 962 6 5605370; fax: 00 962 6 5662395; email: Lawrence@wdm2004.org; web: www.wdm2004.org

The Eleventh Pacific Congress (PACON) on Marine Science and Technology: New Technologies, New

Opportunities will be held *30 May-4 June 2004* in Honolulu, Hawaii. This congress brings together scholars and resource persons to address key issues concerning marine technology related to the ocean's economic potential from a multidisciplinary perspective. The Congress will attempt to facilitate an exchange of views and ideas between representatives of all nations, thereby strengthening the global exchange of information and collaborative research linkages. Themes include ocean science and technology; coastal science and technology; and marine resource management and development. For more information, contact Paula Kuriyama, PACON International, PO Box 11568, Honolulu, HI 96828-0568; fax: 1-808-956-2580; pacon@hawaii.edu; www.hawaii.edu/pacon/2004TableContents.html

The **Southern Africa Workshop on Climate Extremes** will be held *31 May-4 June 2004* in Cape Town, South Africa. The workshop will bring together scientists who will supply daily meteorological data from countries in the region. The scientists then receive lectures and practical training in quality control, homogenization and analysis of the daily data to generate indices of climate extremes, and complete the workshop by writing a report describing the trends and variability in extremes in their own country and regionally. The results also lead to a peer-reviewed journal article that should contribute to the IPCC Fourth Assessment Report. For more information, contact fax: 27 21 650 5773; etccdm1@egs.uct.ac.za; web: www.csag.uct.ac.za/etccdm1

Long-Term Changes and Trends in the Atmosphere will be held *9-14 June 2004* in Sozopol, Bulgaria. This Workshop will bring together specialists in climate, middle and upper atmosphere, magnetosphere, solar physics, to discuss: 1) what long-term changes have already occurred in the lower, and particularly middle and upper atmosphere and ionosphere, and what future trends can be expected? 2) How are the long-term changes in the middle and upper atmosphere related to forcings from above and below? 3) What is the relative impact of anthropogenic, as opposed to natural forcing? For more information, contact J. Lastovicka, Institute of Atmospheric Physics, Bocni II, Prague 14131, Czech Republic; tel: 420-267103055; fax: 420-272763745; jla@ufa.cas.cz; web: www.stil.acad.bg:80/STIL/ws2004

Water and Climate Change: Knowledge for Better Adaptation will be held *16-18 June 2004* in Montreal, Canada. This conference will foster discussions between managers and specialists. The purpose of the conference is to make water resource managers aware of the need to adapt to a new, uncertain climatic reality and to urge researchers and specialists to take action and to develop the necessary tools and knowledge that will make adaptation possible. Some topics include: urban hydrology, water quality, climate and hydrological

modeling, climate extremes, and socio-economic impacts and health. For more information, contact Oiram Communications, Nathalie Raymond, 3, Place Laval, Suite 520, Laval (Québec) H7N 1A2, Canada; fax: 450-668-0746; acrh@ouranos.ca; www.ouranos.ca/acrh

The **Second International Conference on Climate Impacts Assessment (SICCIA)** will be held *28 June-2 July 2004* in Grainau, Germany. The purpose of the conference is to compare approaches in assessing impacts of climate variability and change on a regional scale, including the interpretation and use of seasonal forecasts, regional climate modeling and the integration of various disciplinary investigations of climate change; to advance the state of knowledge and methods of regional assessments, including research design, overcoming barriers to interdisciplinary research, and translating research into action; to support efforts by developing countries and former east-bloc countries including the EU-ascension states to assess impacts of climate variability and change; and to complement and influence wider assessment activities like IPCC and the U.S. Climate Change Science Program. For more information, contact SICCIA, Kathryn Vinson, Climate Impacts Group, Box 354235, University of Washington, Seattle, WA 98195; fax: 206-616-5775; kvinson@u.washington.edu; jjsao.washington.edu/PNWimpacts/Workshops/SICCIA/

The Use of GIS and Simulation Models for Research and Decision Support in Central Asian River Basins will be held *6-10 July 2004* in Tashkent, Uzbekistan. The aim of the meeting is to discuss current use of GIS and simulation models in resolving water and land management problems and addressing research and management tasks in integrated water and land resources management in the Central Asian river basins. Current models, GIS and decision support tools will be assessed. Presentations on past and current projects will lead to the exchange of information and experiences. For more information, contact karimov@avhsociety.uz or info@avhsociety.uz; web: www.avhsociety.uz

Climate Change and Aquatic Systems, Past, Present & Future will be held *21-23 July 2004* in Plymouth, United Kingdom. The aim of this international conference is to pull together scientists working in marine and freshwater systems with an interest in the impact of climate change on the physico-chemical, biological and particularly ecological aspects of their systems. We aim to gather workers on historical climate change, those investigating the current impacts of climatic variation, and those modeling future climatic trends. The intent is to provide a shared experience, with sessions containing papers from all aquatic systems. For more information, contact the organizers by email: climate@plymouth.ac.uk; web: www.biology.plymouth.ac.uk/climate/climate.htm

The **International Conference on Disasters and Society – From Hazard Assessment to Risk Reduction** will be held *26-27 July 2004* in Karlsruhe, Germany. The conference provides a forum to present and discuss research results covering the full functional chain associated with disasters. Contributions are invited in the areas of understanding and modeling hazards, hazard and risk assessment, forecasting and early warning, information and communication, disaster management, and risk reduction in industrialized societies. For more information, contact the organizers via email: disasterandsociety@uka.de; web: www.disasterandsociety.uni-karlsruhe.de

Scientific Committee on Antarctic Research (SCAR) Open Science Conference: Antarctica and the Southern Ocean in the Global System will be held *26-28 July 2004* in Bremen, Germany. SCAR invites all scientists who are interested both in Antarctica and in the Southern Ocean to participate in the Open Science Conference in order to present their latest discoveries. It is anticipated that the outcome of the conference will influence the planning of SCAR's future Antarctic research programs. The Conference will review our present understanding of the close couplings between Antarctica, the Southern Ocean and the other parts of the Earth System. Cross-disciplinary presentations are particularly welcome, as well as papers on Arctic-Antarctic linkages, on requirements for new data, on observational and modeling studies and on activities linked to other international programs. For more information, contact Meeting Secretariat, Alfred Wegener Institute for Polar and Marine Research, Columbusstraße, 27568 Bremerhaven, Germany; tel: 49 (0) 471-4831 1358; fax: 49 (0) 471-4831 1102; email: secretary@scar28.org; web: www.scar28.org

The **8th International Global Atmospheric Chemistry Conference** will be held *4-9 September 2004* in Christchurch, New Zealand. The focus of this conference will be atmospheric chemistry in the environment. Suggested themes include aerosol chemistry; effect of aerosols on clouds and the hydrological cycle; climate-chemistry interactions; observing the atmosphere: in-situ and remote measurements; air-ice interactions; halogen chemistry in the troposphere; atmosphere-ocean interactions; trans-boundary transport; mega cities and their impact on the global atmosphere; biomass burning; toxic pollutants; oxidizing capacity; and emission and deposition fluxes. In addition, papers on all aspects of atmospheric chemistry are welcome. For more information, contact K. Gerard, Conference PO Box 13494, Christchurch, New Zealand; tel: 64-3-379-0390; fax: 64-3-379-0460; email: kim@conference.co.nz; web: www.IGACConference2004.co.nz

Paleoclimate and the Earth Climate System will be held *30 August-2 September 2004* in Belgrade, Serbia. On the occasion of the 125th anniversary of the birth of Milutin Milankovitch, the Serbian Academy of Sciences and Arts is organizing an international symposium aimed at reviewing the state-of-the-art of climate science as it relates to the work of Milankovitch. The emphasis of the symposium will be on paleoclimate, but present understanding of the Earth's climate dynamics, and a summary of the numerical tools used nowadays will also be covered. For more information, contact the Local Organizing Committee of Symposium Milutin Milankovitch 2004, c/o Serbian Academy of Sciences and Arts, Corresponding member Marko Ercegovac, Knez Mihailova 35, 11000 Belgrade, Serbia and Montenegro; email: milankovitch-erc@sanu.ac.yu; web: www.pages.unibe.ch/calendar/2004/pecs.pdf

The **Seventh International Conference on Greenhouse Gas Control Technologies** will be held *5-9 September 2004* in Vancouver, Canada. This conference will examine the latest advances in the field of greenhouse gas control technologies, including capture, storage and utilization of CO₂. The meeting is being organized by the University of Regina and Natural Resources Canada, in co-operation with the IEA Greenhouse Gas R&D Programme. For more information contact Ted Morris, GHGT-7 Secretariat, Suite 150, 10 Research Drive, Regina, Sk. S4S 7J7, CANADA; tel: 306 337 2290; fax: 306 337 2301; email: secretariat@ghgt7.ca; web: www.ghgt7.ca/main.html

The **19th World Energy Congress** will be held *5-9 September 2004* in Sydney, Australia. The technical program will focus on key energy issues covering a wide range of topics within the energy industry. The Theme of the Sydney Congress is "Delivering Sustainability: Opportunities and Challenges for the Energy Industry." This theme invites solutions that are technically sound, economically feasible and environmentally and socially acceptable. The theme challenges the world energy community to set the right course for the sustainable supply of energy and for its use for the benefit of all. The Congress will include oral and poster sessions, workshops, tutorials, symposia and panel sessions. For more information contact the 19th World Energy Congress Managers, GPO Box 128, Sydney, NSW 2001, Australia; tel: 61 2 9248 0800; fax: 61 2 9248 0894; email: energy2004@tourhosts.com.au; web: www.tourhosts.com.au/energy2004

The **10th Wengen Workshop on Global Change Research** will be held *6-9 September 2004* in Wengen, Switzerland. This year's meeting will focus on mountain glaciers and the physical and socio-economic consequences related to glacier retreat in the face of climatic change. The Wengen Workshop provides an opportunity to present and discuss state-of-the-art, inter-

disciplinary issues. Topics include: climate-glacier interactions, impacts of physical changes, human perception of glacial retreat and advance and its relation to identity changes in hazards in response to glacier changes, monitoring and modeling, and responses to changes in glaciers, including changes in configuration and also intensity and frequency of natural hazards. For more information, contact Martin Beniston, University of Fribourg, Switzerland; Martin.Beniston@Unifr.CH; web: www.unifr.ch/geoscience/geographie/EVENTS/Wengen/04/Wengen2004.html

The Meeting on Antarctic Peninsula Climate Variability will be held *16-18 September 2004* in Cambridge, United Kingdom. This workshop will cover a mix of climate change studies, glaciological impacts, biological impacts, marine and terrestrial paleoenvironmental records, and will produce a synthesis that can inform the forthcoming IPCC assessment of recent rapid regional warming on the Antarctic Peninsula. For more information, contact KM Salisbury, Physical Sciences Division, British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET, UK; tel: 44 (0)1223 221480; fax: 44 (0) 1223 221279; email: kms@bas.ac.uk; web: www.antarctica.ac.uk/met/AP2004

The Arctic Climate Impact Assessment (ACIA) International Scientific Symposium on Climate Change in the Arctic will be held *21-24 September 2004* in Reykjavik, Iceland. This symposium will address a variety of issues connected to climate change in the circumpolar Arctic and its environmental and societal consequences. The symposium is directed towards scientists working on Arctic and climate change issues; administrators, managers and decision-makers with responsibility at both the local and regional level; indigenous peoples' organizations; representatives of industries; and international and non-governmental organizations with interests in the Arctic, and/or global climate change issues. For more information contact the ACIA Secretariat, International Arctic Research Center, PO Box 757740, University of Alaska Fairbanks, Fairbanks, AK 99775-7740; fax: 907 474 6722; email: bhameister@iarc.uaf.edu; web: amap.no/MiscTempFiles/ACIASymp-1An.htm

New Publications

Books

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Field, C.B. and M.R. Raupach, 2004: **Global Carbon Cycle: Integrating Humans, Climate, and the Natural World**. Island Press; www.islandpress.org

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WEBSITES OF INTEREST

www.irc.nl

The IRC International Water and Sanitation Centre provides news and information, advice, research and training on low-cost water supply and sanitation in developing countries. The site aims to enable and promote the sharing of information and collaboration among partners and professionals in the water and sanitation sector.

www.benfieldhrc.org/index.htm

The Benfield Hazard Research Centre provides a conduit for the transfer of cutting-edge natural hazard and risk research, practice, and innovation from the academic environment to the business world and government and international agencies.

www.iwrsdelhi.org

Indian Water Resources Society-Delhi Center (IWRS-DC) has launched its website. The website has some novel features, amongst them an "Ask Us" service. Visitors can ask any water resources-related question and it will be replied to by a group of experts.

www.globalwarming.net

The Global Warming International Center (GWIC) is the international body disseminating information on global warming science and policy, serving both governmental, non-governmental organizations, and industries in more than 145 countries. It sponsors unbiased research supporting the understanding of global warming and its mitigation.

www.thegreatwarming.com

Filmed in eight countries on four continents, endorsed by dozens of the world's leading scientists, this three-hour television series claims to be the most factually accurate, visually stunning and wide-ranging production ever mounted about "The Great Warming."

www.biogeosciences.net

Biogeosciences (BG) is an international scientific open access journal dedicated to the publication and discussion of research articles, short communications and review papers on all aspects of the interactions between the biological, chemical and physical processes in terrestrial or extraterrestrial life with the geosphere, hydrosphere and atmosphere.

www.waterkeeper.org

Waterkeeper Alliance is a grassroots organization with over 100 local water programs and growing. The Alliance is dedicated to preserving and protecting our water from polluters.

cdiac.ornl.gov/oceans/glodap/Glodap_home.htm

The GLObal Ocean Data Analysis Project (GLODAP) is a cooperative effort to coordinate global synthesis projects of the Joint Global Ocean Flux Study - Synthesis and Modeling Project. The central objective of this project is to generate a unified data set to help determine the global distributions of both natural and anthropogenic inorganic carbon, including radiocarbon.

www.seas.gwu.edu/~emse232

The purpose of the EMSE 232 Disaster Newsletter is to provide its readers with a current perspective of activities in the disaster management field in the United States and around the world. The Newsletter includes information on current disaster management trends in the areas of research, funding, technology, legislation and consulting.

www.worldwaterday.org

The international observance of World Water Day is an initiative that grew out of the 1992 UN Conference on Environment and Development in Rio de Janeiro. World Water Day is pivotal to focusing attention on the need to address the problems relating to drinking water supply; increase public awareness on the importance of conservation, preservation, and protection of water resources and drinking water supply.

www.unosat.org

The UNOSAT user interface provides relevant information to the international community to access updated and accurate geographic information and help to universalize access to satellite imagery.

The NETWORK NEWSLETTER is intended for those interested and involved in climate-related impact assessment. It is hoped that it will serve to foster a growing network by keeping the community up to date on the many activities in this wide and varied field. Your involvement in supplying relevant information is essential to the success of this endeavor.

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NETWORK NEWSLETTER

tel: 1-303-497-8134; fax: 1-303-497-8125
E-mail: jan@ucar.edu
www.esig.ucar.edu/newshp

Michael H. Glantz Editor
D. Jan Stewart Managing Editor
Jan Hopper Associate Editor
Anne Oman Webmaster, Associate Editor

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