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Editorial

Problem Climates or Problem Societies?

More than forty years ago, geographer Glenn Trewartha published his book, *The Earth's Problem Climates*. Trewartha's selection of what he considered at that time to be the earth's "problem climates" was based on information available before 1960. He described a problem climate as one that does not really conform to what might be expected for a given latitude:

Were the earth's surface homogeneous (either land or water) and lacking terrain irregularities, it may be presumed that atmospheric pressure, winds, temperature, and precipitation would be arranged in zonal or east-west belts (p. 3).

He focused on "regional climatic aberrations," explicitly noting that he was writing for physical scientists, and not the general public. In his words,

It is designed to meet the needs of those interested in the professional aspects of climate rather than laymen. A methodical description of all the earth's climates is not attempted, for many areas are climatically so normal or usual that they require little comment in a book which professes to emphasize the exceptional (p. 6, emphasis added).

Is such a statement still valid, given what we have learned about climate since 1960? Are there really areas on the globe that could be viewed as "climatically so normal or usual that they require little comment"? Are there exceptional "problem climates"? Should we also be asking questions about societies' role, if any, in the existence of problem climates?

There are two ways to look at the term problem climates: from a *physical* perspective and from an *anthropocentric* perspective. Climate processes are natural processes that center on the physical characteristics and behavior of the atmosphere. The second way is anthropocentric, because climate's processes interact with human activities and with the resources on which those activities depend.

Problem climates, then, are generated not only by changes in rainfall, temperature, pressure, or wind, but also by changes in human activities, such as deforestation, urbanization, desertification, and fossil fuel burning. For

their part, societies can no longer be portrayed as just victims of the climate system (its means, modes, and extremes) but are involved in the various ways that the climate system and its impacts might be changing.

The phrase "problem societies" refers to climate and climate-related factors that affect the ability of society or the environment to interact effectively with the climate system. Accepting the fact that there are many things about the behavior of the atmosphere that we do not yet understand, it is also important to note that there is a considerable amount of usable information we already know about the interactions between human activities and the climate system. Nevertheless, societies knowingly still engage in activities that increase their vulnerability or reduce their resilience in the face of a varying climate system.

In the early 1970s, the Club of Rome created the concept of "World Problematique." It is summarized as follows:

The complexity of the world problematique lies in the high level of mutual interdependence of all these problems on the one hand, and in the long time it often takes until the impact of the action and reaction in this complex system becomes visible.

The notion of problematique (problematic) should be applied to climate and climate-related issues. While every regional or local climate can be viewed to varying degrees as a problem climate in the natural science sense, the word "problematic" better captures the contemporary realization of what constitutes a problem climate. It suggests a more holistic view of the climate system in which human activities have become another factor that forces changes in climate.

Our problem is not only that we have to cope with a variable and changing global climate, but is also with the pathways that societies have chosen to pursue in order to develop their economies, often with little regard to the impacts on climate. This brings to mind the Pogo cartoon: "I have met the enemy and he is us!" It is time to start pointing the finger at problem societies as well as at problem climates.

--Michael H. Glantz

Trewartha, G.T., 1961: *The Earth's Problem Climates*. Madison, Wisconsin: University of Wisconsin Press.

www.clubofrome.org/about/world_problematique.php



NCAR

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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 2003**. 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 input!

THANKS FOR YOUR FEEDBACK!

Our last combined Network Newsletter/ENSO Signal was very well received. Consequently, we are returning to our regular-sized edition but will continue to have a corner of information that is of particular interest to ENSO researchers, as well as the usual newsletter fare. Please continue to let us know how we might improve the content of this newsletter. Contact the Managing Editor at jan@ucar.edu to provide any additional feedback you may have. Let us know if you have an issue you might like to consider as a guest editorial.

PARTNERSHIP FOR PRINCIPLE 10

Partnership for Principle 10 (PP10) provides a platform for governments, international institutions, and non-governmental organizations to articulate specific commitments reaffirming their pledges to "Principle 10" of the Rio Declaration at the Earth Summit in 1992. This Principle calls on governments to increase public access to information, participation, and justice with regard to policy decisions affecting the environment. PP10 builds on the work of The Access Initiative (TAI), a global coalition of public interest groups initiated by the World Resources Institute (WRI). The Partnership held its first meeting in April 2003 and aims to provide citizens with an assessment of ways to raise the awareness of government officials regarding the need to provide citizens with an informed voice in environmental decision-making. For more information, see the PP10 website at www.pp10.org or write to WRI, 10 G St., NE (Suite 800), Washington, DC 20002 USA; tel: 1-202-729-7600; fax: 1-202-729-7610; front@wri.org

THIRD WORLD WATER FORUM

More than 100 new commitments on water were made by participants of the 8-day Third World Water Forum, held in Kyoto, Shiga, and Osaka, Japan on 16–23 March 2003, holding 351 separate sessions on 38 interlocking themes dealing with water, especially how to bring safe water and sanitation to the world. More than 24,000 participants from 182 countries attended the sessions. The Organizing Committee has issued a preliminary 8-page Forum Statement, which reflects the content of all session reports, as well as thematic and regional statements received as of 21 March. This preliminary draft is posted on the website for comments. A revised draft statement will be posted on the website for further comments on 30 April, with a final statement to be issued on 15 May in order to provide input to the G-8 meeting to be held in June 2003. The statement is available in both PDF and MS Word at www.worldwaterforum.org

EARTH DAY 2003: WATER FOR LIFE

On Earth Day 2003 (22 April), Earth Day Network launches a two-year campaign to highlight critical water access, health, and usage issues around the world. The campaign aims to garner political will, inspire individual action, and mobilize the necessary resources to improve water quality. The Network has prepared a comprehensive guide to water quality, with suggestions for citizen action on local to global scales. It includes a project designed to measure the health of local water, allowing participants to generate a report of the findings. Earth Day will publish a compendium of all participating groups and the results. The website also includes a challenge to the private sector to conserve water and reinvest in community development through a "Corporate Water Challenge." For more information, see the website at www.earthday.net/goals/ or write to Earth Day Network, 1616 P St. NW, Suite 200, Washington, DC 20036; tel: 1-202-518-0044; fax: 1-202-518-8794.

NWS CLIMATE SERVICES PARTNERSHIP PROGRAM

The US National Weather Service (NWS) has implemented a Climate Services Partnership Program within the Climate Services Division (CSD) of the Office of Climate, Water and Weather Services in the NWS. The program aims to promote partnerships, improve communication, contribute insights, and share information. Requirements to be accepted in the program include (1) a new partnership the applicant wants to develop or expand; (2) a strong interest in climate prediction and variability; (3) two consecutive weeks for a visit to the Washington, DC area; and a one-

hour presentation within the first few days of the visit. The CSD covers the cost of travel and per diem for all participants. Two slots per month are available. To apply, see the website at www.nws.noaa.gov/om/csd/visitors/ for availability during 2003–2004. An application is also on line, or contact Judith A. Koepsell at judy.koepsell@noaa.gov; tel: 1-301-713-1970 Ext. 187; fax: 1-301-713-1520.



CLIMATE AFFAIRS: A PRIMER

Michael Glantz's latest book will become available in May 2003 from Island Press. *Climate Affairs* addresses questions surrounding the impacts of climate variability, climate change, and extreme climate-related events. It outlines a way to address the interactions among climate, society, and the environment. It also considers the full range of climate-related topics, including climate science, climate impacts, climate policy and law, climate politics, climate economics, and climate ethics. It can be a key resource for decision makers, as well as for students and scholars working in climate and climate-related fields. *Network Newsletter* readers can obtain a 20% discount off the book by ordering from Island Press before 30 May 2003. Call 1-800-828-1302 and ask for Dept. 3GLA or fax 707-983-6414, or mail Island Press, PO Box 7, Covelo, CA 95428 USA to the attention Dept. 3GLA. More information about the book is available at www.esig.ucar.edu/affairs.html

SOLAR POWER IN INDIA

A major new initiative has been launched between the UN Environment Programme (UNEP) and two of India's largest banking groups to help southern Indian households in Karnataka finance clean and reliable energy from solar power. Many Indian households still

rely on inefficient energy sources such as kerosene. Despite high initial costs, solar home systems are a viable source of energy. Consequently, these two banks, Canara Bank and Syndicate Bank, are credited with financing group lending through self-help groups and then advance loans to the poor. The UNEP partnership allows both banks to offer new loans for the growing renewable energy sector. Background information and a color photo of a home system installation can be viewed at www.uneptie.org/energy/Indian-Solar-Finance. For more information, contact Robert Bisset, UNEP Press Officer, tel: 33-1-44377613 or see the UNEP Energy Unit website at www.uneptie.org/energy

OGALLALA AQUIFER INSTITUTE

An eight-state Ogallala Aquifer Institute is being formed to consider various scenarios in managing and protecting the 174,000-square-mile groundwater supply. The Institute's goals are to promote education and cooperation among the eight states and to find common solutions to problems, such as the increasing demands made on the aquifer because of the recent drought. The aquifer contains an estimated 3.25 billion acre-feet of recoverable water and comprises about 20% of all the groundwater in the United States and 30% of its irrigated cropland acres. The Institute began from recommendations of two citizen-based advisory committees in Kansas, which can be accessed on the Kansas Water Office website at www.kwo.org/Reports/ogallala_mgt_rpt_rpt_.htm. States represented in the Institute are Texas, New Mexico, Kansas, Colorado, Nebraska, Oklahoma, Wyoming, and South Dakota. A website is being designed and will become available shortly. The Institute will be housed at the Finnup Center for Conservation Education in Garden City, Kansas. For more information, contact Executive Director Steve Frost at sfrost@kdhe.state.ks.us or call 1-785-296-5505.

OXFAM COUNTRY PROFILES

Oxfam Country Profiles is an extensive series of accessible introductions to developing countries, focusing on the lives of ordinary people and the major development issues that affect them. Each Profile includes basic information on the history, society, politics, economy, and environment of the country. Oxfam Publishing is an international non-governmental organization (NGO) dedicated to finding lasting solutions to poverty and injustice around the globe. It publishes books and other materials for policy makers, academics, and students as part of its program of advocacy, education, and information. Their website is at www.oxfam.org.uk and the Profiles ordering information is under "Professional & Academic" publications.

GLOBAL CAMPAIGN FOR EDUCATION

More than fifty years after education has been affirmed by governments to be a fundamental human right, one out of three adults remains illiterate. To promote literacy, organizations in more than 180 countries have joined forces to launch the Global Campaign for Education (GCE). Activities around the world have been designed to draw the attention of politicians, media, and the public to the importance of achieving the promise of more education, especially for girls. Each year of schooling gained by each child increases her chances of escaping from poverty, contributes to economic growth, and strengthens the fabric of democracy. To measure the impact and relevance of these campaigns, GCE has released a Feedback Survey on its website at www.campaignforeducation.org. On 9 April 2003, the GCE broke the Guinness World Record for the world's biggest-ever lesson of having the largest number of people learning the same thing at the same time. See the website for more information, or write to GCE c/o Education International, Bld. Du Roi Albert II, 5 (8th Floor), 12120 Brussels, Belgium.



POGO: PROJECT ON GOVERNMENT OVERSIGHT

POGO is an internship program for those who want to learn how to use the tools available for citizens to research government and corporations and observe how Washington works. POGO's interns assist in researching government

subservience to special interest groups. Sometimes the intern's research culminates in a POGO report. They also write opinion pieces for media release and assist in writing testimony for Congressional hearings. POGO is not looking for an intern to have a specific major, but is looking for individuals who are creative, self-motivated, inquisitive, and concerned about justice. POGO has interns all year; fall semester is from September–December; spring semester January–May. POGO has no application deadline, but due to the number of applicants it is advised that you apply as soon as possible. Write to Seth Morris, Research Assistant/Intern Coordinator, POGO, 666 11th St. NW, Washington, DC 20001, tel: 1-202-347-1122; fax: 1-202-347-1116; email seth@pogo.org, or see the website at www.pogo.org/p/x/internships.html

NEW DISASTER MITIGATION NEWSLETTER

Disaster Mitigation in Asia, a moderated electronic newsletter (first issue released 28 February 2003) is

provided by the Asian Disaster Preparedness Center to share updates on disaster mitigation in Asia, including the latest information sources and analytical accounts of new approaches, methodologies, models, resources, and tools for disaster risk reduction. The e-newsletter is sent to almost 2,000 subscribers and invites questions from the readership, responses, and contributions. Items received will be posted in the next issue. Please send contributions to audmp@adpc.net or see the website at www.adpc.ait.ac.th/audmp/e-news/

PETER A. WILDERER RECEIVES STOCKHOLM WATER PRIZE

Peter Wilderer is a professor at the Technical University of Munich and serves as the Director of the Institute of Advanced Studies on Sustainability. Dr. Wilderer has been awarded the 2003 Stockholm Water Prize for the development and demonstration of integrative management across the spectrum of fundamental research, applied research, technology implementation, and sustainable water management. He will receive the prize at the annual World Water Week in Stockholm on 14 August. By bringing scientists of different disciplines together to solve problems, and by communicating with the public, industry, business and public institutions, he demonstrated that decision making can be based on sound science and appropriate technology and result in sustainable water management. The Stockholm Water Prize is an annual international environmental award presented by the Stockholm Water Foundation in honor of outstanding achievements in science, engineering, technology, education, or public policy related to protection of the world's water resources. For more information, visit www.siwi.org

GLOBAL WIND POWER SETS RECORD IN 2002

New wind power capacity increased by 28% worldwide during 2002, according to statistics recently released from the American Wind Energy Association (AWEA) as well as the European Wind Energy Association (EWEA). Global wind power has quadrupled over the past five years, growing from 7,600 MW (megawatts) at the end of 1997 to more than 31,000 MW at the end of 2002. Wind is the world's fastest-growing energy source, with Europe and the United States being responsible for more than 90% of the new capacity. Wind power currently meets 2% of total European electricity demand. Analysis by the EWEA shows that there are no technical, economic, or resource limitations for wind power to supply 12% of the world's electricity by 2020. For more information, visit the AWEA website at www.awea.org

PACIFIC INSTITUTE LAUNCHES WATER AND CLIMATE BIBLIOGRAPHY

How will climate change affect freshwater resources? In an effort to aid those studying this question and related issues, the Pacific Institute has created the Water and Climate Bibliography: a searchable online database containing over 3,000 references to books, articles, and other scholarly works. Peter Gleick, President of the Pacific Institute, expressed the hope that this new tool will help those studying these critical problems to forge effective solutions. The project was funded by grants from the Dialogue on Water and Climate, the California Energy Commission, and the California Department of Water Resources. It is also available on CD-ROM. Researchers are encouraged to submit new citations for consideration using the online form, accessible from the main bibliography page at www.pacinst.org/resources/



STREAMS OF KNOWLEDGE

In a complex and changing world, people need access to a collective information and knowledge base to help them find the best way forward and prevent them from making the same mistakes that others have made. The Streams of Knowledge (SOK) global coalition of resource centers was officially launched during the Second World Water Forum in The Hague during March 2000. The Dutch Ministry of Foreign Affairs is funding the establishment of a foundation and secretariat over the next two years, with a chance for further funding for a third year. The secretariat of the SOK, currently based at the IRC International Water and Sanitation Center in Delft, will be transferred to one of the founding partners from the South, the Philippine Center for Water and Sanitation, during 2003. SOK brings together more than 120 resource centers active in the water and sanitation sector throughout the world. SOK's website contains further information, including a "toolbox" consisting of a set of downloadable tools. See the website at www.streamsofknowledge.net (from *Source Bulletin*).

REPORTERS WITHOUT BORDERS

Reporters Without Borders (Reporters sans frontières) has published the first worldwide press freedom index, which indexes countries according to their respect for press freedom. It shows that such freedom is under threat everywhere, with the 20 lowest-ranked countries drawn from Asia, Africa, Latin America, and Europe. The top end of the list shows that rich countries have no monopoly of press freedom. The index was compiled by asking journalists, researchers, and legal experts to

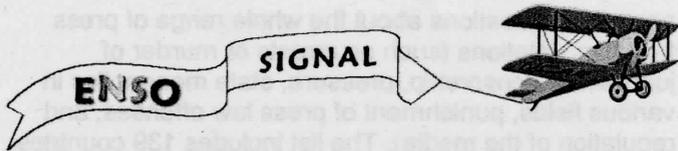
answer 50 questions about the whole range of press freedom violations (such as arrests or murder of journalists, censorship, pressure, state monopolies in various fields, punishment of press law offenses, and regulation of the media). The list includes 139 countries. At the top of the list, four countries share first place: Finland, Iceland, Norway, and The Netherlands. To see where your country placed in this list, see the website at www.rsf.org/article.php3?id_article=4116

WANGARI MAATHAI WINS LANDSLIDE VICTORY

Professor Wangari Maathai, Coordinator of the Greenbelt Movement in Kenya, won a parliamentary seat in the 2002 national Kenyan elections. In overwhelming numbers, her constituents showed support for the ideals and principles she upholds. She outpolled her nearest challenger by 51 to one. She was also appointed Assistant Minister in the Ministry of Environmental Natural Resources and Wildlife. Professor Maathai began the Greenbelt Movement in 1977 when she planted seven trees to celebrate Earth Day. She had just become aware of the devastating effects of deforestation in her country and approached government foresters arguing that to fight the encroaching desert, she would bring together hundreds of thousands of mobilized villagers all across the country to plant trees, which is what she did. Today, the Movement has 6,000 village-based nurseries run largely by women and has planted more than 20 million trees. Their efforts have transformed whole villages whose soils are again rich and fertile, as well as revolutionized the lives of women who no longer must travel long distances in search of firewood. Maathai has won several prestigious international environmental prizes. To read more about the Greenbelt Movement, see www.womenaid.org/press//info/development/greenbeltproject.html

NEW NOAA STRATEGIC PLAN

NOAA (National Oceanic and Atmospheric Administration) has just completed its Strategic Plan for 2003–2008 and beyond. Its goals will be to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management; understand climate variability and change to enhance society's ability to plan and respond; support the nation's commerce, and serve society's needs for weather and water information. The plan promises improvements in the agency's ability to serve America in three critical areas: the environment, the economy, and public safety. The Strategic Plan can be viewed at the website at www.osp.noaa.gov



CURRENT STATE OF THE TROPICAL PACIFIC

(From the Climate Prediction Center's *Climate Diagnostics Bulletin*)
www.cpc.ncep.noaa.gov
 (as of 10 April 2003)

El Niño conditions continued to weaken during March 2003, as SST anomalies decreased throughout the eastern and central equatorial Pacific. Since December, SST anomalies have decreased by more than 2°C in the eastern equatorial Pacific, and there has also been a steady decrease in the magnitude and extent of the positive subsurface temperature anomalies, indicating a depletion of the excess warmth in the upper ocean of the equatorial Pacific. This evolution is typical during the decay phases of warm episodes. In spite of these trends, significant positive SST anomalies remained in the central equatorial Pacific during March, with greater-than-average precipitation and cloudiness over the western part of this region, although the departures from average have decreased substantially during the past two months. The consensus forecast is for near-normal conditions through September 2003. However, there is uncertainty in this forecast, with some forecasts indicating possibly continued weak El Niño conditions and other indicating the development of La Niña conditions during the last half of 2003.

THE SPRING BARRIER

El Niño and La Niña events tend to develop between April and June of each year, a period when making prediction is more difficult. This is often called the "spring barrier" in the Northern Hemisphere and the "autumn barrier" in the Southern Hemisphere. Consequently, in the current situation both statistical and dynamical models begin to diverge widely in early autumn as to what might be expected at the end of 2003. However, once an event has begun, forecasting the continuing evolution of the event is less problematic.

ANIMATING EI NIÑO

A vivid animation based on data from the European Space Agency (ESA) shows the onset of the recent El Niño phenomenon from July to December of 2002. Covering a large area of the Pacific Ocean from South America to Australia and Southeast Asia, the animation demonstrates the three most important factors that mark the El Niño phenomenon: (1) sea surface temperature,

(2) sea surface levels, and (3) winds. The animation incorporates data from several ERS-2 instruments. See the animation at www.esa.int/export/esaSA/SEMY0J2A6BD_earth_0.html

GLACIER SURGE AFTER ICE SHELF COLLAPSE

A new article in the 7 March 2003 issue of *Science* by two researchers from Argentina suggest that the possibility exists of the collapse of the West Antarctic Ice Sheet. In the event of this occurring, it would imply a sudden increase in sea level. Using satellite images and airborne surveys, the authors discovered a definite acceleration of ice shelf collapse from 1999 to 2001. The evidence unambiguously shows that five of the six major tributaries that formerly nourished the disintegrated portions of the Larsen Ice Shelf have recently experienced important dynamic perturbations. They suggest that these perturbations may be exacerbated by regional climatic warming. The authors call for a reconsideration of former hypothesis about the stabilizing role of ice shelves.

de Angelis, H., and P. Skvarca, 2003: Glacier surge after ice shelf collapse. *Science*, 299, 1560–1562. www.sciencemag.org

SOLVING INDONESIA'S FIRE PROBLEM

Coinciding with the outbreak of fires in Indonesia during March 2003, a new report just released examines the role of inadequate management of peat lands as an underlying cause of smoke haze in Indonesia. The report was written by Luca Tacconi of the Center for International Forestry Research (CIFOR) in Bogor, Indonesia. Fires have risen to global attention in recent years as an environmental and economic issue, especially following the 1997–98 El Niño event during which up to 25 million hectares of land worldwide were affected by fire. The report, *Fires in Indonesia: Causes, Costs and Policy Implications*, is available free of charge at the CIFOR website at www.cifor.org

EI NIÑO-INDUCED DROUGHT AND RECORD AIR POLLUTION

In another look at forest fires and El Niño, scientists using NASA satellite data have found that the most intense global pollution from fires occurred during droughts exacerbated by El Niño. The most intense fires took place in 1997–98 in association with the strong El Niño. Researchers from Harvard University have quantified the amount of smoke pollution from biomass burning over the past twenty years. They recently

published a study that describes how they combined data from NASA's Total Ozone Mapping Spectrometer (TOMS) with Scanning Radiometer and Sounder (ASTR) fire count data from the European Space Agency's European Remote Sensing-2 satellite. They found that fires typically produce the most pollution in Southeast Asia in March, in northern Africa in January and February, and in southern Africa and Brazil in August and September.

Duncan, B.N., R.V. Martin, A.C. Staudt, R. Yevich, and J.A. Logan, 2003: Interannual and seasonal variability of biomass burning emissions constrained by satellite observations. *Journal of Geophysical Research*, 108(D2), 4100, doi:10.1029/2002JD002378.

GFDL VISITOR OPPORTUNITY

The University Corporation for Atmospheric Research (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 (CCRI). GFDL conducts fundamental and applied oceanic and atmospheric research on a variety of problems of importance to society and central to NOAA's mission. In the past several years, GFDL has reorganized to develop a new generation of climate and Earth system models to support its research for the coming decade. GFDL expects some of these new postdoctoral positions to evolve into permanent civil service hires as it expands its staff in the next several years. 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. Specific areas identified as priorities for postdoctoral positions are detailed at www.vsp.ucar.edu, including the full text announcement. Application deadlines are 15 January and 15 July. Applications are reviewed twice yearly by a steering committee. Send to UCAR/VSP, PO Box 3000, Boulder, CO 80307-3000 USA. For more information, contact 1-303-497-8649 or send email to vsp@ucar.edu. UCAR is an equal opportunity employer.

UPCOMING MEETINGS

Climate Solutions for the Northeast will be held 11–13 May 2003 in Hartford, Connecticut. The conference will spotlight the Regional Climate Change Action efforts in Northeast states and Eastern Canadian provinces. This will be the first conference focusing exclusively on the solutions and leadership necessary to meet climate action goals adopted by the governors of the New England states, New Jersey and New York, and by the premiers of the eastern Canadian provinces. Climate Solutions for the Northeast will address: the regional

challenges of climate change; the role of businesses, communities and higher education institutions in finding solutions; exciting, proactive responses from the electricity and transportation sectors; and the resources needed to implement existing state and regional climate change action plans. For more information, contact Jennifer Schroeder (jschroeder@cleanair-coolplanet.org) or Roger Stephenson (rstephenson@cleanair-coolplanet.org); Clean Air-Cool Planet, 100 Market Street Suite 204, Portsmouth, NH 03801; tel: 1-603-422-6464; fax: 1-603-422-6441; web: www.cleanair-coolplanet.org

Climate Change: The Karst Record will be held 11–14 May 2003 in Montpellier, France. The Karst Record is the third Symposium dedicated to Palaeoclimate reconstructions from karst records such as speleothems and other cave deposits. All communications and posters about speleothem records (geochemical, isotopical, petrographical, spectrometrical, etc.) and cave detrital deposits linked with climate variation, palaeohydrology and/or archeological interest are welcome. Also, all studies about the present-day cave system like dripping water or cave temperature monitoring and all relationships with the climate are of interest. For more information, contact karst3@lsce.cnrs-gif.fr; web: www.ipsl.jussieu.fr/GLACIO/KARST/Main-KR111.html

The 7th Conference on Polar Meteorology and Oceanography and Joint Symposium on High-Latitude Climate Variations will be held 12–16 May 2003 in Hyannis, MA. This conference will include presentations on all topics related to polar meteorology and oceanography with an emphasis on modeling and observing interactions among polar clouds, radiation, and air-sea-ice exchange processes. A special Symposium on High Latitude Climate Variations is planned jointly with the AMS Committee on Climate Variations. For more information, contact J. Francis, Institute of Marine and Coastal Sciences, Rutgers University, 74 Magruder Road, Highlands, NJ 07732; tel: +1-732-708-1217; fax: +1-732-872-1586; email: francis@imcs.rutgers.edu; web: www.ametsoc.org/AMS

International Conference on the Urban Dimensions of Environmental Change – Science, Exposures, Policies, And Technologies will be held 3–6 June 2003 in Shanghai, China. This conference will examine causes, impacts, and responses to environmental change in the world's major cities and urban areas. Topics for the conference will include policy, regulation, technology, impact adaptation, mitigation, and remediation. For more information contact Urban Dimensions of Environmental Change Conference, 252 Mallory Hall, Montclair State University, Upper Montclair, NJ 07043; fax: +973-655-4072; email:

udec@mail.montclair.edu or udec@montclair.edu; web: www.montclair.edu/globaled/shanghai

The Chapman Conference on Ecosystem Interactions with Land Use Change will be held 14–18 June 2003 in Santa Fe, New Mexico. The objective of the conference is to bring together researchers addressing various aspects of ecosystem responses to land use change and the feedbacks to sustainable land use. Sessions will address the responses and feedbacks over a range of ecosystems at multiple scales from local to regional to global. Topics include: implications of land use change for water quality and quantity; flooding; biophysical feedbacks to climate; land use change and human welfare; effects of land use change on biodiversity. For more information, contact the AGU, tel: +1-202-777-7332; fax: +1-202-328-0566; email: meetinginfo@agu.org; web: www.agu.org/meetings/cc03acall.html

The 18th Stanstead Seminar: Climate Variability and Predictability from Seasons to Decades will be held 16-20 June 2003 in Lennoxville, Quebec, Canada. The purpose of the Stanstead Seminar is to act more as an informal workshop than as a conventional conference. Bishop's University is an ideal place to exchange ideas and do science in an informal setting. For this reason, registration is open but limited, and attempts have been made to provide ample time for the discussion of the presentations as well as for the presentations themselves. This seminar is meant to foster the exchange of ideas and to discuss various aspects of climate variability and predictability on the seasonal and decadal time scales. For more information, contact L. LeBlanc, Department of Atmospheric and Oceanic Sciences, McGill University, 805 Sherbrooke St. W, Montreal H3A 2K6, Quebec, Canada; tel: +1-514-398-6361; fax: +1-514-398-6115; email: lisa.leblanc@mcgill.ca; web: www.clivar.ca/stanstead

PACON 2003: Ocean Capital Year will be held 29 June–2 July 2003 in Kaohsiung, Taiwan. The conference's technical program is built around the following themes: Ocean Science and Technology; Coastal Science and Technology; Marine Resource Management and Development; Workshops; and Forums. For the full program and details, contact PACON International, P.O. Box 11568, Honolulu, HI 96822; tel: +1-808-956-6163; fax: +1-808-956-2580; email: pacon@hawaii.edu; web: www.hawaii.edu/pacon

The International Society for Environmental Information Sciences (ISEIS) 2003 Conference: Systems Science and Information Technology for Environmental Applications will be held 10-11 July 2003 in Regina, Saskatchewan, Canada. This conference will discuss topics including decision and risk analysis for environmental decision making;

mathematical methods for systems optimization; environmental statistics; environmental data and information management; environmental and ecological modeling and assessment; simulation, optimization, and control of waste treatment and pollution reduction processes; environmental, ecological, and resources management and planning; and other areas of environmental systems science and information technology. For more information, contact ISEIS, 4246 Albert Street, Suite 413, Regina, SK S4S 3R9, Canada; tel: +1-306-337-2306; fax: +1-306-337-2305; email: office@iseis.org; web: www.iseis.org/iseis2003.htm

The 8th International Conference on Permafrost will be held 21-25 July 2003 in Zurich, Switzerland. This conference will provide a forum for the exchange of information and concepts relating to permafrost science and engineering. Conference themes will include all major scientific, technical and engineering aspects of past and present frozen ground in polar and high-mountain areas, together with planetary processes. Of particular importance will be the response of permafrost to environmental change, interactions between permafrost and man, and interactions between permafrost and environmental variables such as snow, glaciers/ice sheets, water, and vegetation. For more information, contact Dr. Dagmar Brandová, Department of Geography, University of Zurich, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland; tel: +41-1-635 51 84; fax: +41-1-635 68 48; email: ICOP2003@geo.unizh.ch; web: www.geo.unizh.ch/ICOP2003/

The International Conference on Earth System Modelling will be held 15-19 September 2003 in Hamburg, Germany. This conference addresses global, regional, and reduced complexity models. It will provide an opportunity to present new results in this field and discuss recent developments and plans for the future. The three overarching themes are: (1) Development and Evaluation of Comprehensive Earth System Models; (2) Variability of the Coupled Earth System at Different Time Scales; (3) Anthropogenic Climate Change. For more information, contact Annette Kirk, Conference Coordinator, Max-Planck-Institut für Meteorologie, Bundesstr. 55, D-20146 Hamburg, Germany; fax: +49 40 41173-366; email: mpi-conference2003@dkrz.de; web: www.mpimet.mpg.de/mpi-conference2003/

Climate Change in the UK: Impact on Environment and Health will be held 16 September 2003 at the University of Leicester, United Kingdom. Themes to be addressed are: historical perspective of climate change and future predictions; UK ecology, phenology and biodiversity; UK agricultural impacts, changing landscapes and practices; climate change and human health; stakeholder perception and communication; and adaptation strategies. For more information, contact the Seminar Secretary at tel: +44 (0)116 223 1600; email:

gm59@le.ac.uk; web: www.le.ac.uk/ieh/news/climate.html

World Climate Change Conference will be held 29 September-3 October 2003 in Moscow, Russia. The main goal of the conference is a comprehensive discussion of the climate change problem with allowance for natural and anthropogenic factors, substantiation of measures on adapting population and economy to ongoing climate changes, a search for weighted approaches on reducing anthropogenic impact on the climate system and maximum mutual understanding between scientists, governments, business circles and the public. For more information contact the Conference Secretariat; Novovagan'kovskiy pereulok 12, Moscow, 123995, Russia; tel: +7 (095)255-2143; fax: +7 (095) 255-1507; e-mail: wccc2003@hydromet.ru; web: www.wccc2003.org/ewccc2003.html

Control of the Greenhouse Effect will be held 3-6 October 2003 in Strasbourg, France. Three events make up this conference and are aimed at mobilizing and bringing together local and regional authorities, enterprises, associations and the general public with a view to fighting against greenhouse gas emissions. The first event is "*The first international conference on the control of greenhouse effect*" in which 2000 participants who are in charge of local authorities and enterprises and 60 professional exhibitors will come to give 20 talks on global warming, energy, transport and housing. The second event is a "*Fair for clean energies and environmental associations*" in which 100 exhibitors, 4 play and teaching exhibitions, one cycle of 6 lectures on climate and schools will open their doors to the public. The final event is "*The Climate Festival*." For more information, contact Réseau IDEAL, 84 ter avenue de Fontainebleau, 94276 le kremlin-bicêtre cedex, France; tel: +33 (0) 1 45 15 09 09; fax: +33 (0) 1 45 15 09 00; web: www.greenhouse-effect.org

The Polar Regions and Quaternary Climate - EuroConference on the Comparison of Ice Core Records with Marine Sediments and Climate Models will be held 4-9 October 2003 in San Feliu de Guixols, Costa Brava, Spain. Topics of this conference will include new result from ice core analysis; atmosphere and ocean response on climate changes; interaction between climate and biogeochemical cycle; leads and lags: Coupling of different climate records; possible mechanisms of global changes; and new methods to learn more about climate changes. For more information, contact Dr. Josip Hendekovic or Irene Mangion, EURESCO Office, European Science Foundation, 1 quai Lezay-Marnésia, Strasbourg 67080, France; tel: 33 388 76 71 35; fax: 33 388 76 71 35; email: emangion@esf.org; web: www.esf.org/esf_euresco_conference.php?language=0&conference=115&meeting=4&page=1

The 2003 Open Meeting of the Human Dimensions of Global Environmental Change Research Community will be held 16-18 October 2003 in Montreal, Canada. The overall theme of the meeting is "Taking Stock and Moving Forward." Topics will include land use/land cover change, integrated assessment, population, environmental security, industrial transformation, institutions, and environmental economics. For more information, contact McGill School of Environment, 3534 University Street, Montreal, Quebec H3A 2A7, Canada; tel: +1 514-398-4306; fax: +1 514-398-1643; email: open.meeting@ciesin.columbia.edu; web: sedac.ciesin.columbia.edu/openmeeting

The Arctic Climate System Study (ACSYS) Final Conference: Progress in Understanding the Arctic Climate System: The ACSYS Decade and Beyond will be held 11-14 November 2003 in St. Petersburg, Russia. To celebrate ten years of progress in World Climate Research Programme (WCRP) research on the Arctic climate system and its role in global climate, ACSYS will hold its final scientific conference. The conference will draw together advances in our understanding of the Arctic climate system made over the last decade and examine the challenges for future research. Themes include: the state of the arctic climate system; observing the arctic climate system; process studies and modeling; and interactions with the global climate system. For more information, contact Chad Dick or Tordis Villinger, International ACSYS/CIIC Project Office, Norwegian Polar Institute, Polar Environmental Centre, N-9295 Tromsø, Norway; tel: +47 77 75 05 00; fax: +47 77 75 05 01; email: acsys@npolar.no; web: acsys.npolar.no/meetings/final/conf.htm#CONTACT%20AND%20INFORMATION

The First International CLIVAR Science Conference: Understanding and Predicting Our Climate System will be held 21-25 June 2004 in Baltimore, Maryland, USA. Topics include, but are not limited to: advances in understanding elements of the climate system; looking into the past; new approaches to climate prediction; improvements to the observing system; and climate applications. For more information, contact email: info@clivar2004.org; web: www.clivar2004.org

PAST MEETINGS

After The Johannesburg Summit: The Future Of Environment And Sustainable Development Issues
When: 23 October 2002
Where: Ottawa, Canada
Contact: email wssd@canada.com; web: www.cen-re.org/wssd/activities.html

La Palma International Conference: Innovation and Information Society in Island Biosphere Reserves

When: 24-26 October 2002
 Where: La Palma, Canary Islands, Spain
Contact: Antonio San Blas Álvarez, Biosphere Reserve Manager, Avenida Marítima, 3, 38700-Santa Cruz de La Palma (Canary Islands), Spain; tel: + 34 922 42 33 99; fax: + 34 922 42 32 81; email: asanblas@lapalmabiosfera.com; web: www.lapalmabiosfera.com

USDA Carbon Symposium on Natural Resource Management to Offset Greenhouse Gas Emissions
 When: 19-21 November 2002
 Where: Raleigh, North Carolina
Contact: www.sgcp.ncsu.edu/carbon2002

Third Meeting of the Global Forum on Sustainable Energy (GFSE)
 When: 27-29 November 2002
 Where: Graz, Austria
Contact: Irene Freudenschuss-Reichl, Convenor of GFSE; tel: +1 (212) 963 6890; fax: +1 (212) 963 7904; email: freudenschuss-reichl@un.org; web: www.iisd.ca/linkages/sd/gfse3/sdvol78num1.html

Biodiversity After Johannesburg: The Critical Role of Biodiversity and Ecosystem Services in Achieving the UN Millennium Development Goals
 When: 2-4 March 2003
 Where: London, United Kingdom
Contact: www.undp.org/equatorinitiative/secondary/biodiversity.htm

Third World Water Forum
 When: 16-23 March 2003
 Where: Kyoto, Shiga and Osaka, Japan
Contact: Secretariat of the 3rd World Water Forum, Kenzo Hiroki or Toshio Okazumi; tel: 075-705-2002; email: vwf@worldwaterforum.org; web: www.worldwaterforum.org

First People's World Water Forum
 When: 21-22 March 2003
 Where: Florence, Italy
Contact: Secretariat, via Luciano Manara 10/b - 50134 Firenze, Italy; tel: +39 055 669869; email: segreteria@contrattoacqua.it; web: www.contrattoacqua.it

Global Climate Change and Biodiversity
 When: 8-10 April 2003
 Where: Norwich, United Kingdom
Contact: The Royal Society for the Protection of Birds, UK Headquarters, The Lodge, Sandy, Bedfordshire SG19 2DL, UK; tel: 01767 680551; fax: 01767 692365; web: www.tyndall.ac.uk/biodiversityconf/welcome.html

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WEBSITES OF INTEREST

forests.org

Forests.org consists of three environmental websites: the "Forest Conservation Portal," the ClimateArk – Climate Change Portal, and the Eco-Portal – Environmental Sustainability Portal. The forest and climate search engines each tap into half a million URLs, while the Eco-Portal approaches two million URLs.

www.waterportal-americas.org

The Water Portal of the Americas is an information service that aims to enhance the availability of quality water information. The purpose of the Portal will be to improve access to information and thus facilitate decision-making processes.

sd-online.ewindows.eu.org

Sustainable Development Online (SDO) seeks to map the continually changing and vital area of sustainable development and to provide access to significant websites built by organizations supporting the move towards sustainable development.

indianenvironmentonline.net

Indian Environment Online is a new website launched by the Society for Environmental Information and Sustainable Development (SEISD), New Delhi. It contains links to news, articles, press releases and resources related to the environment in India.

tv.oneworld.net

OneWorld TV is a video platform for human rights and social justice issues. To coincide with the 3rd World Water Forum in Kyoto, Japan, OneWorld TV is featuring films that look at some of the issues being debated: "Boiling Points" looks at three flashpoints on three continents where the supply of water is hotly disputed between countries and communities

www.bom.gov.au/iwk

The project recognizes the knowledge of weather and climate developed over countless generations by Australia's Indigenous communities and its ability to complement science and statistically based approaches. It provides an opportunity for communities to showcase their knowledge and for others to learn more about Aboriginal and Torres Strait Islander life and culture.

www.un.org/esa/sustdev

The Division for Sustainable Development is pleased to announce the launch of its redesigned website. The Johannesburg Summit website will continue to exist as an archive from this site as well. The Division for Sustainable Development serves as the substantive secretariat responsible for servicing the Commission on Sustainable Development; for follow-up of the implementation of Agenda 21 as well as the Plan of Implementation (POI) of the World Summit on Sustainable Development.

www.ngdc.noaa.gov/paleo/ctl/

This Climate TimeLine website captures the history of climate exploration and its impact on human development. The site also examines meteorological and climatic processes and specific climate events of the past at other time scales.

www.AirImpacts.org

The AirImpacts website aimed to increase the global awareness of the environmental, health, and economic impacts of air pollution, including climate change.

NETWORK NEWSLETTER

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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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