

APN

Asia-Pacific Network for Global Change Research

APN Newsletter
Vol.9, No.3
July 2003

Message from the APN Director

The Scientific Capacity Building/Enhancement for Sustainable Development (CAPaBLE) Programme Development Workshop was held on 12-13 May, 2003 at the APN Secretariat in Kobe, Japan. This initiative was officially launched on the 16th April, 2003 following approval of the 8th APN Inter-Governmental Meeting (IGM) held in Hanoi, Viet Nam. The Programme Development Workshop discussed the plan of implementation and the framework for the CAPaBLE Programme. The Workshop consisted of a number of participants from APN member countries, including Australia, China, Fiji, Indonesia, Japan, New Zealand, and Pakistan. Donor representatives also attended and provided valuable input to the workshop.

As Director of the APN Secretariat, I proposed to base the theme of the workshop on "Making a Difference" with specific emphasis on the following points:

1. Outstanding scientific capacity to cope with pressing climate change issues;
2. Developing country participation in a broader manner;
3. Interactions between the science community, decision-makers and policy-makers;
4. Partnership among the member countries and with other networks and global change programmes;
5. CAPaBLE projects and other projects under the existing Call for Proposals;
6. Strategic approaches with clearer objectives;
7. Mode of operation (planning, doing, evaluating and providing feedback); and
8. The APN members and, more specifically, the Secretariat's role in CAPaBLE.

With generous contributions from the donors of the CAPaBLE programme and of APN, Hyogo Prefectural Government, the Ministry of the Environment of Japan, and the Governments of Australia and New Zealand, relevant capacity building activities under CAPaBLE is now expected to "make a difference" and to become a second pillar of APN activities.

In the same week, two other remarkable events for the APN took place with Secretariat support:

1. Planning Meeting of the APN Global Change Coastal Zone Management Synthesis, which also convened at the APN Secretariat on 13-14 May to prepare a two-year synthesis programme; and
2. Pacific Leaders Meeting between Japan and Members of the Pacific Island Forum (PALM 2003) in Okinawa, Japan, where the APN was given a unique opportunity to strive towards "strengthening the interactions among scientists and policy makers." (editorial: Photo of Japanese Prime Minister, H.E. Junichiro Koizumi at APN poster presentation, see page 3 for more details)



Thus, as you will see in this July edition of the APN newsletter, the APN Secretariat has been working in earnest with APN members and our partners to implement the 2003-2004 activities endorsed by the 8th APN Inter-Governmental Meeting.

— Sombo T. Yamamura



Message from the Director.....	1
News & Announcements from the Secretariat.....	2
Featured Organisation: Climate, Environment and People in the Asia-Pacific Region: A View from the Past	4
APN Supported Project: Applying Climate Information to Enhance the Resilience of Farming Systems Exposed to Climatic Risk in South and Southeast Asia	6
Guest Article: The Growing Need in Developing Countries for Experts in Climate Affairs	7
Regional News	9
APN Liaison Officers	10
People and Projects.....	11
Calendar.....	12

About the APN

The Asia-Pacific Network for Global Change Research (APN) is an inter-governmental network whose mission is to foster global change research in the Asia-Pacific region, increase developing country participation in that research, and strengthen interactions between the science community and policy makers. The APN cooperates closely with various scientific programmes and other networks to achieve these purposes.

NEWS FROM THE SECRETARIAT

CAPaBLE PROGRAMME DEVELOPMENT WORKSHOP “MAKING A DIFFERENCE”

“Scientific Capacity Building and Enhancement for Sustainable Development in Developing Countries (CAPaBLE),” which is a joint initiative between the Ministry of the Environment of Japan and Hyogo Prefectural Government, was officially launched on 16 April, 2003 following the endorsement of the 8th APN Inter-Governmental Meeting. The first workshop to plan the implementation and build a framework for the CAPaBLE Programme was held at the APN Secretariat in Kobe on 12-13 May, 2003. This workshop consisted of participants from a number of APN member countries, including Australia, China, Fiji, Indonesia, Japan, New Zealand, and Pakistan. Donor representatives also attended and provided valuable input to the workshop. The workshop was opened by a welcome address from the APN Director, Sombo Yamamura, who based the theme of the workshop on “Making a Difference.”

A number of important aspects for the 2-day deliberations with results summarised are as follows:

- CAPaBLE is expected to provide outstanding scientific capacity particularly in developing countries to cope with pressing climate change issues.
- CAPaBLE is expected to train and increase/enhance the capacity of existing, senior people and develop junior capacity as well.
- A benchmark for the evaluation of the Comprehensive Research Projects under the Capacity Enhancement pillar of CAPaBLE would be viewed as direct involvement in the IPCC Fourth Assessment Report and other important international assessments related to climate change.
- With generous contributions from the donors of the CAPaBLE programme and of APN, Hyogo Prefectural Government, MOE Japan, the

Governments of Australia and New Zealand, relevant capacity building activities under CAPaBLE is expected to include the following:

- A. Contribution to the Earth System Science (encompassing all global change programmes);
- B. Dedicated sustainable development through travel support for workshops/seminars/conferences/meeting support;
- C. Greenhouse gas inventories, carbon accounting, methodologies;
- D. Small Island Developing States;
- E. Adaptation;
- F. Mitigation; and
- G. Science-Policy interfacing.

More details of the CAPaBLE Programme can be found on the APN website: http://www.apn.gr.jp/CAPaBLE/Programme_home.htm [APN](#)

APN GLOBAL CHANGE COASTAL ZONE MANAGEMENT SYNTHESIS

The 8th APN Inter-Governmental Meeting also approved a two-year APN Global Change Coastal Zone Management Synthesis.

As part of this activity, a synthesis planning meeting composed of six international coastal experts convened at the APN Centre in Kobe on 13-14 May, 2003 with objectives to:

- Develop the synthesis structure.
- Nominate a synthesis leader and experts to be involved.
- Arrange work to be conducted prior to the first synthesis meeting in Bangkok in November.
- Decide activities to be conducted at

the first synthesis meeting.

- Draft an agenda for the Asia-Pacific Forum of EMECS 2003 (held back-to-back with the first APN synthesis meeting in Bangkok in November 2003 [see calendar of global change research activities on page 12 of this newsletter]).
- Discuss the synthesis report—format, content, and target audience.

Discussions, chaired by Prof. Roger McLean of Australia, also centred around (1) how to evaluate the achievements and present status of APN coastal zone projects; (2) how to identify gaps in coastal research in the region; and (3) the nature of the syn-

thesis report itself. Indeed at this meeting, it was decided that there should be two printed outputs, the first a Coastal Zone Management Synthesis Report, the second a substantial publication in the form of a book emphasising research gaps and a broad research agenda for the Asia-Pacific region.

The meeting also nominated Dr. Nick Harvey (previous APN Principle Investigator and coastal zone expert with sound global change research connections) to lead this two-year APN coastal zone management synthesis. The APN Secretariat is extremely grateful of Nick kindly agreeing to take-on this challenging role. [APN](#)

APN AT THE PACIFIC LEADERS MEETING BETWEEN JAPAN AND MEMBERS OF THE PACIFIC ISLAND FORUM (PALM 2003)

The Leaders of Japan and the Pacific Islands Forum (PIF) members met for their third Meeting in Okinawa, Japan, from 16 to 17 May (PALM 2003). At PALM 2003, thanks to the Ministry of Foreign Affairs of Japan and the Ministry of Environment of Japan, the APN was given a *unique opportunity* to strive towards “*strengthening the interactions among scientists and policy makers, and providing a scientific input to policy decision-making and scientific knowledge to the public*” (APN Framework). This interface was facilitated by:

1. APN Scientific Planning Group Co-Chair, Dr. Andrew Matthews, showcasing APN activities to Leaders of Japan and the Pacific Islands Forum (PIF) members during a poster display session. During his presentation Dr. Matthews introduced the APN, and specifically highlighted how APN helps Pacific Island states manage climate change, and also informed delegates of the launch of the “Scientific Capacity Building/Enhancement for Sustainable Development in Developing Countries” (CAPABLE) Programme.

2. Interviews with the associated press and discussions with the Press Office of the Ministry of Foreign Affairs of Japan and the Prime Minister of Japan’s Press Office.

3. Reference to APN in the Third Japan-PIF Summit Meeting (PALM 2003) Fact Sheet (May 2003, Ministry of Foreign Affairs of Japan).

4. Inclusion of APN in the PALM 2003 Joint Action Plan endorsed by Summit delegates.

The APN Secretariat is particularly thankful to SPG Co-Chair, Dr. Andrew Matthews, for the time and effort Andrew put into skillfully and strategi-



APN Scientific Planning Group Co-Chair, Dr. Andrew Matthews showcases APN to the Japanese Prime Minister H.E. Junichiro Koizumi and the Leaders of the Pacific Islands Forum (PIF) members

cally presenting APN at the Summit. Special thanks also to Eileen Shea (East-West Center) and Andrew Matthews, Jim Salinger, and Ashmita Gosai (NIWA) for producing the poster on “APN helps Pacific Island states manage climate change”. **APN**

For a complete report of APN at PALM 2003, please refer to the APN website: <http://www.apn.gr.jp/APN@PALM2003-MissionReport.htm>



FEATURED ORGANISATION

CLIMATE, ENVIRONMENT AND PEOPLE IN THE ASIA-PACIFIC REGION: A VIEW FROM THE PAST

Keith Alverson, Executive Director, IGBP-PAGES, <http://www.pages-igbp.org>
alverson@pages.unibe.ch

Four thousand years ago Yu the Great, founder of the first, semi-mythical, Xia dynasty of China is said to have spent more than a decade battling floods continuously inundating the valley of the Yellow river. According to Confucius' *Shu Jing* (Book of History), written much later in the 5th Century BC but supposedly collated from ancient sources, Yu's great insight was to stop relying on the practice of building ever-higher levees and dikes, and instead dig a vast network of channels to drain the great volumes of water east to the sea. Flooding, up until the present day, has continued to be a major concern for the region. A million people are thought to have died when the Yangtze broke through flood defenses in 1877. But flooding is not the only problem; the flow of the Yellow River has been in continual decline for the last 50 years. In 1997, the river ran dry in places during 226 days of the year. Much of China's agriculture and population depends on water from the Yangtze and is greatly vulnerable to drought.

The proposed modern day solutions, although multi-billion dollar engineering projects, are not so very different from those under discussion in the time of Yu. One, the famous Three Gorges Dam, in addition to generating electricity, is intended to control flooding. A second, intended to ameliorate vulnerability to drought, is to divert water to the north, primarily from the Yangtze river basin, by digging a series of south to north canals in the western, central and eastern parts of China. Will these gigantic engineering projects fulfill their goals? Will they reduce human vulnerability to climatic variability and change?

The answers to these questions are a matter of much debate, and I won't even try to provide them here. Instead I wish to point out that paleoenvironmental science, which is often ne-



Eroded cliffs in the Chinese Loess Plateau in the Yellow River catchment. These natural exposures show paler and darker bands reflecting climatic changes on timescales of thousands to hundreds of thousands of years. Alternations between loess deposition, during glacial periods, and soil development during interglacials provide evidence for enormous natural climatic, environmental and hydrological variability allowing direct and indirect human influences in the Yellow river flow to be put in a long term perspective. (Photo: Barbara Mahe)

glected in such debates, provides a detailed, quantitative four thousand year record of human society, climate variability and their interaction in the Yangtze valley region. Such information from the past is directly relevant to questions of climate variability and human vulnerability and therefore relevant to decision making processes today. In fact, the very definition of flood magnitude used in risk assessment by the modern insurance industry, the commonly used concept of the 'hundred year flood,' puts modern events in the context of the long term record. The record of long term variations is crucial to understanding modern changes.

This message, that the past record is important, is relevant throughout the entire spectrum of global change research, and throughout the Asia-Pacific region. Paleoenvironmental research should be a vital component

in any holistic study of ongoing changes in groundwater, landuse and landcover change, sea level, biodiversity, extreme climatic events, human vulnerability. Am I preaching the obvious? A look over the seven year history of APN supported projects indicates that I am not. APN has tackled a wide range of global change problems in cooperation with a plethora of projects from the international Global Change community. The list of cooperating partners in these projects reads like a veritable acronym soup of international global change programs and includes IGBP, WCRP and IHDP as well as many of their core projects: START, LUCC, LOICZ, BAHC, GCTE, JGOFS, GLOBEC, GEWEX and CLIVAR to name a few. But the international core project coordinating an understanding of past environmental change and its relevance to the future, PAGES, does not appear. With this in mind, I thank the APN

Secretariat for taking the initiative to ask me to write this short article as a way to encourage both PAGES and APN research communities to reach out to each other.

Over the past decade, the community of paleoenvironmental scientists in the Asia-Pacific have been extremely active and successful, primarily under the auspices of the PAGES Pole-Equator-Pole (PEP) II, austral-asian transect. The PEP II Transect covers the eastern part of the Asian landmass from India and Southeast Asia to the Bering Strait. It includes the complex of islands from Sakhalin to Japan and Chinese Taipei. It spreads south to Indonesia, Philippines and New Guinea and in the Southern Hemisphere through Australia, the islands of Micronesia and Melanesia to New Zealand and Fiji, then across the Southern Ocean to Antarctica. The significance of this region to the Earth System as a whole includes: the most important source of dust to the world's oceans—a potentially important control on the flux of carbon to marine sediments; the West Pacific Warm Pool—a key component of the ENSO mode of variability; and the monsoon systems—providing the climatic regimes supporting the most populous areas of the globe. All of these are the topic of intense study in the paleoenvironmental community.

The area spanned by PEP II also includes a huge diversity of environments, from tropical rain forests to arid continental interiors, from humid coastal lowlands to the highest mountains on Earth and from warm tropical seas to the permafrost and ice covered regions at high latitudes. Past change in these environments has played a major role in the welfare of people across the region. All current indications are that their significance may be even greater in the future. The combination of high vulnerability to environmental hazards such as floods and droughts, and continuing rapid population growth leave parts of the region under serious threat



from increased variability, extreme events and future sea-level rise. Climate variability affects human welfare in a variety of ways and on a range of spatial and temporal scales. Equally, as land cover and agricultural practices change in response to evolving human needs there are important feedbacks to the climate system. The paleo-record holds vital clues as to these interactions. Improving the quality and long term security of water supplies, enhancing agricultural productivity and planning for the avoidance or mitigation of environmental hazards are all of high priority in the Asia-Pacific region. To do so requires an understanding of past variability, human responses and human-environment interactions.

During the 1990's, under the leadership of John Dodson (Australia) and Liu Tungsheng (China) a variety of PAGES PEP2 coordinated workshops and colloquia at international meetings provided the opportunity to bring researchers from the Asia-Pacific region together and consider the kinds of proxy evidence available in order to improve an understanding of environmental variability across the region. Recent and planned outcomes of these include numerous synthesis publications specific to the region (Dodson

and Guo, 1998, Larocque and Alverson 2001, Shulmeister and Dodson 2002, Rutter et al in press, Dodson and Taylor in press, Solomina and Alverson in preparation) as well as substantial contributions to the global PAGES synthesis (Alverson et al 2003). In 2002, the leadership of the PAGES-PEP II program was turned over from its very successful originators to a new and enthusiastic leadership chaired by Paul Hesse (Australia) and including Zhengtang Guo (China), Jamie Shulmeister (New Zealand), Tamban Meloth (India) and Tomohisa Irino (Japan).

To build on past successes and to harness the energy of this new group, the timing is right for APN to become involved with the vibrant community of global change scientists working in the Asia-Pacific region to understand the past climatic and environmental change and its relevance to modern societal concerns. APN

References:

- Alverson K, R. Bradley and T. Pedersen eds (2003) *Paleoclimate, Global Change and the Future*, Springer Verlag, 221 pp.
- Alverson, K. and I. Larocque eds (2001) PEP II Special Issue, *PAGES News*, 9(2), 20 pp.
- Dodson J. and Z.T. Guo eds (1998) Past Global Change—Transects from the Pole-Equator-Pole Symposium of the 30th Geological Congress, *Global and Planetary Change*, 18 (3-4), 77-203.
- Dodson J. and D. Taylor eds (in press) Climate, Human and Natural Systems of the PEP2 Transect, *Quaternary International*.
- Rutter, N., D. Ferguson, N. Jablonski and W. Yim eds (in press) The Cenozoic evolution of the Asia-Pacific Environment, *Quaternary International*.
- Shulmeister, J., and J. Dodson eds (2002) Late Quaternary climate change in the New Zealand region. *Global and Planetary Change*, 33:3-4, 205-362.
- Solomina O. and K. Alverson eds (in preparation) High Latitude Eurasian Paleoenvironments, *Paleo-climatology-geography-ecology*.

APPLYING CLIMATE INFORMATION TO ENHANCE THE RESILIENCE OF FARMING SYSTEMS EXPOSED TO CLIMATIC RISK IN SOUTH AND SOUTHEAST ASIA (APN 2003-02)

Principle Investigator: Dr. Holger Meinke <Holger.Meinke@dpi.qld.gov.au>

This project is now in its second year during which the project team will concentrate on consolidating their impact in the study regions of India, Indonesia and Pakistan and sharing their learned lessons with new partners in other parts of Asia.

This project is about improving the livelihood of rural populations in regions that are strongly impacted by climate fluctuations. This requires an ability to analyse the current production system and to identify the types of management practices and decisions that can be improved via the provision of targeted and timely information about the climatic conditions and the outlook for the coming season (eg. the targeted introduction of legumes such as mungbeans into grain-based cropping systems in Pakistan—an increasingly popular management option that is a direct consequence of project activities).

The second year of the project started strongly with an informal workshop on ‘Seasonal Climate and Crop Forecasting Methods for South Indian Rainfed Agriculture’ held in Pune, India (12-16 May, 2003). The workshop was co-sponsored by the Indian Institute of Tropical Meteorology and the International Research Institute for Climate Prediction (IRI). Amongst other techniques, participants used predictors obtained from a statistical transformation

of output from several GCMs to produce and evaluate hindcasts of seasonal rainfall and crop response (Fig. 1).

This CLIMAG project has established a network of research teams with capacity to apply agricultural systems analysis to explore and evaluate options for managing climatic risk. With additional support from START and NOAA-OGP, the project team met in Queensland, Australia, in 2002 to coordinate research efforts and meet with Australian farmers to discuss climate variability mitigation strategies.

To illustrate the modus operandi of the team here is just one example of their efforts last year:

In the village of Thamaraikulam, Tamil Nadu, India, the forecast of a greater chance of below normal summer monsoon rainfall (June to Sept. 2002) based on the April/May (falling) and May/June (negative) SOI phases was discussed with farmer groups. Crop model output was used to discuss possible risk reduction strategies. The simulations indicated high chances of reduced peanut yield that could be mitigated by reducing plant populations; model output also suggested sorghum as a viable alternative to cotton. These discussions had a significant impact. Crop choice decision was key with more than 70% of farmers growing early sorghum instead of cotton.

Approximately 20% of farmers, who followed the traditional cropping strategies and planted cotton, had to abandon their crops by August, losing all their input costs. On two representative farms the research team recorded farmers’ responses and farm activities as input into the whole farm economic modelling framework. One of these farmers reduced his cotton area from 1 ha to 0.2 ha after receiving the forecast in May. Using a model for cash flow budgeting in response to climate forecast information shows that this responsive strategy resulted in a gain of Indian Rs 5400 by Dec 2002. His traditional, non-responsive strategy would have led to a negative cash flow (Fig. 2).

During 2003 the project team will concentrate on the following objectives:

- Further enhance the capacity of local research to apply quantitative systems analysis;
- Engage agricultural stakeholders at each pilot location in a participatory research process;
- Evaluate and tailor seasonal climate forecasts to the needs of decision makers;
- Demonstrate effective use, and evaluate benefits, of climate prediction information for improved decision-making of agricultural stakeholders; and
- Propose a strategy to enhance sustained operational support of agricul-

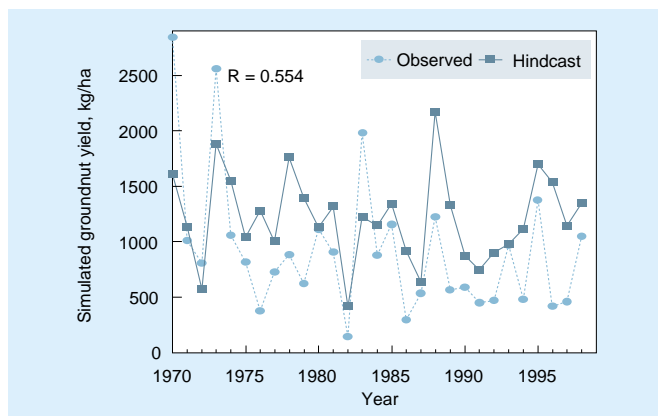


Fig. 1: Peanut yields for Salem (Tamil Nadu, India) simulated with observed weather or stochastically-disaggregated monthly hindcasts based on ECHAM4 (developed at MPI, Germany) output. The GCM experiments analysed here were performed by IRI scientists as part of a global evaluation of seasonal predictability.

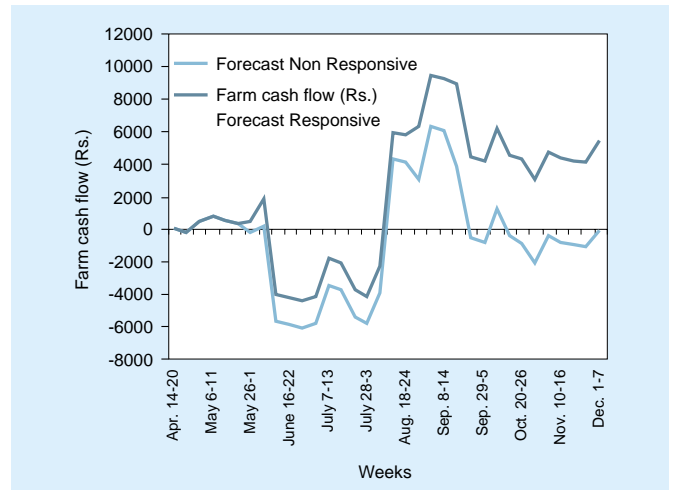


Fig. 2: Cash flow estimates for a representative farm using forecast responsive and non-responsive strategies.

tural use of seasonal climate prediction in each host country.

The challenges that the team will face this year will be to extend some of the impact that they had with this approach to other locations and to expand their network beyond the current case studies. Hence, a workshop is planned for the end of 2003 that will not only consolidate the experiences from the various locations, but also share their learned experiences with likeminded scientists in other Asian countries. **APN**



APN project team, and APN Secretariat Programme Manager, Dr. Linda Stevenson, inspecting an Australian grain property on the Darling Downs, Queensland.

GUEST ARTICLE



THE GROWING NEED IN DEVELOPING COUNTRIES FOR EXPERTS IN CLIMATE AFFAIRS

Zafar Adeel, Assistant Director, UNU-International Network on Water, Environment and Health, Hamilton, Canada (adeelz@inweh.unu.edu) and

Michael Glantz, Senior Scientist, Environmental and Societal Impacts Group (ESIG), National Center for Atmospheric Research, Boulder, USA (glantz@ucar.edu).

Climate variability and change affects virtually every sector of the human society. This fact has become increasingly apparent in the past two decades. A number of extreme climate events were unleashed in the 1990's causing widespread damage to life and property: two major El Niño and La Niña events; extreme hurricanes in the Americas including Andrew, Mitch, Georges, and Floyd; extreme flood events in China, Venezuela, Honduras, Yemen, Viet Nam, eastern and western Europe, and the USA; and occurrences of the hottest years on the global record.

In addition to the awareness of the severe damages caused by the extreme climate-related events, three facts also received widespread recognition.

First, the impacts for any given event could now be traced to the various sectors of the society and the global economy. The typically impacted sectors included the manufacturing industry, commodities trading, agriculture, fisheries, mining, insurance, education, health, civil defense, various government agencies, and disaster relief agencies. Numerous indirect impacts could also be identified, including tropical biodiversity loss, changes in agriculture and food production, and increased health problems due to nutritional deficiencies and vector distribution. This was a result of both advanced diagnostic and scientific

tools being available and improved flow of information on a global to local scale.

Second, the disparity in impact and resilience between the developed and developing countries was quite stark. Developing countries in Asia, Africa and Latin America suffered much heavy damage to all economic and social sectors from extreme climate events. Similar events in the developed countries caused devastating damage, but recovery was often quick. This disparity could be related to the generally worse condition of infrastructure as well as inadequate coping and recovery mechanisms in the developing countries. Studies conducted on the countries impacted by the 1997-98 El Niño also clearly demonstrated a lack of capacity in analysis and forecasting of extreme climate events. Developing countries have to generally rely on expertise outside their respective countries to obtain forecasts—some of which may not be timely, relevant, useable, or with sufficient level of local detail.

Third, societies worldwide need to be proactive rather than merely reactive to events related to climate extremes, variability and change. Once again, it was observed that the communities and countries with well-developed recovery plans and resources were much more likely to quickly rebound to their previous level

of activity and productivity. The recognition of the climate-related impacts on the various sectors also drove home the need for experts who are informed about climate and related processes.

A multi-agency study (1999-2001) in 16 countries was conducted by United Nations University (UNU), United Nations Environment Programme (UNEP), National Center for Atmospheric Research (NCAR), the World Meteorological Organization (WMO) and the International Strategy for Disaster Reduction (ISDR) to identify and quantify the societal impacts of the 1997-98 El Niño. This study strongly emphasized the three aspects mentioned above and provided specific recommendations for follow-up activities. Among these, the need for capacity development to better equip nations to cope with climate variability and change was repeatedly highlighted.

In response to these growing needs and demand, UNU and NCAR launched the initiative called "Climate Affairs Capacity Building Program." The purpose of this programme is to foster the development of multi-disciplinary programs at colleges, universities, and other educational training institutes in developing countries around the globe. The first and foremost goal of this activity is to foster an awareness among



Impacts of the 1997-98 El Niño brought global recognition that societies must be better prepared to cope with climate-related events

educators that climate affects all aspects of life and that the decision making processes can be enhanced by improved understanding of climate affairs. In essence, this programme helps build the capacity of developing countries to deal with climate-related issues.

The establishment of a Climate Affairs Capacity Building Program enables students and educators alike to concentrate at least a part of their educational training in an area of research, application, and policy that centers on the climate system and climate-related issues. Such issues include but are not limited to energy production and consumption, food production and availability, and water resource management. This would lead to provisioning of the appropriate human and institutional capacity in developing countries to understand and deal with climate and climate-related issues. Such capacity developing also improves the society's ability to identify and respond to the impacts resulting from global climate change.

The Climate Affairs programme cuts across many established disciplines—economics, economic development, politics, anthropology, history, sociology, climate and ocean research and forecasting—and provides a common platform for dialogue. We have identified that such a programme must comprise five key areas of emphasis. *Climate science*, that provides the fundamental understanding of climate processes, their effects on the biogeosphere and the role of anthropogenic activities. *Climate impacts*, that provides a systematic understanding of climate-related impacts on the society as well as managed and unmanaged ecosystems. These may negatively or positively affect food produc-

tion, water resource availability, fishery abundance, public health and public welfare in general. *Climate policy, politics and law*, that focuses on the legislative, legal and institutional frameworks that are relevant to the societies' capacity to cope with climate-related issues. The role played by various political actors—including political parties, NGO's, pressure groups, businesses and industries, and the general public—needs to be fully understood in this respect. *Climate Economics*, that deals with climate in the context of globalization, international treaties, and national economies. *Climate ethics*, that deals with issues like intergenerational equity, environmental justice, discounting the future, valuation of regional climate, winners and losers in various climate change scenarios, 'polluter pays principle', and the 'precautionary principle'.

A key element of the Climate Affairs programme is a series of training workshops conducted on a region-by-region basis. These training workshops are convened for educators who identify appropriate and usable information for programmes designed for their country's needs. A set of substantive issues are addressed during any given training workshop:

- How do the atmosphere, ocean and land surface interact in this region to affect climate?
- What role does the El Niño Southern Oscillation play in climate-related impacts in this region?
- What human activities have the greatest impact on climatic and atmospheric processes?
- How decision- and policy-makers at the local to international levels might incorporate notions of variability and changes in climate, par-

ticularly effective utilization of climate-related forecasts?

- How can ethical considerations be explicitly included in the decision-making processes?

The first regional Climate Affairs workshop for South and Southeast Asia was conducted by UNU and NCAR in February 2002, and hosted by the University of Malaya in Kuala Lumpur, Malaysia. The workshop brought together experts from twelve countries to discuss substantive climate-related issues in this region while also discussing practical ways to implement such programmes at national level. Malaysian and Chinese participants to the workshop took up the agenda and followed through with initiating Climate Affairs activities in their respective countries.

Several critical issues for South and Southeast Asian region were identified (*Full reports of the workshop are available from the United Nations University.*) These included: effective management of water resources such as flood and drought management; improved preparedness for climatic events related to Asian monsoons as well as El Niño Southern Oscillation (ENSO); impacts of climate on agriculture, food security and livelihood; and potential sea level rise for countries with low-lying coastal areas. It was emphasized that there is a lack of human and institutional capacity to make reliable, useable and timely forecasts. Interestingly, all participants felt that including climate-related issues into the mainstream of national and regional policy processes was the greatest challenge ahead of us.

The notion of Climate Affairs as a multidisciplinary field of study is relatively new. Despite its newness, this concept triggers intense interest from various relevant research and academic groups and institutions. Several fields—like government ministries, insurance companies, agricultural sector, and shipping sector—can be readily identified where Climate Affairs experts can make a significant contribution, and find jobs. We hope that as demonstrative initiatives that are under way succeed, they will light the path for others to follow. This indeed will be serving an important, and growing, need in the developing countries the world over. [APN](#)



OCEANIA

8-10 May, 2003. Second High Level Adaptation Consultation and 3rd Climate Roundtable Meeting, Fiji

High level leaders from 16 Pacific Island Countries met in Fiji to discuss the latest developments in adaptation financing, and to take stock of progress made in mainstreaming adaptation to climate change. One of the main objectives of the 2003 consultation was to evaluate the feasibility of establishing a Regional Adaptation Facility for the Pacific Island Region.

The 3rd Climate Roundtable meeting was held on the 10th of May, and enabled regional and international organisations and agencies involved in climate change research and funding activities to provide updates of activities in the region. Both Dr. Koshy and Leigh-Anne Buliruarua attended the meeting.

The South Pacific Geoscience Commission hosted both meetings.

Addressing the Barriers to the Development and Commercialisation of Renewable Energy in the Pacific Islands

The Pacific Islands Renewable Energy Project (PIREP), a US \$841,000 Global Environment Facility (GEF) and United Nations Development Programme (UNDP) funded regional climate change project got off the ground on 5 May 2003. The PIREP will facilitate the promotion within the Pacific Islands of the widespread implementation and ultimately, commercialisation of renewable energy technologies through the establishment of a suitable enabling environment.

Participating in the PIREP are the 14 Pacific Island Countries that have ratified the United Nations Framework Convention on Climate Change (UNFCCC) and Tokelau.

2-4 June, 2003. Sub Regional Workshop on Environmental and Economic Planning.

University of the South Pacific, Fiji

The workshop, sponsored by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the University of the South Pacific (USP), was aimed at investigating and discussing ways of integrating environmental policy into the economic development plans of Pacific Island Countries. The START/APN office played a key role in organising the meeting. Twenty participants from UNESCAP member countries in the region attended the workshop including key senior government economists in charge of economic and development policy planning and, environmentalists in charge of environmental and developmental policy making.

10-16 June, 2003. PABITRA Workshop. Samoa

The Pacific-Asia Biodiversity Transect (PABITRA) Initial Synthesis Meeting was held in Apia, Samoa to develop the steps needed to make PABITRA operational in Samoa following the establishment of the "gateway" site in Fiji in 2002. The next major task of this APN funded project (APN 2003-06) is the Joint Workshop to be conducted in Savai'i during 18-27 November, 2003.

Compiled from report by APN Liaison Officer, Ms. Leigh-Anne Buliruarua

SOUTH ASIA

15-18 May, 2003. Meeting of APN and HIWP collaborative project on 'Water Resources in South Asia'.

San Diego, USA

A meeting of the APN and the Hansen Institute for World Peace (HIWP) collaborative project on 'Water Resources in South Asia (APN 2003-04)' was held in San Diego to discuss the launch of the second year activities of the project. The principal Investigators and country team leaders of the survey teams of the project participated in this meeting, which was funded by HIWP. A number of scientific and administrative issues related to the project were discussed during the meeting. Participants also discussed the strategies to inter-link APN and HIWP activities with on-going agricultural extension programs in participating countries.

There is also a related website article on: <http://www.sdsuniverse.info/story.asp?id=6763>

19-20 May, 2003. 'International Conference on Biofuels—Progress, Policies and Prospects'. New Delhi, India

An 'International Conference on Biofuels—Progress, Policies and Prospects' was organized by Winrock International India in New Delhi. During the conference, several issues related to biofuels, such as their potential as a substitute for fossil fuels in the transportation sector to reduce emissions of greenhouse gases and other pollutants, technologies, economics and policy aspects were discussed by the participants.

Compiled from report by APN Liaison Officer, Dr. C. Sharma

Announcement

Papers presented during the 'APN/START/LOICZ Regional Workshop on Assessment of Material Fluxes to the Coastal Zone in South Asia and their Impacts' held in Negombo, Sri Lanka during 9-11 December 2002, along with the workshop program, brief report, and the list of participants are available on the project website: www.coastal-fluxes.slt.lk/trainandwork.html

SOUTHEAST ASIA

April 2003. SEA Liaison Office Passed a Quality Assurance Standard

SEA Liaison Office, which is hosted by Chulalongkorn University and administered by Southeast Asia START Regional Center, passed the Quality Assurance Standard CU-QA 84.2. This quality assurance standard is part of the quality assurance programs that Chulalongkorn University, Bangkok, set forth for research oriented units under it. The certificate is valid for one year and renewable upon re-auditing. The SEA Liaison Office is now staffed by a Liaison Officer (Dr. Anond Snidvongs) and assisted by an Editorial Consultant (Ms. Suleeporn Changpakorn).

21-24 May 2003. Technical Preparation Workshop for ASEAN

Marine Water Quality Criteria. Chumporn, Thailand

This workshop was hosted by the Pollution Control Department, Ministry of Natural Resource and Environment, Thailand. The agenda focused on the procedures for monitoring seawater quality using chemical and biological indicators, an information sharing network and inter-laboratory calibration of analytical results. The workshop also recommended the ASEAN Working Group on Coastal and Marine Environment to conduct several research projects that will make the region able to devise its own regional criteria rather than adopting the standard developed for other regions. Dr. Anond Snidvongs, APN Liaison Officer for Southeast Asia, attended the workshop and gave comments on technical issues as well as on regional cooperation and funding opportunities.

June 2003. A Memorandum of Understanding on Climate Change and Impacts in Southeast Asia

In June 2003, Southeast Asia START Regional Center (SEA START RC), the International Union for Conservation of Nature (IUCN) Asia Regional Office, and the Asian Disaster Preparedness Center (ADPC) entered into a Memorandum of Understanding with a mutual objective to outline the framework of cooperation in regional climate change research, the assessment of impacts on human livelihoods, and the regional as well as national dialogues that will lead to awareness and preparedness among stakeholders. Primary countries under this cooperation are Cambodia, Lao PDR, Thailand and Viet Nam. However, participants from neighboring countries will also be invited.

June 2003. Graduate Scholarships Awarded to SEA Students to Study in Thai Universities

In the 2003 academic year SEA START RC arranged, with APN funding, two scholarships to candidates from Lao PDR, Mrs. Somkhit Bouldam from the National University of Lao, and Mr. Somvang Bouttavong from the Science, Technology and Environment Agency, to enroll in the MSc Programme in Environment and Natural Resource Management at Mahidol University in Thailand.

Another scholarship was granted to Lt. Wiriya Lueng-aram from the Thailand Hydrographic Department to study an MSc in Physical Oceanography at Chulalongkorn University in Thailand. Partial funding for this scholarship came from START and other international and local donations.

Compiled from report by APN Liaison Officer, Dr. Anond Snidvongs

TEMPERATE EAST ASIA

31 March – 3 April, 2003.

International Symposium on Climate Change (ISCC). Beijing, China

The International Symposium on Climate Change (ISCC) Organized by the China Meteorological Administration (CMA) convened in Beijing to present and exchange state of the art advances in climate change studies within the global community. Over 460 participants from 61 countries attended this symposium.

The following topics were covered by the symposium: extreme climate events

and climate change, observed climate variability and change, detection and attribution of climate change, processes and interactions within the climate system, predictive studies of climate change, impacts of and adaptation to climate change, past, present and future climate change in polar and high altitude regions, aerosol and regional climate change, climate change and sustainable development and the uncertainty of climate change science.

The Third Workshop of Regional Climate Model Studies that was originally planned to be held in Shanghai, China, 28-30 April 2003, was postponed due to the special situation in China. This workshop is the summary workshop for APN Project 2002-02 "A continuation to the Regional Climate Model Intercomparison Project for Asia". Project members and other experts in the regional model study are invited to attend this meeting. The new date will be posted in due course (tentatively, September 2003). [APN](#)

Publication:

Timing of Atmospheric CO₂ and Antarctic Temperature Changes across Termination III

**Nicolas Caillon, Jeffrey P. Severinghaus, Jean Jouzel, Jean-Marc Barnola, Jiancheng Kang, Volodya Y. Lipenkov*

* Correspondence should be addressed to <ncaillon@ucsd.edu>

Published in Science 2003 March 14; 299(5613): pp. 1728-1731

Compiled from report by APN Liaison Officer, Ms. Yang Ying

APN Liaison Officers

Southeast Asia

Dr. Anond Snidvongs

Southeast Asia START Global Change Regional Center
Room 508, 5th Floor, SWU Pathumwan Building Number 5
Chulalongkorn University
Henri Dunant Road, Bangkok, Thailand 10330
Tel: +66-2-218-9464 to 7
Fax: +66-2-251-9416
Email: apnsea@start.or.th

SASCOM (South Asia)

Dr. C. Sharma

National Physical Laboratory
Dr. K. S. Krishnan Marg,
New Delhi 110 012, India
Tel: +91-11-2574-2610-12 Ext. 2331
Fax: +91-11-585-2678
Email: csharma@csnpl.ren.nic.in

START-Oceania

Ms. Leigh-Anne Buliruarua

c/o SPAS, University of the South Pacific
PO Box 1168, Suva, Fiji

Tel: +679-3212-446

Fax: +679-3302-548

Email: startoceania@usp.ac.fj

TEACOM (Temperate East Asia)

Ms. Yang Ying

c/o Institute of Atmospheric Physics
Chinese Academy of Sciences
Qi Jia Huo Zi, De Sheng Men Wai Street
Beijing, 100029 China
Tel: +86-10-6204-1317,
Fax: + 86-10-6204-5230
Email: sec@tea.ac.cn



PEOPLE AND PROJECTS

APN NATIONAL FOCAL POINTS (FP) AND SCIENTIFIC PLANNING GROUP MEMBERS (SPG)

AUSTRALIA

Dr. Michael Stoddart (FP) Australian Antarctic Division
Dr. Graeme Pearman (SPG) CSIRO Atmospheric Research

BANGLADESH

Mr. Karim Gazi (FP) Ministry of Environment and Forest

CAMBODIA

Mr. Sovannora Ieng (FP) Ministry of Environment

CHINA

Mr. Xuedu Lu (FP) State Ministry of Science and Technology
Prof. Zong-ci Zhao (SPG) National Climate Center

FIJI

Mr. Bhaskaran Nair (FP) Local Government, Housing, Squatter Settlement and Environment
Mr. Epeli Nasome (SPG) Local Government, Housing, Squatter Settlement and Environment

INDIA

Dr. Subodh Sharma (FP) Ministry of Environment and Forests
Dr. A. P. Mitra (SPG) National Physical Laboratory

INDONESIA

Dra. Liana Bratasida (FP) Ministry of

Environment

Mr. Bambang Tejasukmana (SPG) National Institute of Aeronautics and Space

JAPAN

Mr. Hironori Hamanaka (FP) Ministry of Environment
Prof. Nobuo Mimura (SPG) Center for Water Environment Studies, Ibaraki University

LAO PDR

Mr. Phonechaleun Nonthaxay (FP) Science, Technology and Environment Agency
Mr. Chanthanet Boulapha (SPG) Science, Technology and Environment Agency

MALAYSIA

Mr. Kok Kee Chow (FP) Malaysian Meteorological Service
Dr. Subramaniam Moten (SPG) Malaysian Meteorological Service

MONGOLIA

Ms. P. Baigalmaa (FP) Ministry of Nature and Environment
Dr. Jamsran Tsogetbaatar (SPG) Ministry of Nature and Environment

NEPAL

Mr. Ashok Kumar Saraf (FP) Ministry of Population and Environment

Dr. Madan Lal Shrestha (SPG)

Department of Hydrology and Meteorology

NEW ZEALAND

***Dr. Andrew Matthews (FP/SPG)** National Institute of Water and Atmospheric Research

PAKISTAN

Mr. Khalid Khan Toru (FP) Ministry of Environment, Local Government and Rural Development
***Dr. Amir Muhammed (SPG)** National University of Computer and Emerging Sciences

PHILIPPINES

Mr. Samuel Peñafiel (FP) Department of Environment and Natural Resources
Mr. Celso Diaz (SPG) Ecosystems Research and Development Bureau

REPUBLIC OF KOREA

Dr. Keumhee Jung (FP) Ministry of Environment
Dr. Kwangwoo Cho (SPG) Korea Environment Institute

RUSSIA

Dr. Alexander Sterin (SPG) Russian Research Institute for Hydro-Meteorological Information

SRI LANKA

Mr. Thosapala Hewage (FP) Ministry

of Forestry and Environment

Mr. N.A. Amaradasa (SPG) Department of Meteorology

THAILAND

Mr. Suphavit Piamphongsant (FP) Ministry of Science, Technology and Environment
Prof. Jariya Boonjawat (SPG) Chulalongkorn University

U.S.A.

Mr. Louis Brown (FP/SPG) U.S. Climate Change Science Program

VIET NAM

Mr. Nguyen Xuan Bao Tam (FP) Ministry of Natural Resources and Environment
Dr. Dung Le (SPG) Ministry of Science, Technology and Environment

SASCOM

Dr. Amir Muhammed (SPG)

START

Prof. Roland Fuchs (SPG)

START OCEANIA

Dr. Kanayathu Koshy (SPG)

TEACOM

Prof. Congbin Fu (SPG)

* Indicates Co-Chair of SPG

PROJECTS FUNDED BY APN IN 2003/2004

The APN's 8th Inter-Governmental Meeting decided to fund 17 projects from an APN funded activities budget of approximately 750,000 US dollars contributed by the Ministry of Environment of Japan; the National Science Foundation on behalf of the U.S. Climate Change Science Program (NSF/USCCSP); and Hyogo Prefectural Government. Projects may also be funded from other sources not noted here, including in-kind support from countries.

#2003-01: Indices and Indicators for Monitoring Trends in Climate Extremes

Project Leader: Michael Manton, Bureau of Meteorology Research Centre, Australia
Email: m.manton@bom.gov.au

#2003-02: Applying Climate Information to Enhance the Resilience of Farming Systems Exposed to Climatic Risk in South and Southeast Asia

Project Leader: Holger Meinke, Department of Primary Industries, Australia
Email: Holger.Meinke@dpi.qld.gov.au

#2003-03: Global Change Impact Assessment for the Himalayan Mountain Region for Environmental Management and Sustainable Development

Project Leader: Kedar Lal Shrestha, Institute for Development and Innovation, Nepal
Email: klshrestha@wlink.com.np

#2003-04: Water Resources in South Asia: an Assessment of Climate Change - Associated Vulnerabilities and Coping Mechanisms

Project Leader: Amir Muhammed, National University for Computer and Emerging Sciences, Pakistan
Email: amir@nu.edu.pk

#2003-05: Inventory of Glaciers and Glacial Lakes and the Identification

of Potential Glacial Lake Outburst Floods (GLOFs) Affected by Global Warming in the Mountains of India, Pakistan and China/Tibet Autonomous Region

Project Leader: J.G. Campbell, International Centre for Integrated Mountain Development, Nepal
Email: basanta@icimod.org.np

#2003-06: PABITRA Network for Collaborative Research on the Ecology of Global Change in Island Landscapes of the Tropical Pacific

Project Leader: Dieter Mueller-Dombois, University of Hawaii, USA
Email: amdhawaii@aol.com

#2003-07: The 1st International Young Scientists Global Change Conference, November 16-19, 2003, Trieste, Italy

Project Leader: Roland Fuchs, International START Secretariat, USA
Email: rfuchs@agu.org

#2003-08: Regional, Multi-scaled, Multi-temporal Land-use and Land Cover Data to Support Global Change Research, and Policy Making: a SEARRIN LUCC Project

Project Leader: David Skole, Michigan State University, USA
Email: skole@msu.edu

#2003-09: Modelling Regional Climate Change for Southeast Asian Countries

Project Leader: John McGregor, CSIRO Atmospheric Research, Australia
Email: John.McGregor@csiro.au

#2003-10: Building Local Capacity for Global Change Research: the Millennium Ecosystem Assessment Sub-Global Activities in the Asia-Pacific Region

Project Leader: Walter Reid, Millennium Ecosystem Assessment, Malaysia
Email: reid@millenniumassessment.org

#2003-11: 3rd Workshop on Climate Variability and Trends in Oceania

Project Leader: Jim Salinger, National Institute of Water and Atmospheric Research, New Zealand
Email: j.salinger@niwa.com

#2003-12: The Mega-Deltas of Asia: a Conceptual Model and its Application to Future Delta Vulnerability

Project Leader: Zhongyuan Chen, East China Normal University, China
Email: Z.Chen@sklec.ecnu.edu.cn

#2003-13: Capacity Development Training for Monitoring of POPs in the East Asian Hydrosphere

Project Leader: Zafar Adeel, United Nations University, Japan
Email: king@hq.unu.edu

#2003-14: The 2003 Open Meeting of the Human Dimensions of Global

Environmental Change Research Community

Project Leader: Ben Malayang, University of the Philippines, Philippines
Email: mmmm@laguna.net

#2003-15: Travel Support for Asia Marine Scientists to Attend the Final JGOFS Open Science Conference

Project Leader: Mary Zawoysky, U.S. JGOFS Planning and Data Management Office, USA
Email: mzawoysky@whoi.edu

#2003-16: Integrating Carbon Management into Development Strategies of Cities - Establishing a Network of Case Studies of Urbanisation in the Asia-Pacific

Project Leader: Rodel Lasco, University of the Philippines, Philippines
Email: rlasco@laguna.net

#2003-17SG: Seed Grant for Proposal Development: Integrating Climate Variability and Human Activities in relation to Northeast Asian Land-Ocean Interactions and their Implications for Coastal Zone Management

Project Leader: Vladimir Kasyanov, Institute of Marine Biology FEB RAS, Russian Federation
Email: inmarbio@mail.primorye.ru



CALENDAR OF GLOBAL CHANGE RESEARCH ACTIVITIES

Events in **bold** are APN or co-APN sponsored events.

2003

- 13-17 JULY Coastal Zone Management through Time. Baltimore, USA. Contact: Web <www.csc.noaa.gov/cz2003>
- 16-18 JULY International Conference on the Impact of Global Environmental Problems on Continental and Coastal Marine Waters. Geneva, Switzerland. Contact: Web <www.unige.ch/sciences/near/>
- 4-22 AUG Advanced Institute on Urbanization, Emissions, and the Carbon Cycle. Colorado, U.S.A. Contact: International START Secretariat, Amy Friese <afriese@agu.org>
- 10-16 AUG World Water Week in Stockholm, "Drainage Basin Security—Balancing Production, Trade and Water Use". Stockholm, Sweden. Contact: Web <www.siwi.org/waterweek2003>
- 13-16 AUG Studying Land Use Effects in Coastal Zones with Remote Sensing and GIS. Antalya/Kemer, Turkey. Contact: Derya Maktav <dmaktav@ins.itu.edu.tr> Web <http://www.ins.itu.edu.tr/rslucoat1>
- 1-5 SEP 18th International Radiocarbon Conference. Wellington, New Zealand. Contact: Web <http://www.gns.cri.nz/14conference2003/>
- 2-5 SEP 13th Asia-Pacific Seminar on Climate Change. Miyazaki, Japan. Contact: Makoto Kato <kato@oecc.or.jp>
- 14-20 SEP International Conference: Tropical Savannas and Seasonally Dry Forests. Edinburgh, Scotland. Contact: Web <http://www.ectf.co.uk>
- 15-19 SEP International Conference on Earth System Modelling. Hamburg, Germany. Contact: Web <http://www.mpimet.mpg.de>
- 15-20 SEP WMO/TCP Hands-on Ocean Forecast Training Laboratory for the South China Sea Region. Kuantan, Malaysia. Contact: <Johnnes.Guddal@dnmi.no>
- 19-22 SEP PAGES: World System History and Global Environmental Change. Lund,

- Sweden. Contact: Web <www.pages.unibe.ch/calendar/2003/lund.html>
- 21-28 SEP World Forestry Congress. Quebec, Canada. Contact: Mr. Jean-Louis Kerouac <sec-gen@cfm2003.org> and Web <http://www.cfm2003.org>
- 29 SEP-3 OCT World Climate Change Conference 2003. Moscow, Russian Federation. Contact: Secretariat <wccc2003@mecomru>
- SEP TBA **Climate Variability and Change and Human Health in the Pacific Islands: The Cook Islands and Fiji—Phase III Dissemination meeting.** Nadi, Fiji. Contact: <hamnett@hawaii.edu>
- SEP TBA **Workshop on Regional Climate Model Intercomparison Project for Asia.** Shanghai, China. Contact: Ying Yang <sec@tea.ac.cn>
- SEP TBA IOC High Level Consultative Meeting on Southeast Asia Global Ocean Observing System. Kuala Lumpur, Malaysia. Contact: <W.Erb@bom.gov.au>
- 4-10 OCT Joint International Forum on Biodiversity Information: Building Capacity in Asia and Oceania. Tsukuba, Japan. Contact: <biodiv@ics-inc.co.jp> Web <http://www.gti.nies.go.jp/forum2003>
- 7-9 OCT Global Water System Project Open Science Conference. New Hampshire, USA. Contact: Web <http://www.gwsp.org>
- 16-18 OCT **Open Meeting of the Human Dimensions of Global Environmental Change Research Community.** Montreal, Canada. Contact: Web <www.sedac.ciesin.columbia.edu/openmeeting>
- 29-31 OCT IGFA Plenary 2003. Cape Town, South Africa. Contact: IGFA Secretariat <sofia.wretblad@formas.se>
- OCT TBA **Integrated Environmental Monitoring Capacity Building Workshop.** TBA, Australia. Contact: Dr. Masataka Watanabe <masawata@nies.go.jp>
- 16-19 NOV 1st International Young Scientist Global Change Conference. Trieste, Italy. Contact: Kristy Ross <kristy@crg.bpb.wits.ac.za>
- 16-29 NOV Advanced Training Workshop on South China Sea Regional Carbon Issues. Chung-Li and Kaohsiung, Chinese-Taipei. Contact: SARCS Secretariat: <sarcs@sarcs.org.tw>
- 18-21 NOV **EMECS 2003. 6th International Conference on the Management of Enclosed Coastal Seas.** Bangkok, Thailand. Contact: EMECS Secretariat <secretariat@emecs2003.com>
- 18-27 NOV **Pacific-Asia Biodiversity Transect (PABITRA) Joint Workshop.** Savai'i, Samoa. Contact: Dieter Mueller-Dombois

- 19 NOV <amdhawaii@aol.com>
EMECS 2003. 6th International Conference on the Management of Enclosed Coastal Seas. ASIA-PACIFIC FORUM. Bangkok, Thailand. Contact: APN Secretariat <info@apn.gr.jp>
- 1-4 DEC Open Science Conference on Global Change and the Terrestrial Human-Environment System (Land Core Project). Morelia, Mexico. Contact: Websites: GCTE <http://www.gcte.org> and LUCC <http://www.geo.ucl.ac.be/LUCC/lucc.html>
- 5-9 DEC **Joint Workshop on Global Change Impact Assessment for the Himalayan Mountain Region and Water Resources in South Asia.** Kathmandu, Nepal. Contact: Kedar Shrestha (mountain) <klshrestha@wlink.com.np> and Amir Muhammed (water) <amir@nu.edu.pk>
- 8-10 DEC **3rd Workshop on Climate Variability and Trends in Oceania.** Auckland, New Zealand. Contact: Jim Salinger <j.salinger@niwa.com>

2004

- 14-16 JAN Fifth International Conference on Asian Marine Geology. Bangkok, Thailand. Contact: Dr. Thanawat Jarupongsakul <thanawat@sc.chula.ac.th>
- JAN TBA **Workshop on Glacial Lake Outburst Floods.** Kathmandu, Nepal. Contact: <basanta@icimod.org.np>
- 31 MAR-3 APR IOC-SCOR-GLOBEC Symposium on Quantitative Ecosystem Indicators for Fisheries Management. Paris, France. Contact: Philippe Cury <curypm@uctvms.uct.ac.za> or Villy Christensen <v.christensen@fisheries.ubc.ca>
- APRIL TBA **Workshop on Indices and Indicators for Monitoring Trends in Climate Extremes.** Melbourne, Australia. Contact: Michael Manton <m.manton@bom.gov.au>
- 2-6 MAY Fourth World Fisheries Congress. Reconciling Fisheries with Conservation: The Challenge of Managing Aquatic Ecosystems. Vancouver, Canada. Contact: Congress Secretariat <fish2004@advance-group.com> Web <www.worldfisheries2004.org>
- 26-28 MAY PAGES Open Science Meeting. Paleoclimate, Environmental Sustainability and our Future. Beijing, China. Contact: Web <http://www.pages2004.org/> Email <osm@pages.unibe.ch>
- TBA Third Worldwide Chinese International Conference on Oceanic and Atmospheric Sciences Beijing, China. Contact: Bin Wang <wab@lasg.iap.ac.cn>

APN APN Secretariat

5th Floor, IHD Centre Building, 1-5-1 Wakinhama Kaigan Dori, Chuo-ku, Kobe 651-0073, Japan
Tel: +81-78-230-8017 • Fax: +81-78-230-8018
Email info@apn.gr.jp • Website http://www.apn.gr.jp

Views expressed in this newsletter do not necessarily represent those of the APN Secretariat.

APN Newsletter Editor: Martin Rice
Design and Layout: Asahi Media International