

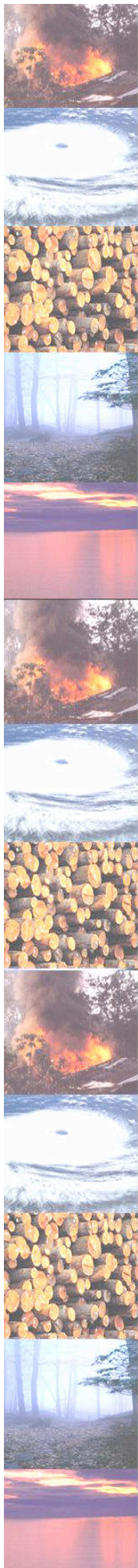


**- Making a Difference -**

Scientific Capacity Building & Enhancement for Sustainable Development in Developing Countries

# **Workshop on "The Asian Monsoon System: Prediction of Change and Variability"**

**Final Report for APN CAPaBLE Project:  
CBA2007-07NSY**







## **Workshop on “The Asian Monsoon System: Prediction of Change and Variability”**

**CBA2007-07NSY**

**Final Report submitted to APN**

**©Asia-Pacific Network for Global Change Research**

**[www.apn-gcr.org](http://www.apn-gcr.org)**



## Overview of project work and outcomes

### Non-technical summary

Despite the enormous significance of change and variability in the Asian monsoon system for human activities, an inadequate number of scientists in APN region have an up-to-date knowledge of recent advances in monsoon science. To rectify this situation, the Advanced Institute on "The Asian Monsoon System: Prediction of Change and Variability" was conducted during 2-11 January 2008 at the East-West Center located on the campus of the University of Hawaii at Manoa. Participants were twenty early career scientists from the Asia-Pacific region, selected through a competitive application and review process from an applicant pool of 98 applicants, from many APN member countries including, China, India, Indonesia, Korea, Malaysia, Nepal, Pakistan Philippines, Sri Lanka, Thailand, USA, and Vietnam. Lecturers at the institute were prominent senior monsoon scientists from many APN countries, including USA, Japan, Korea, China and India. The young participants and lecturers interacted through a series of lectures, discussions and social activities that fostered research network development, knowledge and idea exchange, and ideas/proposals for future collaboration. Specific activities focused on:

- Review of latest advances in Monsoon science, especially in relation to variability and predictability of the Asian monsoon, associated hydrological cycle and other key factors affecting monsoon system including GHG emissions and aerosols
- Practical hands-on experience with accessing and use of a comprehensive data and information system related to Asian monsoon based at the University of Hawaii
- Formation of sub-groups on inter-seasonal, intra-seasonal and longer term variability of the monsoon and development of ideas/proposals for longer-term collaborative research
- Awareness of and involvement in international science programs of WCRP (CLIVAR, GEWEX)

### Objectives

In the context of APN's CAPABLE program, to conduct an advanced institute on the dynamics, variability and prediction of the Asian Monsoon system aimed at informing early career young Asian scientists about the latest advances in monsoon science; fostering a network of collaborating scientists and institutions to enhance regional collaborative research in the APN region; and develop ideas and proposals for future research in the context of APN priorities.

### Amount received and number years supported

APN awarded US\$ 50,000 during FY 2007; the effort was to be conducted during the APN FY (April 2007 –March 2008).

### Work undertaken

Initial major task involved selection of 20 early career scientists for participation in the advanced institute. The first call for applications from young, early-career scientists from Asia-Pacific region was issued in June 2007. Over 100 young scientists sent in applications. The applications were collated and reviewed by an international panel drawn from START and IPRC, and final selection was made in October of 2007. A "face book" of all participants was prepared and a website set up for hosting all pertinent information related to the institute.

A second major task involved planning of the institute agenda and identification of senior faculty from various APN countries. This required development of the

curriculum and various practicum activities as well as assignments of responsibility for specific sections of the curriculum to senior faculty.

The third task focused on coordination between START, IPRC/U. Hawaii and the East-West Center on meeting venue and logistics including travel of participants and lecturers, accommodation, and collation of resources such as reading material and latest publications on the Asian Monsoon system (each participant received a complementary book volume on the Asian monsoon system edited by Prof, Bin Wang). A key aspect was securing commitments from various partners for collateral support, including financial as well as in-kind contributions.

The next task was actual conduct of the institute session.

The final task was preparation of this final report and two short summary statements for publication in EOS (a leading international geosciences journal) and the APN newsletter.

### **Results**

The effort fully achieved all objectives. Early career scientists from APN member countries were brought together to exchange ideas, develop their networks, and learn about the latest data and methodologies used to study the Asian monsoon system. Human resource capacity was enhanced, a regional research network was developed and key institutions in the APN-region engaged in collaboration for future research on the variability and prediction of the Asian monsoon system. A list-serve of all participants and senior scientists is active and enables frequent communication and exchange of ideas. A website has been created (<http://www.start.org/Monsoon2008/home.html>); this contains full information on the institute, including summaries of lectures and various sub-groups and biographical information on all participants.

### **Relevance to the APN CAPaBLE Programme and its Objectives**

The effort under this APN grant was fully consistent with all objectives of APN's CAPaBLE Programme. Specifically, the effort:

- Collated, synthesized and transferred latest knowledge as well as tools (e.g., numerical models, diagnostic methodologies) on the variability and prediction the Asian monsoon system;
- Enhanced regional scientific capabilities of young, early career scientists from Asia-Pacific;
- Promoted future regional collaboration among scientists and institutions in the APN region and provided the context of the international science programs, especially the World Climate Research Programme;
- Improved access to data and computing resources at the institutions of the senior faculty (the International Pacific Research Center, the Asia-Pacific Climate Center, Indian Institute of Tropical Meteorology, the Frontiers of Global Change Program of the JAMSTEC of Japan, and the US CLIVAR Program), as well as the resources at the institutions of the participants (e.g., MIT, Institute of Atmospheric Physics of the Chinese Academy of Sciences, etc.).

### **Self evaluation**

The institute was a resounding success for both the organizers/senior scientists and the participants. This is evident from the reactions of the participants at the conclusion of the institute session and also from the post-institution written feedback received from participants. The participants praised the institute

organization and execution, found the knowledge and tools acquired to be of direct benefit to their research and career and became enthusiastic members of the regional research network.

It is worth noting that the twenty participants were selected from a much larger pool of applicants. **Clearly there is a great and as yet unmet demand for such institute sessions and much remains to be done to fully engage the young and early career scientists from the Asia-Pacific region in to productive research on the important, relevant and pressing problem of variability and prediction of the Asian monsoon. APN should definitely consider repeating such institute session over the next several years.**

The participants also suggested that future such events be spread over a longer (3-week) period as that would allow more time for practicum and hands-on training, especially on use of numerical models. In this context, it is important to note constraints of funding, availability of senior scientists and physical facilities restricted the institute session to two weeks. **APN may be well advised to consider allocation of more resources for future such events.**

### **Potential for further work**

This institute generated several ideas for future research, especially on the variability of the Asian monsoon system at various temporal scales relevant to the society in the region. At least one specific research proposal is under development by a sub-group of the young participants and may be submitted to APN in response to the next APN call for proposal due out in 2008. A list-serve has been set up to ensure that the participants and faculty remain in contact. The participants have been alerted about a number of recently advertised opportunities for research.

### **Publications**

1. Participant and Faculty Face book
2. Webpage - <http://www.start.org/Monsoon2008/home.html>
3. Institute summaries have been submitted for publication in EOS and the APN newsletter.

### **Acknowledgments**

The institute was made possible through financial and in-kind support of several institutions. APN was the main financial contributor and made it possible for sixteen participants to attend the institute. Other donors included the East-West Center at the University of Hawaii at Manoa, the International Pacific Research Center, International START Secretariat, and the faculty from various institutions who generously donated their time and experience. We are most grateful to all donors who made this valuable effort possible.

# Technical Report

## Preface

The Asian Monsoon system that dominates the climate of the Asia-Pacific region has an effect on around sixty-percent of Earth's human population inhabiting the region. The system influences lives and livelihoods through impacts on ecosystem goods and services, including water resources, agricultural productivity, and socio-economic activity. According to the recent IPCC reports, such impacts will likely become more prominent as the climate system undergoes global warming as a result of enhanced regional industrial transformation and the growing population. The Asian monsoon system is the prominent seasonal feature of the global climate system; its spatial and temporal variability is expected to be significantly different in a warmer world. Changing sea level, increased storm surges and floods, intense and more frequent storms are projected for the region. It is therefore crucial that regional scientists have a strong understanding of the behaviour and variability of the Asian monsoon system at various temporal scales. The advanced institute on monsoon predictability and prediction was a concerted action aimed at enhancing the human resource capacity in the region that focused on young, early career scientists. The effort also aimed to develop a regional research network of scientists and institutions to learn and share the newest analytical and numerical techniques, diagnostic methodologies, and datasets.

## Table of Contents

1. Introduction
  2. Methodology
  3. Results and Discussion
  4. Conclusions
  5. Future Directions
  6. References
- Appendix I – Funding outside the APN  
Appendix II – Institute Agenda  
Appendix III – Face Book

## 1. Introduction

The Asian monsoon, one of the most complex interactions between the Earth's land surface, ocean, atmosphere, hydrosphere, cryosphere, biosphere, and human activities, impacts over three billion people in Asia alone. With this in mind it is hard to think of anything more important than the Asian monsoon in terms of the impact to society of climate variability and future change. As yet, an inadequate number of scientists in the Asia-Pacific region have an up-to-date knowledge of advances in monsoon science. In fact, apart from the APEC Climate Center and a few national institutions in Japan, China, India and Korea, most Asia-Pacific nations devote a majority of their technical human resource capability to weather forecasting and relatively simpler, mostly statistical and diagnostic, analysis of seasonal behaviour of the current monsoon season. Within the region, the capability to undertake significant and dedicated research on the variability of the monsoon system at scales ranging from inter-seasonal to decadal and longer term is woefully inadequate. The CLIVAR/WCRP's Asia-Australia Monsoon panel is dominated by scientists from USA, Europe and the few select countries of Asia listed above. It is therefore imperative that young scientists from the region be entrained and encouraged to undertake research on the Asian monsoon system. This project was developed to meet this need for capacity building through an initial intensive



advanced institute session for early career researchers and practitioners.

The project was developed by the International START Secretariat in consultation with its regional committees and centers in Asia and in close collaboration with the CLIVAR/WCRP project, its Asia-Australia Monsoon Panel, and the International Pacific Research Center based at the University of Hawaii at Manoa. The Asia-Pacific Network for Global Change Research provided a grant through its CAPABLE program and additional collateral (cash and in-kind) resources were leveraged from various partners to implement the effort.

## **2. Methodology**

Once funding was secured in May 2007, a call for applications from young scientists to attend the institute session was circulated throughout the global change community in the region and through APN nFPs. By the application deadline of 1 August 2007, close to 100 applicants had submitted completed applications. The applicant materials were collected at the START Secretariat where they went under initial review and a culled set of most qualified applicants was shared with Prof. Bin Wang of IPRC (institute director) and a number of prominent monsoon researchers from Asia-Pacific region for additional comments/advice. Twenty finalists for participation were selected from the short-list of applicants. Official invitations to attend the institute were sent on 1 October 2007. All twenty applicants accepted the invitation to attend.

The agenda and format for the institute session was designed by Prof. Bin Wang in close consultation with the START Secretariat staff and selected senior lecturers. The institute session was held at the East-West Center at the University of Hawaii at Manoa during 2-12 January 2008. All but two invited participants and one faculty member, who were unfortunately not awarded US visas for various reasons, attended the institute. In addition students and faculty of the IPRC also participated as informal attendees, adding to the knowledge and networking pool. The agenda for the institute session is located in appendix of this report.

Invited lectures reviewed progresses and outstanding issues, covering a wide range of topics about the Asian monsoon system including:

- introduction to the Pacific Data Center and various other data sources;
- the Asian monsoon's variability on various time scales, including diurnal cycle, extreme and high-impacts weather, intraseasonal oscillations, annual cycle, interannual and interdecadal variations;
- the physical processes governing the monsoon weather and climate variability, including: atmospheric internal dynamic processes and low-frequency nonlinear feedbacks within the climate system, monsoon interactions with land surface and topography, warm pool ocean dynamics, roles of topography, especially the Tibetan Plateau, snow and ice/glaciers in Himalayas, vegetation and carbon cycle, aerosols, and land cover and land use changes,
- interactions of the Asian monsoon system with other major modes of the variability of the Earth's climate (ENSO, Pacific Decadal oscillation, etc.);
- predictability of the Asian monsoon on intraseasonal, interannual and decadal time scales, dynamical and stochastic modelling and prediction; past changes in the monsoon system and projections of future state of the Asian monsoon based on IPCC analyses.

Power point presentations and lecture materials are available on the institute website: <http://www.start.org/Monsoon2008/home.html>. In addition, every young participant received as a ready reference a complimentary copy of a recent book on Asian Monsoon edited by Prof, Bin Wang.

The participants presented their current and proposed future research. Discussion followed the presentations and included constructive comments and exchange. Relevance to current research challenges and priorities and potential new avenues of collaborative research were also considered.

Collaboration during the institute was fostered through designation of the participants in to four subgroups (intraseasonal-seasonal variability, interseasonal variability, decadal and longer-term variability, prediction/predictability of the monsoon system) based on participants' interests. Within these groups the participants discussed possible future research questions and collaborations. A number of innovative ideas were explored and at least one subgroup plans to develop a proposal in anticipation of the upcoming APN call for proposals.

### 3. Results & Discussion

The institute session was very successful. Organizers succeeded in bringing together early career scientists and established faculty in to close interaction in both lecture units as well as discussions. Knowledge transfer was accomplished through lectures and discussions, and relationships were built throughout the institute. The highly enthusiastic group of participants is likely to keep in touch and build upon the work initiated at the institute. One participant helped in setting up a list-serve for future communication and interaction amongst the participants and faculty.

Post-institute all participants were sent a questionnaire regarding the institute. The responses have been uniformly positive as illustrated in the graph below and a sample of comments offered by participants:



“The monsoon institute was very much useful for me... this is the first time that I had an opportunity to learn advances in monsoon in such detail, both from faculties and colleagues.” – Archana Shrestha, Nepal

“The two weeks experience will be my invaluable treasure in my life for the Institute provides me a platform to enlarge the knowledge regarding Asian Monsoon, a chance to meet so many friends and an opportunity to collaborate with friends for the future work. – Lin Liu, P.R. China

“The logistic arrangement is great and content of institute is very relevant. I feel like I have a much wider understanding of the monsoon sciences and broader knowledge of issues that lie ahead after attending the lectures... I am looking forward and ready to collaborate (with colleagues).” – Juneng Liew, Malaysia

"...I had an opportunity to meet and share some ideas and works with young scientists from other countries especially from Asian countries (most of the time I met only scientists from the US or some developed countries). I believe that we as young scientists will be seeing and working with each other again in the future. And of course, I also learned a lot about Monsoon system from many experts from well known organizations who participated in the institute." –Roongroj Chokngamwong, Thailand

#### **4. Conclusions**

The ultimate goal of the institute was to contribute to the objectives of APN and START, the Asia-Australia Monsoon Panel of the CLIVAR project of WCRP, and the MAIRS project of ESSP by enhancing indigenous capacity for research on the dynamics and prediction of the Asian Monsoon System in the Asia-Pacific region. Advanced training was accomplished and a cohesive and active network of young scientists has been developed. Closer collaboration between institutions within and outside of Asia-pacific region has likely been achieved.

#### **5. Future Directions**

While the institute session was successful in meeting all objectives, it is clear that there is a need to repeat the session in order to meet the demand and entrain a larger pool of young scientists. One indication of this is the relatively large number of applications received in comparison to the number of available spots for the institution. While this allowed the organizers to select the highest quality of participants, it also means that about 4 out of every 5 applicants were not selected. Hopefully this will partially be mitigated by the availability of the institute material on the website. Nevertheless, APN should take note of this challenge and consider allocating resources in future to further enhance and consolidate the capacity in the region so that the Asia-Pacific scientific community can both be active in research of regional and societal relevance as well as contribute to the global research programmes. Albeit, it may be appropriate and timely to encourage emulation of such capacity building activities within the leading institutions in Asia-Pacific, e.g. at IITM/India, APCC/APEC, FRCGC/Japan, IAP-CAS/China, etc.

As one participant noted, "the ultimate success of the institute depends on the participants - whether or not they will be able to sustain the established connections and networking." The advanced institute of January 2008 was an initial step in this direction.

#### **6. References**

Wang, Bin (Ed.) (2006). *The Asian Monsoon*. Chichester, UK: Springer-Verlag.

## **Appendix 1 – Funding outside the APN**

- **International Pacific Research Foundation (IPRC):** Financial \$US 8,000.00 and in-kind.
- **Prof. Bin Wang:** Financial (through one of his research grants) \$US 1,000.00 and in-kind as Institute Director.
- **System for Analysis Research and Training (START):** Financial \$US 20,000 and in-kind.
- **East – West Center:** In-kind contributions of staff time and venue.
- **Senior Faculty Salary:** In-kind from own institute.

**Appendix II – Institute Agenda**

**Institute on “The Asian Monsoon System:  
Prediction of Change and Variability”**

Organized by START

Jan 2-12 2008

**East-West Center, University of Hawaii**

1601 East-West Road  
Honolulu, Hawaii 96848-1711

**John A. Burns Hall (JAB)**  
Room 3015/19 – main room  
Room 3012 – breakout room

**Agenda for Training**

**Wednesday January 2, 2008:**

0800-0830: Registration

0830-0900: Welcome and Introductions

H. Virji/START: Goals and Objectives	(10 Minutes)
Nancy Lewis/East-West Center: Local host	(5 Minutes)
Jay McCreary/IPRC: Local host	(5 Minutes)
Bin Wang/IPRC: Overall Program and Schedule	(10 Minutes)

0900-1000: Participants introduce themselves and their research interests  
(3 minutes each)

1000-1030: Coffee/Tea Break

1030-1230: Plenary lectures: The coupled monsoon system  
(Bin Wang/Anamalai)

1230-1400: Lunch Break

1400-1500: Plenary lectures: The coupled monsoon system  
(Bin Wang/Anamalai).

1500-1520: Coffee/Tea Break

1520:1730: Introduction to Pacific Data Center and other data sources  
(Hacker)

PRACTICUM on accessing PDC and IPRC model resources/tools

1730: Adjourn

**Thursday, 3 January 2008**

- 0830-1030: Plenary lectures: Interannual variations and ENSO-monsoon interaction  
(Zhou/Li)
- 1000-1030: Coffee/Tea Break
- 1030-1230: Plenary lectures: Interannual variations and ENSO-monsoon interaction  
(Zhou/Li)
- 1230-1400: Lunch Break
- 1400-1520: Discussion and Research Seminars:  
(Three participant presentations on their current research work)
- 1520-1540: Coffee/Tea Break
- 1540-1730: Discussion
- 1730: Adjourn

**Friday, 4 January 2008**

- 0830-1030: Plenary lectures: Atmosphere- land interaction and water cycle  
(Xue)
- 1000-1030: Coffee/Tea Break
- 1030-1230: Plenary lectures: Atmosphere- land interaction and water cycle  
(Xue)
- 1230-1400: Lunch Break
- 1400-1520: Discussion and Research Seminars:  
(Three participant presentations on their current research work)
- 1520-1540: Coffee/Tea Break
- 1540-1730: Discussion
- 1730: Adjourn

**Saturday, 5 January 2008**

- 11:00 AM-4:00PM: Cookout/BBQ

**Sunday, 6 January 2008**

- 8:00AM – 4:00PM: Island Bus Tour, pick up and drop off in front of Burns Hall

**Monday, 7 January 2008**

- 0830-1030: Plenary lectures: Intraseasonal variability and predictability (Waliaser/Fu)
- 1000-1030: Coffee/Tea Break
- 1030-1230: Plenary lectures: Intraseasonal variability and predictability (Waliaser/Fu)
- 1230-1400: Lunch Break
- 1400-1520: Discussion and Research Seminars:  
(Three participant presentations on their current research work)
- 1520-1540: Coffee/Tea Break
- 1540-1730: Discussion
- 1730: Adjourn

**Tuesday, 8 January 2008:**

- 0830-1030: Plenary lectures: Inter-decadal Variation and Historical Record (Kirpalani)
- 1000-1030: Coffee/Tea Break
- 1030-11:20: Plenary lectures: Inter-decadal Variation and Historical Record (Kirpalani)
- 11:30-1230: Plenary lectures: Variability of SST and role of Ocean (McCreary/Potemra)
- 1230-1400: Lunch Break
- 1400-1520: Plenary Lectures: Variability of SST and role of Ocean (McCreary/Potemra)
- 1520-1540: Coffee/Tea Break
- 1540-1730: Discussion
- 1730: Adjourn

**Wednesday, 9 January 2008**

- 0830-1030: Plenary lectures: Simulation and Projections of Monsoon Variability over South and East Asia (Akio Kitoh)
- 1000-1030: Coffee/Tea Break

- 1030-11:20: Plenary lectures: Simulation and Projections of Monsoon Variability over South and East Asia  
(Akio Kitoh)
- 11:30-12:30: Introduction to APEC Climate Center (Park/Ashok)
- 1230-1400: Lunch Break
- 1400-1520: Discussion and Research Seminars:  
(Three participant presentations on their current research work)
- 1520-1540: Coffee/Tea Break
- 1540-1730: Discussion
- 1730: Adjourn

**Thursday, 10 January 2008**

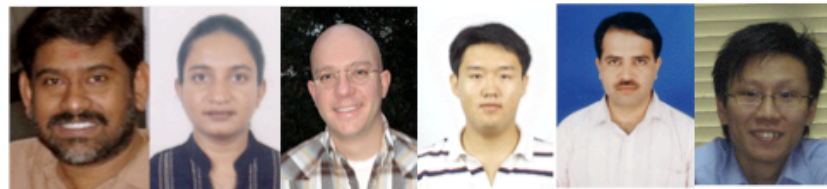
- 0830-1030: Plenary lectures: Modeling, predictability and prediction  
(Kang/Lee)
- 1000-1030: Coffee/Tea Break
- 1030-1230: Plenary lectures: Modeling, predictability and prediction  
(Kang/Lee)
- 1230-1400: Lunch Break
- 1400-1520: Discussion and Research Seminars:  
(Three participant presentations on their current research work)
- 1520-1540: Coffee/Tea Break
- 1540-1730: Discussion
- 1730: Adjourn

**Friday, 11 January 2008**

- 0830-1030: TBD
- 1000-1030: Coffee/Tea Break
- 1030-1230: TBD
- 1230-1400: Lunch Break
- 1400-1520: TBD
- 1520-1540: Coffee/Tea Break
- 1540-1730: Participant Evaluation of the Institute Session
- 1730: Adjourn end of institute session



# Face Book



## The Asian Monsoon System: Prediction of Change and Variability

Advanced Institute • 2-12 January 2008 •  
Honolulu, Hawaii

**Institute website:** <http://www.start.org/Monsoon2008/home.html>

**Institute list-serve:**

<http://mail.atmos.washington.edu/cgi-bin/mailman/listinfo/monsoon-inst>  
To post to list, send mail to: [monsoon-inst@atmos.washington.edu](mailto:monsoon-inst@atmos.washington.edu)

\* Indicates that the individual did not attend the Institute due to non-receipt of US visa or other conflict.

## Participants



**Dr. Kawser Ahmed\***

University of Dhaka  
Dhaka-1000, Bangladesh  
Phone: + 880-2-9661920 ext. 7779  
Fax: + 880-2-8615583  
kawser\_du@yahoo.com, kawser@univdhaka.edu

Dr. Ahmed is a Professor at the University of Dhaka. He teaches graduate and undergraduate courses in Environmental Science, Global Climate Change, Ecological and Environmental Modeling, and Oceanography and has recently been engaging in various environmental related research projects. Dr. Ahmed graduated in 1997 with a PhD from the Ocean Research Institute at the University of Tokyo under a Japanese Government Scholarship (MONBUSHO). His doctoral research focused on use of physical-ecological modeling (specifically three dimensional physical-ecological coupled environmental models) to understand the impact of Westerlies on the bio-geo-chemical cycling in the Pacific Ocean.



**Dr. Edvin Aldrian**

Agency for the Assessment and Application of  
Technology (BPP Technology – Indonesia)  
Jl. MH Thamrin no 8, Jakarta 10340, Indonesia  
Phone: + 62-21-316-8832  
Fax: + 62-21-390-6225  
edvin@webmail.bppt.go.id

Dr. Aldrian is a staff member at the Agency for the Assessment and Application of Technology where his main research focus is climate research. He recently finished several collaborative projects on climate and water studies, most of which involved partners from other countries. He also is a lecturer at the University of Indonesia, Jakarta and the Bogor Institute for Agriculture, Jakarta. Dr. Aldrian graduated with a PhD from the Max Planck Institute for Meteorology, Hamburg, Germany. His PhD work was on climate modeling research focusing on the Indonesian Monsoon and involved a multi-scale atmospheric, ocean and coupled ocean-atmospheric modeling approach.



**Ms. Kyong-Hee An**

APCC (APEC Climate Center)  
National Pension Corporation Busan Bldg.  
12Fl. Yeonsan 2(i)-dogn, Yeonje-gu, Busan, 611-  
705, Republic of Korea  
Phone: + 82-51-668-7470~2  
Fax: + 82-51-668-7473  
khan@apcc21.net

Ms. An is a junior research assistant of the APEC Climate Center (APCC) where she also studies the extra-tropical predictability and the impact of tropical heating correction using GCM. Ms. An is currently involved in the production of the APCC Seasonal Forecast and she is the focal point of an APCC international joint research project conducted by CliPAS (Climate Prediction and its Application to Society). She holds a Master of Science in Earth and Environmental Sciences from the Seoul National University.



**Ms. Francia B. Avila**

Manila Observatory Ateneo de Manila University  
Campus Loyola Heights, Quezon City, Philippines  
Phone: + 63-2-426-5921  
Fax: + 36-2-426-0837  
franz@observatory.ph

Ms. Avila is a research assistant at the Regional Climate Systems Program of the Manila Observatory. Her current research involves rainfall change and variability in the Philippines and Southeast Asia, climatology and forecasting of tropical cyclones, and assessment of disaster risks due to climate and weather related hazards. Ms. Avila is pursuing a Master of Science in Physics at Ateneo de Manila University. She currently holds a Bachelor of Science degree in both Computer Engineering and Physics.



**Dr. William Boos**

Massachusetts Institute of Technology  
77 Massachusetts Ave., Room 54-1721  
Cambridge, MA 02139, USA  
Phone: + 617-253-5935  
Fax: + 617-253-6208  
billboos@alum.mit.edu

Dr. Boos has spent the past five years in graduate studies at Massachusetts Institute of Technology (MIT), examining the role played by wind-dependent surface heat fluxes in the abrupt onset of monsoon circulations. In particular, his thesis used theory, numerical models, and observations to examine seasonally-varying monsoon circulations in a framework where moist convection redistributes energy in the vertical to maintain the atmosphere in a quasi-equilibrium state. In addition to academic research, he has done some applied work on the impacts of climate variability in developing countries through intensive workshops and collaborative efforts. Dr. Boos recently defended his thesis and now holds a PhD in Atmospheric Science from MIT.



**Dr. Roongroj (Kij) Chokngamwong**

Center for Earth Observing and Space Research  
George Mason University  
4400 University Drive, Fairfax, Virginia 22030  
Phone: + (703) 209-5705 (cell)  
rchoknga@gmu.edu

Dr. Chokngamwong is a System Administrator and Research Assistant at the Center for Earth Observing and Space Research, George Mason University. His responsibilities include managing and maintaining the server for the Polar Satellite Precipitation Data Center (PSPDC), processing and evaluating satellite data, and developing a technique for rain estimation using satellite, microwave, and infrared data. He is especially interested in evaluation and development of satellite rainfall estimation from hydrological remote sensing data. Dr. Chokngamwong holds a PhD in Computational Sciences and Informatics from George Mason University.



**Dr. Dulakshi Karunasingha**

Dept. of Engineering Mathematics  
Faculty of Engineering University of Peradeniya  
Sri Lanka  
Phone: + 94812393354  
Fax: + 94812388158  
dulakshi@yahoo.com

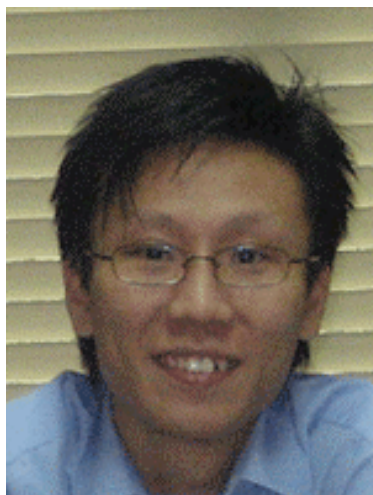
Dr. Karunasingha obtained her Ph.D. degree from the National University of Singapore (NUS) in 2006. She graduated from University of Peradeniya in Sri Lanka, specializing in Civil Engineering and worked as a Research Assistant and then as a Lecturer in the Department of Engineering Mathematics, University of Peradeniya, prior to joining NUS as a Research Scholar to pursue her Ph.D. Currently she is employed in the Department of Engineering Mathematics, University of Peradeniya as a Senior Lecturer. Her research area is investigation of data-driven techniques in solving problems of hydrology. Her research interests include hydro-informatics, data mining, data assimilation, mathematical modeling and machine learning (e.g. neural networks and support vector machines) applications in engineering.



**Dr. Pankaj Kumar**

C & H Division Indian  
Institute of Tropical Meteorology  
Homi Bhabha Road, Pashan, Pune – 411008,  
Maharashtra, India  
Phone: + 91-20-25893600 Ext. 363  
Fax: + 91-20-25893825  
pankaj@tropmet.res.in

Dr. Kumar is a research associate at the Indian Institute of Tropical Meteorology. He is currently working on a funded project on the “Development of Regional Atmosphere-Ocean Coupled Modeling Strategy for Predicting Indian Summer Monsoon.” His research interests are in the South Asian Monsoon, climate modeling, diagnostics, and development of future climate scenarios to study the inter-annual and long-term variations in the monsoon systems. Dr. Kumar holds a PhD in Atmospheric Physics from Pune University.



**Dr. Ju Neng Liew**

Universiti Kebangsaan Malaysia  
Marine Science Program  
Faculty of Science and Technology  
Universiti Kebangsaan Malaysia  
43600, Bandar Baru Bangi  
Selangor Darul Ehsan  
Malaysia  
Phone: + 603-89215870  
Fax: + 603-89253357  
juneng@ukm.my

Dr. Liew is a junior lecturer at the Universiti Kebangsaan Malaysia, School of Environmental and Natural Resource Sciences, Faculty of Science and Technology. He is also a leader of two Malaysian government funded scientific projects, working on developing a numerical weather forecasting system and on evaluation of some of the climate downscaling techniques commonly used for the Malaysia region. The focus of his current research encompasses meso-scale marine meteorology and short-term variability of the climate system. He holds a PhD from the University of Kebangsaan in Marine Meteorology.



**Dr. Lin Liu**

The First Institute of Oceanography  
State Oceanic Administration  
No. 6 Xian-Xia-Ling Road, Hi-Tech Development  
Area, Room 615  
Qingdao 266061 P. R. China  
Phone: +86-(0)532-88961173  
Fax: +86-(0)532-88967403  
liul@fio.org.cn

Dr. Liu joined the First Institute of Oceanography after he earned his PhD in 2006. He is currently involved in two projects. One is a collaborative project with the Indonesian Agency of Marine and Fisheries Research (AMFR) in which he is collecting in-situ observations in the tropical southeastern Indian Ocean. The second involves identifying the influence of the monsoon seasonal cycle on the development of inter-annual climate anomalies, i.e., the Indian Ocean Dipole (IOD). He is especially interested in detecting new phenomena and exploring the fundamental principles of air-sea interactions in the tropical region. He holds a PhD from the College of Physical and Environmental Oceanography, Ocean University of China.



**Mr. Shahbaz Mehmood**

Global Change Impact Studies Centre  
1st Floor, Saudi Pak Tower  
61/A Jinnah Avenue, Blue Area  
Islamabad, Pakistan  
Phone: + 92-51-9219785, +92-333-5481767  
Fax: + 92-51-9219787  
shahbaz.mehmood@gcisc.org.pk

Mr. Mehmood is a Research Fellow with the Global Change Impact Studies Centre (GCISC), Islamabad, Pakistan. His area of research is climate change and climate modeling using regional climate models. Currently he is working on the development of climate change scenarios for the South Asia region using regional climate model RegCM3 corresponding to SRES A2 scenarios. In the future he would like to analyze the possible future trends in the Monsoon System in the South Asia region using the output of aforementioned scenarios. Mr. Mehmood holds a M. Phil degree in Physics from Quaid-i-Azam University Islamabad, Pakistan.



**Mr. Robert Nicholas**

University of Washington  
Department of Atmospheric Sciences  
Box 351640  
Seattle, WA 98195-1640 USA  
Phone: + 206-685-9523 Fax: + 206-543-0308  
rnicholas@atmos.washington.edu

Following an early career as a math and science educator at several boarding schools and small colleges, Rob is currently enrolled as a doctoral candidate in the Department of Atmospheric Sciences at the University of Washington and is a participant in University of Washington's interdisciplinary Program on Climate Change. His research focuses on the impact of large-scale climate variability on local temperature and precipitation on seasonal to decadal timescales, with particular application to agriculture and water resources management in developing countries. He holds a Master of Arts in Teaching (Natural Science) from Colgate University.



**Dr. Ajayamohan Ravindran**

Canadian Center for Climate Modelling & Analysis  
University of Victoria, P.O Box 1700, STN CSC  
Victoria, BC, V8W 2Y2, Canada.

Phone: + 1-250-3638229

Fax: + 1-250-3638247

ajayanrs@gmail.com

Dr. Ravindran is currently working on the simulation characteristics of low-frequency atmospheric oscillations in coupled general circulation models at the Canadian Center for Climate Modelling & Analysis, Canada. He has a Masters in Applied Physics and became interested in Monsoons after taking a few courses in Meteorology. His doctoral theses focused on the role of monsoon intra-seasonal oscillations on the inter-annual variability of monsoon. Since then, he has been working on various aspects of South-Asian summer monsoon and Indian Ocean Climate. Dr. Ravindran holds a PhD in Atmospheric Science from the Indian Institute of Science.



**Ms. Archana Shrestha**

Department of Hydrology and Meteorology  
Babarmahal, P.O. Box: 406, Kathmandu, Nepal

Phone: + 977-1-4255920

Fax: + 977-1-4254890

archanamet@yahoo.com

Ms. Shrestha has been working as a Meteorologist in the Climate Section of the Department of Hydrology and Meteorology, Government of Nepal since December 2003. Her special interest in researching weather related disasters has lead her to become involved with several weather related vulnerability assessments and adaptation projects. Among other projects, she is currently involved as a Country Coordinator in the APN project on Assessing vulnerability of communities and understanding policy implications of adaptation responses to flood-related landslides in Asia and as an assistant coordinator in the ACCCA (Advancing Capacity to Support Climate Change Adaptation) Project on Application of Community Based Adaptation Measures to Weather and Climate related Disasters (WCD) in Western Nepal: Preparation for the Potential Climate Change Signal, funded by UNITAR. Ms. Shrestha most recently earned Masters of Science degrees from University of Guelph while studying Deterministic Hydrological Modeling, Environment Resources Evaluation, and Sedimentary Processes. She is



currently also a Junior Associate at The Abdus Salam International Center for Theoretical Physics, Trieste, Italy.

---



**Ms. Soo-Jin Sohn**

APEC Climate Center (APCC)  
National Pension Corporation Busan Bldg.12Fl.,  
Yeonsan 2(i)-dong, Yeonje-gu, Busan, 611-705,  
Republic of Korea  
Phone: + 82-51-668-7470~2  
Fax: + 82-51-668-7473jeenie7@apcc21.net

Since Ms. Sohn joined the APEC Climate Center (APCC) in September 2005, she has been working on several research projects, including application of climate index for seasonal forecast and model diagnostics focusing on the Asian winter monsoon from the inter-comparison of multi-models. Currently she is responsible for production of the APCC Seasonal Forecast and for monitoring of the current climate condition. Her research interests include, climate variability and predictability of East Asian winter monsoon, seasonal predictability and climate index service and application of climate information, and study of GCM predictability. Ms. Sohn holds a Masters of Science in Atmospheric Science from Pusan National University.

---



**Mr. Trong Tran**

Vietnam Institute of Meteorology Hydrology and Environment  
5/62 Nguyen Chi Thanh Street, Dongda District,  
Hanoi, Vietnam  
Phone: + 84-977311164  
Fax: + 84-48355993  
trongtrandinh@yahoo.com, trongkh@vkttv.edu.vn

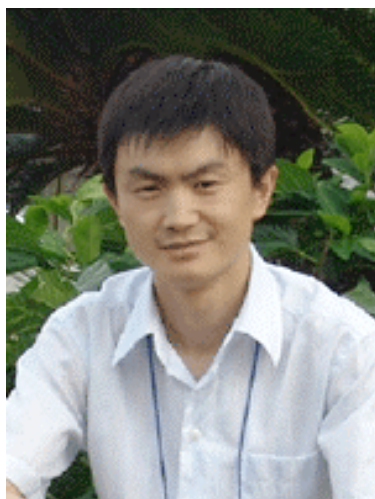
Mr. Tran is a researcher at the Vietnam Institute of Meteorology Hydrology and Environment where he is involved in a number of climate projects. These projects include; “Applying satellite imagery data to determine centers and intensities of tropical cyclones for predicting tropical cyclones and heavy rains” and “Applying information of climate and climate prediction on socioeconomic sectors and natural calamity prevention in Vietnam,” as well as additional projects to take place in 2008. Mr. Tran holds a Masters in meteorology from The University of Adelaide.



**Ms. Deepthi Varier**

Department of Climate Dynamics, George Mason University  
4041 Powder Mill Rd, Suite # 302, Calverton, MD, 20705, USA  
Phone: + 1 301-902-1279  
Fax: + 1 301-595-9793  
deepthi@cola.iges.org

Ms. Varier is currently working on her Ph.D. dissertation under the guidance of Prof. V. Krishnamurthy, in the Department of Climate Dynamics, George Mason University, VA, USA. Her research interests consist of Indian monsoon variability, both in the inter-annual and the intra-seasonal time scales and the potential for seasonal mean monsoon predictability. She is also interested in the influence of the El Niño - Southern Oscillation (ENSO) on the monsoon intra-seasonal oscillations and the relation between summer and winter tropical intra-seasonal oscillations. Ms. Varier holds Masters degree in Agronomy, focusing on Agricultural and Boundary Layer Meteorology, from the University of Georgia.



**Dr. Zhongfeng Xu\***

START Regional center for Temperate East Asia  
Institute of Atmospheric Physics  
Chinese Academy of Sciences (IAP/CAS)  
Qijiahuozi Huayanli 40#, P.O.Box 9804  
Beijing 100029, P.R.China  
Phone: +86-(0)10-82995317  
Fax: +86-(0)10-82995135  
xuzhf@tea.ac.cn

Dr. Xu is a postdoctoral fellow in climatology and global change at the Institute of Atmospheric Physics, Chinese Academy of Sciences (CAS). He is exploring the effects of various land-sea distributions, orography and land covers on the Asian monsoon, especially for their relative contributions to the Asian monsoon. His ongoing research includes two topics: (1) A new tropical Asian summer monsoon index (MV) defined by relative vorticity (RV) and equivalent potential temperature (EPT); (2) The influence of vegetation and its seasonal variation on the Asian monsoon. His interest areas are global change and the Asian monsoon. Dr. Xu holds a PhD in of Atmospheric Sciences from Nanjing University.



**Ms. Soo-Hyun Yoo**

Climate Prediction Center/NCEP  
5200 Auth Rd. Rm. 605, Camp Springs, MD 20746  
Phone: + 1 301-763-8000 x7544  
Fax: + 301-763-8125  
soo-hyun.yoo@noaa.gov

Ms. Yoo is currently completing her PhD in Atmospheric Sciences from Seoul National University and working at the NOAA's Climate Prediction Center (CPC). Her PhD thesis partially focuses on the variability of Indian Ocean SST and its impact on the Asian-Australian monsoon climate. She has published several papers on the Asian-Australian and North American monsoons, the Indo-Pacific climate, and relationships between the variations of soil moisture and precipitation. She is also heavily involved in the diagnostics and evaluations of monsoons in NCEP models. Ms. Yoo holds a Master of Science in Atmospheric Sciences from Seoul National University.



**Dr. Deming Zhao**

START Regional Center for Temperate East Asia  
Institute of Atmospheric Physics  
Chinese Academy of Sciences  
#40 Huayanli, Qijiahuozi, Chaoyang District  
Beijing 100029, P. R. China  
Phone: + 86-10-82995317  
Fax: + 86-10-82995135  
zhaodm@tea.ac.cn

Dr. Zhao is currently doing postdoctoral work at the START Regional Center for Temperate East Asia, Key Laboratory of Regional Climate-Environment Research for Temperate East Asia, Institute of Atmospheric Physics, Chinese Academy of Sciences. He is currently working on several projects including, testing a new Regional Integrated Environment Modeling System (RCM RIEMS2.0), participating in an aridification study over Northern China, and exploring the energy water cycle through soil moisture retrieval from remote sensing data and Land Data Assimilation System (LDAS) development in China. Soil moisture retrieval and its applications in RCM are of special interest to him. Dr. Zhao holds a PhD in Meteorology from Nanjing University.

## Faculty



**Dr. Hariharasubramanian Annamalai**

IPRC/SOEST

University of Hawaii

1680 East West Road, POST Bldg 401

Honolulu HI 96822

Ph: (808) 956 5646

<http://iprc.soest.hawaii.edu>

Dr. Annamalai's research interests center around understanding the mechanisms responsible for the mean, intraseasonal and interannual variability of the Asian summer monsoon, and elucidating the role of El Nino-induced regional SST anomalies in the tropical Indian Ocean on the local and remote climate variability. Towards these goals, he diagnoses a variety of observational/ analyzed data sets to develop hypotheses, and then uses a range of models (simple linear model to GCMs) to understand the processes involved. Recent focus also includes understanding the response of the monsoon and Indian Ocean climate system to global warming.



**Dr. Karumuri Ashok**

APEC Climate Center

National Pension Corporation Busan Building 12F

Yeonsan 2-dong, Yeonje-gu, BUSAN 611705

Republic of Korea

[ashok@apcc21.net](mailto:ashok@apcc21.net)

Dr. Karumuri Ashok holds a Ph.D. (Meteorology) from Andhra University, India, on Numerical simulation of tropical cyclones in Bay of Bengal. Till recently, Dr. Ashok has been associated with research at FRCGC, Japan, on the variability of the Indian Ocean Dipole and its impacts on the Asian summer monsoon and Australian winter climate. He was also the lead-researcher in the recent discovery of ENSO Modoki, a new phenomenon in the tropical Pacific. Since August 2007, Dr. Ashok has joined the APEC Climate Center, Republic of Korea as a senior research scientist. He is the leader of the operational MME forecasting activities and associated research. Further details on APCC activities are available: [www.apcc21.net](http://www.apcc21.net).



**Dr. Xiouhua (Joshua) Fu**

International Pacific Research Center (IPRC)  
SOEST, University of Hawaii at Manoa  
1680 East West Rd., POST Bldg., 4th Floor  
Honolulu, HI 96822  
Tel: (808) 956-2629, Fax: (808) 956-9425  
Web: <http://www.soest.hawaii.edu/~xfu>

Dr. Xiouhua (Joshua) Fu is an associate researcher at International Pacific Research Center (IPRC), SOEST, University of Hawaii at Manoa. His research interests include intraseasonal-to-interdecadal climate variability, climate modeling and prediction, large-scale air-sea interaction, and climate model development and improvement. His recent endeavor aims to improve the understanding, simulation and prediction of Monsoon Intraseasonal Oscillation (MISO) and Madden-Julian Oscillation (MJO).



**Dr. Peter W. Hacker**

IPRC/SOEST  
University of Hawaii  
1680 East West Road, POST Bldg 401  
Honolulu HI 96822  
Ph: (808) 956 5646  
<http://iprc.soest.hawaii.edu>

Dr. Hacker is currently the Manager of the Asia-Pacific Data-Research Center at the IPRC and a senior research scientist at the Hawaii Institute of Geophysics and Planetology. His research interests include; physical oceanography, upper ocean processes, air-sea interaction, and ocean circulation and mixing. He holds a PhD Physical Oceanography, University of California (Scripps), San Diego.



**Dr. Harry Hendon\***

Centre for Australian Weather and Climate  
Research  
Bureau of Meteorology  
GPO Box 1289  
Melbourne, Victoria 3001  
Australia

Dr. Hendon is currently a principal research scientist at the Australian government's Bureau of Meteorology Research Center (BMRC). His research interests and include; tropical climate, air-sea interaction, and intraseasonal variability. He holds a PhD in Atmospheric Sciences from the University of Washington.



**Prof. In-Sik Kang**

Seoul National University  
Seoul 151-742  
Korea  
Tel : +82-2-880-6718  
Fax: +82-2-885-7357,883-4972

Prof. Kang is currently a professor at the School of Earth and Environmental Science, Seoul National University, Korea and Director of the Climate Environment System research center (CES), Seoul National University. His research interests include climate modeling, ENSO dynamics, and long-range prediction. The main purposes of his research activities are to understand the dynamics behind various climate phenomena and to improve prediction of them using dynamic and statistical method. Recently, he has been focusing on climate modeling, prediction of subseasonal variability (e.g. MJO) and oceanic initialization for climate prediction using Ensemble Kalman filter (EnKF). Prof. Kang holds a PhD in Atmospheric Sciences from Oregon State University.



**Dr. Akio Kitoh**

Climate Research Department  
Meteorological Research Institute  
1-1 Nagamine, Tsukuba, Ibaraki 305-0052,  
Japan  
kitoh@mri-jma.go.jp

Dr. Kitoh is Director of the Climate Research Department of the Meteorological Research Institute in Tsukuba, Japan. His research interests include; climate modeling, climate variability, monsoon and ENSO, seasonal prediction, climate change, and paleoclimate simulation. He holds a PhD in geophysics from Kyoto University.



**Dr. R.H. Kripalani**

Indian Institute of Meteorology  
NCL PO, Pashan, Pune 411008  
India

Dr. Kripalani is a Senior Scientist at the Indian Institute of Tropical Meteorology. He has more than 37 years of experience using observed data and outputs of coupled climate models to study the area of Asian Monsoon variability and predictability / climate change. He holds a Doctor of Philosophy degree in Atmospheric Physics.



**Dr. June-Yi Lee**

University of Hawaii  
Honolulu, Hawaii 96822  
Phone: (808) 956-7544  
Fax: (808) 956-9425  
jylee@soest.hawaii.edu

Dr. June-Yi Lee is a postdoctoral fellow at the International Pacific Research Center. Her research interests include; dynamical climate predictability and prediction for intraseasonal to interannual variability; variability and predictability of the Asian-Australian monsoon system; and interdecadal variability and climate changes of the Asian-Pacific climate. She holds a PhD in Atmospheric Sciences from Seoul National University.



**Dr. Tim Li**

Professor  
IPRC and Department of Meteorology  
University of Hawaii  
2525 Correa Road  
Honolulu, HI 96822  
Tel: 808-956-9427  
Fax: 808-956-9425  
timli@hawaii.edu  
website: <http://iprc.soest.hawaii.edu/~li>

Dr. Tim Li is currently a professor at the IPRC and the Department of Meteorology at the University of Hawaii. His research interests are in climate dynamics, atmosphere-ocean interactions on seasonal to interdecadal time scales, tropical meteorology, and numerical weather prediction. The current research topics include: (i) the tropospheric biennial oscillation (TBO) and the Indian Ocean-ENSO coupling, (ii) Monsoon asymmetric phase transition and annual cycle, (iii) tropical intraseasonal oscillations, (iv) synoptic wave origin and dispersion, (v) tropical cyclone genesis and intensity change, and (vi) satellite data assimilation. Dr. Li holds a PhD in Meteorology from the University of Hawaii.





**Dr. Julian P McCreary**

University of Hawaii  
Honolulu, Hawaii 96822  
Phone: (808) 956-2216  
Fax: (808) 956-9425  
jay@hawaii.edu

Dr. Julian McCreary received a doctorate in oceanography in 1977 from the Scripps Institution of Oceanography, University of California, San Diego. From 1977-1998, he was an employee at the Nova University Oceanographic Center, Ft. Lauderdale, Florida. From 1999 to the present, he has been the Director of the International Pacific Research Center at the University of Hawaii. During his career, he has published papers on: equatorial and coastal dynamics; equatorial, coastal and frontal instabilities; coupled ocean-atmosphere models of El Nino; Indian-Ocean dynamics, thermodynamics, and biophysical processes; subtropical overturning cells; ocean general circulation; and Pacific and ENSO decadal variability.



**Dr. Chung-Kyu Park\***

ckpark@apcc21.net

Dr. Chung-Kyu Park is the Executive Director of the APEC Climate Center. More information was not available at the time of printing.



**Dr. James T. Potemra**

University of Hawaii  
Honolulu, Hawaii 96822  
Phone: (808) 956-2737  
Fax: (808) 956-9425  
jimp@hawaii.edu

Dr. James T. Potemra is an Assistant Researcher at the International Pacific Research Center (IPRC) in the School of Ocean and Earth Science and Technology at the University of Hawaii. He studies regional ocean influences, specifically, the relationship between general ocean circulation and climate and the connection between processes in the western equatorial Pacific and eastern Indian Ocean. Dr. Potemra holds a PhD in Oceanography from the University of Hawaii.



**Prof. Bin Wang**

Co-Leader, Asian-Australian Monsoon Research  
Prof. of Meteorology  
University of Hawaii  
Honolulu, HI 96822  
Tel: 808 956 2563  
Fax: 808 956 9425  
wangbin@hawaii.edu

Prof. Wang's research interests are primarily in the fields of Climate Dynamics, Tropical Meteorology, and Geophysical Fluid Dynamics. His current studies deal with climate predictability and prediction, tropical intraseasonal oscillation, tropical cyclone intensity and motion, Asian-Australian monsoons and general circulation; interdecadal variability and long-term trends of the climate system, and El Niño and warm pool ocean air-sea interaction. His research approaches involve theoretical, numerical, and observational analyses. His primary effort focuses on understanding of the fundamental physics governing the variations of weather and climate.

For more details, please go to his webpage:  
<http://www.soest.hawaii.edu/users/bwang/>



**Dr. Duane Waliser**

Jet Propulsion Laboratory  
M/S 183-501  
4800 Oak Grove Drive  
Pasadena, CA 91109  
Phone: 818.393.4094  
Fax: 818.354.0966  
duane.waliser@jpl.nasa.gov

Dr. Duane Waliser is a Principal Scientist in the Water and Carbon Cycles Group, in the Earth Sciences Section, and a Visiting Associate Faculty in the Geological and Planetary Sciences Division at Caltech. His principle research interests lie in climate dynamics and in global atmosphere-ocean modeling, prediction and predictability, with emphasis on the Tropics. He joined JPL in 2004 with interests in utilizing new and emerging satellite data sets to study weather and climate as well as advance our model simulation and forecast capabilities, particularly for long-range weather and short-term climate applications.



**Dr. Yongkang Xue**

University of California  
1255 Bunche Hall,  
Department of Geography UCLA,  
Los Angeles CA 90095

Dr Yongkang Xue studies land surface modeling, land/atmosphere interactions, climate change, regional climate downscaling, and remote sensing. He has been instrumental in the development of the "SSiB" land surface scheme, which has been coupled with a number of GCMs and regional models. Using coupled land-surface/atmosphere models, he has conducted numerous sensitivity and prediction studies to investigate the impact of land-surface processes, including vegetation biophysical processes, land-cover and land use change, and land-surface parameters and parameterizations, on regional climate and global climate variability and anomalies, with a special emphasis on monsoon systems, and the mechanism involved. He also works on the remote sensing methodology for atmospheric and land surface variables.



**Dr. Tianjun Zhou\***

LASG, Institute of Atmospheric Physics  
Chinese Academy of Sciences  
Hua-yan-li No.40  
De-sheng-men-wai Qi-jia-huo-zi  
Chaoyang District, Beijing 100029  
China

Dr. Zhou graduated from Nanjing University of China in 1991. He got his PhD from Peking University in 1999. Then he worked as a postdoctoral fellow at the Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences, and LMD/France. Now he is a professor in IAP. He holds the position of deputy-director of the State Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics (LASG). His research interests include coupled atmosphere-ocean modeling and climate dynamics, East Asian climate change and climate variability, air-sea interaction and Asian-Australian monsoon predictability, and numerical simulation of ocean circulation.