

COAA e-Newsletter, Issue 2, April 21, 2003.

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Members please submit news to "coaa.news@cox.net". A news item can be any one of the following, but is not limited to,

Meeting/conference report/announcement
Research work/activity
Honors/Award/research grant
Promotion/graduation/change of position/employment/sabbatical
Latest publication/abstract
Job/research grant opportunity
Visit/exchange/collaboration
New member
Community outreach
Social event

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(1) COAA 2003 Scientific Workshop: Research and applications of Atmospheric, Ocean and Earth Sciences (See item 6 for workshop abstracts)

Thirty-seven members and colleagues attended the COAA 2003 Scientific workshop: Research and applications in Atmospheric, Ocean and Earth sciences held 1-5 p.m. March 25, 2003, at the Auditorium of the Computer and Space Science Building at the University of Maryland, College Park. Twelve papers, ranging from topics such as use of renewable ocean thermal energy, techniques, analyses and modeling studies of natural climate phenomena and human induced impacts, contaminant transports in the Chesapeake Bay, breaking waves and rip currents, and satellite retrieval techniques, to enabling IT tools for data access, were presented. These high quality presentations generated enthusiastic discussions and participants enjoyed the workshop overall.

This is the first time the COAA workshop is held on a weekday. Many participants have to leave early to attend to family matters, and hence cannot join the workshop dinner. The table of eight at the COAA workshop dinner enjoyed the good food and company that lasted till 8 p.m. Some participants expressed their wishes for future weekend workshops. A participant suggested a new format that emphasized self-introduction by the speakers, less detail of the research work and more discussions, and the workshop be timed to coincide releases of major research opportunity announcements. (Long Chiu, lchiu@gmu.edu and Xiaofeng Li, xiaofeng.li@noaa.gov)

(2) Postponement of COAA2003, Beijing

Dear Overseas Participants:

This is to inform you that after discussing among the overseas advisory, program and local organizational committees and after consulting with our Chinese host, a decision has been made to postpone COAA2003 to the next year because of many uncertainties associated with SARS in China. Our decision was based on the following information gathered from the committee members and various sources:

Because of SARS, NOAA and NASA have issued a travel advisory against travel to east Asia, including China. A similar advisory or warning has also been issued by many US universities and private agencies as well as in other countries. In addition, Taiwan government has stopped approving any travel to Hong Kong and mainland China.

Although the rate of new SARS patients in China appears to decrease, it is still uncertain if this problem could be fully controlled and worry-free by July. If not, any participants may be nervously sitting in conference rooms. If one gets affected, all the participants may need to be quarantined for a few days. According to the current practice in many government labs or private agencies, some participants may be required to stay at home for 2 weeks (even without pay) before going to office after their returning from China. For those participants without the US green cards or citizenships, they may have the risk of their return visas being declined.

Based on the current situation and our limited contacts, much fewer overseas participations would be expected if COAA2003 is to be held as scheduled. Thus, it would be of interest to most of us and our host that this conference be postponed to the next year. This is a painful decision for many of us. We apologize if this decision could cause any inconvenience to you. For those who have purchased tickets to China, you may talk to your airline for a full use of the airfare(s) (without any penalty) within a year because of SARS.

We hope to start the processes again in September or later this year after the SARS problem in China is fully controlled. If you receive this email, you will also receive our announcement in the future. Several dates for COAA's conference have been mentioned: Spring 2004, July 2004 when the First Assembly of the Asian Geophysical Union is to be

held in Singapore, and the 80th anniversary of the Chinese Meteorological Society in Beijing. This will be decided after consulting with our Chinese host and overseas committee members. Finally, we wish to thank you again for your contributions and interests, and hope to hear from you in the future.

Sincerely Yours,

Da-Lin Zhang and Quanan Zheng

Overseas Program Co-Chairs (Da-Lin Zhang, dalin@atmos.umd.edu)

(3) The Huang-Hilbert Transform (HHT) has just been named "NASA Invention of the Year 2003".

COAA former President, Dr. Norden Huang of NASA Goddard Space Flight Center has developed a new method, the Hilbert-Huang Transform (HHT) for analyzing nonlinear and nonstationary data. The key part of the method is the Empirical Mode Decomposition (EMD) with which any complicated data set can be decomposed into a finite and often small number of Intrinsic Mode Functions (IMF). With the Hilbert transform, the Intrinsic Mode Functions yield instantaneous frequencies as functions of time that give sharp identifications of imbedded structures. The final presentation of the results is an energy-frequency-time distribution, designated as the Hilbert Spectrum. With his technique we can examine the detailed dynamics characteristics of a nonlinear system through the instantaneous frequency rather than harmonics. Thus it constitutes a new view of the nonlinear dynamics. If you have any questions about IMF, please contact Norden at "norden@neptune.gsfc.nasa.gov".
(Antony Liu, Antony.A.Liu@nasa.gov)

(4) COAA Community

--- On 11 November 2002 Dr. Deliang Chen was appointed to the position of science director of National Climate Center by China Meteorological Administration. Dr. Chen is Professor in Physical Meteorology at Gothenburg University in Sweden. He also served as regional director for COAA.
(Delian Chen, deliang@gvc.gu.se, <http://www.gvc.gu.se/ngeo/deliang/ncc/main.htm>)

--- Dr. Ming Cai, a COAA member and a research scientist at the University of Maryland, will soon move to the Sunshine State. He will join the faculty of the Florida State University in Tallahassee this August as an Associated Professor in the Department of Meteorology. Ming is an active COAA member. He is an expert on the atmospheric energetics and dynamics and on long-term climate change, especially for the middle and higher latitudes. He will be missed by many who live in the extratropical Mid-Atlantic

states. Ming, we wish you a great success with your new career. (Song Yang, Song.Yang@noaa.gov)

(5) Job Opportunities

(5a) Institute of Hydrological Sciences, College of Earth Sciences, National Central University at Jung-li, Taoyuan, Taiwan

The Institute of Hydrological Sciences of National Central University invites applications for two tenure track faculty positions at all levels in the areas of land-atmosphere-ocean interactions, ocean modeling and remote-sensing hydrology. Candidates should have a demonstrated record of accomplishment in these areas and strong commitment to excellence in teaching. Faculty members are expected to maintain a vigorous, creative and independent research program. The appointment may start as early as August 1, 2003. Review of applications will continue until the positions are filled. Please send (or e-mail) curriculum vitae including a brief statement of current and future research plans and names of at least three references to:

Chair, Faculty Search Committee
Institute of Hydrological Sciences, College of Earth Sciences
300 Jung-da Rd, Jung-li City, Taoyuan, 320, Taiwan
(Email: sui@cc.ncu.edu.tw, Tel: 886-3-4222874)

(5b) Visiting Scientist for GPS Radio Occultation

INVITATION: The UCAR COSMIC (Constellation Observing System for Meteorology, Ionosphere, and Climate) Project Office seeks two recent PhD's to facilitate the calibration and validation of Global Positioning System (GPS) radio occultation (RO) sounding data through collaboration between NOAA's National Environmental Satellite and Information Services (NESDIS) and the UCAR COSMIC Project Office. One scientist will be stationed at the NOAA Science Center in Camp Springs, MD and the other will be based at the UCAR's COSMIC Project Office in Boulder, Colorado. The purpose of this project is to assess the accuracy of GPS RO soundings from recent and on-going GPS RO missions, by comparing the GPS RO soundings against corroborative data from operational and research passive infrared (IR) and microwave sounders and/or radiosonde or aircraft measurements from operational networks and special field programs. Through this study, the candidates will contribute toward:

- (i) further improvements of GPS RO data retrieval procedures,
- (ii) defining measurement errors statistics for GPS RO soundings,
- (iii) establishing proper GPS RO data quality control procedures, and
- (iv) developing optimal strategy for assimilation of GPS RO and microwave and IR sounding data.

The research will also likely lead to improvements in the microwave and IR retrievals and how they are used. The end goal of this project is to facilitate the use of GPS RO data in weather and climate research and operational numerical weather

prediction (NWP) and in climate monitoring, leading to the establishment of a robust climate observing network.

The atmospheric limb sounding technique, making use of the radio signals transmitted by the GPS, has emerged as a promising global observing system. A GPS occultation receiver onboard a low Earth orbiting (LEO) satellite measures the phase delay of the radio signals transmitted by the GPS satellites as they set or rise with respect to the LEO. From accurate measurements of phase delays, atmospheric refractive bending angles as a function of height can be deduced with high precision. Vertical profiles of bending angles can be used to derive the refractivity, which is a function of electron density in the ionosphere and a function of temperature and water vapor in the troposphere and stratosphere. As demonstrated by the recent GPS RO missions GPS/MET, CHAMP and SAC-C, the GPS RO sounding data are of high accuracy and high vertical resolution, and serve as an excellent complement to the nadir-viewing, passive microwave and IR satellite measurements. In late 2005, the joint U.S.-Taiwan COSMIC (Constellation Observing System for Meteorology, Ionosphere, and Climate) mission will be launched and is expected to collect up to 3,000 RO soundings per day. The COSMIC data will be available in near real-time for global weather analysis and prediction. In order to use the GPS RO data from COSMIC missions effectively for operational numerical weather prediction and for climate research, it is essential to

- (i) perform careful calibration and validation of GPS RO data,
- (ii) establish proper data quality control procedures,
- (iii) define realistic measurement error statistics, and (iv) formulate optimal assimilation strategy for GPS RO data in the presence of other satellite measurements.

The successful candidates will work closely with scientists at NOAA, UCAR/NCAR, and other collaborators at universities and laboratories such as JPL. Active research collaboration and exchange of visits between the NOAA and UCAR based scientists are expected throughout the course of this project.

POSITION DESCRIPTION: The incumbents will contribute to the calibration and validation of GPS RO sounding data that will facilitate the research and operational use of GPS RO data. The incumbents are expected to work in the following subjective areas, in collaboration with scientists at NESDIS and UCAR/NCAR:

- (i) Validation and calibration of GPS RO data by comparing the GPS RO data against microwave sounder data (e.g., AMSU and AMSR), IR sounder data (e.g., AIRS), high-resolution radiosonde and/or aircraft observations from operational networks and special field programs, and other corroborative data that are appropriate for this purpose.
- (ii) Improvement of the GPS RO data retrieval algorithms to ensure that the COSMIC mission produce the highest quality RO soundings.
- (iii) Establishing necessary data quality control and data filter/truncation procedures
- (iv) Definition of GPS RO measurement error statistics that are necessary inputs for assimilation of GPS RO data into operational NWP systems; and

- (v) Formulation of an optimal strategy for the assimilation of GPS RO and other satellite measurements. The candidate is expected to publish and document results via NOAA/NESDIS Technical Memos, NOAA/NWS Office Notes, and UCAR Technical Reports, meeting NOAA and UCAR/NCAR standards in collaboration with NESDIS and UCAR/NCAR staff. It is also expected that results will be submitted for refereed publication in scientific journals, co-authored with NOAA and UCAR/NCAR staff.

QUALIFICATIONS: Applicants should have a Ph.D. in atmospheric sciences, meteorology or related disciplines with knowledge and interest towards the development and testing of atmospheric sounding retrieval from satellite measurements. The individual should have:

- (i) Experience in satellite data analysis and retrieval of satellite measurements.
- (ii) Some knowledge and experience in numerical weather prediction, meteorological analysis, or climate research.
- (iii) Strong background in mathematics and statistics.
- (iv) Experience with Fortran programming, Unix/Linux systems, and statistical analysis packages as well as PC applications.
- (v) Capability in oral and written communications, and
- (vi) Ability to work both independently and as a contributing team member.

To apply, send the following materials to Bill Kuo (kuo@ucar.edu) by 30 April 2003: Curriculum vitae with a list of publications, technical reports and professional presentations. Names and contact information of four professional references. Ph.D. thesis abstract, including title of thesis.

Selected candidate becomes a UCAR term employee and receives a fixed annual salary appropriate to the experience and qualifications of the candidate. Benefits include health and dental insurance, paid leave, paid holidays, mandatory participation in a retirement fund (TIAA/CREF), and life insurance. A relocation allowance is provided as well as an allowance for scientific travel and other support costs. The program offers an appointment up to two years. The appointment is reviewed annually and is available beginning 1 June 2003. Continuation of appointment is possible subject to the availability of funding.

Send application materials to:

Bill Kuo
COSMIC Project Office
P.O. Box 3000
Boulder, CO 80307-3000, USA
Email: kuo@ucar.edu
Phone: 303-497-8658

(6) Addendum: COAA 2003 Scientific Workshop Abstracts

COAA 2003 Scientific Workshop: Research and Applications in Atmospheric,
Ocean and Earth Sciences
March 25, 2003, Tuesday, 1-5 p.m.
University of Maryland, College Park, Maryland

Introduction

On behalf of the Board of Directors of the Chinese American Ocean-Atmosphere Association, we welcome you to the COAA 2003 Scientific Workshop: Research and applications in atmospheric, ocean and Earth sciences. The purpose of this workshop is to provide an opportunity for members and guests to present their research works, facilitates discussions and exchange of ideas and promotes networking among colleagues and fellow members.

Thirteen papers on topics ranging from use of renewable ocean thermal energy, techniques and analyses of climate phenomena, remote sensing algorithms and applications, particulate transport and wave dynamics, and urbanization impact on climate, will be presented. Through your active and collegial participation, we hope that we can enhance networking among members and participants.

We thank the Board members for their support and the Meteorology Department, University of Maryland, College Park, for use of their facilities.

Long S. Chiu and Xiaofeng Li
Program Co-Chairs

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