

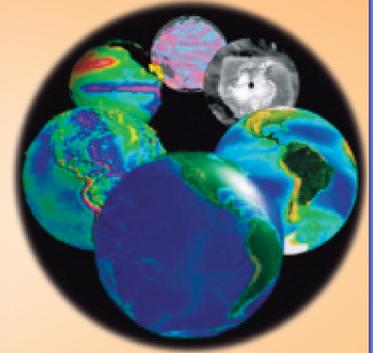
BULLETIN

of the

PORSEC

Association

Volume 7.2 Sept 2013



Dear Fellow Members of the PORSEC Association,

This issue of our Bulletin of the Association brings you some articles about the long-lived Jason-1 ocean sensing altimeter, some news from Russia about celebrating its first KOSMOS satellites, an article about scatterometers and the value of sampling the surface wind vectors by several scattometers and inter-calibration of their data. There is a note about MERIS measurements of a bloom off the Canadian West coast and some general news items gleaned from other organizations' web-sites. Further, we also have an article on ocean color.

The next meeting of PORSEC in 2014 will be in Bali, Indonesia, November 4-7, 2014. It is probably time NOW to ask for travel support to come to this meeting in the relevant fiscal year for your institution/country. Perhaps you can also find funds to bring a student or younger colleague for the tutorial and some of the PORSEC 2014 sessions. More details about the meeting will follow in the next issues.

The Special issue of the International Journal of Remote Sensing solicited in conjunction with our conference in Kochi, India, has had a surge of submissions and most articles are in advanced stages of review. Gad Levy reports on the status in this issue of PORSEC Bulletin.

Best regards,

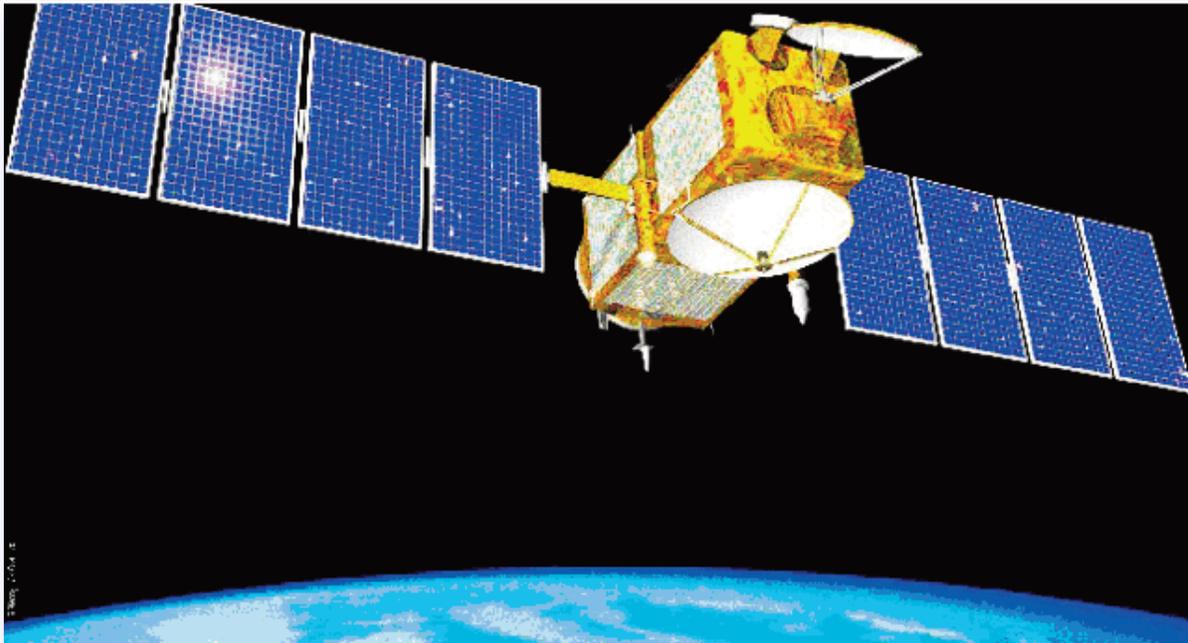
Kristina B. Katsaros and Gad Levy,
Co-Editors of the Bulletin

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NASA/CNES Ocean satellite retired after successful mission

NASA Press Release



Jason-1 satellite retires after successful mission contributing to climate records of sea level change

Credit: NASA

The Jason-1 ocean altimetry satellite has been retired after achieving scientific, technical and international success in its life time. The satellite was launched in 2001 as a joint project of the NASA and the Centre National d'Etudes Spatiales (CNES). It was designed to last for three to five years but in fact, Jason-1 has been in orbit and reporting data for more than eleven years. During this time, the satellite has successfully mapped sea level, wind speed and wave height for more than 95 percent of Earth's ice-free ocean every 10 days. This information contributed to create a revolutionary 20-plus-year climate data record of global ocean surface topography that began in 1992 with the launch of the NASA/CNES TOPEX/Poseidon satellite.

Since its launch, the satellite has shown that the global sea

levels have risen by nearly 1.6 inches (4 centimeters) as a result of global warming. "The Jason satellite series provides the most accurate measure of this impact, which is felt all over the globe", said John Grunsfeld, associate administrator NASA's Science Mission Directorate in Washington.

"Jason-1 provided one of the most comprehensive pictures of changes in the tropical Pacific Ocean, including the comings and goings of El Nino and La Nina events," said Lee-Lueng Fu, a scientist of the project Jason-1. "These Pacific Ocean climate cycles are responsible for major shifts in sea level, ocean temperatures and rainfall every two to five years and can sometimes be so large that worldwide weather patterns are affected. Jason-1 data have been instrumental in monitoring and predicting these ever-changing cycles."

Upcoming conference and celebration in Vladivostok

Report from PORSEC member Leonid Mitnik (mitnik@poi.dvo.ru).



We will celebrate the following historical events: The 45th anniversary of the World's first microwave radiometer in space (Kosmos-243) and 30th anniversary of the first real aperture radar in space (Kosmos-1500) in Vladivostok, September 24-27, 2013.

Hosts area: the Far Eastern Federal University and Far Eastern Branch of Russian Academy of Sciences (RAS) arranged a special International Conference.

We are expecting to have several PORSEC scientists in Vladivostok for this celebration of Russian accomplishments.

The Aim of the Conference is Development and application of remote sensing for study and control of the Environment and extension of cooperation in Asia-Pacific.

Topics include:

Remote sensing and monitoring of natural and man-caused disasters (tropical, extratropical and polar cyclones, heavy rains, floods, oil pollution, harmful algal bloom, earthquakes, forest fires, volcanic eruptions, dust storms).

Transboundary transport of air and water pollutants: detection and monitoring of anthropogenic and natural pollutants.

The technologies of remote sensing data acquisition, archiving, automatic processing and delivery as well as problems of data calibration and validation.

GIS-technologies and GPS/GLONASS navigation for environment monitoring and rational nature management. Remote sensing applications in geology.

The Conference will be held at the Far Eastern Federal University Library, Vladivostok, Russia.

Different Samplings of High Frequency Ocean Surface Wind from Space

W. Timothy Liu and Xiaous Xie

Jet Propulsion Laboratory, California Institute of Technology
Pasadena, CA 91109, U.S.A.

High frequency ocean surface winds have been measured by virtue of constellations of spacebased sensors in complementary polar orbits, but the systematic errors among sensors that may be mixed up with the natural diurnal variation, need to be removed. High frequency variation can also be measured by a single sensor in low inclination orbit, which may be used to establish the diurnal variation. The established diurnal cycle can help the removal of systematic errors among polar orbiters; the polar orbiters will, in turn, extend the limited coverage by the low-inclination sensor to extra-tropical oceans. Such sampling strategy is being demonstrated in precipitation measurements by the Tropical Rain Measuring Mission (TRMM) and Global Precipitation Mission (GPM).

Ocean surface winds have been measured by active and passive sensors on polar orbiting satellites (Liu, 2013). One polar orbiting sensor, like QuikSCAT, can, at most, sample a location twice a day. Liu (2003) shows that the tandem mission Quick Scatterometer (QuikSCAT) and Advanced Earth Observing System (ADEOS)-II, with almost identical scatterometers on both spacecraft, provided opportunities to resolve diurnal and local inertial period variability that drive ocean mixing and transport processes. Liu et al. (2008) were the first to publish various scenarios of flying spaceborne scatterometers in tandem or in virtual constellations to improve the measurements of ocean surface vector wind and stress in meeting the requirement for oceanic uses of inertial frequency and operational weather prediction needs of six-hourly revisit time. We realized early on that in order to combine the data sets, the sensors have to be cross-calibrated to remove systematic sensor errors. Because the sensors pass an Earth location at different times of day, we needed to account for the natural diurnal variations. We started a series of studies to determine the diurnal cycles using a combination of new sensors (Advanced Scatterometer (ASCAT) of Europe, the scatterometer on Oceansat-2 (OSCAT) of India, and WindSAT of the U.S., measuring at various points of the diurnal cycle (e.g., Tang et al. 2013), as illustrated in Fig. 1.

The Cyclone Global Navigation Satellite System (CYGNSS) mission, recently selected by NASA, will use a constellation of 8 small satellites, scheduled to be laun-

Satellite passing times at TAO buoy

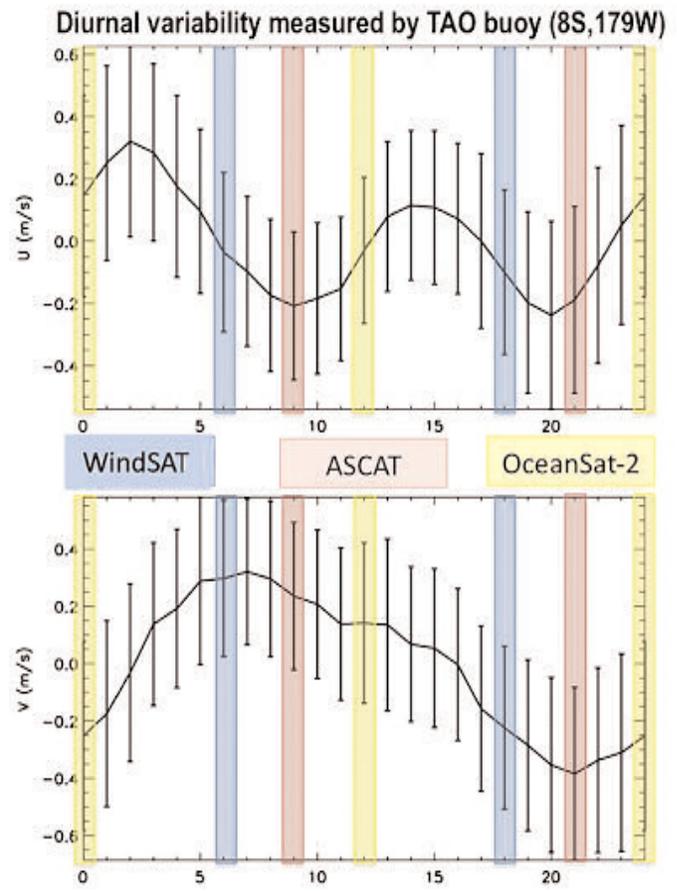


Fig. 1 Diurnal cycle of zonal and meridional winds measured at TAO buoy (179°W, 8°S), based on available data from 1990 to 2005. The local passing times of ascending and descending orbits of the three satellites (WindSat, ASCAT, and Oceansat-2) are superimposed.

ched in 2016 (Ruf et al. 2012). CYGNSS will receive both direct and reflected signals from Global Positioning System (GPS) satellites. The direct signals will pinpoint observatory positions and the reflected signals will respond to ocean surface roughness from which wind speed will be retrieved. CYGNSS will provide the opportunity to make sufficient measurements of the diurnal cycle with a single sensor. Fig. 2 shows the frequent sampling as compared with those of the existing constellation of scatterometers and Fig. 3 shows the frequent revisit time at a single location. RapidSCAT is a ku-band scanning pencil-beam scatterometer using QuikSCAT residual hardware, which is scheduled to fly on the International Space Station (ISS) in 2014. ISS has the low inclination orbit and will provide frequent sampling over the tropical oceans. However, the duty cycle is uncertain because the instrument may not be operational while activities are taking place on ISS. There are also technical problems caused by continuous changing of height and viewing angles. We will follow closely the development and improvement.

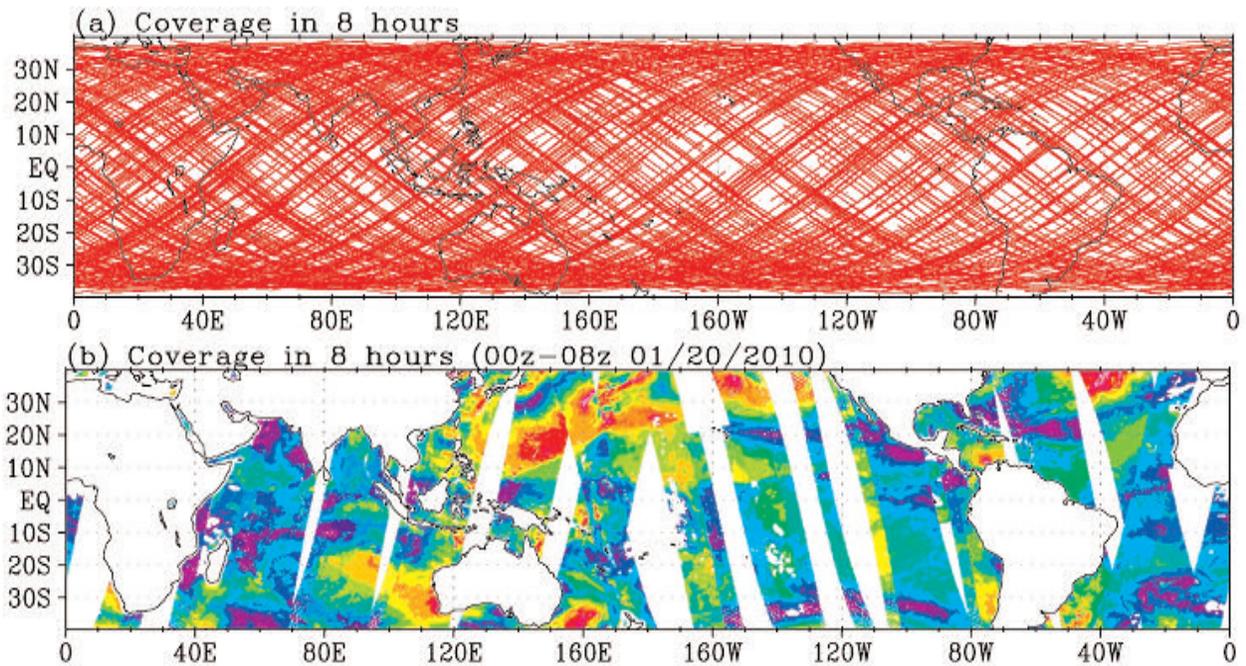


Fig. 2

(a) Simulated ground tracks for CYGNSS in 8 hours coverage.

(b) Wind speed observed during the 8 hours by three-satellite constellation: ASCAT, Oceansat-2, and WindSat.

CYGNSS passing times relative to the diurnal cycle

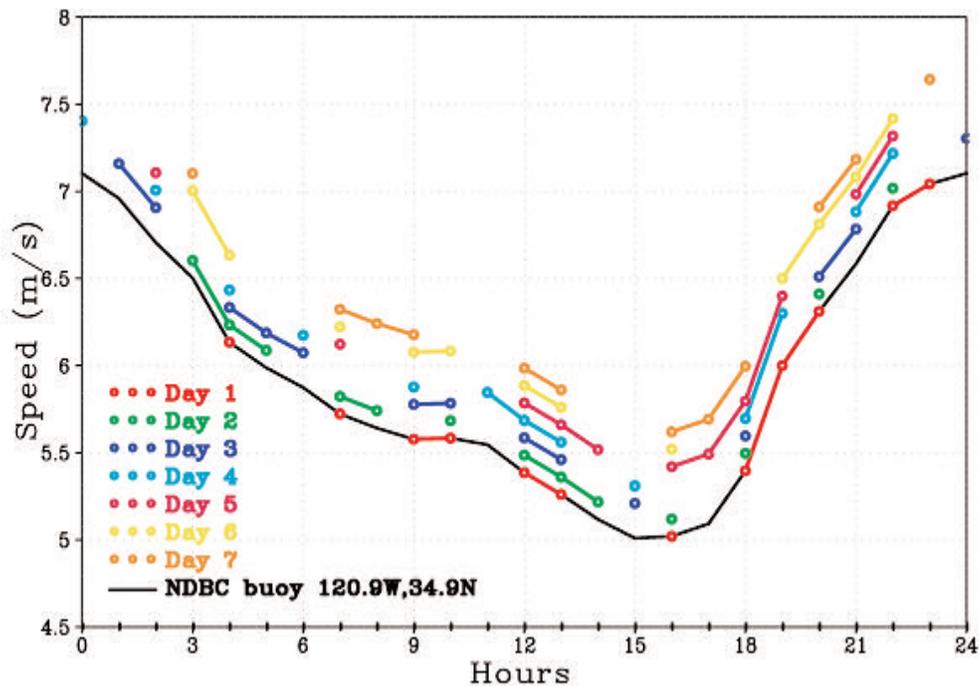


Fig. 3 Diurnal cycle of wind speed measured by NDBC buoy (120.9°W, 34.9°N), computed from hourly data in 2008.

CYGNSS passing times for a 7-day period is superimposed.

Amplitudes from the CYGNSS data are arbitrary.

Acknowledgments

This report is prepared at the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration (NASA). It is supported by the Ocean Vector Wind Science Team and Weather Programs of NASA. Stephen Lowe kindly provided assistance in the simulation of CYGNSS coverage.

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IJRS Special issue Report from Gad Levy

We had an overwhelming response with close to 70 (68) manuscripts initially submitted to the special issue, and we had to recruit additional special issue guest editors. We expect to have a double volume with between 40 and 44 papers. We currently have about 30 papers being revised by authors based on reviews.

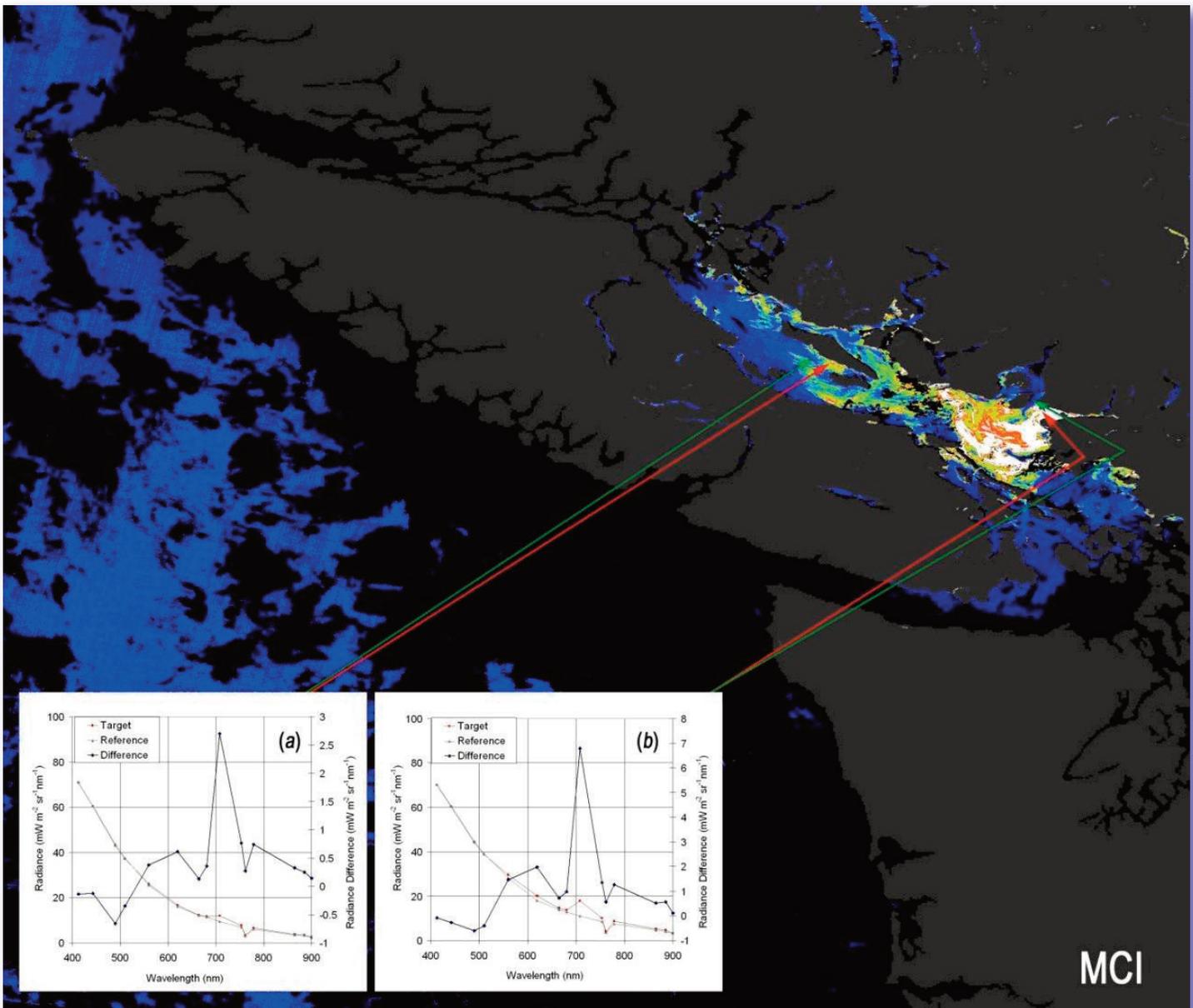
We are grateful to our volunteer guest editors for their efforts:

Jim Gower, Ajit Subramaniam, Abderrahim Bentamy, and Stefano Vignudelli



Bloom detection by satellite

Sent by James Gower, Stephanie King and Erika Young,
of the Institute of Oceanographic Sciences, Patricia Bay,
B.C. Canada



A satellite image from ESA's MERIS instrument with 300m resolution, shows the waters of south-western BC on a partly cloudy summer's day, 22 June 2011. Land, Vancouver Island and the mainland of BC, Canada and Washington State, USA, are masked to dark grey. Red and white colours indicate the strong response by MERIS' bloom-detecting MCI (Maximum Chlorophyll Index) to high concentrations of phytoplankton in the coastal waters of the Strait of Georgia, near Vancouver, BC. Water offshore is cloud-covered (masked to black) or

shows low MCI value (dark blue). Surface measurements near the time of the image, suggests that the high MCI was due to blooms of *Heterosigma*, a species of major concern to local shellfish harvesters. Technical experts can note that the spectra in inserts A and B show that the most significant feature of these blooms is the radiance peak at 709nm, which MERIS (2002-2012) was almost uniquely equipped to detect (as MCI, as in the image). We now look to launch of the replacement instrument (OLCI) in 2014 for continuation of this type of image.

ADAPTATION FUTURES | 2014

Third International Climate Change Adaptation Conference

Organized by CCST/INPE and PROVIA



12th-16th May 2014
Centro de Eventos do Ceará
Fortaleza/Ceará, Brazil

The conference will focus on climate impacts and adaptation options. It will bring together scientists and decision makers, and practitioners from developed and developing countries to share research approaches, methods and results. It will explore the way forward in a world where impacts are increasingly observable and adaptation actions are increasingly required.



International Executive Organizing Committee

Jose A. Marengo, CCST INPE, Brazil, Conference co-chair
Saleem el Huq, Chair of ProVIA SSC, Conference co-chair
Paulina Aldunce, Universidad de Chile, Santiago, Chile
Keith Alverson, UNEP, Kenya
Edwin Castellanos, Universidad del Valle de Guatemala, Guatemala
Pauline Dube, University of Botswana, Botswana
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Richard Klein, ProVIA, Stockholm Environment Institute, Sweden
Rik Leemans, Wageningen University, Netherlands
Antonio Magalhães, UNCCD, CGEE, Brazil
Patricia Pinho, IGBP, CCST INPE, Brazil
Mark Stafford Smith, CSIRO, Australia

Conference Registration Costs

Full registration	\$400 USD
Full Student registration	\$150 USD
One-day registration (with no dinner)	\$100 USD
Full registration (with no dinner)	\$350 USD

Online abstract submission and registration:

Abstract are invited (up to 300 words)
for oral and poster presentations.

**Opening Date for
abstract submission:** By 1 July 2013

Closing Date for abstract: By 15 November 2013

Acceptance of abstracts: By 20 February 2014

Submissions can be made directly
on the website of the event:

<http://adaptationfutures2014.ccst.inpe.br/>

Deadline for registration: By 20 November 2013

More information:

adaptionfutures2014@inpe.br | <http://adaptationfutures2014.ccst.inpe.br/>

Sponsors:



Realization:



NOTICES

Announcements, News, and Opportunities of Interest to the PORSEC Community:

NEWS

Arirang-5: South Korean multi-purpose satellite successfully launched

On 22 August 2013, South Korea's new multi-purpose science satellite, the Arirang-5, was launched atop a Russian Dnepr rocket at the Dombrovsky launch site near Russia's border with Kazakhstan. The satellite has been developed to operate with a life time of five years at an altitude of 550 kilometers (341 miles) providing images with the goal of monitoring disasters and identifying natural resources.

Although Arirang-5 constitutes the 11th South Korean satellite to be launched into space, it is the first radar imaging satellite to be developed and operated by South Korea. The Core SAR Instrument, or COSI, aboard Arirang-5 uses Synthetic Aperture Radar to produce images of the Earth at different resolutions. Nevertheless, for COSI to return useful data, it must be properly calibrated first, and the satellite's orbit must be determined exactly. For this purpose several reflector arrays were set up in a remote area of Mongolia, which will produce strong signals when radar signals are reflected off them.

To read more, please visit the [Korean SAR Satellite](#)

NOAA: GOES-12 satellite retired after 10 successful years

After a successful service of 10 years, NOAA's Geostationary Operational Environmental Satellite (GOES)-12 spacecraft is being retired. Since GOES-12 became operational in 2003, it has supported forecasters and scientists in NOAA's National Weather Service until 2010, when the satellite was shifted to a new position from

which it provided coverage of weather conditions affecting South America that included volcanic ash clouds, wildfires, and drought.

Though GOES-12 satellite was launched on 23 July 2001 with an operational design life of two years for on-orbit storage and five years of actual operations supporting forecasters and scientists, it lasted well beyond these expectations. For more than 10 years of stellar service, GOES-12 has witnessed from Hurricane Katrina that hit the Gulf Coast in 2005, to the Christmas blizzard that crippled the Central United States in 2009.

"GOES-12 gave the Western Hemisphere many years of reliable data as the operational eastern GOES for accurate forecasts, from small storms to those of historic proportions," said Mary Kicza, assistant administrator for NOAA's Satellite and Information Service.

Courses, Workshops, and Conferences

International Conference:

Remote Sensing of the Environment: Scientific and Applied Research in the Asia-Pacific Region

Vladivostok, 24-27 September 2013

The Far Eastern Federal University (FEFU) and Far Eastern Branch of Russian Academy of Sciences (FEB RAS) will arrange this International Conference in Vladivostok.

The Technical Program will include the following themes:

- Remote sensing technologies and studies of the Atmosphere, Cryosphere, Oceans and Land
- Dynamic phenomena in the ocean-atmosphere system and their physical interpretation.
- Extreme events monitoring (tropical cyclones, heavy precipitation, floods, forest fires, dust storms, etc.).
- Technologies of automatic processing and delivery of satellite remote sensing data for research, operational use, and training
- Calibration and validation of remote sensing data and in-situ observations.

Round tables will be devoted to

- 45th anniversary of the Cosmos-243 satellite launch (the world's 1st microwave radiometer measurements) & the

30th anniversary of the «Kosmos-1500» satellite launch (the world's first real-aperture radar sensing).

- Trans-boundary transport and air and ocean pollution in the Pacific Rim.

- Information infrastructure for scientific research in the Asia-Pacific region.

Social Events:

Vladivostok sightseeing tour, a trip to Russian island (FEFU campus), Peter the Great Bay tour.

Contact: rs-ap at satellite.dvo.ru
RSAP2013 at gmail.com

Training Workshop on Space Technology for Disaster Mitigation

Sanya, Hainan, China; November 11-22, 2013

The training workshop will bring together early- and mid-career scientists from developing countries in Africa, Asia and Latin America wishing to increase scientific knowledge of disaster mitigation and space technology. The policy makers and managers from developing countries are also welcome to apply for participating in the workshop. As the number is limited to 20 people, only those who are qualified can be selected as formal participants. Female applicants will be given priority.

The Workshop will provide the following courses:

1. The Current Status of International Space Technology for Disaster Mitigation;
2. Space Technology for Disaster Mitigation and Integrated Research on Disaster Risk;
3. Application of Space Technologies on Natural and Cultural heritage Sites, Biosphere Reserves;
4. Spatial Data Receiving and Processing;
5. Flood Evaluation and Application of Space Technology for Disaster Mitigation;
6. Meteorological Disaster Assessment and Application of Space Technology for Disaster Mitigation;
7. Drought Assessment and Application of Space Technology for Disaster Mitigation;
8. Conflagration Assessment and Application of Space Technology for Disaster Mitigation;
9. Management of Agricultural Disaster;
10. Data Management of Space Technology for Disaster Mitigation.

For more information please contact:

Ms. LI Jiani or Ms. Huo Sijia

E-Mail: stdm at ceode.ac.cn

huosijia at ceode.ac.cn

Tel. +86-10-82178959 ; 82178911

Fax : +-10-82178959; 82178915

Address : No. 9 Dengzhuang South Road, Haidian District, Beijing 10094, China.

[Sanya, China: Training Workshop on Space Technology for Disaster Mitigation](#)

The 9th International Conference on Geo-information for Disaster Management (Gi4DM): Earth Observation for Disaster Management

Hanoi, Vietnam; December 9-11, 2013

The 9th International Conference on Geoinformation for Disaster Management (Gi4DM) with a conference Theme of: “Earth Observation for Disaster Management” will be convened by Vietnam Academy of Science and Technology (VAST) 18 Hoang Quoc Viet Rd. Cau Giay, Hanoi, Vietnam

The conference will concentrate on the following topics:

- Small satellite programs
- Remote sensing and GIS as tools for disaster management
- Landslide monitoring and data processing
- Flood analysis
- Drought monitoring
- Forest fire control
- Urban Analysis
- Earthquake and geo-hazards
- Coastal and ocean pollution
- Desertification and land degradation
- Search and rescue activities in disasters

Conference official e-mail address:

gi4dm2013 at mail.com

More information: [Hanoi, Vietnam: 9th International Conference on Geoinformation for Disaster Management \(Gi4DM\)](#)

WCRP-Conference for Latin America and the Caribbean, developing, linking, and applying climate knowledge

Montevideo, Uruguay, 17-21 March, 2014

Climate variability and climate change are now recognized as a significant threat to livelihoods across the world. Water shortages, more intense tropical storms, floods, coastal inundation and longer or recurrent periods of drought are already impacting the health, life and livelihoods of million people across the globe, whose reliance on resource dependent activities makes them more vulnerable.

Meeting the challenges posed by the current and projected impacts of climate change requires both a solid information base as well as a synergistic, multi-disciplinary response. This will necessarily require a balance between (i) research focused in improving climate monitoring and predictions at regional and local scales; (ii) research oriented by the demands of socio-economic sectors sensitive to climate, and (iii) research on the process of informing policy and decision-making in the different socioeconomic sectors.

It is against this backdrop the World Climate Research Programme (WCRP) is organizing the "WCRP-Conference for Latin America and the Caribbean, Developing, linking, and applying climate knowledge" which will be held in Montevideo, Uruguay between 17-21 of March, 2014.

The principal goals of this Conference are to:

- Address critical knowledge challenges in our understanding of the climate system, the interactions of its components and the limits of predictability, and
- Identify gaps and ways to overcome limitations in the knowledge networks that include basic to applied climate science and processes to informing policy and decisions that are particularly relevant for the Latin American and Caribbean region.

The conference will provide a space for building interdisciplinary dialogues between climate scientists, social scientists, policy makers, practitioners, and key intermediary institutions. It will be organized around key thematic areas, providing a common sector on which to encourage dialogue between the climate, social sciences and decision-making communities. These include: water and energy, agriculture and ecosystems, human health, coastal zones and urban environments.

The conference will be held in English, with simultaneous translation to Spanish for Invited Talks and Round Tables.

Participation Scholarships for students and early career scientists

Limited financial support is available to students and early career scientists wishing to attend.

For more information, please do not hesitate to contact Analia Fein: 2014wcrp at gmail.com

Additional information is available at <http://www.cima.fcen.uba.ar/WCRP/>

POSITIONS

Postdoctoral Position at JPL/Caltech in Cloud-Radiation-Dynamics Interactions

The California Institute of Technology (Caltech) Postdoctoral Scholars Program at the Jet Propulsion Laboratory (JPL) invites applicants for a postdoctoral research positions in the study of cloud-radiation-dynamical interactions. A major emphasis of the research involves the application of satellite observations (e.g. CloudSat/Calipto, TRMM, AIRS) to better characterize and understand these interactions and improve their representation in global models. The latter includes the CMIP5 model archive and the multi-model physical processes experiment organized by the WGNE MJO Task Force and the GEWEX GASS activities (see yotc.ucar.edu). A specific focus will be on the representation, and systematic biases, of cloud and precipitation hydrometeors and their impacts on radiation, and in turn dynamics, in global models.

Applicants must have a recent Ph.D. in atmospheric science or a closely related field, must be familiar with atmospheric modeling and parameterization issues and must have a strong background in data analysis. Experience with one or more state-of-the-art global atmospheric/climate models, the framework for simulation and model intercomparison studies, and/or one or more of the above types of satellite data is desired.

Postdoctoral scholar positions are contingent upon evidence of completion of the Ph.D. The positions are awarded initially for a one-year period and may be renewed in one-year increments for a maximum of two additional

years. The annual starting salary for a recent Ph.D. is approximately \$52,000 and can vary somewhat according to the applicant's qualifications.

To apply, please send a letter describing your research interests and enclose your CV and the names of three references, by mail to Duane Waliser, Jet Propulsion Laboratory, MS 183-501, 4800 Oak Grove Drive, Pasadena, CA 91109-8099, or by email to duane.waliser at [jpl.nasa.gov](mailto:duane.waliser@jpl.nasa.gov).

Caltech and JPL are equal opportunity/affirmative action employers. Women, minorities, veterans, and disabled persons are encouraged to apply. This position is open to US or foreign nationals

PORSEC Database

For our database of the PORSEC Association members we would like you to enter your information directly into our web membership form, if you haven't already done so: <http://porsec.nwra.com/membershipform.php>

Please fill this form even if you have already given the information to us in any other format since we may not have all that information down correctly. **Please use this form to update your information whenever you have any changes.** It can also be used to pay your membership fee.

This form is also accessible through our main page (<http://porsec.nwra.com>) by clicking on "Join the PORSEC Association".

Please work on getting us more members; use the PORSEC home page and the above links for information. The prospective member provides us with the same information through the form. We will bill the person for the membership fee, which can now be paid via "Pay Pal" on the Internet.

Information

For information about the association and links to Newsletters from the president and Bulletin issues go to: <http://porsec.nwra.com/>. To join the PORSEC Association go to membership on the web site or contact one of us directly. The Bulletin of the PORSEC Association is edited by Gad Levy and Kristina B. Katsaros. Production Editor Susanne Öhrvik. ***We welcome contributions about your work and about any activities of our PORSEC members that may be of interest to other members for future issues of the Bulletin.*** To submit articles for this Bulletin of the PORSEC Association, please contact gad at [porsec.nwra.com](mailto:gad@porsec.nwra.com) or katsaros at [porsec.nwra.com](mailto:katsaros@porsec.nwra.com).