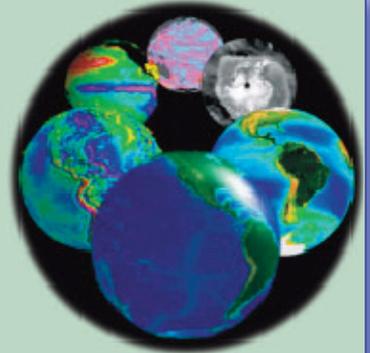


# BULLETIN

of the

# PORSEC

Association



Volume 3.2 August 2009

**Dear Bulletin Readers,**

The plans for next year's conference, PORSEC 2010, are being firmed up as of this writing. Please read the overview by the Local Organizing Committee Chair, Dean Ming-An Lee of The National Ocean University of Taiwan in this issue. We are planning some tutorial classes as in other years and are hoping to provide a few scholarships for students and young professionals to join the next conference.

You will also find a report on using SAR images from two satellites to determine currents in an eddy in the South China Sea and a report on the workshop on Climate Data Issues from PORSEC 2008.

We solicit from you short summary articles of papers that you have recently completed that we might all find interesting. We also hope that you will take the time to fill in the details of your profile on our membership web-page. (See last page of the Bulletin.)

Best regards from the Editors of the Bulletin of PORSEC Association

Gad Levy and Kristina Katsaros

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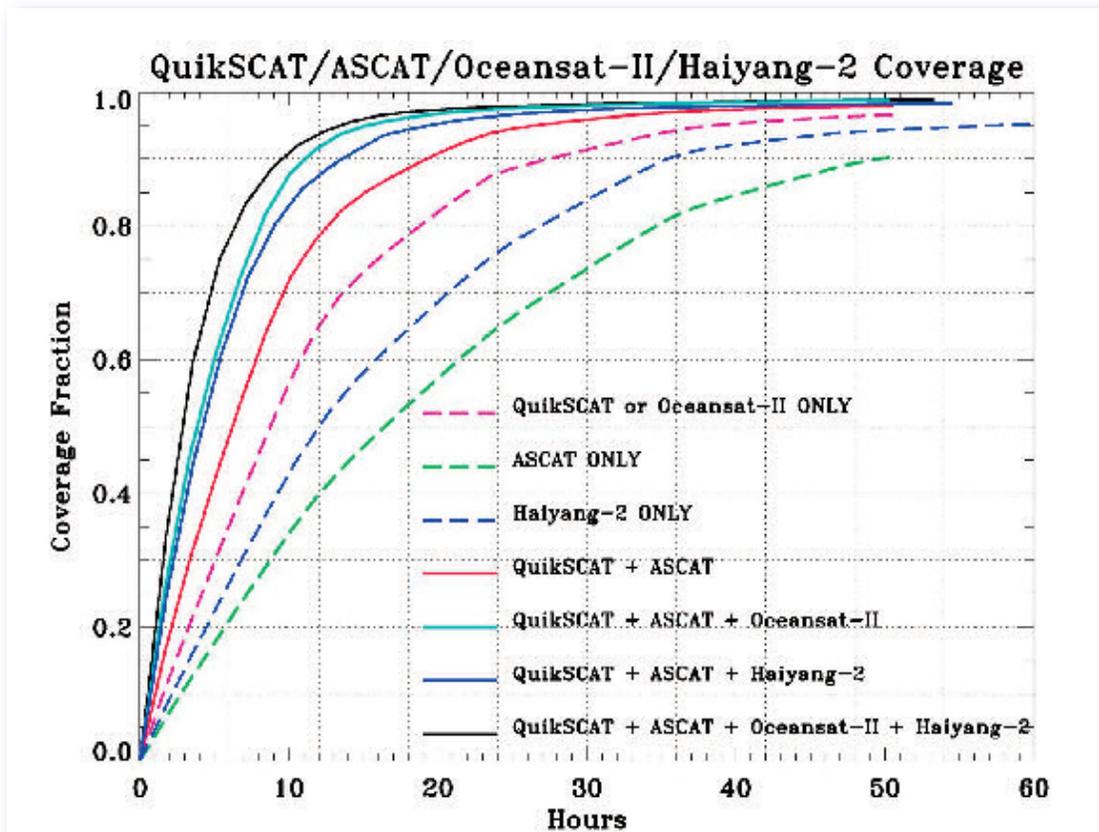
## Report on the PORSEC 2008 workshop on Climate Data Issues, WS2, December 6, 2008.

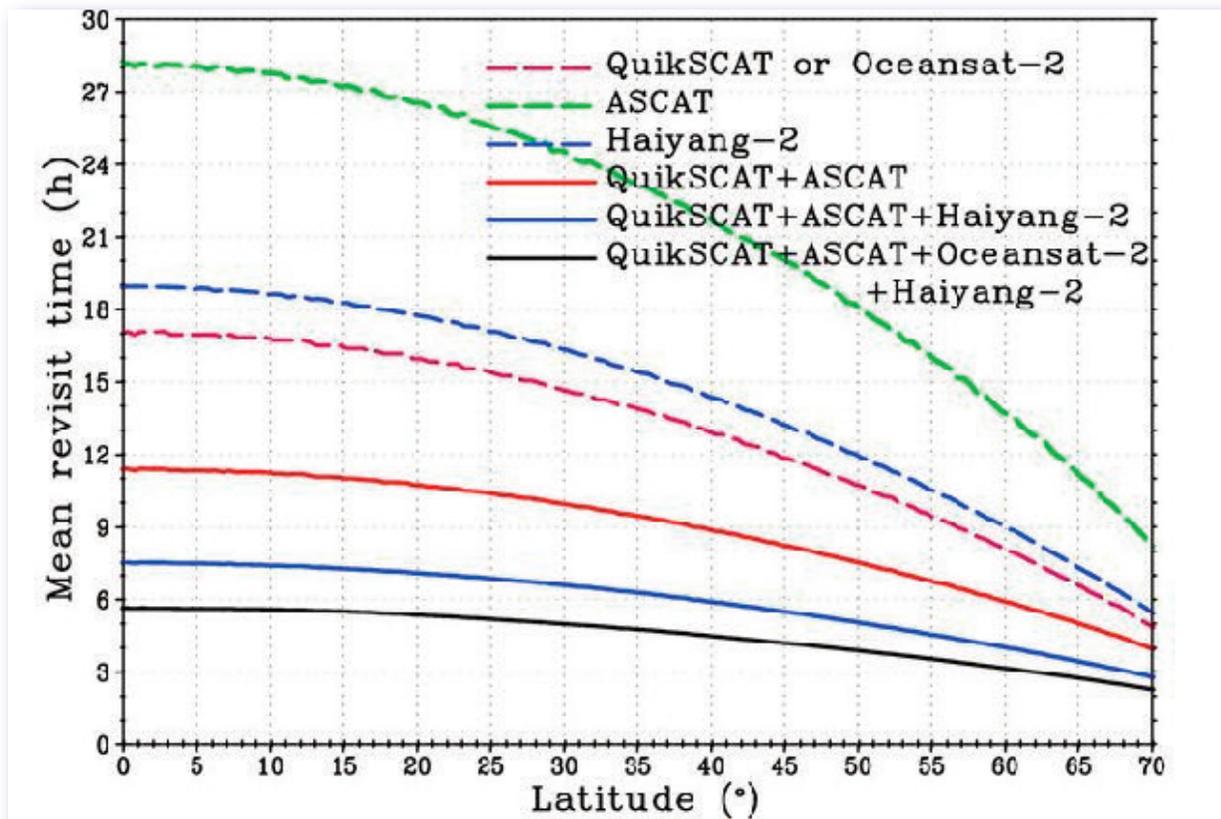
Author, Kristina B. Katsaros (WS2 coordinator)

The Pan Ocean Remote Sensing Conference 2008 hosted several workshops. Our conference provides a special opportunity for communication across national boundaries in an informal setting without any official commitments from national agencies, but providing an opportunity to present and discuss collaborative opportunities and issues that cannot be addressed effectively within one single nation. The climate data collection relates to the needs of the whole planet to assure that the following four concerns are met: adequate sampling, calibration/validation, archiving and distribution. This workshop followed directly on the Special Session on Space Agencies. We presented the program and the presenters in the Bulletin of the PORSEC Association Vol. 3, issue 1, in the winter of 2009 (see PORSEC Association Home Page ). We were very fortunate to have a great slate of presenters for that session, which brought us all to the same level of knowledge about current and future programs. These presenters also participated in the discussions in WS 2. We expect, that the increasing participation of se-

veral more nations, in particular India and China in satellite launches in the near future, presents an important opportunity for enhanced climate monitoring and data use. These two countries have a series of oceanographic remote sensing satellites, which have many characteristics in common with on-going programs in the European Space Agency and in the U.S. National Aeronautics and Space Administration. International panels already work on collaborative cross-cutting issues, such as the Group on High Resolution Sea Surface Temperature, GHRSSST (e.g. Donlon et al, 2007). They have evolved over a 10 year period into a well organized and authoritative body. They attempt to get internationally coordinated sampling and type of SST sensors, algorithms and methods for analysis. We were fortunate to have Craig Donlon, who has lead this group for several years in our workshop.

With regard to winds over the ocean, we already have a good example and an opportunity to merge data from at least 3 to 4 scatterometers that are likely to be in space simultaneously, especially valuable if they could be placed in orbits that together obtain optimal sampling in time. Figure 1 and 2 from Liu et al (2008) shows the enhanced sampling with ESA, NASA, Indian and Chinese scatterometers operating simultaneous (the US. Seawinds satellite may not survive long enough for this scenario to materialize.





However, ocean surface wind estimates from passive microwave sensors such as those on the series of Special Sensor Microwave/ Imagers provided by the USA have already been merged effectively with scatterometer data (e.g. Bentamy et al (2008)). Other passive wind sensors include the future National Polar Orbiting Earth Satellite System, NPOESS, a major new U.S. polar orbiting satellite system combining previously civilian and military systems into one. The EUMETSAT polar orbiting satellite series will provide the complementary sampling; these two systems will in effect replace the former twice daily NOAA polar orbiters. Similarly virtual constellations have been operating for altimetry for some time and are being formally proposed for other properties (See OceanObs09, white paper by Wilson et al, 2009).

In terms of consistency, we lamented the current risk of major gaps for certain data types due to experimental, mature systems not yet being deemed fully operational and therefore not having follow-on plans in place. The U.S. scatterometer is a case in point. Fortunately, the METOP series carry a European scatterometer, the Advanced Scatterometer, ASCAT, with twice the coverage of the former ERS-1 and 2 scatterometers, and these are now operational.

Archiving and distribution of global satellite cli-

mate data are issues that are gradually being developed and were just barely touched upon in our workshop groups. The U.S. has its National Climate Data Center, NCDC, and the National Oceanographic Data Center, NODC, and NASA operates several Data archiving centers, notably the Physical Oceanographic, Data Archiving Center, PO. DAAC. The French have the Centre de Brest archiving center, Centre ERS d'Archivage et de Traitement, CERSAT, French ERS Processing and Archiving Facility, <http://www.ifremer.fr/cersat/en/>.

Full international coordination on data management is still under development. (Please send notices about climate/oceanographic data that you may be managing for announcement in the Bulletin PA. We would appreciate an opportunity to inform our members.)

None of these aspects of climate data collection and management by spaceborne instruments are simple and immediately obvious. They require much thought, discussion and negotiation and will require continuous up-dating and modification. However, it is of paramount importance that we get this right and soon.

We formed 4 groups to discuss specific issues related to the four topics and to continue the exchanges via email on coordination for virtual

constellations, consistency via overlapping missions and basic calibration, archiving and distribution. We hope to meet again at PORSEC 2010 to continue the discussions and exchange of information. It is clear that our pronouncements by themselves are not going to affect an increase in cooperative planning of constellation configurations or cooperation on the other aspects of climate data collection, but the PORSEC membership consists of many climate scientists and scientists concerned with natural hazards and severe pollution events, and all of us are therefore likely to benefit from more frequent sampling (and therefore better statistics of the delivered geophysical parameter), so the education that these discussions provide gives us all the information we need to lobby within our own research organizations and national agencies for more coordinated planning that would clearly benefit us all! Optimal use of rare resources for research on the state of the ocean and atmosphere is a prudent objective.

Please see several relevant white papers on all these issues in preparation for the OCEANOBS'09 conference in Venice, Italy, September 21-25, 2009.) These are freely available via the web-site: <http://www.oceanobs09.net/blog/>. The readers of the Bulletin of the PORSEC Association are likely to find these very complete and helpful and a great source of reference material for all types of ocean observations, including in situ measurements, which are always needed for cross-checking with our satellite measurements.

#### References:

*Bentamy et al, Bentamy A., K B. Katsaros, M. Al-berio, W. M. Drennan, E. B. Forde, and H. Roquet, 2003 : Satellite Estimates of wind speed and latent heat flux over the global oceans, J. Climate, 16, 637 - 656. and*

*Donlon, C. et al, 2007: The Global Ocean Data Assimilation Experiment, GODAE, High Resolution, Sea Surface Temperature Pilot Project, (GHRSS-PP), Bull. Amer. Met. Soc., 88 (8), 1197-1213, (DOI-10.1175/BAMS-88-6-1197.*

*Liu, W.T., W. Tang, X. Xie, R. Navalgund , and K.Xu, 2007: Power density of ocean surface wind-stress from International scatterometer tandem missions. Int. J. Remote Sens., 29(21),6109-6116.*

*Wilson S. et al, 2009, Draft of White paper on "Ocean Surface topography Constellation: The Next 15 years in Satellite Altimetry. OCEANOBS09, Community white paper, <http://www.oceanobs09.net/>*

## PLANS FOR PORSEC 2010

PORSEC 2010, the Tenth Biennial Conference, with the overall theme "Connecting Regional Impacts to Global Environmental Change", will be held in Taiwan October 18-23, 2010, hosted by the National Taiwan Ocean University (NTOU), Keelung, Taiwan.

Local contact and organizer is  
Professor Ming-An Lee  
Dean, College of Ocean Science & Resource  
National Taiwan Ocean University  
No.2, Beining Rd., Keelung City 20224, Taiwan  
Tel: +886-2-2462-0866  
Fax: +886-2-2463-3985  
Email: malee at ntou.edu.tw; cosar at ntou.edu.tw;  
porsec2010 at ntou.edu.tw

Details are available on the website:  
<http://porsec2010.ntou.edu.tw>.

Four Special Sessions have so far been identified: Satellite Observation Systems, Global Change, Natural Hazards, and Coastal Environment. PORSEC2010 is calling for further session proposals and conveners. Please contact Prof. Ming-An Lee at the above address.

PORSEC 2010 is being organized with support and assistance of the National Taiwan Ocean University, the National Taiwan University, the National Central University, the National SunYat-sen University, the National Cheng-Kung University, the North-Taiwan Technology and Science Institute, Academia Sinica, the National Space Organization, the Taiwan Ocean Research Institute and the Central Weather Bureau in Taiwan.

A tutorial course will be offered for students and young professionals, October 14-17, just preceding the PORSEC 2010 in the same location.

The National Taiwan Ocean University is a comprehensive university specialized in marine affairs and ocean sciences, particularly in marine environmental informatics and fishery oceanography with satellite remote sensing and GIS. The fabulous beauty of Taiwan and the innate hospitality of the people will make it a memorable and pleasant stay for all delegates. We are looking forward to seeing you at PORSEC 2010 in Taiwan.

*On behalf of PORSEC:*  
*Dr. Jim Gower*  
*E-mail: [Jim.Gower at dfp-mpo.gc.ca](mailto:Jim.Gower@dfp-mpo.gc.ca)*

## Deriving Ocean Surface Drift Using Multiple SAR Sensors

by Dr. Antony Liu (retired)  
Ocean Sciences Branch, Code 614.2  
NASA Goddard Space Flight Center  
Greenbelt, MD 20771

This is an excerpt consisting of the abstract and one figure from a longer article in the recent issue of International Journal of Remote Sensing,

Tracking and monitoring ocean features which have short coherent time periods from sequential satellite images requires that the images have both very high spatial resolutions and short temporal sampling intervals (i.e., repeated cycles). Satellite images from a single sensor in a polar-orbiting satellite usually cannot meet these requirements since high spatial resolution of the sensor may result in relatively long temporal sampling interval and vice versa, such as the case of Synthetic Aperture Radar (SAR). This paper presents a new multi-sensor approach

to overcome the long temporal sampling interval associated with a single SAR sensor while taking advantage of high spatial resolution of SAR images for the application of ocean feature tracking. Currently, there are two SAR sensors on different satellites, the European Remote Sensing Satellite-2 (ERS-2) and the ENVIRONMENT SATellite (ENVISAT), having acquisition time offset around 28 minutes with almost exactly the same path. That is, ERS-2 is following ENVISAT with a 28 minutes delay, which is a good time scale for ocean mesoscale feature tracking. A pair of SAR images from ERS-2 and ENVISAT collected on April 27, 2005 has been chosen to track ocean surface features by using wavelet analysis. As demonstrated in the case studies, this technique is robust and capable to derive ocean surface drift near an oil slick and around a big eddy in the South China Sea (SCS).

Full Reference to the article: Liu, A, K, and M-K Hsu, 2009, "Deriving Ocean Surface Drift Using Multiple SAR Sensors", *Remote Sens.* 2009, 1, 266-277; doi:10.3390/rs1030266

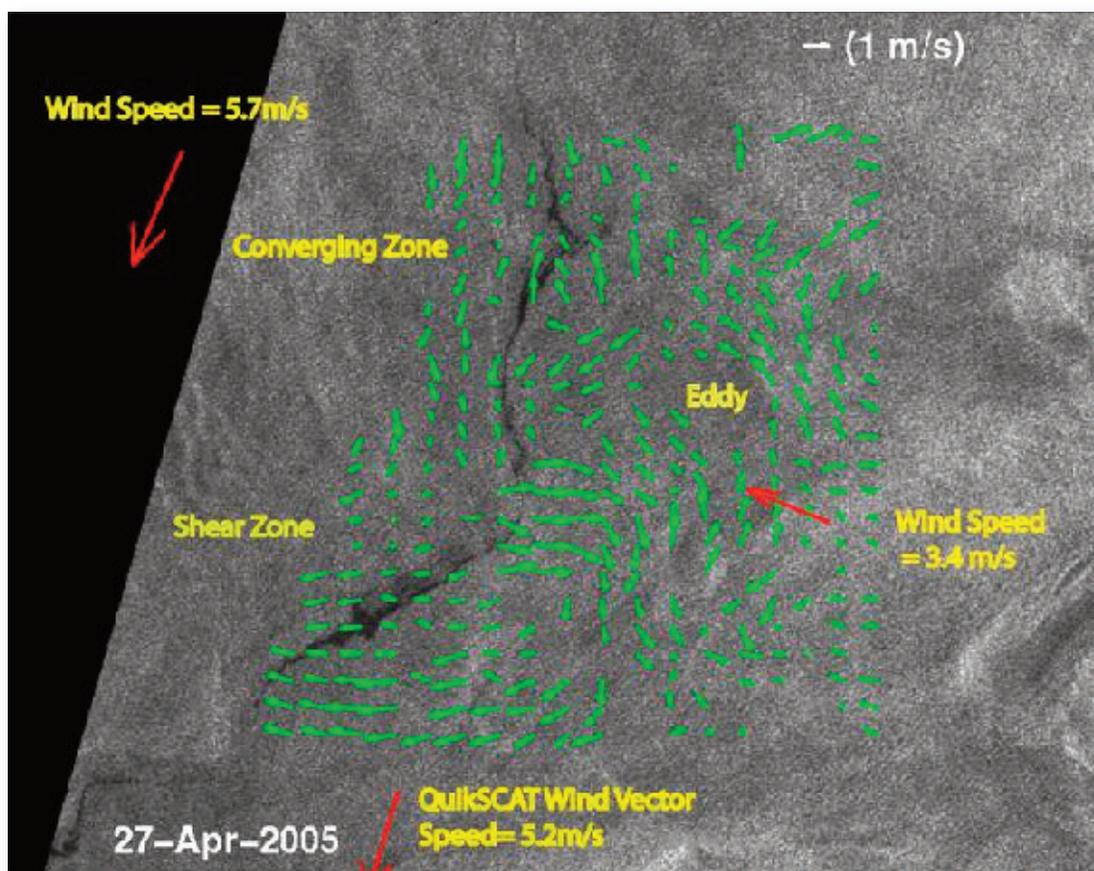


Figure: Ocean surface drift (green arrows) derived from ERS-2 and ENVISAT SAR data near the oil slick area (ENVISAT image as background). The surface drift unit of 1 m/s is indicated by a white arrow at the top. The QuikSCAT wind data are shown as red arrows.

# NOTICES

## Announcements of Interest to the PORSEC Community

### NEWS

#### **New Ocean Waves and Wind Information Derived From RADARSAT-2**

##### **Canadian Space Agency (CSA) reports**

Through CSA's Government Related Initiatives Program (GRIP), the Canadian Department of Fisheries and Oceans (DFO) will use Radarsat-2 polarimetric data to retrieve marine winds and waves, and validate these algorithms using in situ buoy observations and other high quality data. This GRIP project is being conducted by DFO's Bedford Institute of Oceanography in close partnership with the Department of National Defence and the Chinese Academy of Sciences. For more information and to see the RADARSAT-2 products, please visit:  
[http://www.asc-csa.gc.ca/eng/programs/grip/archive\\_090515.asp](http://www.asc-csa.gc.ca/eng/programs/grip/archive_090515.asp)

#### **Envisat Earth Observation Satellite Mission Extended To 2013**

ESA Member States have unanimously voted to extend the Envisat mission through to 2013. Envisat has been providing scientists and operational users with invaluable data for global monitoring and forecasting since its launch in 2002. For more information about the mission extension, please visit:  
[http://www.esa.int/esaEO/SEM08O1OWUF\\_index\\_0.html](http://www.esa.int/esaEO/SEM08O1OWUF_index_0.html)

#### **Better Understanding of the Water Cycle: SMOS Ready To Ship To Launch Site**

The circulation of water from the atmosphere to the earth and its return to the atmosphere through condensation, precipitation, evaporation and transpiration is called the water cycle. The future Earth Observation satellite SMOS, will make global observations of soil moisture

over Earth's landmasses and salinity over the oceans. Through the use of a novel instrument called MIRAS (Microwave Imaging Radiometer using Aperture Synthesis), SMOS will provide global information on surface soil moisture every three days within an accuracy of 4% at a spatial resolution of 50 km – comparable to being able to detect one teaspoonful of water mixed into a handful of soil. In parallel, SMOS will also observe ocean salinity down to 0.1 psu (practical salinity unit) for a 30-day average over an area of 200x200 km, which is about the same as detecting 0.1 g of salt in a liter of water. SMOS has recently passed the all-important Flight Acceptance Review, signifying that all the elements that make up the mission are in place for launch later this year. Data from SMOS will result in a better understanding of the water cycle and, in particular, the exchange processes between Earth's surfaces and the atmosphere. These data will help improve weather and climate models, and also have practical applications in areas such as agriculture and water resource management. For more information, please visit:

[http://www.esa.int/esaEO/SEM9SE1OWUF\\_index\\_0.html](http://www.esa.int/esaEO/SEM9SE1OWUF_index_0.html)

#### **EO Satellite Information Reveals Shipping Routes**

A synoptic view of European shipping routes can be seen for the first time thanks to a new map created using seven years of radar data from ENVISAT satellite. This is the first time this amount of data collected over an extended period has been processed to produce an overview of ship traffic patterns. Despite the fact that ships are more energy efficient than other forms of commercial transportation, many marine engines operate on extremely dirty fuel that causes large emissions of air pollutants like sulphur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>). To illustrate this, a NO<sub>2</sub> map has been placed on top of the shipping route map in the animation below. The routes clearly correspond to the pattern of detected NO<sub>2</sub>. To view the products, please visit:

[http://www.esa.int/esaEO/SEMBDI0OWUF\\_index\\_1.html](http://www.esa.int/esaEO/SEMBDI0OWUF_index_1.html)

# ANNOUNCEMENTS

## **IJRS Special PORSEC Issues; Books of the International Journal of Remote Sensing - PORSEC Special Issue 2008 are now available**

Books of the International Journal of Remote Sensing - PORSEC Special Issue featuring full papers first presented during PORSEC 2006 in Busan, Korea, are now available. For order information of the 374 pp. volume, please see:

<http://porsec.nwra.com/porsec2006/>

There is still a limited number of issues available.

## **International Journal of Remote Sensing, PORSEC-2008 Special Issue**

The International Journal of Remote Sensing (ISRS) is planning a special issue based on papers presented PORSEC 2008. The deadline for paper submission for this issue was March 31, 2009. The journal currently has 36 submissions in review.

## **ICSU Seeks Input on Shaping New Research Agenda for Global Change Research**

The International Council for Science (ICSU) is spearheading a consultation process in cooperation with the International Social Science Council (ISSC) to renew the focus and framework of Earth system research for the next decade and beyond. The goal is to identify the most urgent research questions and establish the most effective ways to answer them. The process began in 2006 with reviews of the Global Environmental Change Research Programs. The reviews recommended the creation of a single research framework, an idea also supported by many agencies involved in the International Group of Funding Agencies for Global Change Research. Thus, the focus is now on shaping the new research agenda.

In the past, a small group of scientists would be charged with determining the most pressing research questions. But new communication technologies now allow the wisdom and expertise of a far broader global community of natural and social scientists, technology experts, decision-makers, and citizens to play a role.

From 15 July to 15 August 2009, ICSU invites the broad community to shape the Earth system research agenda by contributing ideas and perspectives to a Web forum at <http://visioning.icsu.org>, as well as by voting on those submitted by others. The results of this online consultation will feed into a September meeting, convened by ICSU and ISSC to distill the input into a set of proposed research priorities.

## **New GEWEX Products Available**

Version 2.1 (V2.1) of the GPCP monthly product and Version 1.1 (V1.1) of the Global Precipitation Climatology Project (GPCP) One-Degree Daily (1DD) product had been released. The entire data record for both products has been recomputed and therefore all data must be pulled. The GPCP V2.1 product span is currently January 1979 – February 2009 and the 1DD V1.1 product span is October 1996 – February 2009. We anticipate returning to routine production of products about 2-3 months after real time. All documentation has been updated to reflect the product updates, so it should be pulled as well. The new data products and documentation are available at:

<http://precip.gsfc.nasa.gov>

The major enhancement included in the GPCP V2.1 data is the inclusion of the new GPCC Full and Monitoring product gauge analyses, which provide better estimates of land surface precipitation. The 1DD V1.1 product has been scaled to the new GPCP V2.1 product. Please refer to the documentation for the complete details concerning these releases. The monthly and daily images and movies on the website will be updated to their new versions shortly.

## **Announcement & Request: WCRP Community-wide Survey of Model Evaluation and Improvement**

We were asked to bring to your attention the WCRP Community-wide Survey of Model Evaluation and Improvement. Please find the two-page survey (an introduction and 6 questions to be filled by Sept. 15) at [www.clivar.org/WCRP\\_Survey.pdf](http://www.clivar.org/WCRP_Survey.pdf).

# SPECIAL REPORTS AND NEWSLETTERS

## International Polar Year Report Now Available

The International Polar Year (IPY) 2009 monthly Reports are now available at:

<http://www.ipy.org/index.php?/ipy/detail/>

## Scientific Committee on Antarctic Research (SCAR) Newsletter: Issue 19, June 2009

The newsletter is available at:

<http://www.scar.org/news/newsletters/issues2009/jun09.html>

Newsletter contents include:

Planning the 2010 SCAR Conference

- 2010 SCAR Open Science Conference and XXXI SCAR Meeting
- Climate Change
- Ice Bridge Supporting Wilkins Ice Shelf Collapses
- Scientists Rethink Sea Level Rise from a Melted West Antarctic
- Carbon Dioxide Emissions Cause Ocean Acidification
- Inter-Academy Panel Statement on Ocean Acidification
- More Greenhouse Gas Methane Emerging from Warming Arctic Permafrost
- Arctic Dipole is the Major Driver for Arctic Sea Ice Minima
- Energy and Climate Change
- A Statement from SCAR's Members (the Academies)
- Online Version of the International Antarctic Weather Forecasting Handbook
- International Polar Year News
- Ministers Sign 2009 Declaration on the IPY and its Legacy
- Treaty Parties Resolve to Commit to Observing Systems and Data Exchange
- Presentations Now Available Online: A Celebration of International Polar Year 2007- 2008.

## Climate and Cryosphere (CliC) Project Newsletter Available

The World Climate Research Programme (WCRP), the Scientific Committee on Antarctic Research (SCAR), and the International Arctic Science Committee (IASC)

announce the availability of the Climate and Cryosphere Project (CliC) Ice and Climate Newsletter. To view the newsletter, please go to:

<http://tinyurl.com/msm6fc>.

The CliC Project was initiated by the WCRP in 2000. Its goal is to stimulate, support and coordinate research that focuses on processes by which the cryosphere interacts with the rest of the climate system. In July 2008, IASC joined as co-sponsor of the project and signed a Memorandum of Understanding with WCRP and SCAR.

# COURSES, WORKSHOPS AND CONFERENCES

## International Symposium on Remote Sensing (ISRS) 2009, 28 Oct. - 30 Oct. 2009, Pukyong National University, Busan, Korea

The ISRS 2009 in association with the 25th Fall Symposium of KSRS, 18 Annual Workshop of EMSEA and

The 15th KOMSPAT Application Workshop, organized by The Korean Society of Remote Sensing (KSRS) and The Environmental Monitoring from Space of East Asia (EMSEA), is open to all scientists and researchers working in remote sensing and its related geospatial information technology.

Suggested Topics

- New Generation of Sensors and Applications
- Data Processing
- Microwave Remote Sensing
- Remote Sensing of Atmosphere
- Remote Sensing of Ocean
- Remote Sensing of Land
- LiDAR
- GIS
- Integration of Remote Sensing and GIS
- GPS and Photogrammetry
- KOMPSAT
- Others

For more information please see:

<http://www.isrs.or.kr>

## **Workshop on Earth System Initialization for Decadal Prediction. Utrecht, the Netherlands 4-6 November**

This workshop will make an inventory of best practices and discuss the scientific aspects of generating decadal predictions, providing future directions for the initialization of earth system models. There is ample experience in initialization procedures for weather forecasting and seasonal prediction, but decadal predictions pose new challenges that will be addressed during the workshop.

Specific goals:

- To make an inventory of initialization and perturbation techniques in earth system models; compare and contrast, where possible, forecast made with these different initialization strategies.
- To discuss the effectiveness of initialization and perturbation techniques
- To review the observing system and available data for initialization: ocean, soil moisture, ice, snow, atmospheric composition (including aerosols).

For more information and to register, please refer to the workshop website:

<http://www.knmi.nl/samenw/easyinit/>

## **AGU Fall Meeting, 14-18 December 2009 San Francisco, CA**

Special sessions of interest:

- A01 Atmospheric Sciences General Contributions: Aerosols and Clouds
- A03 Atmospheric Sciences General Contributions: Dynamics and Climate
- A07 Extratropical and High-Latitude Storms: Synoptic-Scale Perspective and Linkage to Large-Scale Climate Variability, Change, and Impact
- A08 Ocean-Atmosphere-Sea Ice-Snow (OASIS) Interactions in Polar Regions: Results From Recent Field Campaigns
- A09 High Latitude Climate Feedbacks
- A10 Measurement and Modeling of Air-Surface Exchange Processes
- A15 Ocean-Land-Atmosphere Interactions in the Eastern Tropical Oceans
- A20 Role of Deep Convection in the Large-Scale Tropical Ocean-Atmosphere Interaction
- A21 Patterns in Soil-Vegetation-Atmosphere Systems: Monitoring, Modeling, and Data Assimilation
- A29 Downscaling of Weather and Climate
- A37 Atmospheric Feedbacks and Climate Change: Ne-

cessary Observations and Modeling Improvements

- A38 Multi-scale Organization of Tropical Convection and its Interaction with the Large-scale Circulation: Year of Tropical Convection (YOTC)
- C11: Sea Ice Processes and Properties
- GC08 - Challenges in Understanding and Modeling Global-Regional Climate connections (Global Environmental Change)
- GC15, "30 Years of Progress: Advancements in Climate Change Projections since the 1979 Charney Report
- H05: Observing and predicting hydroclimatic processes in the North American Monsoon region
- H45 Hydrological Responses to Increasing Climatic Extremes
- PO15: Theory, Modelling, and Observations of Westward Propagating Rossby Waves and Eddies
- U01 Response of Sedimentary Systems to Rapid Climate and Sea Level Changes and its Impacts on Humans
- U04 - Terra at 10
- U19 Scientific Progress in Geophysics from 25 Years of Sharing Data and Resources
- U20 Climate Services in a Changing Climate: Approaches for User Engagement

## **Workshop and conference on "Biogeochemical Impacts of Climate and Land-Use Changes on Marine Ecosystems" 2-10 November, 2009.**

**Abdus Salam International Center for Theoretical Physics in Trieste, Italy**

The workshop (2-8 November), followed by a two day conference, will focus on the interplay between physical and chemical factors in controlling biological production in coastal tropical oceans. The following general topics will be addressed:

1. The influence of changes in ocean temperature and circulation associated with climate change on the nature and rates of biogeochemical processes in coastal waters.
2. The interplay between changes in precipitation, hydrological processes, and the water balance of coastal systems.
3. The impact of human processes, including land-use changes, increased fertilizer use, and increased sewage loading, on coastal ecosystems.

The workshop is aimed at graduate and postgraduate students interested in the impact of climate and land-use changes on coastal marine ecosystems. The workshop will consist of a mix of lectures and hands-on work with coupled biological-physical models. The conference will

be an opportunity for synthesis and development of interdisciplinary research initiatives.

Scientists and students from all countries that are members of the United Nations, UNESCO, or the IAEA may attend the Workshop, which will be conducted in English. Scientists and students from developing countries are particularly encouraged to take part.

The application for the workshop and meeting can be accessed at

<http://agenda.ictp.it/smr.php?2066>

For more information, please see the attached announcement or contact the workshop organizers at smr2066 at ictp.it

## **International Summer School for Observing, Assimilating and Forecasting the Ocean.**

**11-22 January 2010 Perth, Australia**

The international summer school for observing, assimilating and forecasting the ocean is a two week program offered to early career scientists, professionals and students on the current state of the art in operational oceanography and related advances in the ocean sciences. The course curriculum will include topics covering the leading edge science in ocean observing systems, as well as the latest methods and techniques for analysis, data assimilation and ocean modeling.

<http://www.bom.gov.au/bluelink/summerschool>

## **OPPORTUNITIES AND POSITIONS**

### **Tenure-track faculty position in Atmospheric Sciences: The Department of Geophysics at the University of Chile**

The Department of Geophysics at the University of Chile has opened a permanent position in Atmospheric Science at assistant or associated professor level.

The research of the Department focuses on the understanding of atmospheric phenomena and processes in Chile, western South America and the adjacent ocean, using observations as well as numerical models. Active research areas include:

- \* Climate Variability and Climate Change
- \* Synoptic, Mountain and Coastal Meteorology
- \* Boundary Layer Meteorology and Urban Air Pollution
- \* Atmospheric chemistry and aerosol-cloud interactions

Further details on research activities, academic programs and department resources can be found at: <http://www.dgf.uchile.cl/concurso/MG@DGF@UCH.pdf>

Applicants must hold a PhD in Atmospheric Science or closely related discipline. The successful candidate will show research experience (projects, publications, etc.), as well as being capable of working both independently and in a team. Spanish is not essential at first but this language must be acquired before the first year to make it possible to participate in undergraduate teaching. Teaching experience is not a requisite but it will be considered a plus. Outreach activities are also important. Research areas will be largely defined by the candidate, but are expected to complement the activities developed at the Department. Applicants are expected to provide a proposal of the research they wish to undertake in the following three years.

Interested applicants should send their CV and research proposal to Dra. Laura Gallardo (laura at dgf.uchile.cl) by October 1st, 2009. Contact Prof. Gallardo if you need further information.

### **Marie Curie project on ocean circulation and climate**

The project offers 15 PhD studentships and 3 post-doctoral positions. Deadline 30 September 2009.

The GATEWAYS project conducts interdisciplinary climate change research on the ocean circulation and its linking with climate processes on regional to global scales. The project combines modern observations, climate (ocean, atmosphere) modelling and marine Palaeoclimatology. GATEWAYS sets out to test the sensitivity of the ocean circulation to changing climates of the past. It will assess the dynamics of the ocean circulation as a function of climate change; the influence of ocean circulation on continental climate; and the impact of inter-ocean water transports on the basin-wide overturning circulation. The project provides training in laboratory-based analytical protocols and instrumentation, data processing and manage-

ment, and numerical climate modeling. Complementary skills training focuses on project management and communication techniques. Trainees receive an integrated interdisciplinary grounding in the marine and climate sciences; proficiency in analytical procedures, climate modeling and statistical data processing; managerial skills to design and carry out research in an efficient and pragmatic way. An information package providing project overview and application information is available at the Institut de Ciència i Tecnologia Ambientals of the Universitat Autònoma de Barcelona at:  
[http://icta.uab.es/divulgacion/index.jsp?id=569&id\\_idioma=0](http://icta.uab.es/divulgacion/index.jsp?id=569&id_idioma=0)

### **Kiel Earth Institute Fellowship**

The Kiel Earth Institute (KEI) offers two Visiting Fellowships for established scientists from abroad. The Fellowships are awarded for a period of four weeks to three months and is tenable during September 2009 and March 2010. The fellowships are intended for highly-qualified established scientists from all disciplines, whose research interests are in the area of the research scope of the KEI.

The funding will cover travel costs, accommodation and a small per diem. The amount of the funding depends on the duration of stay, but must not exceed € 5000 in total. All Visiting Fellows will have access to an office space, computer facilities and to the IFM-GEOMAR Library and the German National Library of Economics.

#### *Application requirements:*

- Established scientist
- Academic publications reviewed according to international standards and printed in journals and/or publishing houses
- Research plan (letter of interest) showing interest in interdisciplinary research on questions of the KEI
- Good English skills

#### *Application procedure:*

The application process is ongoing. To apply for the fellowship please send a CV and a letter of interest outlining your planned programme of activities during your stay (2-3 pages). The application form may be printed and submitted via regular mail or email, as indicated below:

Kiel Earth Institute  
Düsternbrooker Weg 2  
24105 Kiel, Germany  
Email: [ulrike.bernitz@kiel-earth-institute.de](mailto:ulrike.bernitz@kiel-earth-institute.de)

For more information see [www.kiel-earth-institute.de](http://www.kiel-earth-institute.de)

### **Martha T. Muse Prize for Science and Policy in Antarctica Tinker Foundation Scientific Committee on Antarctic Research (SCAR) *Nomination Deadline: 15 October 2009***

The Tinker Foundation and the Scientific Committee on Antarctic Research (SCAR) invite nominations for the Martha T. Muse Prize for Science and Policy in Antarctica. The prize is a one time, unrestricted award of USD \$100,000, presented to an individual in any field of Antarctic

science or policy, who has demonstrated potential for sustained and significant contributions that will enhance the understanding and/or preservation of Antarctica. The prize is inspired by Martha T. Muse's passion for Antarctica, and is intended to be a legacy of the International Polar Year (IPY).

The prizewinner can be from any country and work in any field of Antarctic science or policy. The goal is to provide recognition of the important work being done by the individual, and to call attention to the significance of understanding Antarctica in a time of change.

Nominations should be made online via the prize website. Self-nominations will not be considered. The information required for a full nomination includes a cover page containing contact information, the nominee's curriculum vitae, and letters of nomination. For a full description of nomination materials, please go to:

<http://www.museprize.org>

## **Post-doctoral position at the Climate Physics Group at Pacific Northwest National Laboratory (US)**

The Climate Physics Group at Pacific Northwest National Laboratory seeks a postdoctoral research associate to join a team conducting research on tropical cloud processes and associated feedbacks. The successful candidate will perform analysis of remote sensing data and model output and contribute to research projects leading to improved parameterization of clouds in climate models. Possible projects include investigation of MJO processes, understanding links between deep convection and associated cirrus anvil, and the transition between shallow and deep convection. The successful candidate will have excellent communication skills, be able to work independently, and contribute as an author on presentations and journal articles. For more information visit:

[https://erecruit.pnl.gov/psp/hrext/EMPLOYEE/HRMS/c/HRS\\_HRAM.HRS\\_CE.GBL?Page=HRS\\_CE\\_HM\\_PRE&Action=A&SiteId=2](https://erecruit.pnl.gov/psp/hrext/EMPLOYEE/HRMS/c/HRS_HRAM.HRS_CE.GBL?Page=HRS_CE_HM_PRE&Action=A&SiteId=2)

## **Post-doctoral and Research Scientist positions at the Earth Sciences Division (ESD) of the Lawrence Berkeley National Laboratory (US)**

Lawrence Berkeley National Laboratory (LBNL) has several exciting opportunities for Postdoctoral Fellows and research scientists at the Earth Sciences Division. The research is supported by the US Department of Energy (DOE) in conjunction with the international Community Climate System Model (CCSM) project and the development of the iESM (integrated Earth System Model). iESM will be one of the first state-of-the-art climate models to treat economic and climate processes in a single unified framework, with the goal of assessing the sustainability of bio-energy over the 21st century. The

Researchers will work with other members of LBNL's rapidly growing Climate Sciences Department and will have opportunities for collaboration with the DOE National Laboratories, the National Center for Atmospheric Research, UC Berkeley and other partner universities. Please apply online at:

<http://jobs.lbl.gov/LBNLCareers/>

## **Postdoctoral Researcher: Physical Oceanography/Climate Dynamics**

We invite applications for a postdoctoral research position in the field of Physical Oceanography/Climate Dynamics. The successful candidate will work on a project to study the role of basin modes in shaping Pacific Decadal Variability. A Ph.D. in Physical Oceanography or related discipline is required. Experience in ocean modeling or advanced numerical analysis is desirable. The appointment is for 2 years.

The postdoc will be employed by the New Mexico Consortium (NMC) in Los Alamos, NM, a nonprofit institution run by the three major universities of New Mexico. NMC partners with Los Alamos National Laboratory (LANL).

The postdoc will have ample opportunity to interact with LANL members of the Climate, Ocean and Sea Ice Modeling (COSIM) project.

Please submit a cover letter, curriculum vitae, and contact information of two references as pdf attachments to [wweijer@newmexicoconsortium.org](mailto:wweijer@newmexicoconsortium.org).

Applications received by September 15, 2009 will receive full consideration. For more information, contact Wilbert Weijer ([wweijer@newmexicoconsortium.org](mailto:wweijer@newmexicoconsortium.org); (505) 667 7469) or Francois Primeau ([fprimeau@uci.edu](mailto:fprimeau@uci.edu); (949) 824 9435).

## Publications based on the PORSEC 2008.

There is now a web-site with details of the publications related to our 2008 conference

<http://ledweb.scsio.ac.cn/porsec2008/Publication.asp>

We are preparing a proceedings book with the same theme as the conference: theme Remote sensing, oceanic manifestation of global changes. There is again a Special Issues the International Journal of Remote Sensing, that published 26 papers from PORSEC 2006 recently. There are several Chinese journals accepting papers related to this conference:

Acta Oceanologica Sinica  
Journal of Tropical Oceanography  
Advances in Earth Science

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Please access the PORSEC web-site for the relevant links and full details of submission specifics and deadlines. We strongly encourage our PORSEC member colleagues to participate in these publications. Thank You!

### 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:porsec.nwra.com) or [katsaros@porsec.nwra.com](mailto:katsaros@porsec.nwra.com).