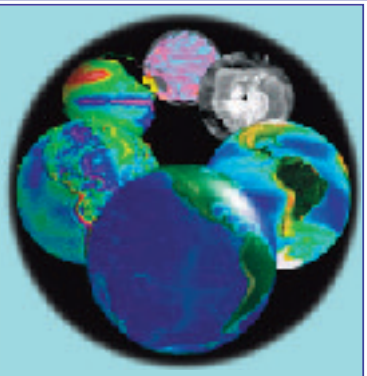
BULLETIN of the PORSEC Association



Volume 1.2 July 2007

Dear Readers of the Bulletin,

A greeting from the editors, who encourage you to contribute to our PORSEC Association news organ soon. We offer you an opportunity to express yourself!

We are pleased to send you issue 2 in volume 1of our news publication. In this issue you will see more about what occurred at PORSEC 2006 and updated information about PORSEC 2008.

The PORSEC 2006 reports in this issue cover ocean color, scatterometry, infrared and, in addition, other resources for studying the South China Sea. Those short reports and the ones in Issue 1 of this Bulletin illustrate how far we have come since Sputnik and that is in the field of Oceanography alone! We reflect in the accompanying article on what Sputnik, which was launched October 3, 1957, has meant to our profession.

Well met in the remote sensing business!

Kristina Katsaros and Gad Levy
Editors of the Bulletin PA

Contents

Update on PORSEC 2008

Theme: Oceanic manifestation of global changes
Venue: Ramada Pearl Hotel Guangzhou (www.ramadagz.com), Guangzhou, China
Dates: 2-5 December 2008

Tentative sessions:
- Natural Hazards and the Role of Satellite Observations
- Global warming
- Interactions between ocean and atmosphere
- Interactions between ocean and land
- Marine geographic information system
- Ocean-Land-Atmosphere Associated With Natural Hazards
- South China Sea
- Indian Ocean

PORSEC2008 is calling for session proposals and conveners

Local contact:
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Guangzhou, China, 510301

Web sites:
http://www.scsio.ac.cn/PORSEC2008.htm,
http://lingzis.51.net/PORSECGZ2008.htm

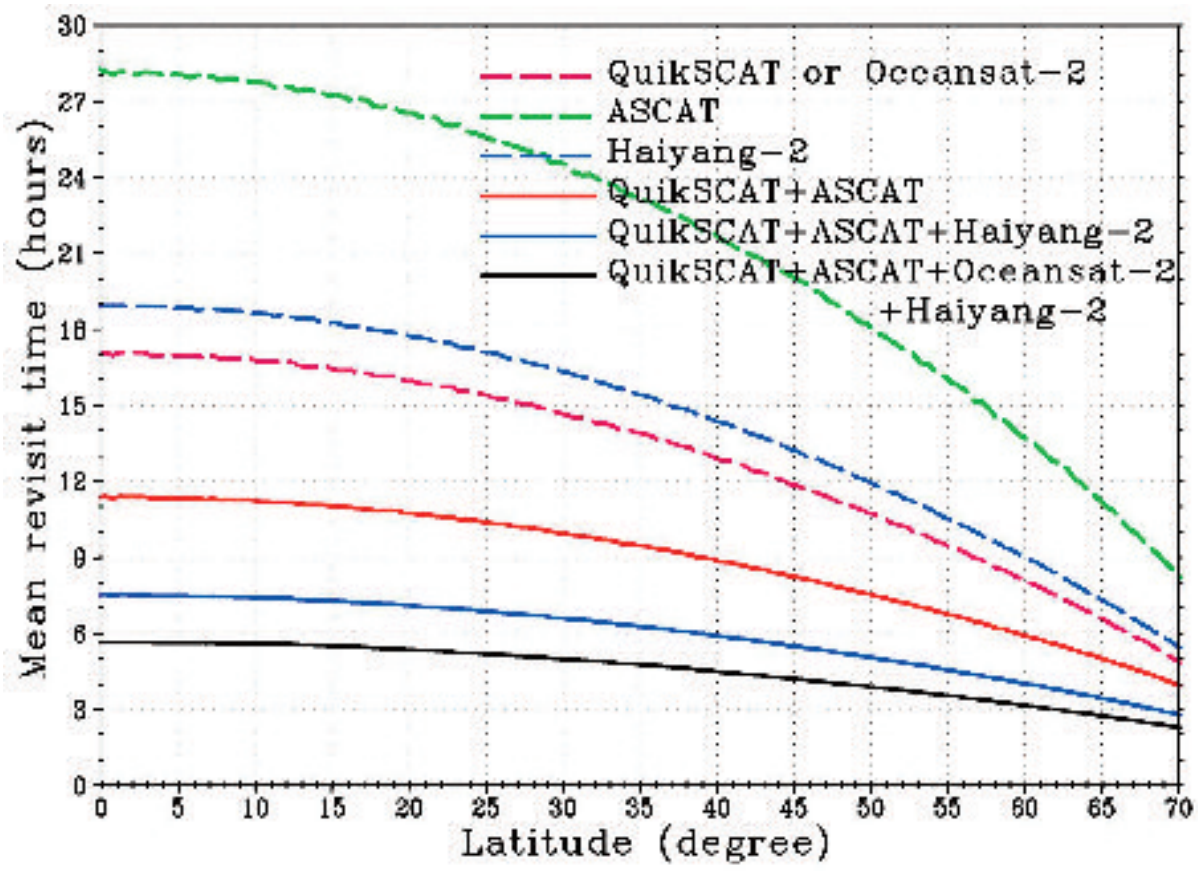
Scientific Application of Active and Passive Microwave Sensors and Future Constellation

A special session on scientific application of active and passive microwave sensors was successfully conducted in PORSEC 2006. It brought together scientists from China, India, Japan, Korea, Germany, and the United States to present the results on scientific applications of spacebased observations and on plans for future missions.

It was shown that QuikSCAT had provided high-resolution global coverage of ocean surface wind/stress vectors and other terrestrial and cryospheric measurements for seven years. Wind speeds and waves were also measured by synthetic aperture radar. Microwave radiometers (TMI and AMSR) on the Tropical Rain Measuring Mission (TRMM) and on Aqua have provided sea surface temperature under both clear and cloudy conditions, in addition to wind speed, water vapor and rain. Strong sensor and science synergisms exist between the two kinds of spacebased sensors. They complement each other in monitoring the momentum, energy, and water transport and their exchange in the ocean and atmosphere.

PORSEC 2006 provided a forum to inform the international science community of the two ocean observing missions Oceansat-II and Haiyang-2 to be launched by India and China in 2008 and 2010. It opened up, for the first time, multinational discussions on the potential scatterometer constellation constituted by U.S, European, Indian and Chinese sensors. Figure 1, shows possible achievement of 6 hourly revisit time (a requirement for operational weather application) by such a constellation of scatterometers.

W. Timothy Liu



The latitudinal variation of zonally averaged revisit interval for various tandem missions (from Liu et al., 2007)

References:
Liu, W.T., W. Tang, X. Xie, R. Navalgund, and K. Xu, 2007: Power density of ocean surface wind from international scatterometer tandem missions. Int. J. Remote Sensing, in press.

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Sessions on Studies in the South China Sea and Recent News

The South China Sea (SCS) is one of the most active marginal seas in the Southeast Asia. A total of 11 talks in two sessions of the studies in SCS were presented in this special session on activities in shipping, fisheries, naval and high-tech ocean exploration, remote sensing, modeling, and data assimilation. Most of the recent field experiments in SCS have been covered in this session: ASIAEX (Asian Sea International Acoustics Experiment) by Zheng and Antony Liu, NLIWI (NonLinear Internal Wave Initiative) by Antony Liu, Luzon Strait Experiment by Serebryany and Cho-Teng Liu, Strait Dynamics by Arvelyna, and Spratlys Mapping Projects by Hsu, Huang, Dien, and Tang. The details of their talks can be found in the PORSEC proceedings and in the upcoming IJRS-PORSEC special issue.

Map of Spratly Islands in the South China Sea with the largest island, Tai-Ping Island indicated

The SCS studies by remote sensing using SAR (Liu, Hsu, Zheng, Arvelyna), LANDSAT (Siripong), MODIS (Dien, Tang), SeaWiFS (Dien, Tang), SPOT (Huang, Arvelyna), Altimetry (Fang, Arvelyna), and QuikSCAT (Liu, Siripong) have provided many applications for ocean processes and environmental monitoring (e.g., waves, current, eddies, fronts, typhoons, ship navigation, bathymetry, red tides and coastal erosion…). A major topic in this session was related to the nonlinear internal waves in SCS, and included talks in the second session presented by C-T Liu, Zheng, Arvelyna, Serebryany, and A.K. Liu. Another popular topic related to the bathymetry mapping near Spratly Islands was presented in talks by Hsu, Dien, Tang, and Huang in the first session. Presentations of remote sensing studies in the SCS from Taiwan (Hsu, Huang, and C-T Liu), China (Tang, Fang), Vietnam (Dien), Thailand (Siripong), US (A.K. Liu, Zheng), Indonesia (Arvelyna), Russia (Serebryany), and Japan (Hotta, co-session convener) have demonstrated and promoted more international collaboration in the future.

Recent activities in the research projects in the SCS, include the South China Sea FY07 field experiment (SCS'07)

which is a part of NLIWI and is a joint project with Taiwan's South China Sea Ocean Process Experiment (SCOPE). 20+ US scientists, and 30+ Taiwanese scientists have participated in the SCS'07 experiment from April 3 to June 13, 2007. SCS'07 joint field work includes satellite remote sensing (in real-time), acoustic propagation, four ships with Seasors, Seagliders, drifters, and moorings, covering the Luzon Strait, SCS basin, and Dong-Sha Island areas. Philippines Strait Dynamics Experiment (PhilEX) is designed to study how the archipelago interior responds to remote and local forcing. The Exploratory cruise scheduled from 6 June to 3 July, 2007 focuses on Mindoro and Mindanao Straits. A joint US-Philippines cruise is planned from 22 November to 30 December, 2007 to investigate the influences of the physics to the biological productivity of the Sulu Sea and Bohol Sea. PhilEX'07 field work includes satellite remote sensing, two cruises with towed profiling, gliders, floats, drifters, moorings and HF radar.

A new book entitled "Satellite Remote Sensing of Spratly Islands", edited by Antony Liu, Kenji Hotta, and Ming-Kuang Hsu was published in March 2007. This book has been compiled by the International Science Team (IST) members consisting of scientists from China, Japan, the Philippines, Taiwan, the U.S., and Vietnam. The strategic importance of the Spratly Islands lies in its marine geo-political location in the South China Sea. However, because this area has been occupied and claimed by six different countries and regions, general information about it is extremely limited or not available. Therefore, IST's approach for the study of Spratly Islands is focused first on satellite remote sensing, so all members can participate in this research. In the last two years, a series of successful workshops on the Spratly Islands was held as a result of the outstanding efforts made by the members of IST, and this book is a collection of presentations and lectures delivered in these workshops. *If any PORSEC member is interested in receiving a copy of this book, please contact Antony Liu at e-mail: liua at onrasia.navy.mil*

Antony K. Liu, session convener in PORSEC-2006

PORSEC 2006 Ocean Colour Sessions

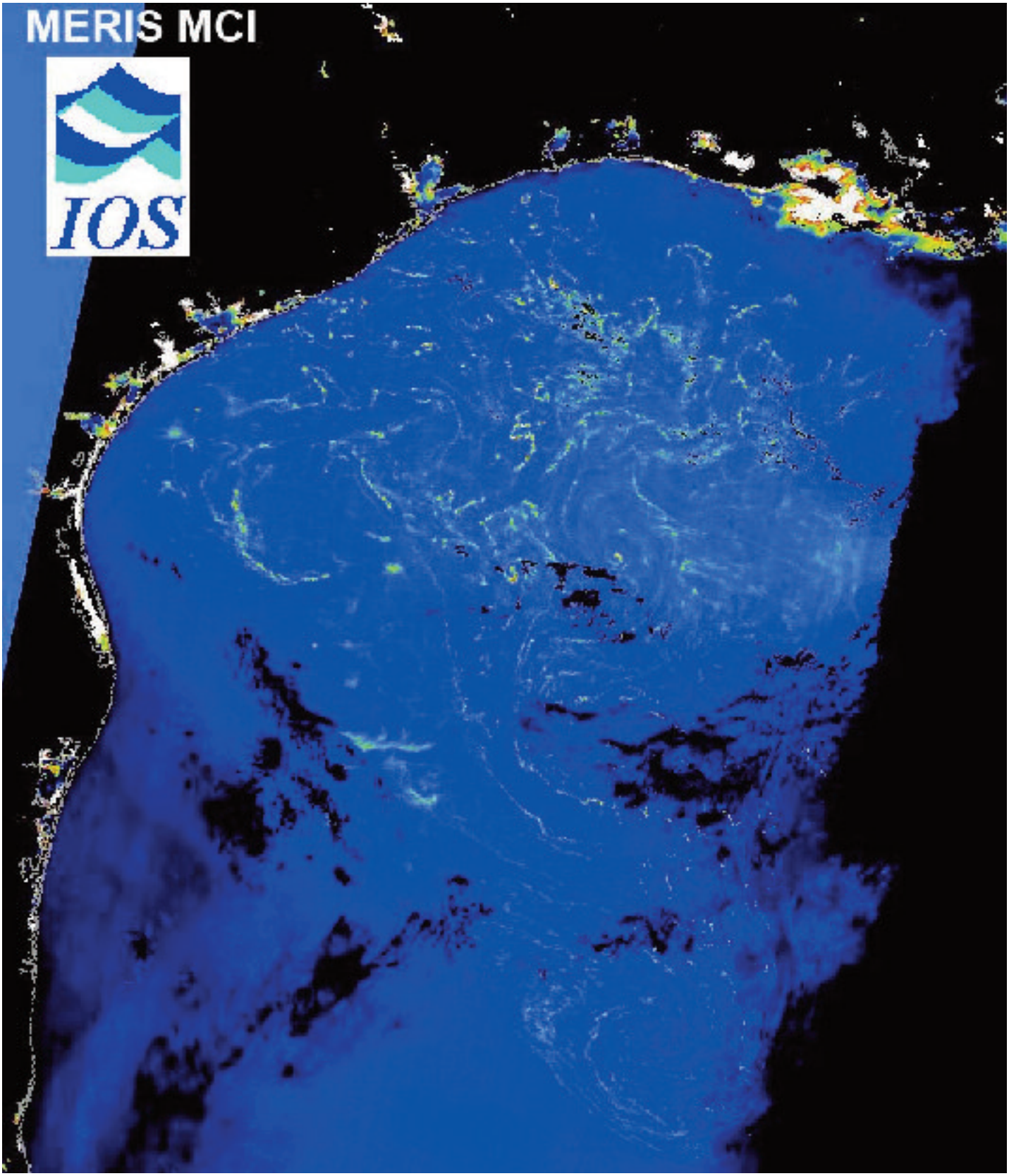
Ocean colour was a major topic at PORSEC 2006, partly because of the large number of papers discussing this aspect of satellite oceanography at the meeting, and partly because of Korea's investment in this type of satellite sensor.

The first day of PORSEC 2006 was occupied with opening, plenary and space agency sessions in the morning, followed by the tsunami session in the afternoon. In the morning sessions, Korea was able to show its past successes in land and ocean satellites and its ambitious plans for the future. Korea launched Kompsat 1 in 1999 to provide ocean colour images (about 1-km resolution with the SeaWiFS bandset) and land/ocean images with 6-metre resolution. In July 2006 they launched Kompsat 2 giving 1-metre land/ocean images. They plan an ocean colour sensor (GOCI) to be launched on a geostationary communications satellite (COMS-1) in 2008. GOCI would give images at 500 m resolution in eight spectral bands, similar to SeaWiFS, but including chlorophyll fluorescence and baseline bands. It would image a 2500 km square area centred on Korea, 8 times per day in daylight. This would make Korea the first country to have continuous ocean colour coverage in this way.

The second day of PORSEC included four consecutive sessions, starting and ending the day with ocean colour, with two sessions on "Ocean" between, which were also mostly colour. The third day included a third ocean colour session, as well as sessions on "Tropical and sub-tropical seas" and "Polar and sub-polar oceans" which also included ocean colour work. Papers reported work on fundamental ocean optics (for example Marlon Lewis and co-authors on the understanding of ocean brightness), plankton blooms (for example Yu-Hwan Ahn and co-author on Korea's red tides and the problems of observing them in turbid coastal water), and chlorophyll mapping (for example Ramesh Singh and co-authors using the Indian IRS satellite).

It is especially interesting when papers suggest surprising links. One reason for mapping chlorophyll is to determine areas where productivity appears low enough for ballast water exchange to be acceptable under IMO guidelines. Katsutoshi Kozai and co-authors from Japan identified relatively high chlorophyll in the Bay of Bengal which might cause problems in this regard. In another session, Dan Ling (Lingzis) Tang of Guanzhou showed satellite images suggesting that the Sumatra tsunami of December 2004 may have been the cause of these same chlorophyll patterns.

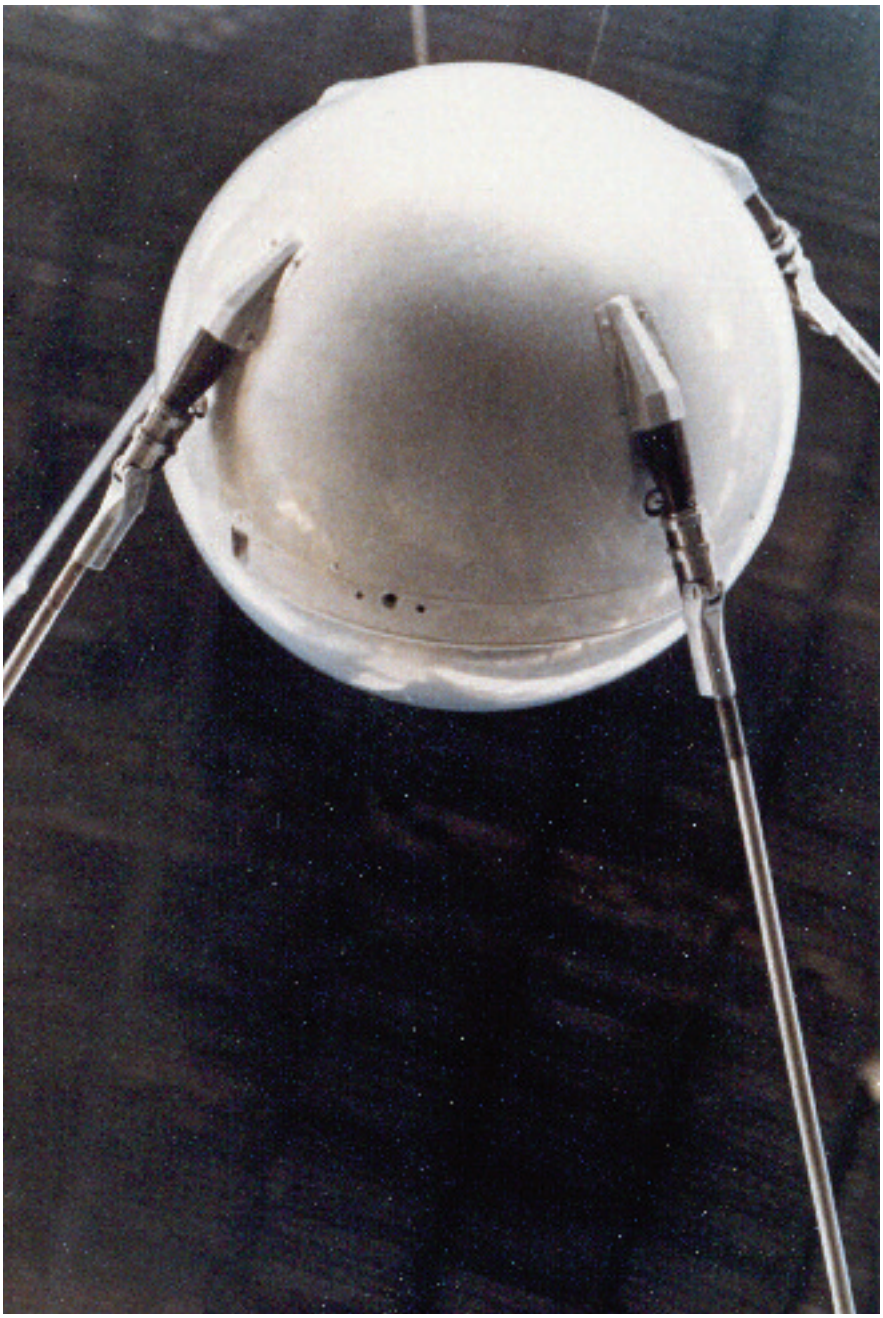
James Gower,
Institute of Ocean Sciences, Sidney, British Columbia,Canada



Lines of Sargassum observed by the MERIS instrument on the European Space Agency's Envisat satellite on 2 June 2005 in the western Gulf of Mexico. MERIS provides spectral bands which can be used to compute an index (MCI for Maximum Chlorophyll Index) which shows floating vegetation and plankton blooms. See Gower et al., IEEE Trans on Geoscience and Remote Sensing, 44, 3619-3625, 2006.

Sputnik was launched 50 years ago...some reflections

Congratulations to our Russian Colleagues on this Anniversary!



At 585 mm in diameter, Sputnik 1 was the first artificial satellite to be put into geocentric orbit. The satellite helped to identify the density of high atmospheric layers by its orbit change and provided data on radio-signal distribution in the ionosphere. Because the satellite's body was filled with pressurized nitrogen, Sputnik 1 also provided the first opportunity for meteorite detection as losses in internal pressure due to meteoroid penetration of the outer surface would have been evident in the temperature data. Sputnik 1 pioneered Soviet Sputnik program and ignited the so-called Space Race within the Cold War.

Sputnik-1 was set in motion during the International Geophysical Year from the 5th Tyuratam range in Kazakh SSR (now Baikonur Cosmodrome). The satellite travelled at 29,000 kilometers (18,000 mi) per hour and emitted radio signals at around 20.005 and 40.002 MHz[1] which were received by scientists and ham radio operators throughout the world. The signals continued for 22 days until the transmitter batteries ran out on October 26, 1957.[2] Sputnik 1 burned as it fell from orbit upon reentering the Earth's atmosphere, after about 60 million km (37 million miles), made while orbiting. (Source: Wikipedia)

In the near future we will come upon the 50 years, since that awesome day, October 3, 1957, when the Sputnik satellite was launched by the Soviet Union—now the Russian Federation. We think it is appropriate that we pay homage and reflect a little on what it has meant to the international remote sensor community that all PORSEC Association members are part of.

All of us in remote sensing research today owe a huge debt to the imagination and skill of the intrepid folks who accomplished this marvel. Competition was of essence during the miserable cold war years, so immediately after the launch of Sputnik, the USA accelerated its work on space science and formed the National Aeronautic and Space Administration, NASA, which has been launching satellites for almost a 50 year period now. The Europeans followed soon after and other nations have joined more recently. Sputnik was a totally enthralling phenomenon that those of us who were grown up at that time will not forget.

Nowadays, there are numerous countries with their own space agencies and many are developing and launching satellites. We have soon explored all parts of the electromagnetic spectrum both in passive and active modes, becoming more and more sophisticated. See for instance reference to the recent successful launch of the German TerraSAR-X satellite under Notices in this issue and the report by W.T. Liu on a PORSEC 2006 session discussing future satellites with scatterometers and pay attention to who will be launching them!

After Sputnik's launch the science and technology advanced fast. In looking back, one realizes that we have seen a complete revolution in how we study and observe our planet. This development may in the future save us, since we now can observe what changes are taking place and can possibly react in time to save ourselves and the planet as we know it. It is important that those of us who work with the global remotely sensed data use our knowledge and insights to communicate with colleagues in related disciplines and with the general public about what we learn from these data.

Drs. Kristina Katsaros (NOAA at that time), Hartanta Tarigan (Balinese Fisheries), and Eric Lindstrom (NASA) in front of an Advanced Very High Resolution Radiometer (AVHRR) receiving station on Bali Island.

The satellite data source that may have contributed the most to connecting the scientists around the world are the AVHRR's (Advance Very High Resolution Radiometers) operated on polar orbiting satellites by the National Oceanic and Atmospheric Administration, NOAA, for decades. With automatic, direct transmission the data can be used locally with a short time delay for seeing clouds, storms and sea surface temperature patterns. Its uses are legion. One can find small receiving stations, connected to personal computers that provide fishermen with information about oceanic fronts (fishing opportunities) and the local weather in all corners of the world. This picture is from such a station on the island of Bali, which one of us (Katsaros) had a chance to visit during PORSEC 2002.

AVHRR has almost become so established that such data seem given by some undefined magic in the sky. Weather data from the many geostationary satellites are, of course, equally or possibly more valuable today.

Taking stock of past accomplishments, one gets courage to see into the future and imagine what will yet be possible in the next 50 years. Lucky are the ones who will be there to celebrate that 100 year anniversary of the little "spunky" satellite, **Sputnik**, which changed the world.

Kristina Katsaros and Gad Levy

Notices

Jobs and Training Opportunities

Post Doctoral Opportunity
GOES-R Geostationary Lightning Mapper (GLM) Research Scientist
A post-doctoral or early career scientist will be hired by the Cooperative Institute for Climate Studies (CICS) at the University of Maryland to support risk reduction research and algorithm development in support of the GOES R Geostationary Lightning Mapper (GLM). This scientist will serve as a NESDIS/STAR subject matter expert supporting the GLM science and applications development and science support, and will serve as a member of the GLM Risk Reduction and Algorithm Working Group (AWG) - Lightning Applications teams. The selected candidate will initially develop GLM-only, GLM-ABI, and multi sensor/multi-platform algorithms with proxy data from other observing programs, including the Earth Observing System (EOS) Lightning Imaging Sensor (LIS) and Optical Transient Detector (OTD), ground based lightning network data and total lightning from Lightning Mapping Arrays (LMA), lightning data combined with observations from the Tropical Rainfall Measuring Mission (TRMM) suite, Aqua MODIS, and Meteosat Second Generation SEVERI, and models, including numerical weather prediction forecast models. The algorithms will utilize data from the GLM in a variety of nowcasting, severe storm identification, aviation weather, forest fire, and precipitation applications. Essential qualifications include a PhD in atmospheric science, physics, or engineering. Relevant experience demonstrated through peer reviewed publications with the analysis of satellite and lightning data is desired. Ability to collaborate in a team and partnership environment and excellent oral and written communication skills are crucial. Salary is very competitive and negotiable depending on qualifications and experience.

For more information contact Dr. Phillip Arkin (parkin at essic.umd.edu), Director of CICS (http://essic.umd.edu/cics), or Dr. Steven Goodman (steve.goodman at noaa.gov), Deputy Director of the NOAA NESDIS Center for Satellite Applications and Research (http://www.orbit.nesdis.noaa.gov), and Lightning Applications Team Lead.

Course Announcement:
The global change System for Analysis, Research and Training (START) and the Asia-Pacific Network for Global Change Research (APN) is inviting applications to the Institute on "The Monsoon System: Prediction of Change and Variability" to be held at the East-West Center and the University of Hawaii in Honolulu, Hawaii, from 2-12 January 2008. Application deadline will be on 1 August 2007. (We do not know how firm this deadline may be.) For details, check it out under the "What's New" section in the APN homepage (http://www.apn-gcr.org/en/indexe.html).

Contact:
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Postdoctoral Position
Effects of Land Use Practices on the Earth System
Center for Sustainability and the Global Environment (SAGE) University of Wisconsin
The Center for Sustainability and the Global Environment (SAGE) at the University of Wisconsin is searching for a postdoctoral scholar to help us better understand the role of global land use practices, particularly within modern agricultural systems, on the planetary cycles of water, energy, carbon and nutrients. The postdoctoral scholar will work with a new generation of coupled atmosphere-biosphere models (based on versions of the NCAR CCSM climate model and the IBIS terrestrial biosphere model) to explore the importance of land use practices including irrigation, fertilizer use, crop selection, fire management on the whole earth system. The work will particularly focus on changes in climate, hydrology and biogeochemical processes resulting from changes in global agricultural practices. The work will be done in coordination with scientists at the National Center for Atmospheric Research (NCAR) and the Oak Ridge National Laboratory (ORNL).

Candidates with graduate training in climate and ecosystem modeling will be strongly considered. Backgrounds in agricultural systems, global ecosystem processes, hydrology, and biogeochemistry would be extremely helpful. Excellent quantitative and modeling skills are required; excellent communication and writing skills desired. The ability to work within, and contribute to, an interdisciplinary team is a must. Please send a complete c.v., cover letter and the names of at least three references to Prof. Jonathan Foley (email: jfoley at wisc.edu), Director - Center for Sustainability and the Global Environment (SAGE), University of Wisconsin, Madison, USA. Only electronic applications will be considered. We will begin reviewing applications on September 15, 2007.

Center for Sustainability and the Global Environment

Nelson Institute for Environmental Studies
University of Wisconsin-Madison

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sage

www.sage.wisc.edu

Miscellaneous and Data Links

TerraSAR-X
was launched on June 15, 2007. First images can be seen at the DLR home page:
http://www.dlr.de/tsx/start_en.htm

ASCAT data availablity:
A summary of current ASCAT data availability was prepared by Hans Bonekamp. It is posted on the meeting website of W. Timothy Liu's for his scatterometer session at the upcoming conference in Amsterdam sponsored by EUMETSAT and the American Meteorological Society. Find the link via http://air-sea.jpl.nasa.gov/amsterdam at the bottom of the page.

Award Announcements

BBVA Foundation
BBVA Foundation has just announced the third edition of its Biodiversity Conservation Awards, in the following categories:

- 2007 BBVA Foundation Award for Scientific Research in Ecology and Conservation Biology
- 2007 BBVA Foundation Award for Biodiversity Conservation Projects in Latin America
- 2007 BBVA Foundation Award for Biodiversity Conservation Projects in Spain
- 2007 BBVA Foundation Award for Knowledge Dissemination and Communication in Biodiversity Conservation

The conditions of the call application forms can be consulted on the website:
http://www.premios.fbbva.es
Contact:
BBVA Foundation
Gran Vía, 12-48001 Bilbao. Fax: 94 487 5097
Pº de Recoletos, 10. 28001 Madrid. Fax: 91 374 3444
e-mail: convocatorias at fbbva.es
web site: www.fbbva.es

Meetings and Conferences:

Leonid Mitnik with colleagues in Vladivostok is organizing a conference on the theme:
Advances of Satellite Oceanography: Understanding and Monitoring of Asian Marginal Seas
3-6 October 2007, Vladivostok, Russia
(Sputnik: 50th Anniversary)

Contact person: D.Sc. Leonid Mitnik
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2007 EUMETSAT Meteorological Satellite Conference and the **15th AMS Satellite Meteorology and Oceanography Conference, 24–28 September 2007, Amsterdam, the Netherlands**

Advances of Satellite Oceanography: Understanding and Monitoring of Asian Marginal Seas (50-th Sputnik Anniversary). The conference will be held on October 3-6, 2007 in Vladivostok, Russia at the V.I. Il'ichev Pacific Oceanological Institute, Far Eastern Branch of the Russian Academy of Sciences (POI FEB RAS) under the auspices of the Russian Academy of Sciences (RAS) and the Federal Space Agency (FSA) with co-sponsorship (under negotiation) of IOC/WESPTAC, UNEP/Northwestern Pacific Action Plan (NOWPAP), Pan-Ocean Remote Sensing Conference (PORSEC) and Russian Fund for Basic Research (RFBR). See web-site: A registration form and detailed information on the Conference can be found on the web site: http://sputnik.poi.dvo.ru

PORSEC Membership Issues

Dr. Pankajakshan Thadathil of the National Institute of Oceanography, in India is the chair of the PA Election Committee. He will post a notice in the November issue BPA. If you want to discuss the PA elections already contact him at pankaj at nio.org.

For our spreadsheet of the PORSEC Association members we would like the following information about you (if you have not already given it to us in Busan '06): Your title, Your position (job title), Your place of work, full address, phone and fax numbers and email address — **HAVE YOU HAD ANY CHANGES LATELY?**

We would also like to list your current activity in PORSEC, such as SOC member, membership on a committee. We may not have all that information down correctly. We would appreciate a note soon to katsaros at porsec.nwra.com, so we can expedite getting it into the spread sheet.

Please work on getting us more members; use the PORSEC home page for information. The prospective member writes us with the same information as asked for above (and also a short CV). We will bill the person for the membership fee, which can now be paid via "Pay Pal" on the internet.

PORSEC Publications

A report on the session on tsunamis at PORSEC 2006 will be published in EOS, a publication of the American Geophysical Union. It can be found under Meetings in Vol 88#33, August 14, 2007.
This is a very short version; a longer report is on their website at http://www.agu.org/eos_elec/

PORSEC 2006 Special Issue in the International Journal of Remote Sensing

Gad Levy reports that he has had a very good response to our call for papers. Nearly 40 papers were submitted by the April 15th deadline, and first review of all but four of these had been completed by August 1.

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 or katsaros at porsec.nwra.com.