

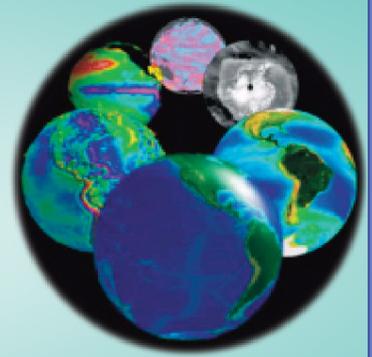
BULLETIN

of the

PORSEC

Association

Volume 6.1 April 2012



Dear Fellow Members of PORSEC Association,

This issue of our Bulletin of the Association brings news about the upcoming meeting in Kochi, India, November 5-9.

President Gower reports on a trip he, president-elect Tang, and our education committee Chair, King, took to confer with the Local Organizing Committee. The LOC chair, Dr. Shateesh Shenoi reports on the status of abstracts submitted and planned sessions. Stephanie King, tutorial course coordinator, gives a synopsis of the plans for the Tutorial course, the tutorial lectures and laboratory exercises that will take place the week before the conference, October 29- November 2nd.

The history and scientific highlights of coastal altimetry, discussed in sessions at previous PORSEC's and the topic of a PORSEC2012 session is reviewed in the short article by our member Dr. Kostianoy, who recently co-edited a book on the subject. In addition you will find a call to action -- become a mentor under the banner of PORSEC Association's new mentorship program.

The PORSEC 2010 special issue of the International Journal of Remote Sensing, volume 33, number 21, edited by Jim Gower and Gad Levy, has concluded the review and revision process and is going to press. We can expect this volume, with 18 scientific papers to be available online very soon and in a printed version at the next PORSEC.

We hope this will stimulate many of you to make your travel plans and meet us in Kochi. Perhaps you can also find funds to bring a student or younger colleague for the tutorial and some of the PORSEC 2012 sessions. There will be an update in issue 6.2 in August 2 months before the meeting. Make sure you investigate whether a visa is required (see the PORSEC 2012 web page for details).

Best regards,
Kristina Katsaros and Gad Levy
Co-Editors of the Bulletin

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PORSEC 2012 Preparation visit

Between Feb 17 and 29, Stephanie King and I made the preparation visit for PORSEC 2012. The visit is traditionally made by the president and accompanying staff about one year before the actual conference. We flew to Hyderabad, India, where Satheesh Shenoi and Pattabhi Rao, our local organizers from INCOIS (Indian National Centre for Ocean Information Services), are based and then to Kochi on the coast in Kerala, where the conference will be held from November 5 to 9 2012. My wife Ann came with us and Stephanie brought her baby (Emilie, 7 months old) and husband Terry. Lingzis Tang, president-elect of PORSEC joined us for the part of the visit in Hyderabad (photo below).



We spent a day seeing Hyderabad on Feb 20, when INCOIS was closed for the Hindu “Night of Shiva” festival. On Feb 21 we met INCOIS members of the Local Organizing Committee and were presented with details of the meeting so far. At that point, they were pleased to have received over 300 abstracts. Even though over 200 were from Indian scientists, this was very good news for PORSEC 2012. I gave a brief presentation on PORSEC and past meetings. We toured INCOIS, visiting their tsunami centre, their Argo buoy office, the local fishery information system that uses satellite thermal and colour imagery to provide directions for coastal fishers, and saw their super computer. After lunch we had a teleconference on the PORSEC pre-conference tutorials at which we were joined by staff from the Marine Centre in Kochi and the National Institute of Ocean Technology in Chennai. They clearly have a lot of experience in organizing this sort of training. Later, we gave a seminar in their main auditorium, introducing PORSEC and more general ocean remote sensing.

Next day, Lingzis returned to China, and the rest of the PORSEC party, with Satheesh and Pattabhi, flew to Kochi. On Feb 23 we met with the full Local Organizing Committee at the Centre for Marine Living Resources and Ecology of the Ministry of Earth Sciences. Stephanie and I gave our presentations on PORSEC and said how grateful we are for all their work. In the afternoon, we drove to the

conference venue, which has been agreed to be the Indian Medical Association (IMA) centre. This has accommodation, large rooms and an extensive roof-top terrace. There is also a swimming pool and a restaurant.



PORSEC organizers group photo on roof-top terrace at the IMA center.

After the meetings, we were lucky to have a contact with experience in local travel, who was able to arrange two cars with drivers, one for Ann and me, and one for Terry, Stephanie and Emilie. Stephanie headed to the Periyar wildlife reserve for two days. Ann and I went up to Munnar in the “Western Ghats” to see the tea-growing country. Then we met for a day and a night together on one of the famous houseboats cruising the “backwaters” and finally spent a day exploring the beaches around Kochi, now cut by an impressive tsunami barrier. Our driver told us we were on the standard “Kochi Honeymoon Tour” known all over India. We recommend the houseboats (22 hour trip about \$200 US for 4 people), described by the guide books as “relatively expensive, but worth it.” We cannot recommend saving \$20 by refusing air-conditioning at night. Renting a car and driver also worked out very well; driving oneself would not be easy in the conditions we saw. Emilie was a star throughout. A crowd seemed to gather to see her whenever we stopped. It is a pity she is too young to remember the trip.

Jim Gower



House boats in Alleppey (left) and Chinese fishing nets in Fort Kochi (right)

Dear Participants of PORSEC-2012

We are glad to inform you that the preparations for PORSEC-2012 are progressing well. As you are aware, PORSEC-2012 will be held in, the coastal city, Kochi known for its picturesque beauty and tropical climate. Kochi is the commercial capital of Kerala, the southwestern province of India. Kerala also nicknamed as 'God's Own Country' is famous for spices and picturesque backwaters and sandy beaches fringed with coconut palm trees. The conference will be held during 5-9 November 2012 following a pre-conference tutorial during 30 October to 3 November 2012 (<http://www.porsec2012.incois.gov.in/PreConferenceTutorial.html>).

We are happy that the response to the call for abstracts was excellent. Total of 554 abstracts have been received from 489 authors from 29 countries. The contribution from India stands the highest with 360 abstracts. Authors from USA contributed 39, from Russia 30, from Japan 20, from France 17, from China 14, from Taiwan 12, and so on. A committee entrusted with the responsibility of conducting scientific sessions (oral and poster sessions) is organizing the abstracts in 30 oral sessions and several poster sessions with the help of session conveners. Four parallel sessions are being planned to facilitate maximum number of oral presentations in addition to the plenary talks by eminent scientists. The acceptance of abstracts for oral/poster presentations will be notified to the authors soon.

November is a peak tourist season for Kochi and there could be shortage of accommodation and cost escalation. To avoid the last minute difficulties, please ensure to book the accommodation in convenient hotels at the earliest. Special rates have been negotiated with the hotels in the vicinity of the venue of conference. The details of hotels and instructions on how to avail the special PORSEC-2012 rates are available on <http://www.porsec2012.incois.gov.in/Accommodation.html>.

Participants from most of the countries will require visa to visit India. Please visit <http://www.porsec2012.incois.gov.in/Visa.html> for information on how to obtain the Indian visa. Indian visa rules requires the details of participants from Afghanistan, Bangladesh, China, Iran, Iraq, Pakistan, Sri Lanka, Sudan, Foreigners of Pakistani origin, and Stateless persons in advance. To process the visa applications of the participants from the aforementioned countries, please email a copy of passport to porsec2012 at incois.gov.in before 15 August 2012.

Once again, we welcome you all to PORSEC-2012 and looking forward to meeting you in Kochi soon.

With warm regards,

Yours Sincerely
Satheesh Shenoi
Chairman, Local Organizing Committee of PORSEC-2012.

Kochi, Kerala, India



PORSEC 2012 Pre-conference tutorial

Stephanie King

The pre-conference tutorial committee met in Kochi in February to discuss plans for PORSEC 2012. There are 9 committee members from a variety of institutes and backgrounds that bring together a wide range of experience. The pre-conference tutorial will be held at the Centre for Marine Living Resources and Ecology (CMLRE), Kochi over 5 days, from October 30 to November 3. This allows students one day off between the tutorial and main conference, which we hope the students will also attend.

The tutorial will be based on hands-on training where students will focus on either active microwave or ocean colour remote sensing. Examples from local waters will be used and discussions will include oceanographic applications such as the remote sensing of marine fishery resources. Students will be selected based on experience, interest and background. The committee plans to accept 20 Indian and 10 international students.

The tutorial will start with one day of general lectures, then students will break off into the two groups where they will attend focused lectures and labs. Students will also participate in field exercises and work on a mini-project that will be presented at the end of the tutorial.

The acceptance of applications will take place over the next several weeks, and notice to successful candidates will be sent out by the end of June.

More information on student applications will be available soon on the PORSEC webpage at <http://www.porsec2012.incois.gov.in/PreConference-Tutorial.html>. Please send your inquiries to porsec2012 at incois.gov.in.

The 2012 tutorial is sure to be another fantastic PORSEC experience!



PORSEC'S New mentorship program

The PORSEC Association is planning to launch a mentorship program for students and young scientists. The program will match established scientists with new scientists who require help with written work. The mentorship will focus on improving written English and scientific concepts. In this first year we aim to pair mentors with students attending PORSEC 2012 in Kochi, India. Students will be encouraged to bring written work, particularly papers nearly ready for journal submission. We plan on hosting a meeting at the conference for all mentor/mentee participants and also hope to have involvement of an editor of an international journal.

The mentorship program fits well with PORSEC's mission statement by encouraging international cooperation and sharing of expertise and engaging young scientists for the purpose of advancing science. One possible outcome is improving the quality of submissions to the published conference proceedings.

We need PORSEC volunteers!

Please contact organizer Stephanie King (stephanie.king at dfo-mpo.gc.ca) if you are interested in participating in the program as a mentor or with the organization of the program.

Coastal Altimetry

A.G. Kostianoy

The TOPEX/POSEIDON mission (funded by NASA and CNES), its successors Jason-1 and Jason-2, the altimeters on board ESA's ERS-1/2 and Envisat mission and the U.S. Navy's Geosat Follow-On have started and are sustaining one of the most impressive observational records in geophysics, both for its length (currently two decades), its synopticity and its accuracy. The importance of altimetry in capturing the dynamics of the oceans, the intended primary application of the missions, is now paralleled by its role as a global sea level gauge – an application that has become ever more prominent in times of climate change. And the by-products of the technique – wind speed and significant wave height – are important variables for climate research and for the independent validation of measurements from other sources.

Altimetry's exceptional progress has been made possible by the dedication of many scientists and engineers. Their first-class research on orbit determination and instrumental, atmospheric and surface effects' corrections has improved the precision of the altimetric measurements to levels that were almost unthinkable of at the beginning (~2 cm from a 1335-km orbit) and ensures accuracy and long-term stability that allow the rate of global sea level rise to be measured with a resolution accuracy better than 1 mm/year. The excellent body of research behind altimetry is comprehensively reviewed in Fu and Cazenave's book "Satellite Altimetry and Earth Sciences" (2001), whose many chapters, authored by some of the leading experts in the field, also illustrate several of the applications of altimetry.

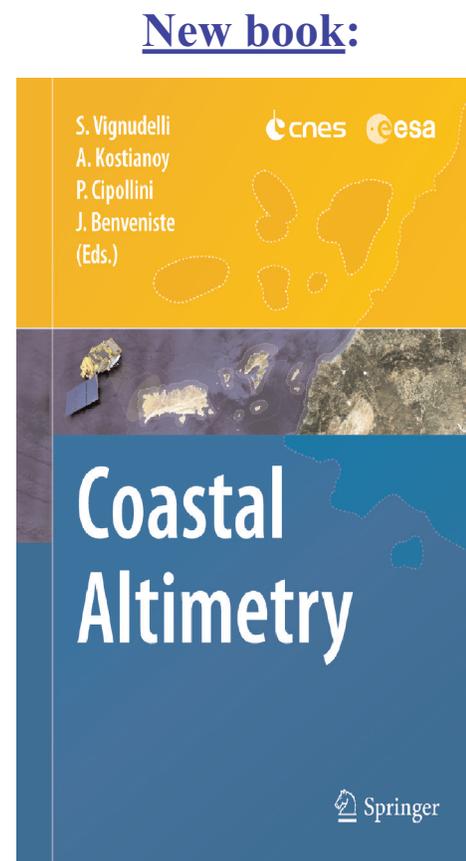
The impact of altimetry on the oceanographic community is enormous. It also includes the widespread use of altimetry within the modelling community: nowadays, altimetric data are routinely assimilated into ocean models, both in near-real time for operational forecasting and in delayed time for hindcasts and re-analysis that greatly improve our understanding of many ocean processes. It is not a surprise that GCOS has included Sea Level in its list of Essential Climate Variables (ECVs) required to support the work of the UNFCCC and the IPCC. Ensuring continued support

to altimetry is, now more than ever, at the centre of the general political debate on sustaining climate research.

So, altimetry is mature, and is a great success story for satellite-based Earth Observation. However there is still an important domain where altimetry remains grossly underexploited. This domain coincides, crucially, with the region where changing circulation, sea level and sea state have by far the largest impact on human society: the coastal zone. Altimetric data gathered over this coastal strip (up to a few tens of km from the coast) remain unused in the archive, mainly as they are flagged as ‘bad’ or ‘not reliable’ due to contamination of the altimetric waveforms by the nearby land backscatter, inadequate corrections, or poorly understood surface effects. The information in the coastal altimetry records ends up being corrupted, and for a long time many satellite oceanographers simply used to filter out those records. But that information would be invaluable for studies of coastal circulation, sea level change and impact on the coastline. And we have, already, two decades of raw data in the archives. Is that information completely unrecoverable? Many researchers believe this is not the case. They believe that not only coastal altimetry would be very useful, but also, and crucially, that it is to a large extent feasible, and so must be done!

The path to coastal altimetry crosses two crucial territories: improvement of the radar measurement retrieval algorithms (retracking) and of the geophysical corrections. First of all, the radar return signals (known as waveforms) are archived, so their conversion to geophysical measurements can be revisited by fitting models of the waveforms (which is what is called retracking) optimized for the coastal zone: this is expected to improve the estimation of height, significant wave height and wind speed, or indeed to make that estimation possible where it was previously not possible at all employing open-ocean waveform models. Then, the other aspects of the whole processing chain from sensor to product, including the various corrections and the quality control, can be largely improved integrating local knowledge; one simple example is the use of local accurate models for the correction of the high-frequency atmospheric pressure effects on the sea level.

The process of extending altimetry to the coastal zone has begun with some early papers (e.g. Crout 1998;



Coastal Altimetry (Springer©)

Vignudelli S.,
Kostianoy A.G.,
Cipollini P.,
Benveniste J. (EDS.)

“COASTAL ALTIMETRY”.
Springer-Verlag,
BERLIN, HEIDELBERG, 2011.
578 PP.
DOI:10.1007/978-3-642-12796-0.

<http://www.springer.com/earth+sciences+and+geography/remote+sensing/book/978-3-642-12795-3>

Anzenhofer et al. 1999; Vignudelli et al. 2000) around the turn of the century, when several researchers around the world were starting to come up with new ideas and to explore some of the techniques necessary to make it work. A small but significant mark in the history of coastal altimetry was the launch of the AL-BICOCCA program in 2001; this was the precursor of the European INTAS ALTICORE project (2007-2008). The last five years have seen a dramatic increase in the research on this novel topic, and the coming together of an active international community of researchers who are exchanging ideas at regular Coastal Altimetry workshops (Silver Spring 2008, Pisa 2008, Frascati 2009, Porto 2010, San Diego 2011, and the forthcoming one in Riva del Garda (Italy), 20-21 September 2012 - see <http://www.coastalaltimetry.org/>). The major space agencies and funding agencies have recognized the importance of the topic and are supporting it via a series of projects (e.g. COASTALT, PISTACH, RECOSETO and some OSTST projects).

In 2008-2010 we have edited a 600-page book entitled “Coastal Altimetry”, which was published in 2011 by Springer-Verlag in Germany, see: <http://www.springer.com/earth+sciences+and+geography/remote+sensing/book/978-3-642-12795-3>

This peer-reviewed book builds on many of the research efforts in the aforementioned projects and across the whole community, with the aim of presenting the current status in this new, challenging and exciting topic. It brings together 20 chapters addressing a wide range of issues in processing and exploiting satellite altimetry from the open ocean to the coasts. The chapters presented describe the state-of-the-art, recent developments on specific issues and practical experience. Chapter 1 gives a historic perspective and shows the current status of satellite altimetry missions. This is immediately followed in Chapter 2 by the illustration of a successful case in which coastal altimetry data have gone from research to operation. Chapter 3 discusses the user requirements for the new coastal altimetry products, i.e. what the users expect to get. The bulk of chapters from chapter 4 to 9 deal with data processing aspects, particularly those concerning re-tracking and corrections for improving altimeter data, including editing strategy. These are the techniques that truly make coastal altimetry a reality.

Chapter 10 extends the content of the book to data dissemination and services. Chapter 11 illustrates the clear link of calibration and validation to coastal altimetry. Following this introduction of how altimeter data are processed and managed is a series of Chapters (12 to 19) that show the gamut of applications in some regional seas (Mediterranean, Black, Caspian, White, Barents), around coasts of some countries (North America, China, Australia) and even lakes that have similar processing challenges. Finally, Chapter 20 explores novel technologies of forthcoming satellite altimetry missions and their expected impact on data retrieval in the coastal zone.

The Coastal Altimetry book is intended for a wide audience of students, researchers, data-integrators with interest in the Coastal Zone who seek a unique, research-centred, up-to-date reference to Coastal Altimetry. We hope that the book will inspire both young and more experienced researchers, and that it will be seen both as a stimulus to exploit Coastal Altimetry and an invitation to explore further the intricate details of technology, algorithms, processing, in a field that promises to bring significant and long-lasting societal benefits.

The future of satellite altimetry – and of coastal altimetry – now looks rosy: the evolution of the field is improving further the resolution capabilities, benefiting from advances in technology (e.g. Delay-Doppler and Interferometry) in concert with an enhancement of the space-time sampling with emerging multiple orbital configurations and possible instrument miniaturization. While CryoSat (2010) and HY-2 (2011) have recently been launched, there are approved and planned missions for the near future such as Saral/AltiKa (2012), Sentinel 3A (2013), HY-2B (2014), Jason-3 (2014), Sentinel 3B (2017 or any-time after 2014 to support the operational Sentinel-3 Mission), Jason-CS (2017), SWOT (2019), Sentinel 3C/D (2021), which will ensure the required data supply for the next generation of scientists focused on Coastal Altimetry.

Stefano Vignudelli (CNR, Italy), Andrey G. Kostianoy (SIO, Russia), Paolo Cipollini (NOC, UK), and Jerome Benveniste (ESA, Italy)

PORSEC 2012

will be held in

**Kochi, India during
5-9 November 2012**

**with a pre-conference tutorial
prior to the conference**

**Indian National Centre for Ocean Information
Services (INCOIS), Hyderabad, India**

**will be the host for this event,
with its director, Dr. Satheesh C. Shenoi,
acting as the**

Chairman of Local Organizing Committee.

See tentative agenda elsewhere in this issue

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 or katsaros at porsec.nwra.com.