

→ **SEASAR 2012**

The 4<sup>th</sup> International Workshop on Advances in SAR Oceanography

# Workshop Background, Objectives and Organization

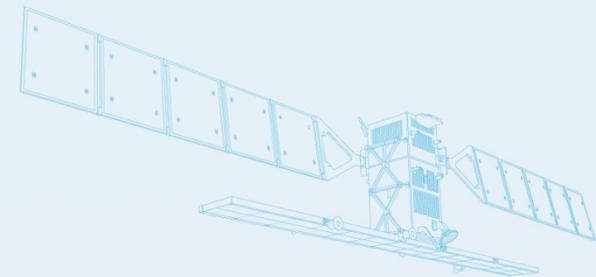
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EO Science, Applications and New Technologies Department  
European Space Agency ESRIN



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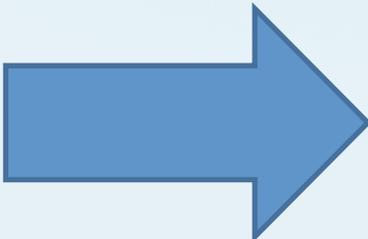


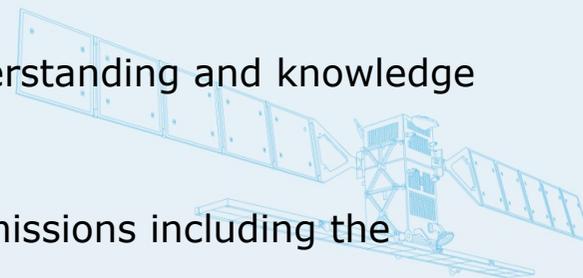
1. Provide a forum for scientific exchange and to assess the state of art in SAR coastal and marine applications
2. Initiate and encourage close collaboration between individual research groups
3. Agree and disseminate benchmark algorithms
4. Formulate recommendations for algorithm and new products development
5. Present exploitation results from spaceborne SAR missions and application projects
6. Present SAR marine and ice services developed under the GMES framework



7. Present the mission status of future missions like ESA Sentinel-1 and CSA RCM
8. Consult with users of future missions like Sentinel-1 and RCM
9. Report on progress/status of recommendations of SeaSAR 2010

## WHITE PAPERS Initiative

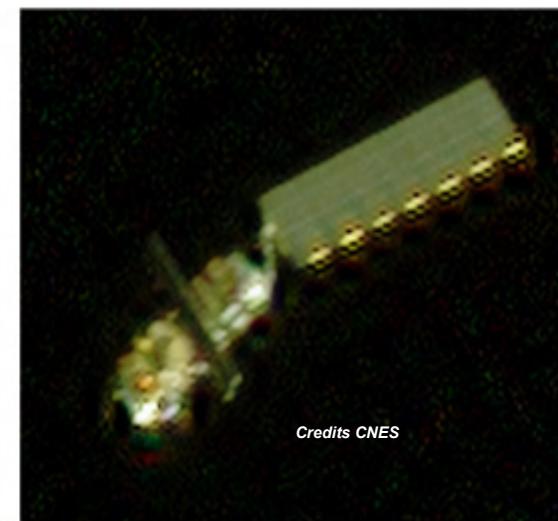
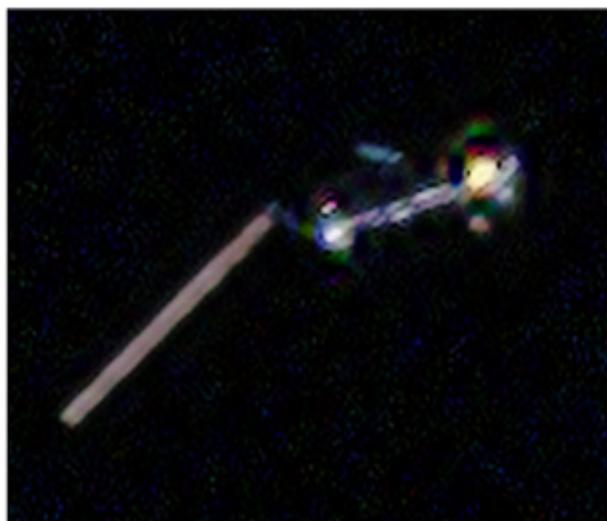
- 
- Revisit the 2003 proceedings and hammer out the recommendation
  - Identify the major delta achievements in the last 10 years
  - What are the current critical missing understanding and knowledge gaps (as seen from Seasar2010)
  - How can we make benefit of future SAR missions including the sentinel to fill these gaps



## ESA declares end of mission for Envisat



ENVISAT Observed by Pleiades (15 April 2012)



Credits CNES

## WORKSHOP CONTEXT

### ESA declares end of mission for Envisat

- Just weeks after celebrating its tenth year in orbit, communication with Envisat satellite was suddenly lost on 8 April.
- Despite continuous commands sent there has been no reaction from the satellite.
- Possible failure scenarios:
  - loss of the power regulator, blocking telemetry and telecommands.
  - short circuit, triggering a 'safe mode' –A second anomaly may have occurred during the transition to safe mode, leaving the satellite in an intermediate and unknown condition.

**The investigation team has the objective to reach final conclusions about the major anomaly in July 2012**

## ENVISAT to SENTINELS data-gap filling actions

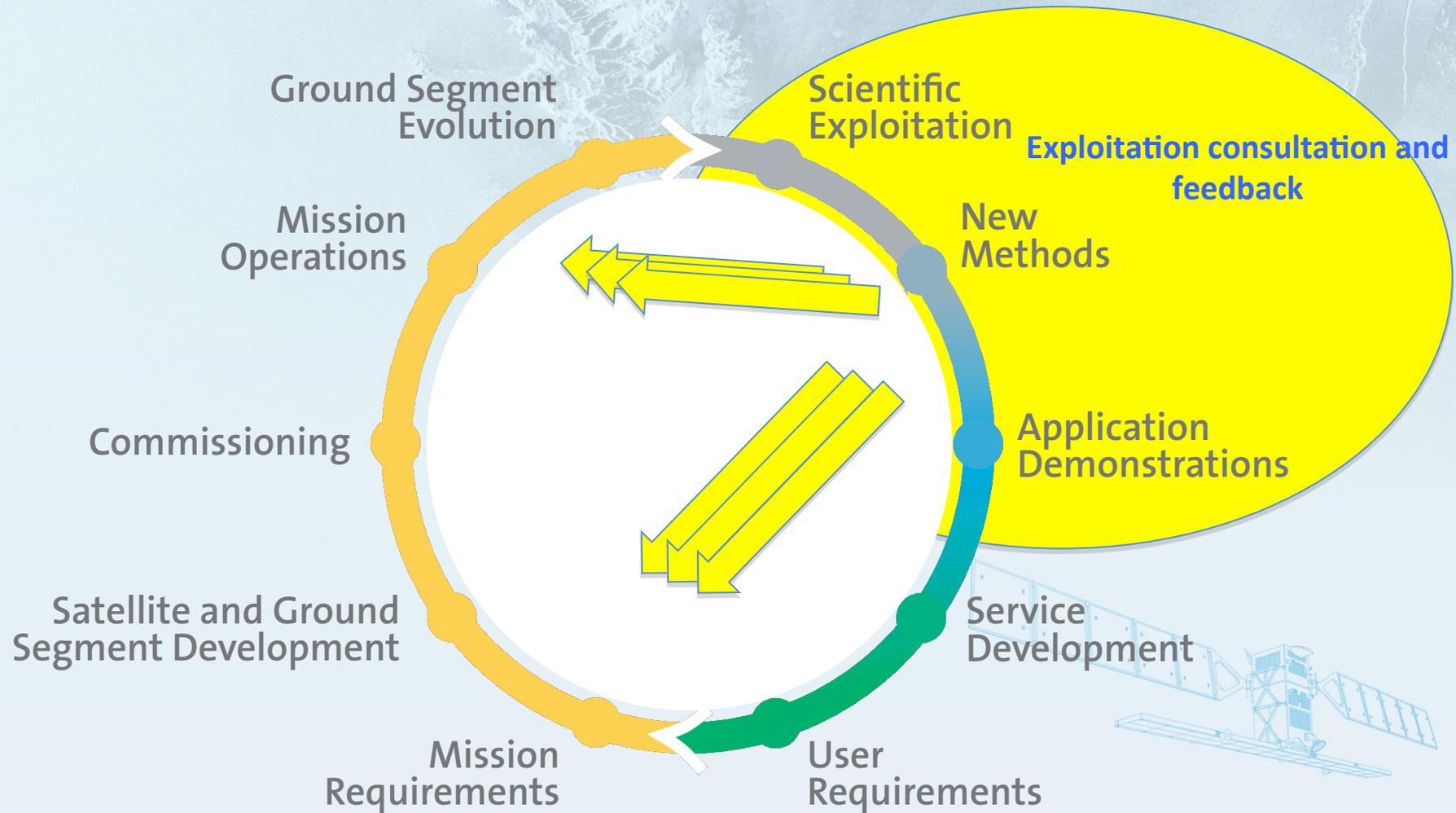
### Third-Party Missions [period 2012-2014]

Envisat instruments	Potential Third Party Missions which could contribute to the <i>partial</i> mitigation of Envisat data-gap
<b>Atmospheric composition (GOMOS, MIPAS, SCIAMACHY)</b>	ODIN Osiris, SCISAT-1, GOSAT, GOME-2/IASI on MetOp-A/-B, sensors on Aura (inc. OMI), 3 sensors on NPP, <i>OCO-2</i>
<b>Altimetry (RA-2, MWR, DORIS)</b>	Jason-1/-2, <i>SARAL AltiKa</i> , CryoSat (Oceanographic products), HY-2A
<b>Ocean and Land Colour (MERIS)</b>	MODIS Terra & Aqua, VIIRS on NPP, Vegetation on Spot, <i>Proba-V</i> , India OCM on OceanSat-2
<b>Ocean and Land Temperature (AATSR)</b>	MODIS Terra & Aqua, VIIRS on NPP, AVHRR, <i>Japan GCOM-W1</i>
<b>Imaging Radar (ASAR)</b>	[C-band] Radarsat-1/-2 (3-months contingency agreement with CSA/MDA is activated) [X-band] Cosmo-Skymed constellation, TerraSAR-X Also India RiSAR-1/-2; <i>S. Korean KompSat-5</i>

*In italics: not yet launched*

→ **importance of Earthnet programme during the data-gap period**

# EO Exploitation Life Cycle

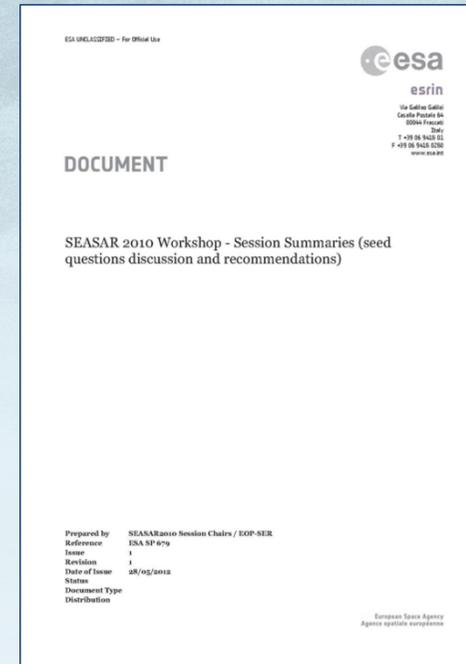


# SEASAR2010 Recommendations

## SEASAR 2010 WORKSHOP

<http://earth.eo.esa.int/workshops/seasar2010>

## RECOMMENDATIONS



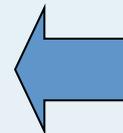
## REPORTING

## SEASAR 2012 WORKSHOP

<http://earth.eo.esa.int/workshops/seasar2012>

## ACTION

Campaign
Training
Toolbox
Algorithms



# SEASAR2010 Recommendations

SeaSAR2010 workshop recommendations	Status 2012
<p><b>SPACEBORNE SAR MISSIONS SESSION</b> Studies should be performed to assess the performance of wave information retrieval from TOPS data processing in IWS and EWS modes</p>	<p><b>Planned under SEOM</b></p>
<p><b>ICE APPLICATIONS</b> Additional experiments using of multiband/multipolarization capabilities for sea ice characterization and tracking including field validation campaigns are desired.</p>	<p><b>ESA Earth Observation Campaigns Data Campaigns: CryoVEx, POLARIS, SnowSAR (2011)</b></p>
<p><b>Wave applications</b> Additional ESA approved products and demonstration products</p>	<p><b>Soprano</b></p>
<p><b>Ship Detection</b> A dedicated ESA activity related to these new techniques would be of considerable help, in particular with a view to future Sentinel 1 exploitation</p>	<p><b>SEOM</b></p>
<p>For other recommendations of SEASAR 2010 sessions</p>	<p><b>Please refer to presentations of Pierre Potin, Nuno Miranda, Gordon Campbell and SEASAR2012 thematic sessions</b></p>

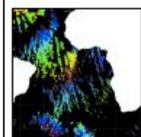
## Objectives

SOPRANO is a demonstration platform developed by the Radar Applications division of C.L.S. (former BOOST Technologies) to distribute CLS ocean demo products (Level2 and 3) processed from ESA SAR image products (Level1). [Continue reading →](#)



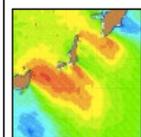
### Products catalogue (L2)

- [Wind](#)
- [Swell](#)
- [Current](#)
- [Roughness](#)



### Ocean Swell tracking

- Atlantic ([NRT](#), [Archives](#))
- Pacific ([NRT](#), [Archives](#))
- Indian ([NRT](#), [Archives](#))



### Statistics of SAR products (L3)

- [Wind](#)
- [Swell](#)
- [Current](#)

## Envisat services interrupted

Posted on 2012/04/13 by admin

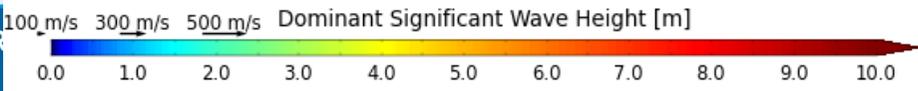
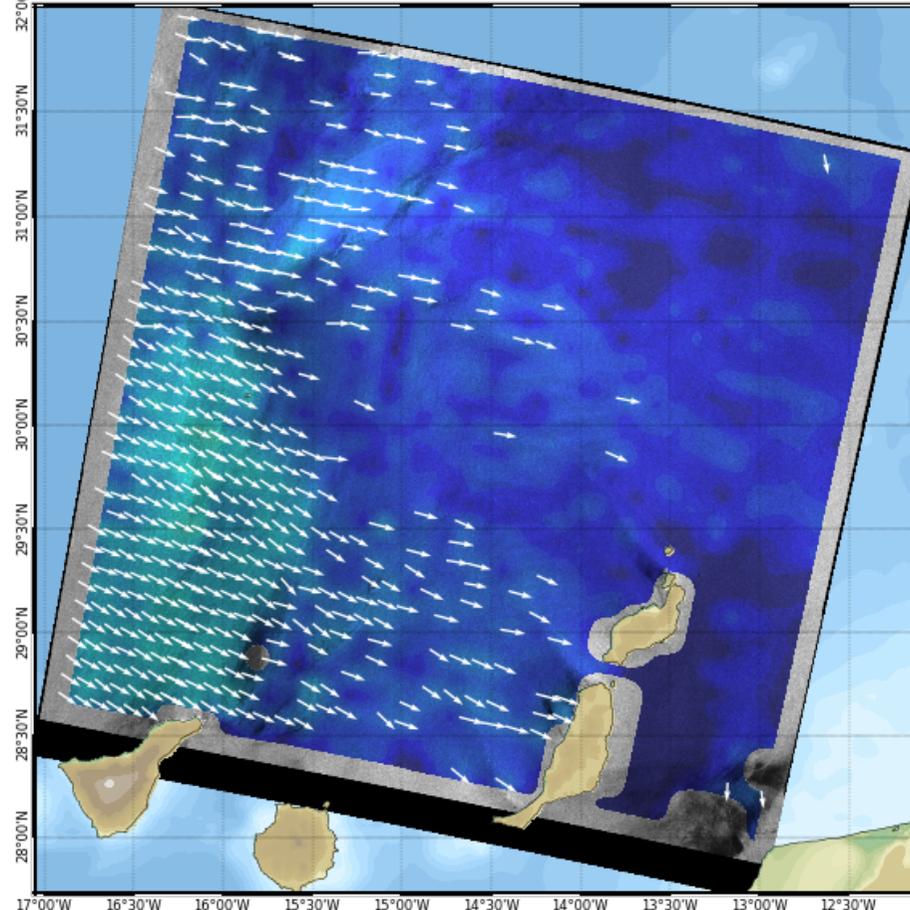
After 10 years of service, Envisat has stopped re-establish contact with the satellite. Although it

This entry was posted in [Uncategorized](#). Bookmark

## ESA representatives visit C

Posted on 2012/03/15 by admin

On the sidelines of the ESA Globcurrent meeting (responsible for the ESA Earth Observation Mission Development section & Senior Advisor EO Science event to celebrate the 10 years of marine observation presentation of its infrastructures and activities in



# ESA Earth Observation Campaigns Data

The datasets resulting from ESA airborne campaigns can be accessed by submitting a request on the ESA EO Campaigns data section of the PI Community:

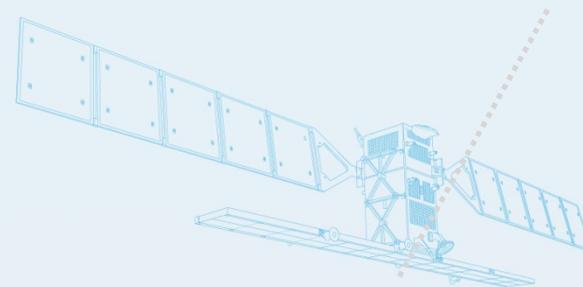
<https://earth.esa.int/web/guest/pi-community/apply-for-data/campaigns>

The screenshot shows the ESA Earthnet Online website. The header includes the ESA logo, 'Earthnet Online', and navigation links like 'Login My Earthnet', 'Register', and 'Google Custom Search'. The main navigation menu has 'Data Access', 'Missions', 'Earth Topics', 'PI Community', and 'Explore more...'. The breadcrumb trail reads 'Home > Missions > ESA Earth Observation Campaigns Data'. The main content area features a table of campaigns and a sidebar with 'Missions', 'Related Links', and 'Latest Mission News'.

Campaign (with link to final report PDF)	Year	Geographic site(s)	Field of application	Data available on-line	Data Availability	Workshop Proceedings
<a href="#">CryoVEx</a>	2011	Arctic	CryoSat sea and land ice Cal/Val			
<a href="#">POLARIS</a>	2011	Antarctica	P-Band ice-sheet sounding		1 DVD	
<a href="#">SnowSAR</a>	2011	Lapland (Finland)	X- and Ku-Band SAR imagery		1 CD	
<a href="#">NoSREx-II</a>	2010 2011	Sodankyla (Finland)	Snow water equivalent by means of active and passive microwave observations		1 HD	

## Objectives of SEOM (Support to Exploitation for Operational Missions):

- Federate, support and expand the research community build up over the last 20 years (this workshop)
- Strengthen the leadership of European EO research community exploiting European operational EO missions
- Enable the science community to address new scientific research exploiting European operational EO missions



# SEOM Major Lines of action (1)

## A.L.1: Federate, support and expand the EO research communities

Scientists/Users consultation and reporting at:

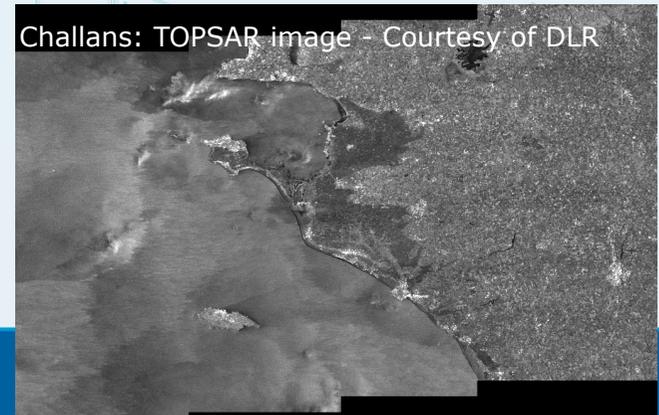
- ✓ Sentinel 1 Fringe 2011 and SEASAR 2012
- ✓ Sentinel 2 symposium
- Sentinel 3 MERIS-(A)ATSR and OLCI-SLSTR workshop
- Sentinel 3 Altimetry 20 Years Progress in Radar altimetry
- ✓ Sentinel 4/5/5P ATMOS 2012
- ESA Living Planet Symposium Edinburgh UK 9-13 September 2013

## A.L.2: Development and validation of advanced EO methods and observation strategies

SEOM annual workplan, based on recommendations from Scientists/Users consultations, to be presented to PB-EO. Examples of activities:

- Sentinel 1
  - TOPSAR simulated data with Terrasar X and Radarsat 2
  - TOPSAR Oceanography in Extended Wide swath
  - Advanced exploitation for interferometric mode with dual polarisation data
- Sentinel 2
  - Atmospheric corrections
  - Simulated products ,Synergy products
- Sentinel 3
  - Exploitation of new SAR Altimetry measurements
  - Advanced Rivers and lakes monitoring
  - SLSTR and OLCI advanced exploitation

Challans: TOPSAR image - Courtesy of DLR



# SEOM Major Lines of action (2)

## A.L.3: Promoting widespread scientific use of data

- Sentinel 1/2/3 opportunities for scientific use
- New EO Exploitation portal for scientists
- Sentinel Handbooks preparation

## A.L.4: Developing, validating and maintaining scientific software toolboxes

- Sentinel 1/2/3 Toolbox
- Tutorial and Practicals for Scientific Training (with operational mission data)

## A.L.5: Training next generation of European EO scientists

- Advanced training in Remote Sensing hosted every year in European Universities and Institutes :
  - ✓ **Advanced SAR POLARMETRY** January 2013 ESA- ESRIN Frascati
  - ✓ **Advanced Training on Land RS** June 2013 HK University Athens
  - ✓ **Advanced Training on Ocean RS location and date TBD**

## A.L.6: Scientific Outreach

- Ensuring a responsive ESA channel through which EO scientists can make regular, timely, high-quality scientific publications linked to these research domains



# Upcoming Events

Co-organised by DLR/ESA



**IGARSS 2012**  
IEEE International Geoscience and Remote Sensing Symposium  
Remote Sensing for a Dynamic Earth

IEEE GRSS  
IEEE

2012 MUNICH  
IGARSS  
22-27 July 2012 | Munich  
International Congress Centre

**CALL FOR PAPERS**



**→ POLINSAR 2013**  
The 6th International Workshop on Science and Applications of SAR Polarimetry and Polarimetric Interferometry  
**ANNOUNCEMENT & CALL FOR PAPERS**

28 January - 1 February 2013 | ESA ESRIN | Frascati (Rome), Italy

www.esa.int  
European Space Agency

Abstract deadline  
**5<sup>th</sup> October 2012**

→ **SEASAR 2012 | The 4<sup>th</sup> International Workshop on Advances in SAR Oceanography**  
18-22 June 2012 | Tromsø, Norway

# Upcoming Events



## living planet symposium | EDINBURGH 09.13 september 2013

FIRST ANNOUNCEMENT AND CALL FOR PAPER

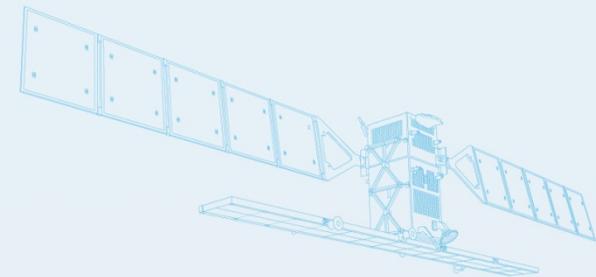


European Space Agency

→ SEASAR 2012 | The 4<sup>th</sup> International Workshop on Advances in SAR Oceanography  
18-22 June 2012 | Tromsø, Norway

## 11 THEMATIC sessions about the following themes:

- Future SAR Missions
- Methodology and Techniques
- Wave Mode Processing Algorithms, Product Validation and Assimilation
- Wave Retrievals and Applications
- Internal Waves
- Ocean current retrievals and applications
- Ship Detection
- Oil Spill Detection
- Ocean Wind Retrievals and Applications
- Sea ice retrievals and applications
- Summary Session



- **63 Oral presentations**
- **1 Poster Session** with 34 posters on Wednesday afternoon
- **Round table discussion** seeded with questions prepared by the session chairmen
- **Summary session** prepared and presented by the co-chairs on Friday 22<sup>th</sup>

Day 1, Monday 18		Day 2, Tuesday 19		Day 3, Wednesday 20		Day 4, Thursday 21		Day 5, Friday 22	
08:45-09:30	Registration	08:30-10:30	Wave retrievals and applications	08:30-10:30	Ship detection	09:00-10:40	Ocean wind retrievals and applications	09:00-10:40	Session Summary
09:30-09:50	Official welcome			10:30-11:00	Coffee Break	10:40-11:10	Coffee Break	10:40-11:10	Coffee Break
09:50-10:50	Future SAR missions			11:00-11:20	Wave retrievals and applications	11:00-11:40	Ship detection	11:10-12:50	Ocean wind retrievals and applications
10:50-11:20	Coffee Break	11:20-12:50	Internal Waves & RT	11:40-12:40	Oil spill detection	12:50-14:00	Lunch Break		
12:50-14:00	Lunch Break	12:50-14:00	Lunch Break	12:40-14:00	Lunch Break	14:00-14:40	Ocean wind retrievals and app. RT		
14:00-16:10	Methodology and techniques & RT	14:00-16:00	Ocean current retrievals and applications	14:00-15:20	Oil spill detection	14:40-16:00	Sea ice retrievals and applications		
				15:20-16:00	Ship detection & Oil spill detection RT	16:00-16:30	Coffee Break		
16:10-16:40	Coffee Break	16:00-16:30	Coffee Break	16:00-18:00	Poster Session	16:00-16:30	Coffee Break		
16:40-18:10	Wave mode algo, product validation and assimilation & RT	16:30-17:20	Ocean current retrievals and applications & RT			16:30-18:00	Sea ice retrievals and applications & RT		
18:30-20:00	Welcome Cocktail	17:30-20:00	Visit to KSAT	Hosted Workshop Dinner					

## Presentation

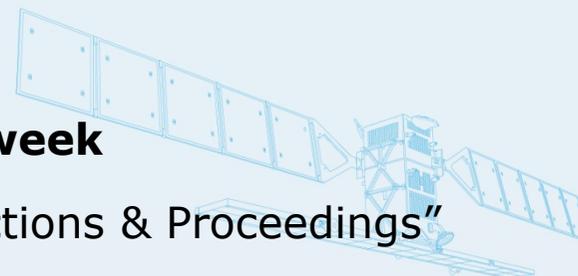
- 20 minute oral talk: 15+5 for questions
- Upload your presentation well before the start of the session by using the dedicated PC. Support personnel (Ulla and Andrea) will be present to help you with this process.
- (Please) deliver also a **pdf version** of the presentation since this will be published on the SEASAR 2012 website.

## Poster

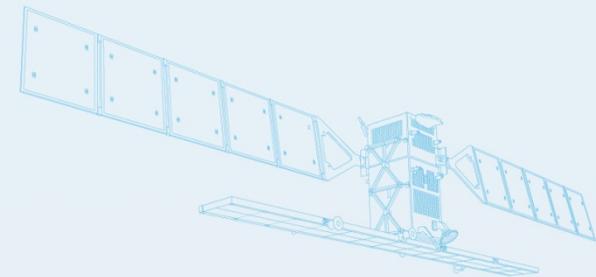
- On display from Monday 18th June for the whole duration of the Conference in Tromsø 3 room.
- Please hang posters during the daily coffee breaks

## Proceedings (ESA SP 679)

- Deadline for submitting the full paper is **end of this week**
- Full paper instructions are available at "Author Instructions & Proceedings" webpage on the SEASAR2012 websites



***Wishing you a very fruitful  
workshop!***



## 1. Monday 18 June

**Icebreaker** - hosted by the Norwegian Space Centre.

The Ice Breaker will take place in Ølhallen (Storgata 4, Tromsø) from 18:30 to 20:00. The taverna is about eight minutes walk from the SAS Radisson hotel.

## 2. Tuesday 19 June

**Visit to Kongsberg Satellite Station (KSAT) and Kongsberg Spacetec (KSPT)** sponsored by Spacetec.

- Group 1 - Bus will depart from the SAS Radisson hotel at 17:30, return from KSAT at 19:00.
- Group 2 - Bus will depart from the SAS Radisson hotel at 18:30, return from KSAT at 20:00.
- List with Group 1/2 is available at the registration desk

## 3. Wednesday 20 June

**Workshop dinner** - hosted by Kongsberg Satellite Station

The bus will leave from the SAS Radisson hotel at 19:00 for an excursion to Hella, a cultural site 27 km outside Tromsø.

→ Further information are available in the **SEASAR 2012 Welcome package**

