



EO PI support and Access to ESA Earth Observation data



Yves-Louis DESNOS
Head Research & Development section & Senior Advisor
EO Science and Applications Department
ESA-ESRIN Frascati Italy



Presentation Outline

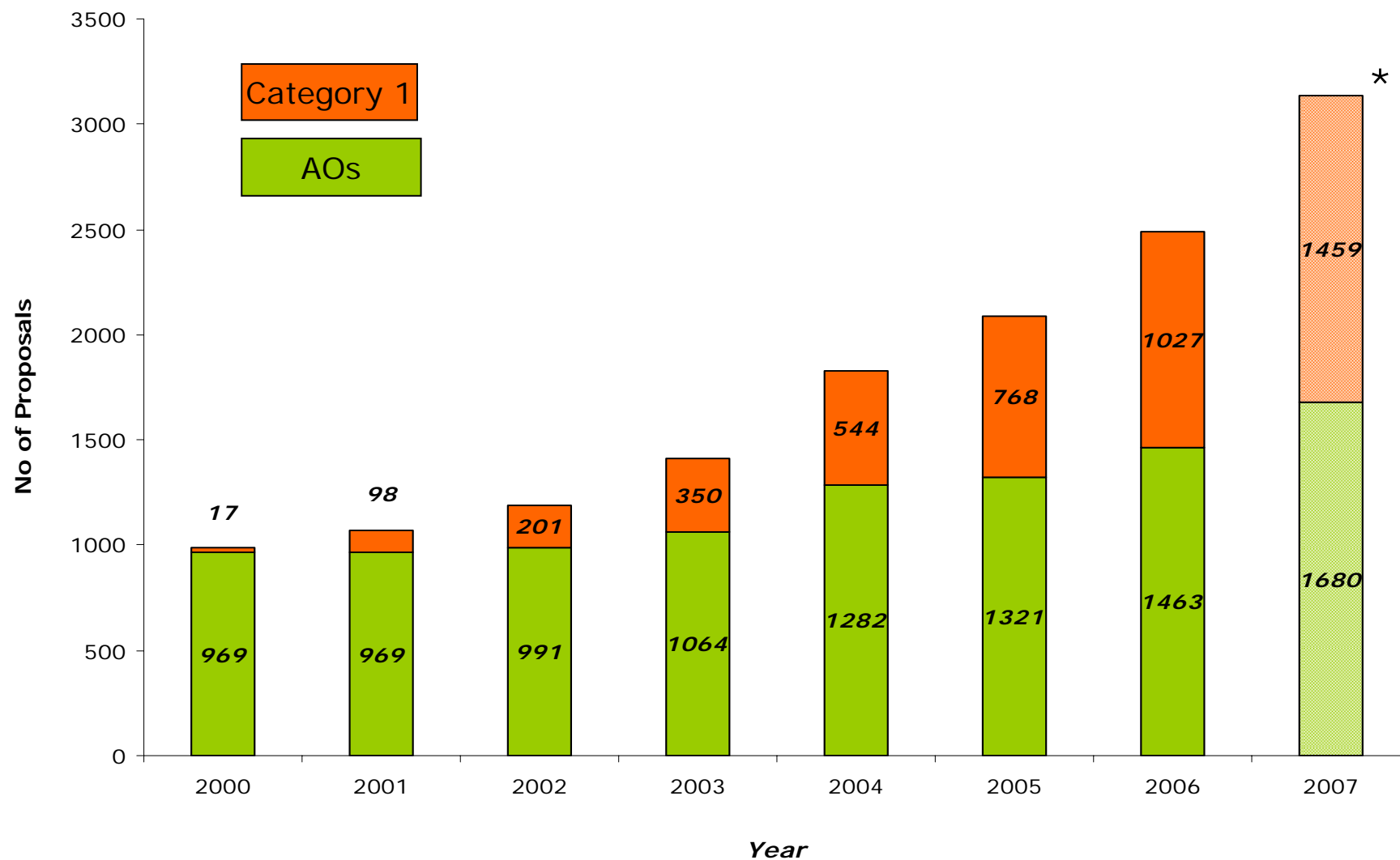
1. Introduction
2. Support to Scientific Exploitation
 1. EOPI
 2. Reporting and consultation
 3. Toolboxes and trainings
3. EO Data Policy and Data access

The EO Principal Investigators

Public Information at <http://eopi.esa.int/>

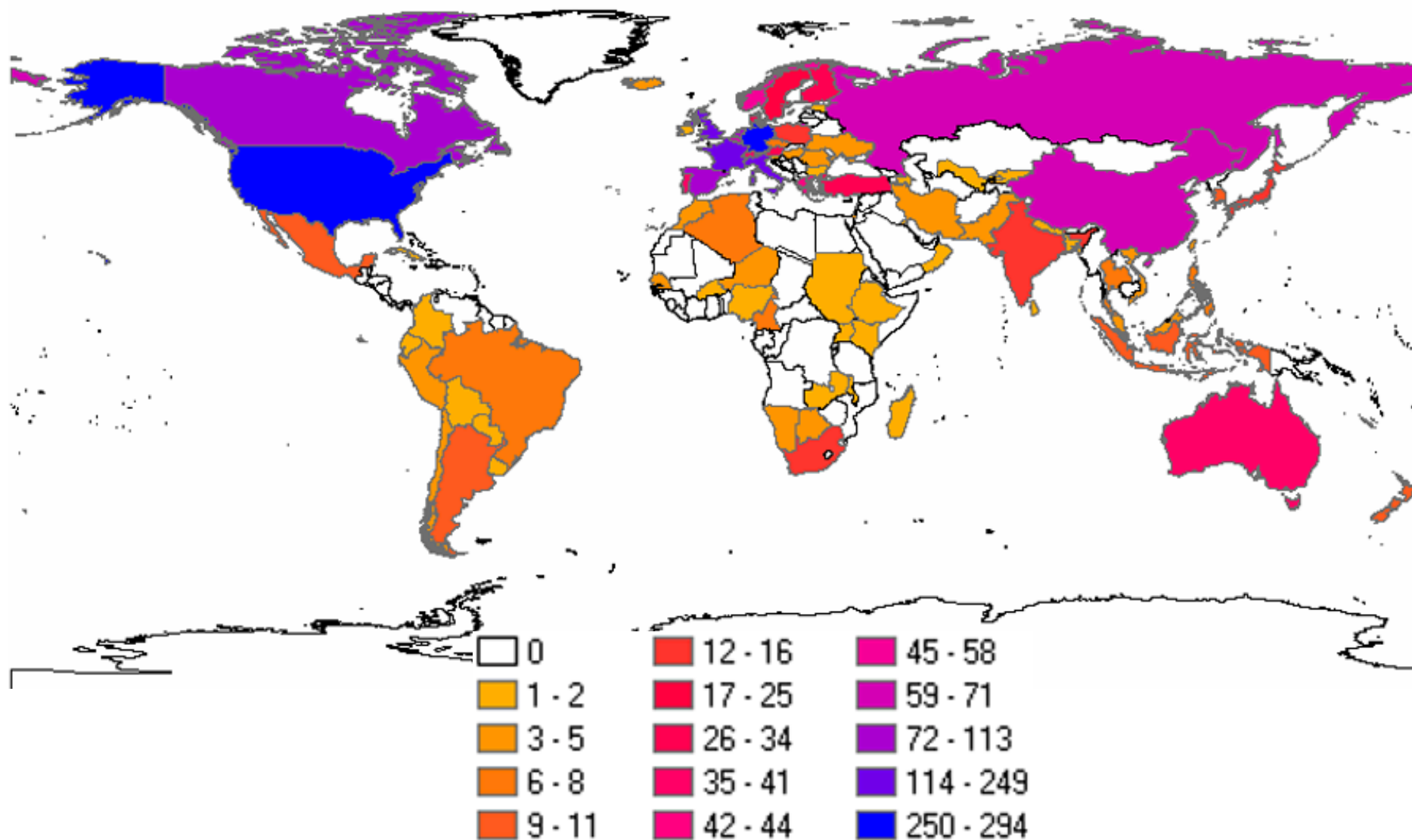


Worldwide time distribution



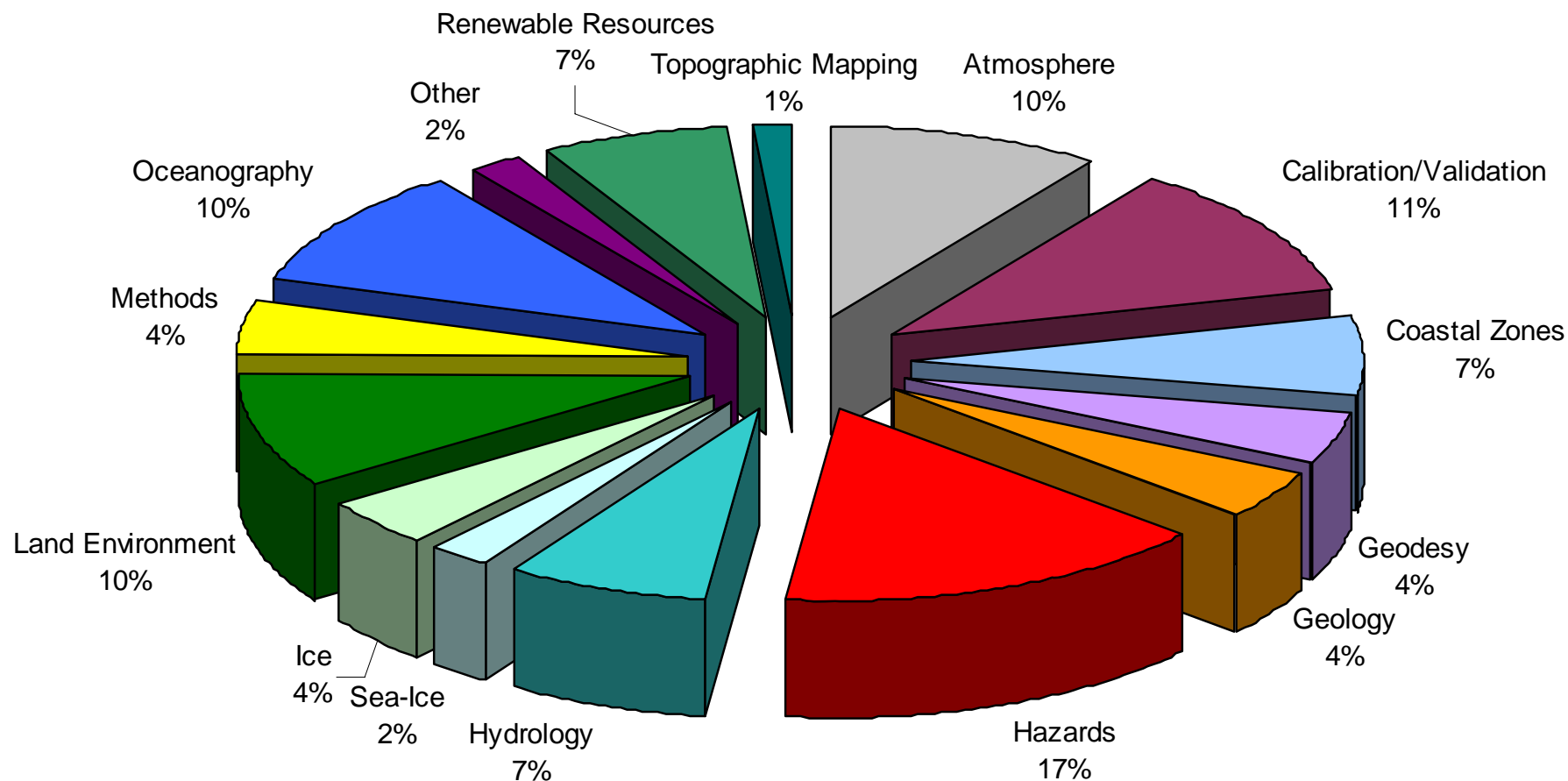
* Estimates for 2007

ESA Pls Worldwide 2000-2007



Category-1 Themes

Distribution of ESA Category-1 projects by main research theme



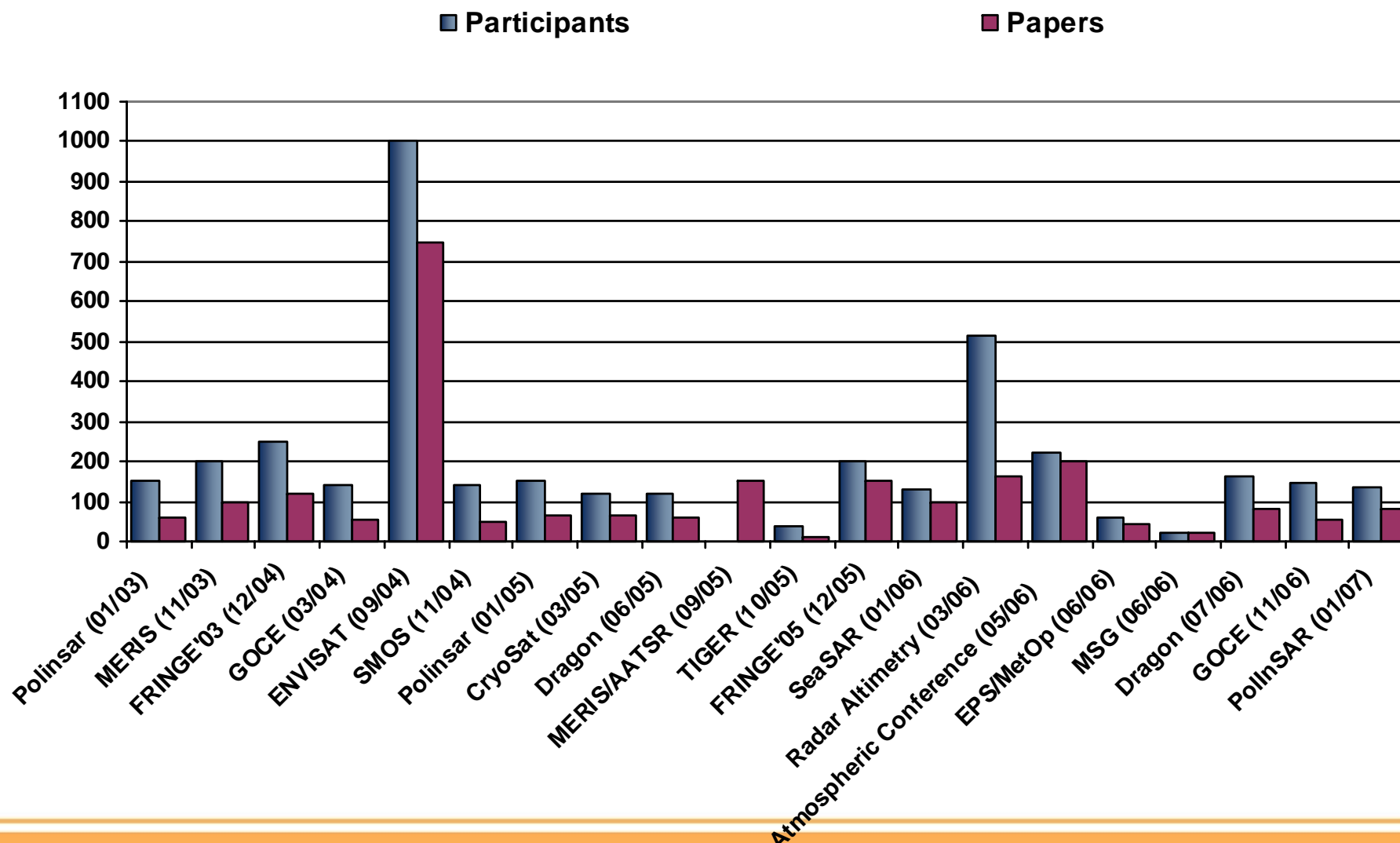
EO Pls Reporting and Consultations

Public Information at <http://eopi.esa.int/>



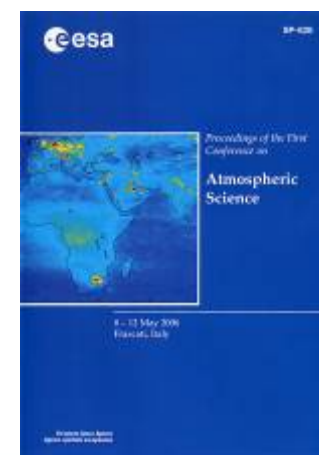
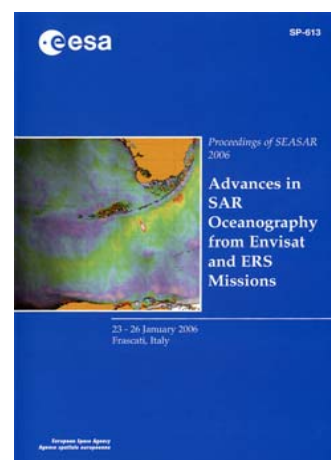
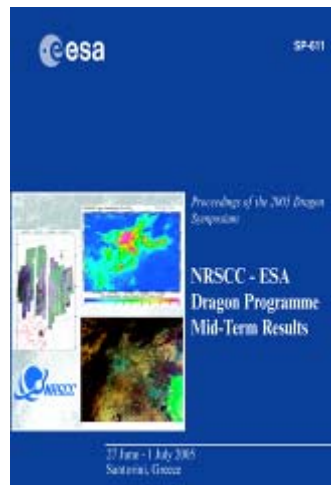
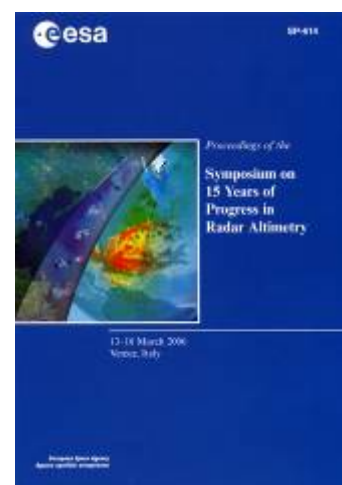
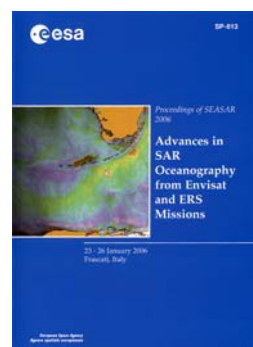
PI workshops and symposia

Participation to ESA Workshops and Symposia (Jan 2003 – Jan 2007)

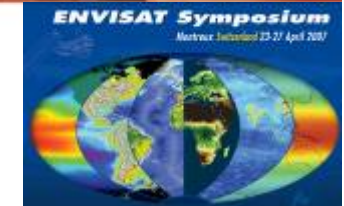




Workshops and Symposia



ENVISAT symposium 2007

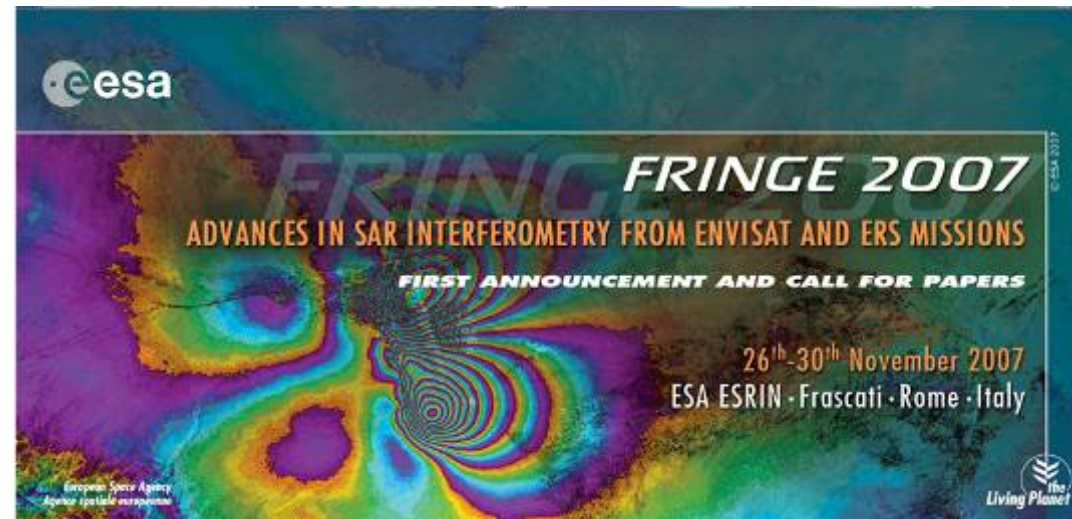
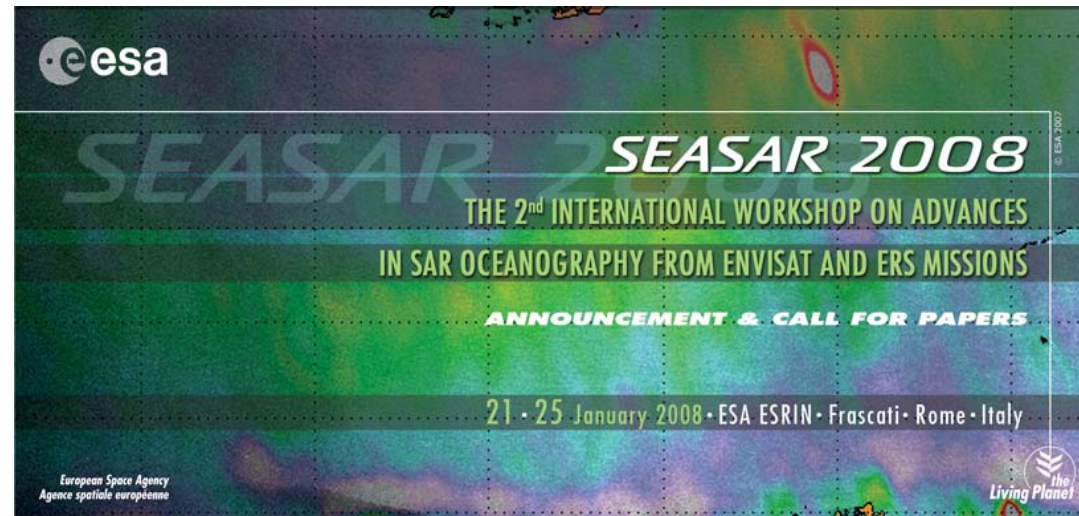


The Symposium in Numbers

- 1000 Participants , 50 different Countries
- 480 Oral Presentations & 312 Posters
- 100 Members in the Scientific Committee
- 85 Chairs, 34 Secretaries, 7 // Sessions



Forthcoming events





EO Pls Tools

ESA EO User Toolboxes

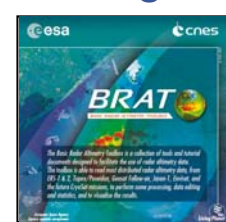
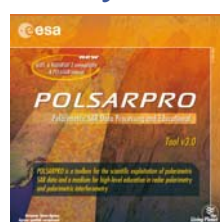
ESA provides a number of Open Source tools to facilitate the handling and exploitation of EO and TPM data



<http://earth.esa.int/resources/softwaretools/>

ESA EO User Toolboxes

- Software 'Toolboxes' instigated by ESA contracts.
- Each Toolbox is a collection of software tools to help the remote sensing community to exploit ESA-TPM data.
- New generation to contain Scientific tutorials prepared with Universities and practical case studies using real EO data.
- Offered to the user community free-of-charge



GOCE User
Toolbox
(GUT)

Next ESA
SAR Toolbox
(NEST)

SMOS
Toolbox

Basic ERS &
Envisat
(A)ATSR and
MERIS Toolbox
(BEAM)

Basic ERS &
Envisat SAR
Toolbox
(BEST)

Basic ERS &
Envisat
Atmospheric
Toolbox
(BEAT)

Polarimetric
SAR Data
Processing and
Educational
Tool
(POLARSARPRO)

early development

in planning

in planning

1000

1650

100*

520

100**

* Institutes

** Beta Version

Multi-Mission User Toolboxes

Mission Compatibility

						GUT	SMOS Toolbox
	MERIS AATSR ASAR	ASAR	MIPAS GOMOS SCIAMACHY	ASAR AP	RA2	RA2	
	ATSR	AMI	GOME		RA	RA	
					Cryosat 2	GOCE	SMOS
				AIRSAR EMISAR E-SAR PISAR SAR580 RAMSES			
TPM	MODIS		TOMS OMI GOME2 TES MLS	RADARSAT2 PALSAR TerraSAR-L TerraSAR-X SIR-C	Jason-1 Topex/Poseidon		

EO Pls Trainings



ENVISAT Summer schools



Host: ESRIN

Audience: PhD students, post-Doc, multi-disciplinary across Earth science disciplines (e.g. meteorology, oceanography, biology, remote sensing, modelling).



Participants: 57 (2003), 68 (2004), 73 (2006) from ~20 countries worldwide



Duration 2 weeks

Themes: Monitoring and Modelling of the Earth System - including the ocean, atmosphere, biosphere and cryosphere - focus on Data Assimilation techniques



Advanced training Ocean 2006



Dates: 25-29 September 2006

Host: Institute of Oceanography, University of Hamburg

Duration: 5 days

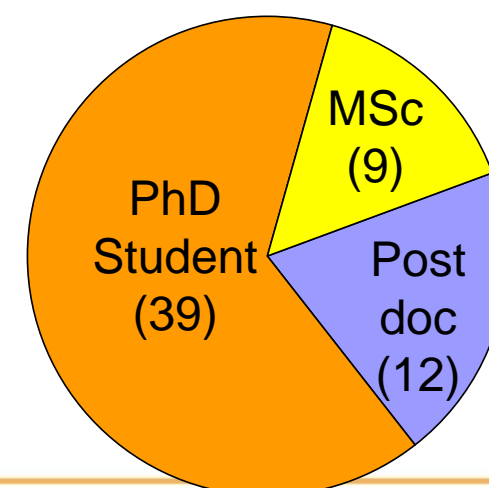
Nb of participants: 60 (85 applications)

Audience: PhD students, postdoc from Europe and Canada

Website: <http://envisat.esa.int/Ocean2006/>

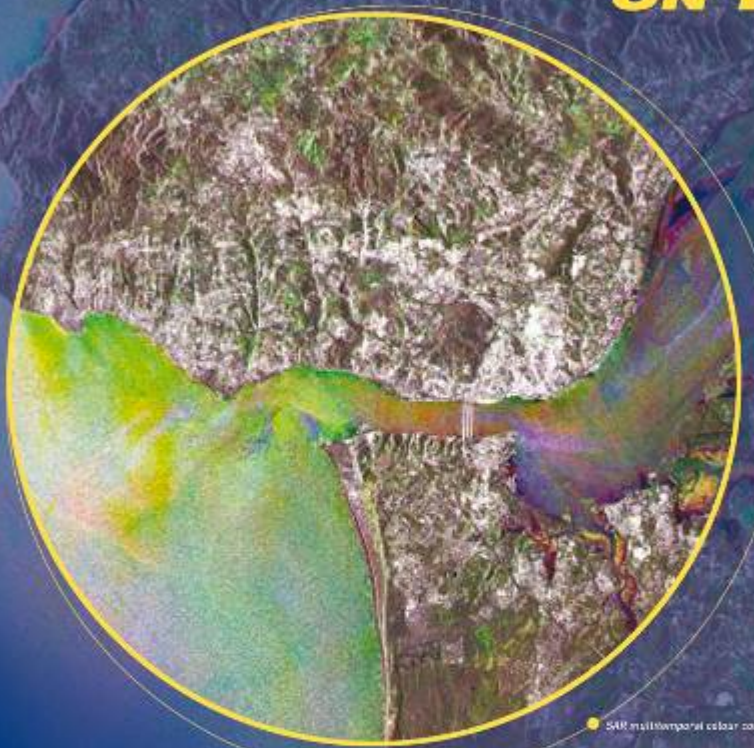


Participants



ESA ADVANCED TRAINING COURSE ON LAND REMOTE SENSING

2-7 September 2007 - ISEGI-UNL, Lisbon, Portugal



English version <http://earth.esa.int/landtraining07>

website

Portuguese version www.igeo.pt/gdr/landtraining07

CO-SPONSORS

- European Space Agency (ESA)
- Instituto Superior de Estatística e Gestão de Informação, Universidade Nova de Lisboa (ISEGI-UNL)
- Remote Sensing Unit of the Portuguese Geographic Institute (IGP)

European Space Agency
Agence spatiale européenne



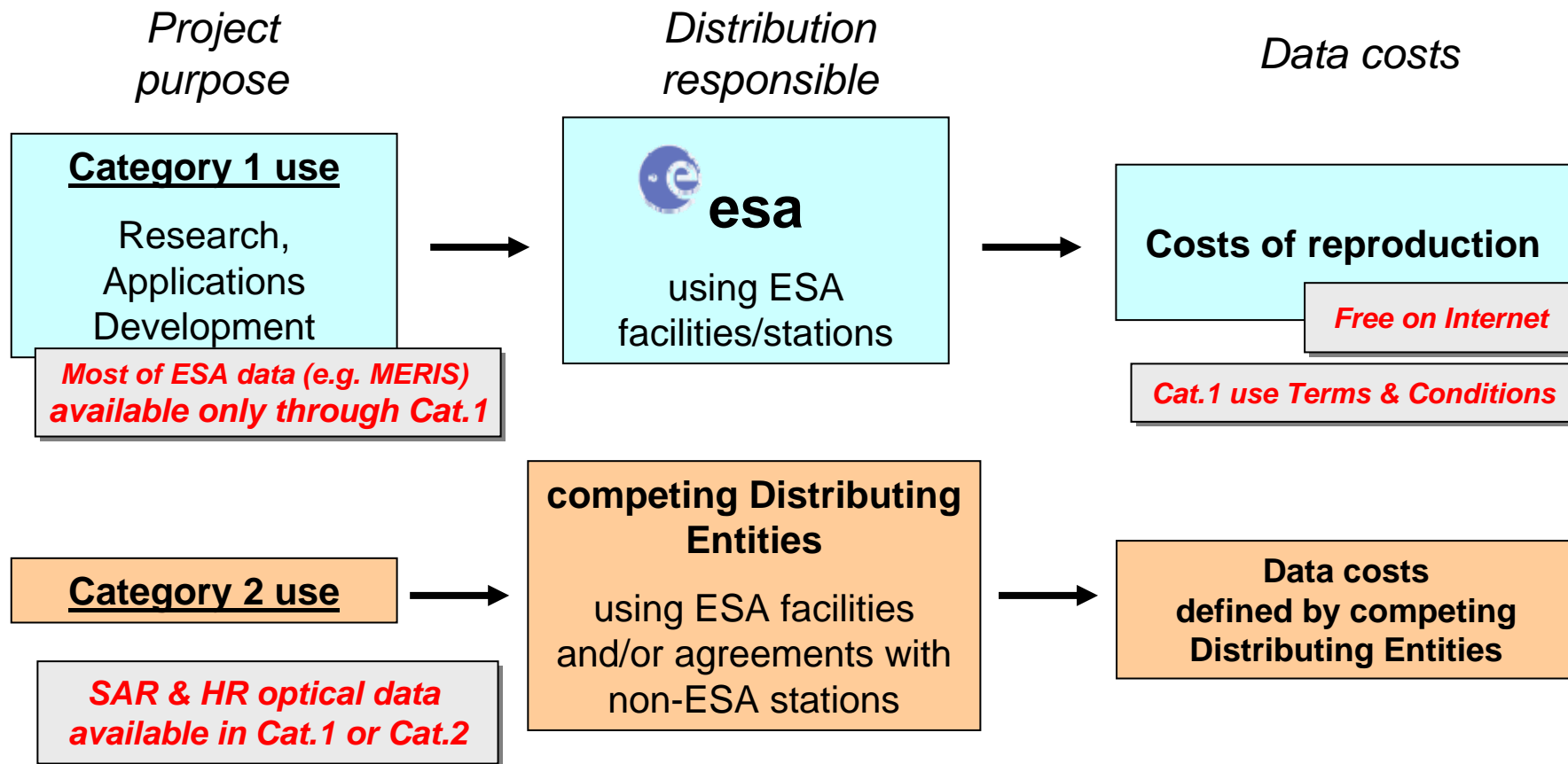
EO data policy and simplified data access

Public Information at <http://eopi.esa.int/>

ESA Earth Observation Policy

Data policy defined by ESA Member States:

- ❑ to stimulate a balanced development of Science, Public Utility and Commercial Applications, consistent with the mission objectives,
- ❑ to maximize the beneficial use of data from ESA EO satellites.



Category 1 use Terms & Conditions

Main points:

- to use the data provided for Category 1 use only **within the project team** (i.e. PI and co-PIs) and only for the purpose described in the project proposal
→ i.e. no data redistribution outside the Cat.1 use project team
- to widely **publish** the project results in **scientific publications** or presentations,
→ with data citation:
“[mission or instrument] Data provided by European Space Agency”
(to facilitate ESA web searching of publications, and subsequent reporting on mission/instrument achievements)

Each PI shall sign the Category 1 use Terms & Conditions.

How to apply for data access within a Category 1 use framework

Application for Category 1 use data access can be submitted to ESA at any time using the ESA Earth Observation Principal Investigator portal (<http://eopi.esa.int>)

The screenshot displays the ESA Earth Observation Principal Investigator Portal. The header features the ESA logo and the text "Earth Observation Principal Investigator Portal". A navigation bar includes links for "Principal Investigator", "Evaluator", "Correspondent", and "Contact us". A left sidebar menu is highlighted with a blue box, containing links such as "Data Access", "ESA Data Policy", "How to get data", "Open AOs", "Previous AOs", "Update & reporting", "Results & News", "Results", "News", "Search", "Focus on PI", "PI Training", "Information", "About this site", "FAQ", and "Related Links". The main content area is divided into sections: "Results" (showing surface movements in Bologna, ground movement risks, and JERS-1/ERS-1 comparison), "Update / Report" (with login fields), "Ongoing Calls" (listing SMOS, IreLux AO, Category-1, Registration, ESA EO Campaigns, and Third Party Missions), and "Focus on PI" (featuring Prof. Dr. Richard Bamler, the 2007 ESA ENVISAT Symposium, and an Advanced Training Course). A "Main search" button is also visible. The footer includes the "the Living Planet" logo and "© Copyright ESA".

<http://eopi.esa.int>

Category 1 use : fast registration or full proposal ?

03 May 2007 UT

esa Earth Observation
Principal Investigator Portal

Contact us

Data Access

ESA Data Policy

How to get data

Open AOs

Previous AOs

Update & Reporting

Results & News

Results

News

Search

Focus on PI

PI Training

Information

About this site

FAQ

Related Links

HOME

How to get data

Products systematically available on Internet → **Fast Registration**

Free of charge products

Fast registration required, with no deadline for submission. ESA Terms and Conditions to be signed.

Products available on specific request

(e.g. i.e. specific instrument tasking, products not generated systematically, products not available on Internet)

→ **Category 1 Project Proposal**

Available at cost of reproduction (ENVISAT, ERS and Third Party Missions)

Project proposal required, with no deadline for submission, to be evaluated by the Category-1 Scientific Advisory Group

Specific restrictions to the use of data may apply for Third Party Missions

If accepted by ESA, Terms and Conditions to be signed

Register for the ESA Campaigns data

Campaigns

Products offered within an ESA Announcement of Opportunity (AO)

Available following the specific rules set in the Main Text of the AO (normally free of charge)

Project proposal required, fitting objectives, restrictions and deadlines of the AO, to be evaluated by the AO Scientific Advisory Group

If accepted by ESA, Terms and Conditions to be signed


Click the logo for information about open AOs

Announcements of Opportunity

the Living Planet

© Copyright ESA

Products systematically available on Internet


Earth Observation
Principal Investigator Portal

02-May-2007 UT

Data Access
How to get data
ESA Data Policy
How to get data
Open AOs
Previous AOs
Update & Reporting
Results & News
Results
News
Search
Focus on PI
PI Training
Information
About this site
FAQ
Related Links
HOME

Products systematically available on Internet
[Free of charge products](#)

Click the logo for more information

[Fast registration to get access to the data](#)

Products available on specific request
(e.g. i.e. specific instrument tasking, products not generated systematically, products not available on Internet)


Available at cost of reproduction ([ENVISAT](#), [ERS](#) and [Third Party Missions](#))
Project proposal required, with no deadline for submission, to be evaluated by the Category-1 Advisory Group
[Specific restrictions](#) to the use of data may apply for Third Party Missions
If accepted by ESA, [Terms and Conditions](#) to be signed
Click the logo for more information

[Submit a full proposal](#)

Products from ESA Airborne Campaigns
Data acquired by ESA airborne campaigns inside and outside Europe.
Resulting datasets, available on Internet or media, can be accessed by registering a request
Click the logo for more information

[Register for the ESA Campaigns data](#)

Products offered within an ESA Announcement of Opportunity (AO)
Available following the specific rules set in the Main Text of the AO (normally free of charge)
Project proposal required, fitting objectives, restrictions and deadlines of the AO, to be evaluated by the AO Scientific Advisory Group
If accepted by ESA, [Terms and Conditions](#) to be signed
Click the logo for information about open AOs



© Copyright ESA

Products systematically generated and available via fast registration - release April 3 2007

Mission	Sensor	Product	Internet		DDS Europe
			Archived or Reprocessed	NRT and Recent	NRT
ENVISAT	ASAR	ASA_WSM_1P		last 14 days	
		ASA_JMM_1P		last 14 days	
		ASA_APM_1P		last 14 days	
		ASA_GM1_1P		last 7 days	
		ASA_WVS_1P	Full mission	last 7 days	
		ASA_WVV_2P	Full mission	last 7 days	
	MERIS	MER_RR_1P	Full mission	last 7 days	NRT
		MER_RR_2P	Full mission	last 7 days	NRT
		MER_RRC_2P	included in MER_RR_2P	last 7 days	NRT
		MER_RRV_2P	included in MER_RR_2P	last 7 days	NRT
		MER_LRC_2P	included in MER_RR_2P	last 7 days	
		MER_FRS_1P (European coverage)		last 14 days	
	AATSR	ATS_TOA_1P		last 7 days	NRT
		ATS_NR_2P		last 7 days	NRT
		ATS_AR_2P		last 7 days	NRT
		ATS_MET_2P		last 7 days	
	Altimeter	RA2_FGD_2P		last 7 days	
		RA2_IGD_2P	Full mission		
		RA2_GDR_2P	Full mission		
		RA2_MWS_2P	10 days of archive		
	Atm. Chemistry	RA2_WVV_2P	Full mission	last 7 days	
		SCI_NL_1P	Full mission	last 7 days	NRT
		SCI_NL_2P	Full mission until Nov. 2004		
		SCI_OL_2P	Full mission from Nov. 2004		
ERS	DORIS	MIP_NL_1P	Full mission		
		MIP_NL_2P		last 7 days	
		COM_RR_2P		last 7 days	
	SAR	DOR_DOP_1P	Full mission		
		DOR_POR_AX	Full mission	last 3 months	
		DOR_VOR_AX	Full mission	last 3 months	
TPM	GOME	WSC.UWM	From 21/08/2003 onwards	NRT	
		SVM.UWA	From 16/11/2006 onwards	NRT	
	ALTIMETER	GOME.LVL13	From March 2005		
		GOME.LVL21	Full mission		
	Orbit	ALT.URA	From 16/11/2006 onwards	NRT	
		ORB.PRC	Full mission		
	Chris, HRC (Proba)	ORB.PRL	Full mission		
		PROBA.CHRS.1A	All available data, including recent		
	TM (Landsat)	PROBA.HRC.1A	All available data, including recent		
		LANDSAT.TM.SCPR	European coverage		
SeaWiFS (QuikSCAT)	SeaWiFS	EOC (Komsat-1)	City dataset		
		ACE_FTS_L2V1.0	Full mission		
	MODIS (Terra/Aqua)	ACE_FTS_L2V2.2	Full mission		
		ACE_MAESTRO_L2V	Full mission		
	MODIS (Terra/Aqua)	MODIS.NRT.Level1B (European coverage)		Last 30 days	
		QSCATT.Level 2A	Full mission		
SeaWiFS (QuikSCAT)	SeaWiFS	QSCATT.Level 2B	Full mission		




Updated list available at : <http://eopi.esa.int>

Products systematically available on Internet: example with Envisat

Envisat <u>NRT & recent data</u>		availability	period	coverage
DDS ←	MERIS Red. Resolution (1200 m) ASAR Medium Resolution (75 m) ASAR Global Monitoring (1000 m)	Systematic (i.e. processing of all data)	Rolling archive of last 7days	Worldwide coverage
DDS ←	AATSR Altimetry	Product available within 3 hours from acquisition (95%)		
DDS ←	SCIAMACHY, GOMOS			
Internet	MERIS Full Resolution (300 m) <i>Level 1 – Europe coverage</i>	Systematic	Rolling archive of last 20 days	Europe coverage
	MERIS Full Resolution (300 m) ASAR High Resolution (12.5 m)	On request	Few hours after acquisition	According to ins. planning <i>Full proposal</i>
Envisat <u>archived data</u>		availability	period	coverage
	MERIS Red. Resolution (1200 m) Altimetry SCIAMACHY, MIPAS, GOMOS AATSR (<i>end 2007</i>)	Systematic (i.e. for each re-processing of the data)	Whole mission since mid-2002	<i>Fast registration</i> Worldwide coverage
	MERIS Full Resolution (300 m) ASAR High Rate	On request	Whole mission since mid-2002	Worldwide coverage <i>Full proposal</i>

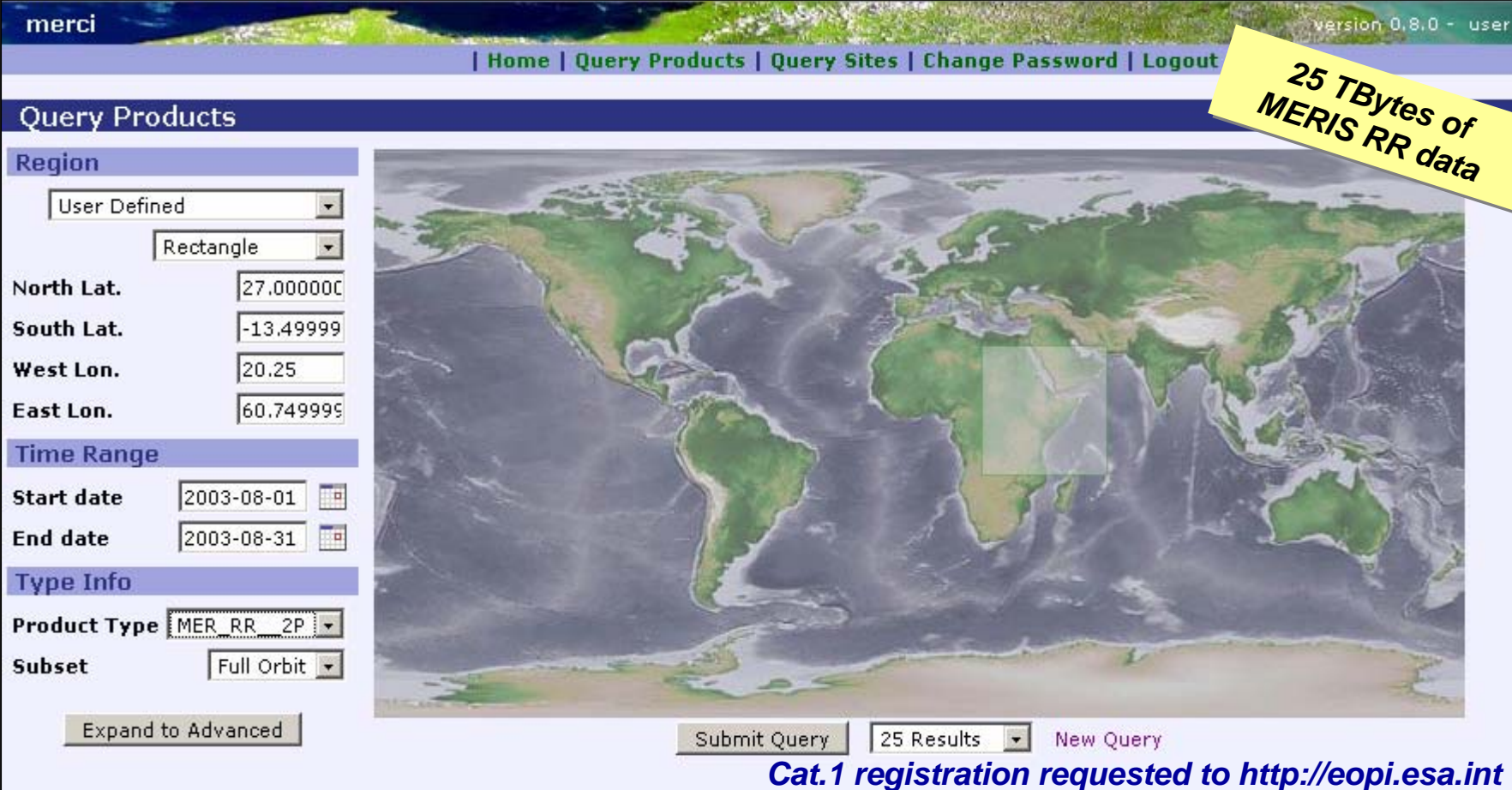
Data from ESA ERS and Third Party Missions are also available on Internet

Which systems for access to NRT and recent data ?

Internet		Telecom satellite broadcast
 <p style="text-align: center;">7-days <u>Rolling Archives</u> (ftp or http)</p>	 <p style="text-align: center;">7-days <u>Web File Server</u> (http)</p>	 <p style="text-align: center;">Data Dissemination System (<u>DDS</u>) broadcast</p>
Same dataset for both		
<ul style="list-style-type: none"> • Complete product (e.g. MERIS orbit) • Each acquisition station has its own rolling archive 	<ul style="list-style-type: none"> • Geographical selection (with product subset to decrease data volume for download) • One unique web site for all acquisition stations 	<ul style="list-style-type: none"> • Europe reception coverage • Cost: 350 € + 1.2m antenna • Africa reception coverage (larger antenna size)
Suitable for users requesting small or infrequent dataset		Suitable for users requesting systematic and large dataset

Which systems for access to archived data ?

MERCI web interface, giving access
to global MERIS Reduced Resolution data archived since mid-2002



The screenshot shows the MERCI web interface. At the top, there's a header with the logo 'merci' and a navigation bar with links: Home, Query Products, Query Sites, Change Password, and Logout. The version '0.8.0 - user' is displayed in the top right. The main section is titled 'Query Products'. On the left, there are several form fields for searching: 'Region' with a dropdown set to 'User Defined', a shape selector set to 'Rectangle', and coordinate fields for North Lat. (27.000000), South Lat. (-13.49999), West Lon. (20.25), and East Lon. (60.749999). Below these are 'Time Range' fields for 'Start date' (2003-08-01) and 'End date' (2003-08-31). Under 'Type Info', 'Product Type' is set to 'MER_RR_2P' and 'Subset' is set to 'Full Orbit'. A button 'Expand to Advanced' is at the bottom left. On the right, a world map shows a highlighted rectangular region in the Indian Ocean. A yellow callout box points to the map with the text '25 TBytes of MERIS RR data'. At the bottom right, there are buttons for 'Submit Query', a dropdown showing '25 Results', and a link for 'New Query'. Below the map, a blue text line reads 'Cat.1 registration requested to <http://eopi.esa.int>'.

25 TBytes of
MERIS RR data

Cat.1 registration requested to <http://eopi.esa.int>

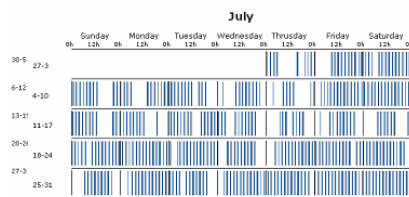
MERCI web interface will be used also for Envisat/ERS (A)ATSR archived data (end 2007)

EO Processing-on-Demand (G-POD)

Alternative way to access to EO data:

→ Grid Processing-on-Demand (G-POD)

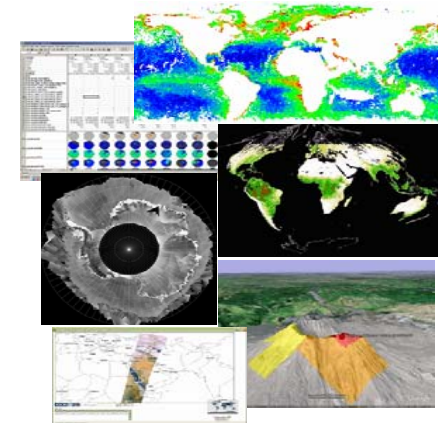
- Promote the development of new algorithms requiring large data and computing resources: “*bring the user’s algorithms to the data*”
- Build network of competences, promote e-collaboration and sharing of tools, easier transition from science algorithms to new user products ...
- 10 projects selected in mid-2006 through a Call for Proposal. Same approach will be continued in 2007/2008.



on-line data archives



user triggers and controls from the G-POD website its own processor running on eoGRID computers



innovative science products

More information about EO data access

Access to ENVISAT DATA

24 April 2007 - The aim of the document **Access to ENVISAT Data** is to present briefly the ENVISAT mission, the instruments, the Ground Segment and the mission planning constraints, to then focus on the data dissemination methods and the different ways for the users to access the data.

Online Archives

13 April 2007 - A new page named **Online Archives** can now be accessed from the Resources area, showing a list of links to online archives, from where a large volume of Envisat, Proba and Komsat data are systematically available.

Technical news

Envisat RA-2 Ultra-Stable Oscillator (USO) Clock Period back to nominal

03 April 2007 - No further occurrences of the Envisat RA (Radar Altimeter)-2 Ultra-Stable Oscillator (USO) anomaly affecting the Altimetry data products for a year have been recorded since the 1st of March 2007. Users are still advised to apply the correction auxiliary files even during the non-anomalous period in order to correct for the nominal aging drift of the USO device. More information is available on the three USO corrections for the different Envisat Level 2 altimetry data products.

Technical status report

Events - Workshops

5th International Symposium on Retrieval of Bio- and Geophysical Parameters from SAR Data for Land Applications, 25 - 28 September 2007

The objective of the workshop is to provide a forum for researchers to review current trends in the field of retrieval of quantitative information from SAR data and to present and discuss new ideas and new research directions. The deadline for abstracts submission is 30 April 2007.

Workshops

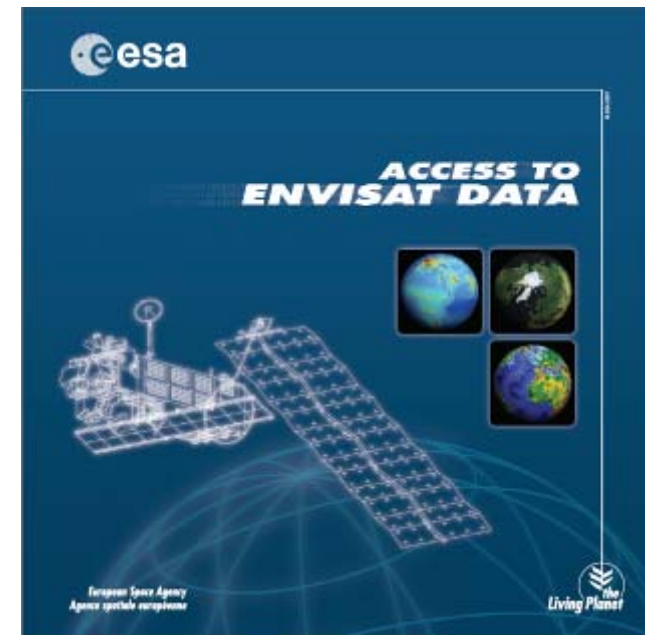
Resources - Documents

Information on ALOS AVNIR-2/PRISM products for ADEN users

01 April 2007 - Purpose of this document is to provide a basic description of the ALOS mission, to list main characteristics of the optical instruments on board and to clarify issues regarding the product levels.

Documentation

<http://earth.esa.int>



eohelp@esa.int

A constant objective:

→ ease access to Earth Observation data

- ❑ **Common objective for all missions data handled by ESA:**
Envisat, ERS, Earth Explorers,
and Third Party Missions (e.g. ALOS, SPOT-4, PROBA, ...)
- ❑ **Simplified data application procedures for Category 1 use**
- ❑ **Internet access to all Near Real Time (NRT) data**
- ❑ **Internet access to archived data gradually implemented (new dataset, new access systems)**
- ❑ **Development of alternative ways to provide data (e.g. processing on demand, toolboxes)**

→ the recent results of Envisat Symposium demonstrated that ESA EO data access has largely improved during the last years.