



EO PI support and Access to ESA Earth Observation data



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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



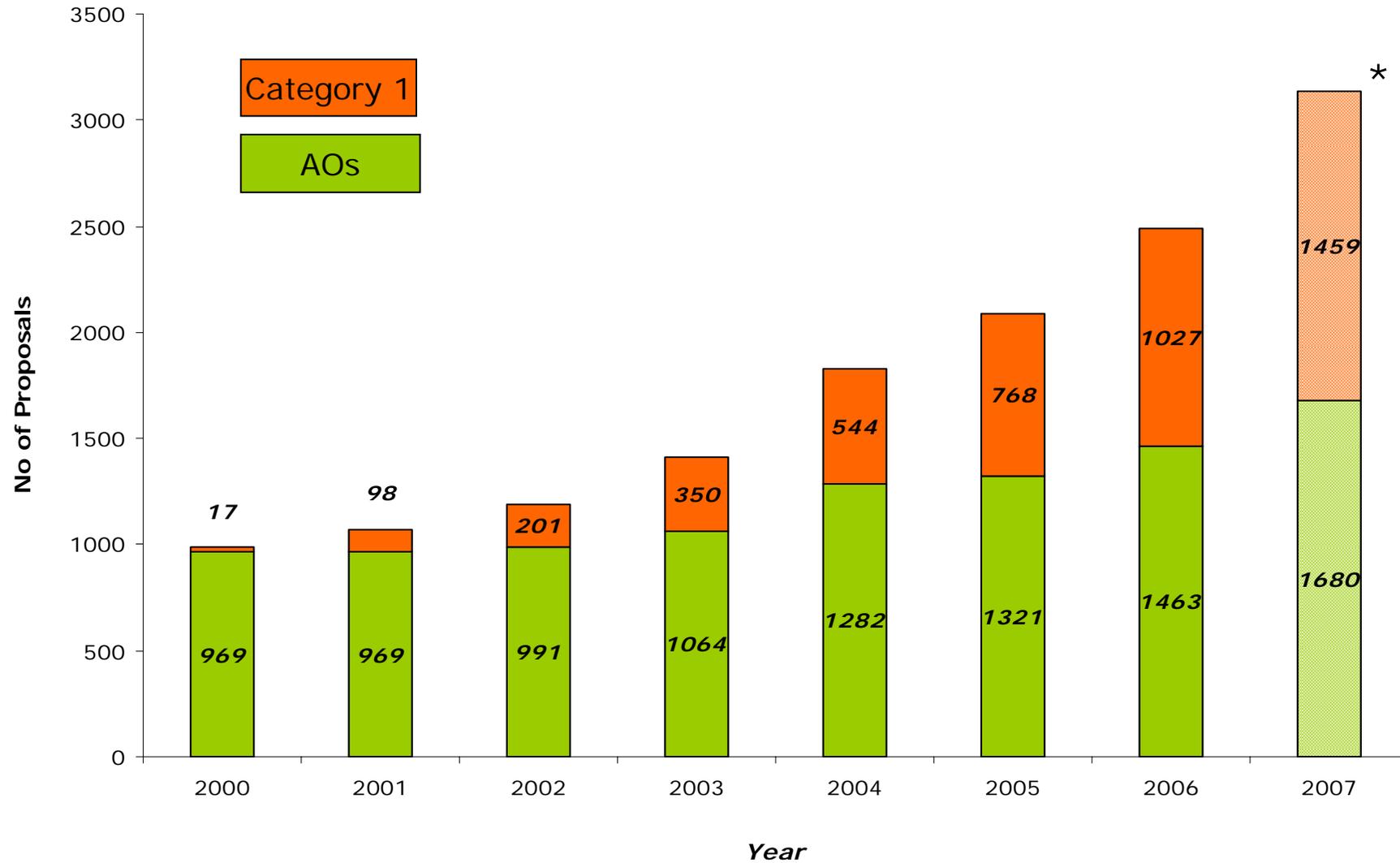
Support to Scientific Exploitation

The EO Principal Investigators

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



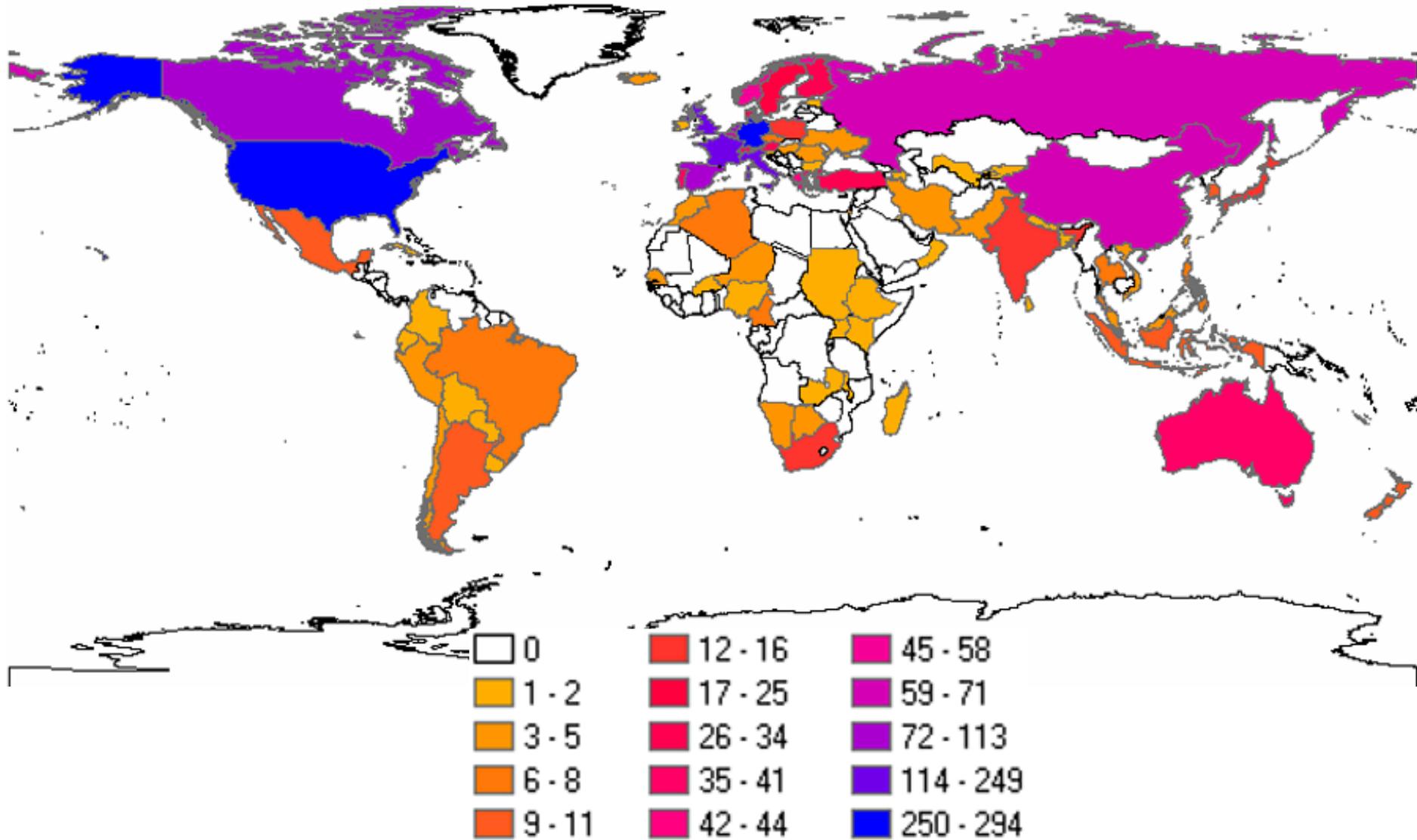
Worldwide time distribution



* Estimates for 2007



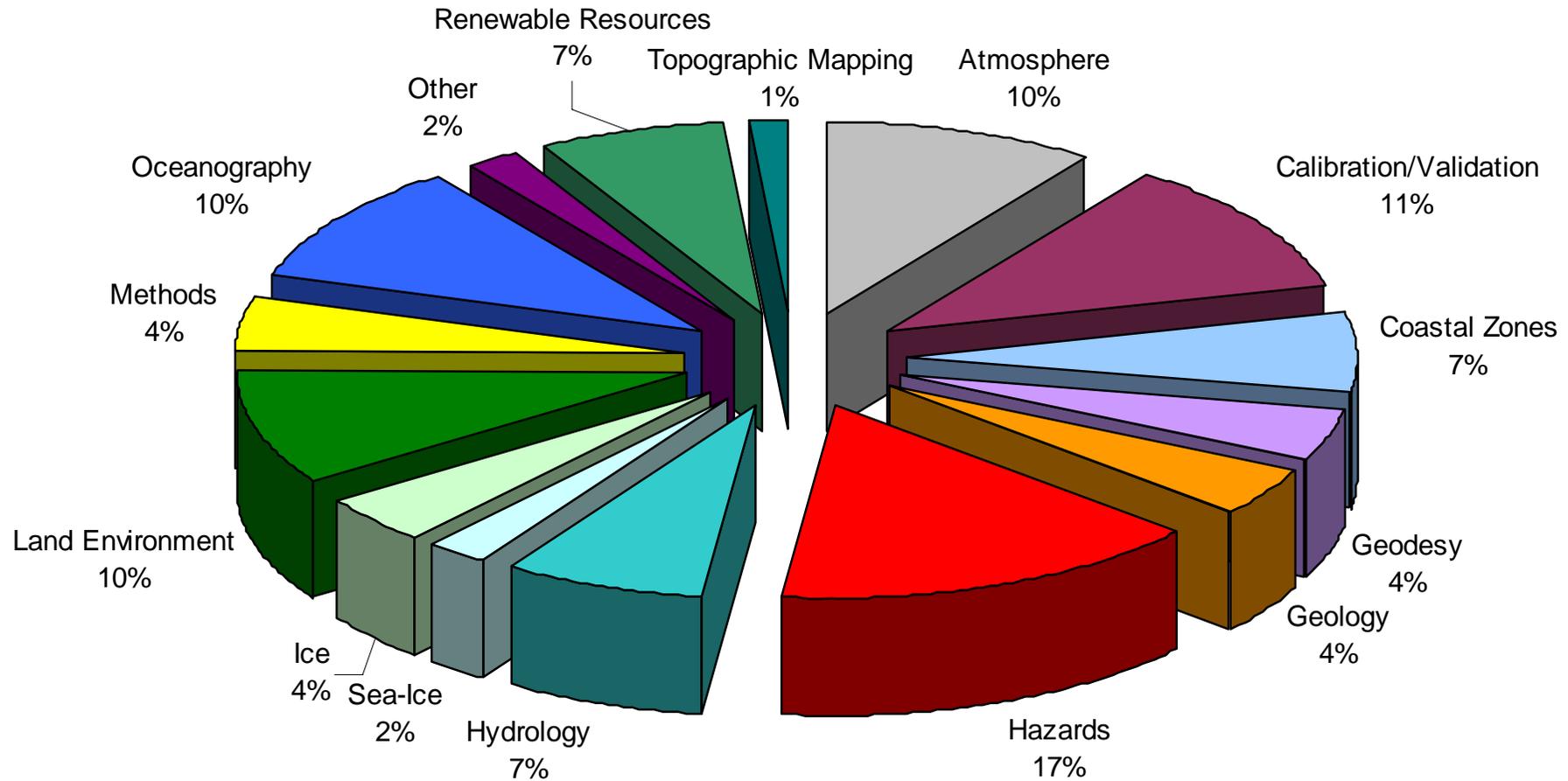
ESA Pls Worldwide 2000-2007





Category-1 Themes

Distribution of ESA Category-1 projects by main research theme



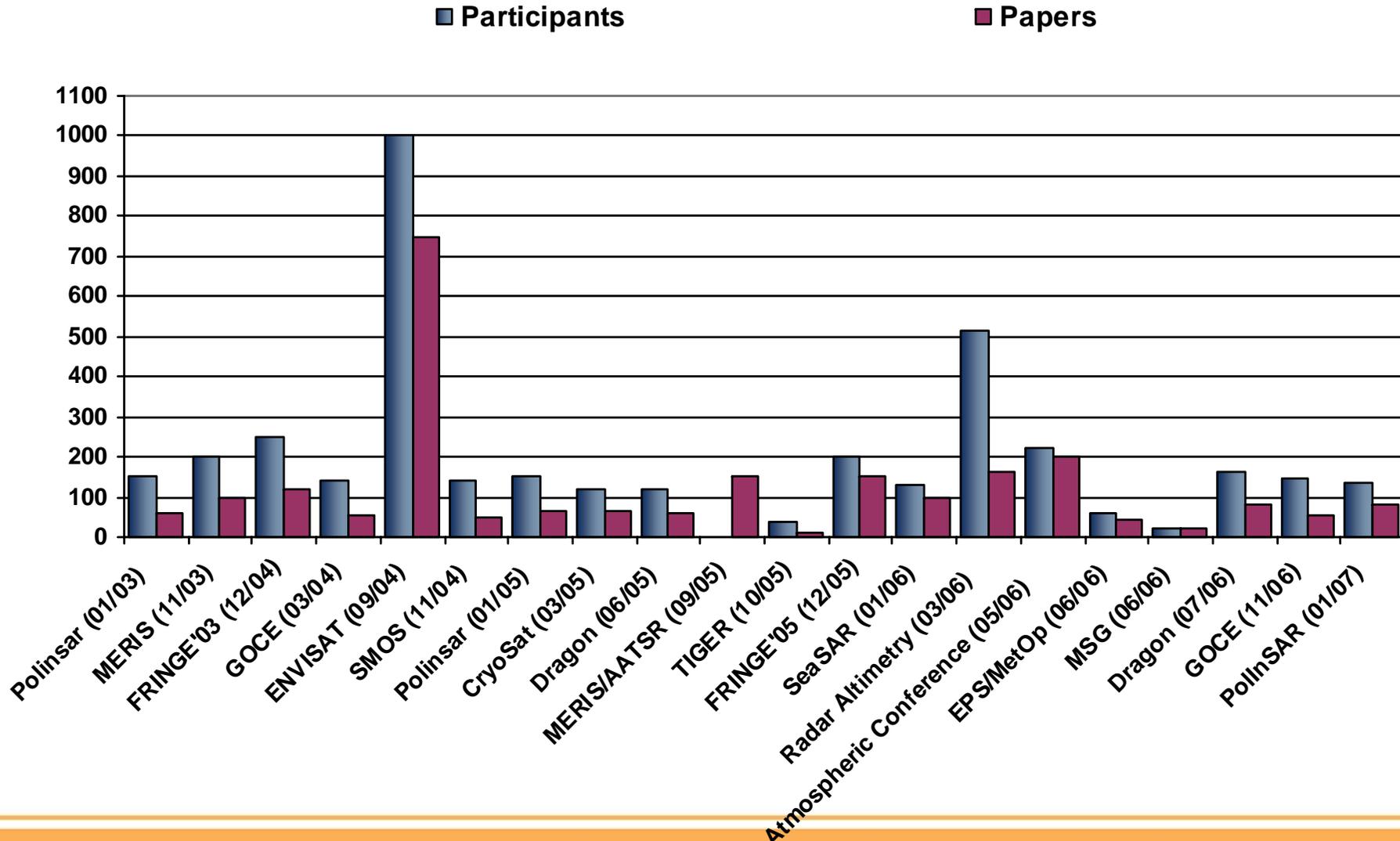
EO Pls Reporting and Consultations

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



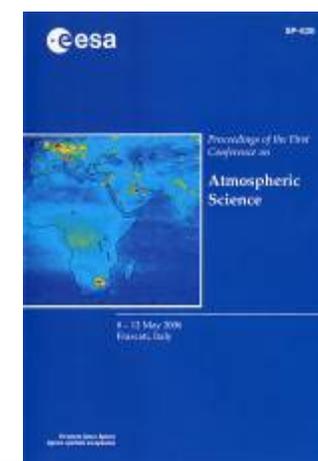
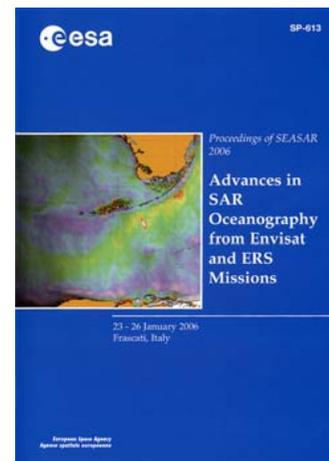
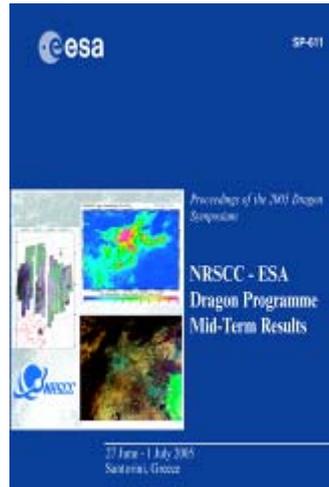
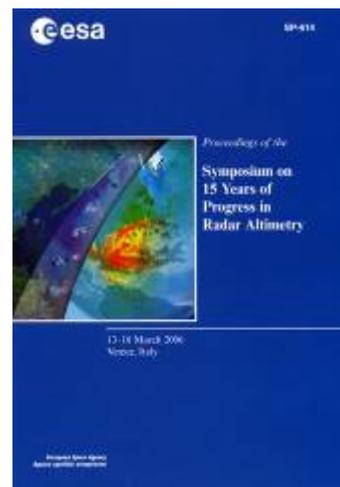
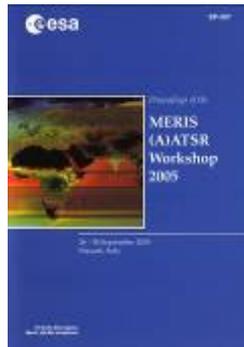
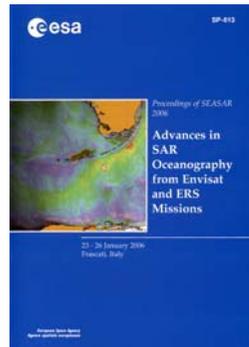
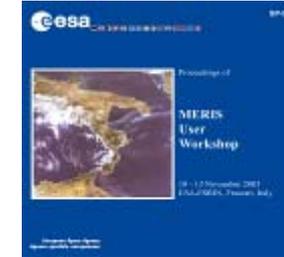
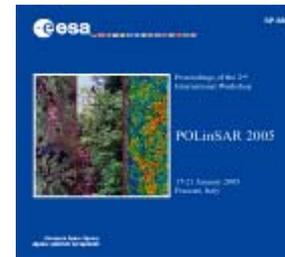
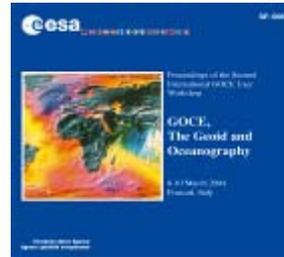
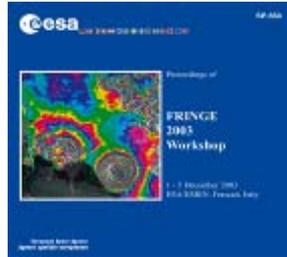
PI workshops and symposia

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



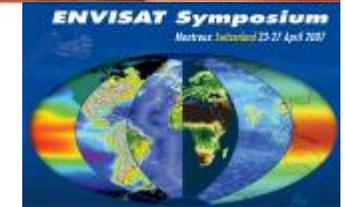


Workshops and Symposia





ENVISAT symposium 2007

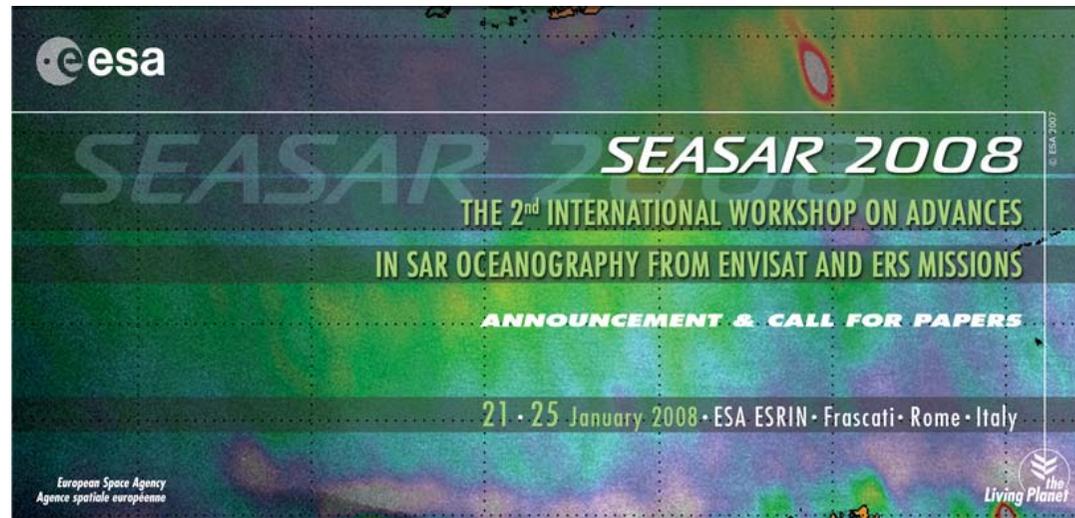


The Symposium in Numbers

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



Forthcoming events



esa

SEASAR 2008

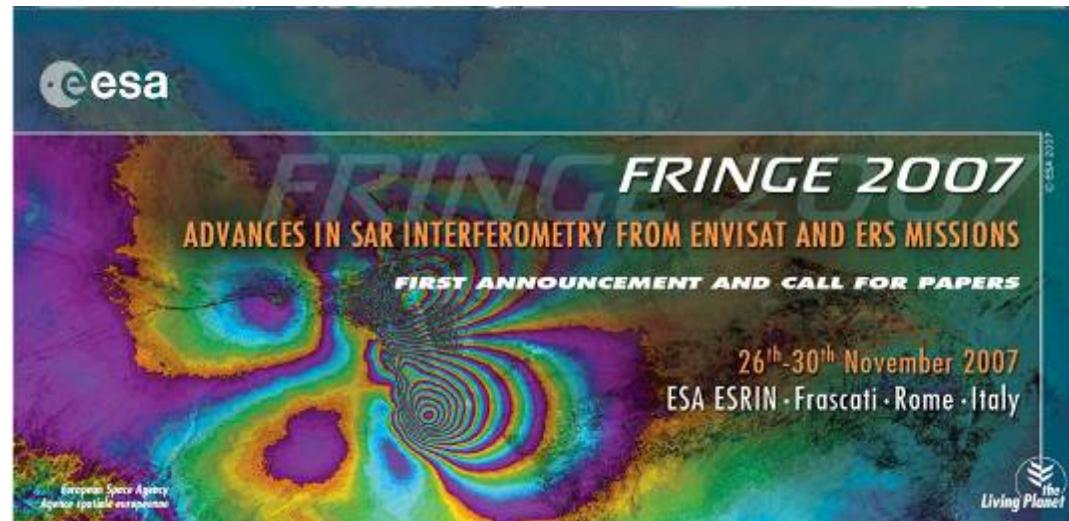
THE 2nd INTERNATIONAL WORKSHOP ON ADVANCES
IN SAR OCEANOGRAPHY FROM ENVISAT AND ERS MISSIONS

ANNOUNCEMENT & CALL FOR PAPERS

21 - 25 January 2008 • ESA ESRIN • Frascati • Rome • Italy

European Space Agency
Agence spatiale européenne

the Living Planet



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FRINGE 2007

ADVANCES IN SAR INTERFEROMETRY FROM ENVISAT AND ERS MISSIONS

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

26th - 30th November 2007
ESA ESRIN • Frascati • Rome • Italy

European Space Agency
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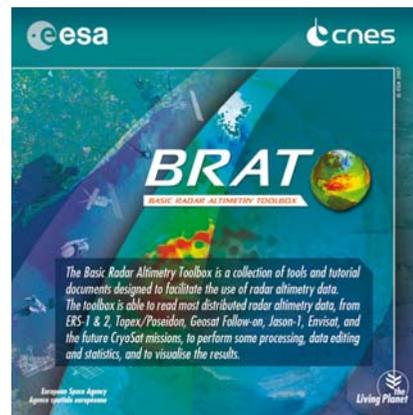
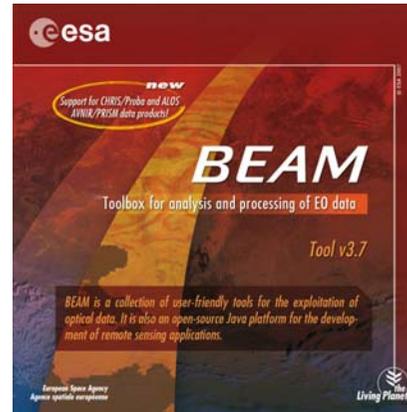
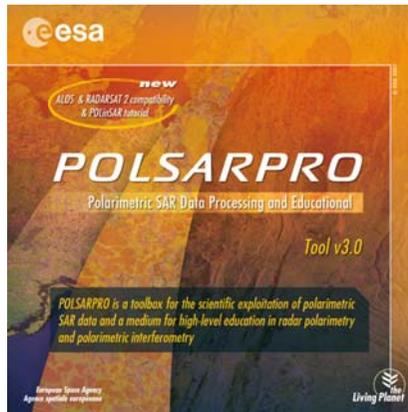
Support to Scientific Exploitation

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

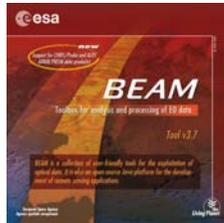


<http://earth.esa.int/resources/softwaretools/>



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**

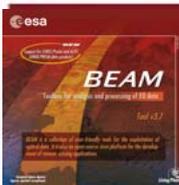
* Institutes

** 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

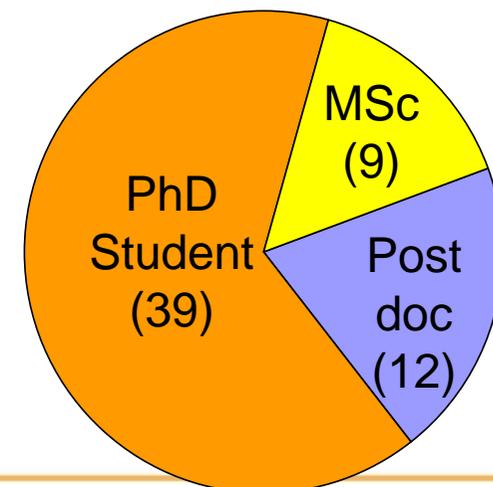
Nb of participants: 60 (85 applications)

Audience: PhD students, postdoc from Europe and
Canada

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

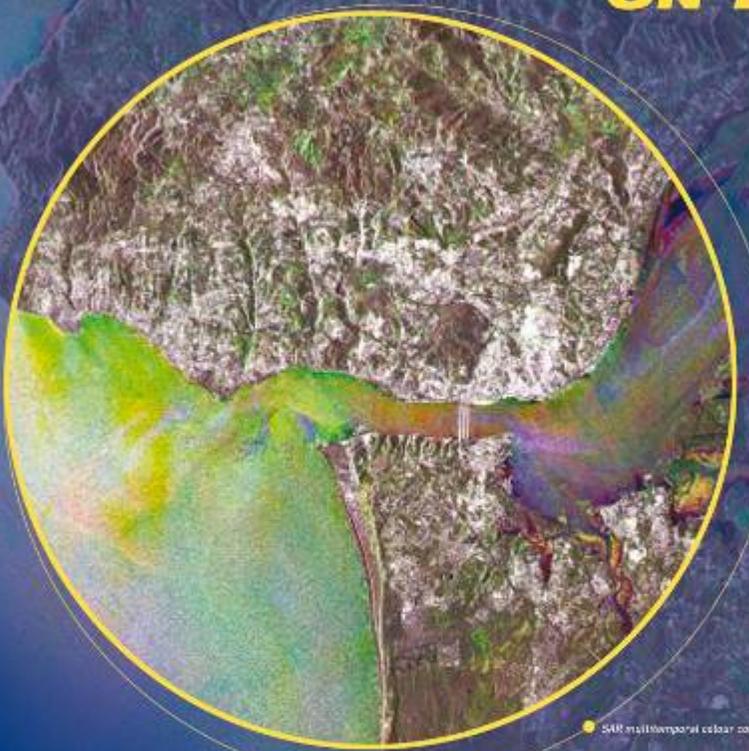


Participants



ESA ADVANCED TRAINING COURSE ON LAND REMOTE SENSING

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



SAR multitemporal colour comparison over Lisbon (2003)



Rising fire, Portugal and Spain
MERIS - 9 August 2004



Lisbon, Portugal
2007



Lisbon, Portugal
MERIS - 8 March 2003

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 (IGPI)

European Space Agency
Agence spatiale européenne



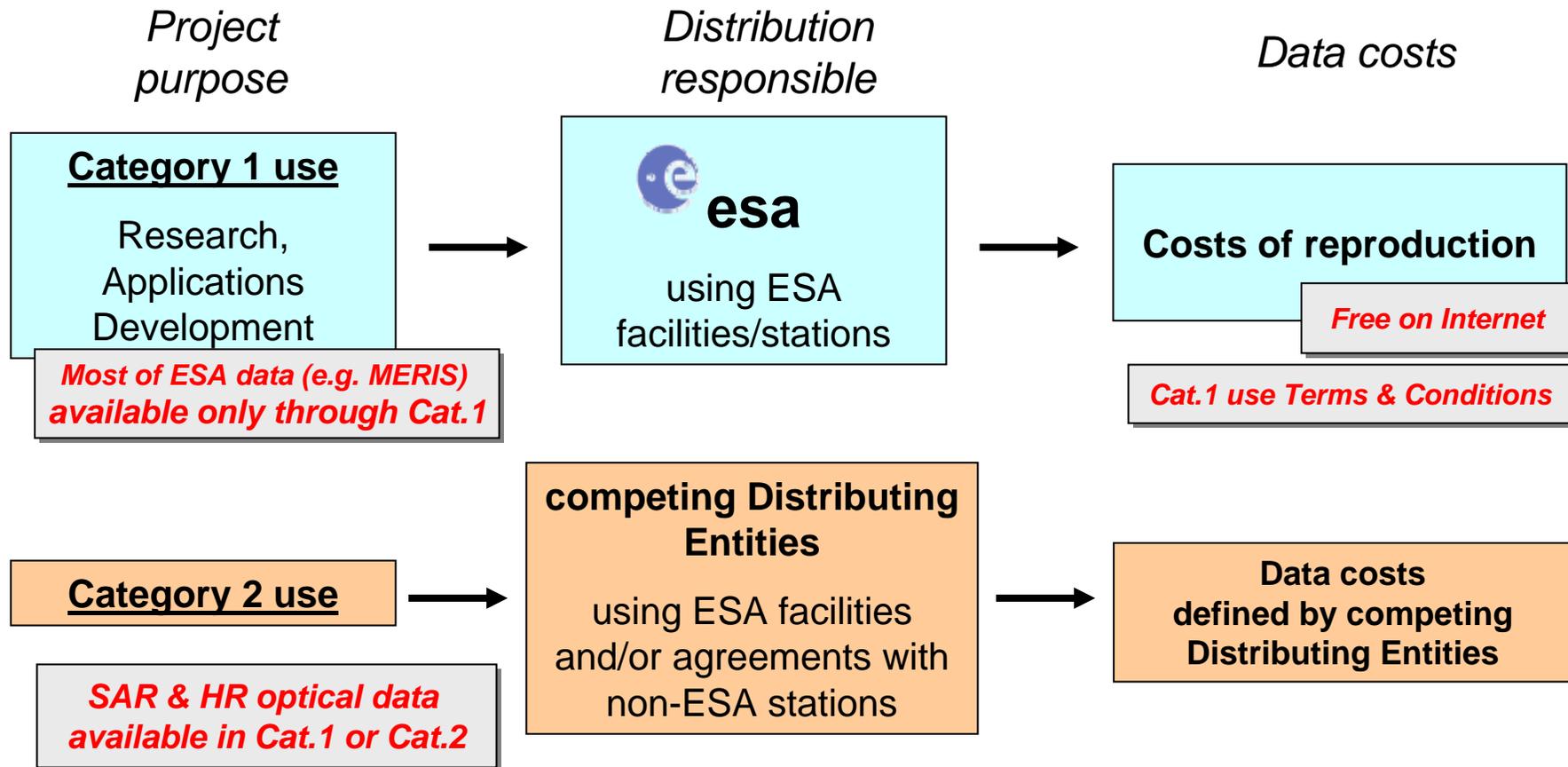
EO data policy and simplified data access

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>)

<http://eopi.esa.int>

Navigation Menu:

- 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

Main Content:

- Results >>**
 - Surface movements in Bologna (Po Plain, Italy) detected by multitemporal DInSAR
 - Towards high resolution monitoring of coastal wind, waves and currents using SAR imagery
 - Ground motion induced by lake level fluctuations in western USA
 - Ground movement risks identified by TerraFirma
 - JERS-1 and ERS-1 comparison for sea-ice monitoring
 - Envisat witnesses Earth's largest crack
- Update / Report**
 - logon
 - password
 - GO >>
- Ongoing Calls >>**
 - SMOS
 - IreLux AO
 - Category-1
 - Registration
 - ESA EO Campaigns
 - Third Party Missions

Footer: © Copyright ESA

Category 1 use : fast registration or full proposal ?

02 May 2007 UT Contact us

Data Access

- ESA Data Policy
- How to get data
- Open AOs
- Previous AOs

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

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Products systematically available on Internet

esa

Earth Observation
 Principal Investigator Portal

02-May-2007 UT

Data Access

How to get data

Products systematically available on Internet

[Free of charge products](#)

Open AOs

Previous AOs

Update & Reporting

Results & News

Results

News

Search

Focus on PI

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Information

About this site

FAQ

Related Links

HOME

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

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 Category-1 Advisory Group

If accepted by ESA, [Terms and Conditions](#) to be signed

Click the logo for information about open AOs

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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_IMM_1P		last 14 days	
		ASA_APM_1P		last 14 days	
		ASA_GM1_1P		last 7 days	
		ASA_WVS_1P	Full mission	last 7 days	
	MERIS	ASA_WVV_2P	Full mission	last 7 days	
		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
	AATSR	MER_LRC_2P	included in MER_RR_2P	last 7 days	
		MER_FRS_1P (European coverage)		last 14 days	
		ATS_TOA_1P		last 7 days	NRT
		ATS_NR_2P		last 7 days	NRT
		ATS_AR_2P		last 7 days	NRT
	Altimeter	ATS_MET_2P		last 7 days	
		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_O2_2P	Full mission from Nov. 2004			
	MIP_NL_1P	Full mission			
ERS	DORIS	MIP_NL_2P	Full mission	last 7 days	
		DOR_DOP_1P	Full mission	last 7 days	
	SAR	DOR_POR_AX	Full mission	last 7 days	
		DOR_VOR_AX	Full mission	last 7 days	
	GOME	WSC.UWI	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		
TPM	Chris, HRC (Proba)	ORB.PRL	Full mission		
		PROBA.CHRIS.1A	All available data, including recent		
	TM (Landsat)	PROBA.HRC.1A	All available data, including recent		
		LANDSAT.TM.SCPR	European coverage		
	EOC (Komsat-1)	KOMP.EOC.ECD	City dataset		
ACE-Scisat (ACE-MAESTRO)	ACE_FTS_L2V1.0	Full mission			
	ACE_FTS_L2V2.2	Full mission			
	ACE_MAESTRO_L2V	Full mission			
MODIS (Terra/Aqua)	MODIS.NRT.Level1B (European coverage)		Last 30 days		
SeaWinds (QuikSCAT)	QSCATT.Level 2A	Full mission			
	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. Full proposal planning
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	Fast registration Worldwide coverage
	MERIS Full Resolution (300 m) ASAR High Rate	On request	Whole mission since mid-2002	Worldwide coverage Full proposal

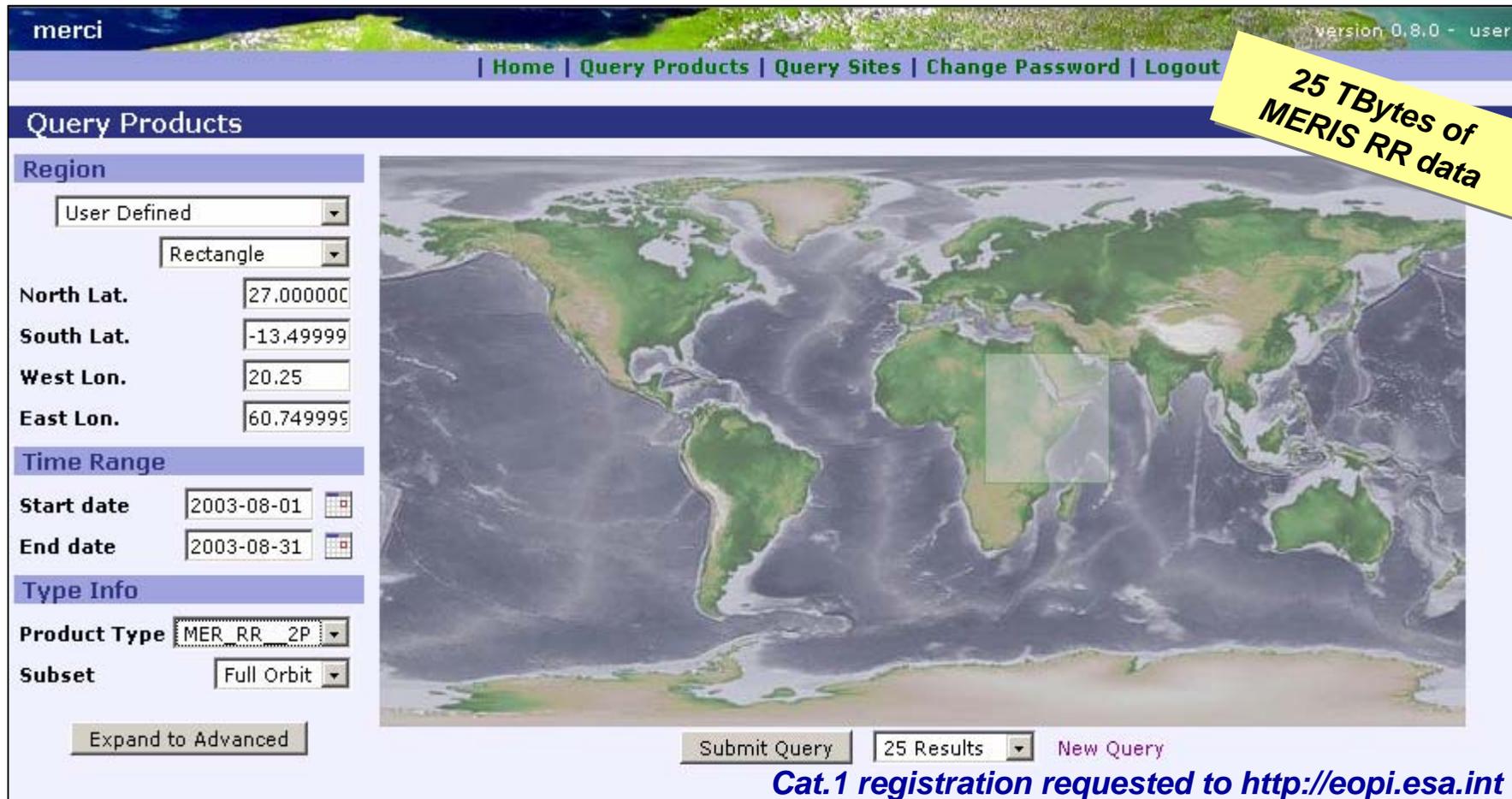
Data from ESA ERS and Third Party Missions are also available on Internet

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 displays the MERCI web interface. At the top, it says 'merci' and 'version 0.8.0 - user'. A navigation bar includes 'Home | Query Products | Query Sites | Change Password | Logout'. The main section is titled 'Query Products'. On the left, there are several input fields: 'Region' (set to 'User Defined'), 'Rectangle' (set to 'Rectangle'), '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 'Full Orbit'. A button 'Expand to Advanced' is at the bottom left. On the right, a world map shows a highlighted rectangular region over the Atlantic Ocean. A yellow callout box points to the map with the text '25 TBytes of MERIS RR data'. At the bottom right, there is a 'Submit Query' button, a '25 Results' dropdown, and a 'New Query' link. Below the map, a blue text note reads 'Cat.1 registration requested to <http://eopi.esa.int>'.

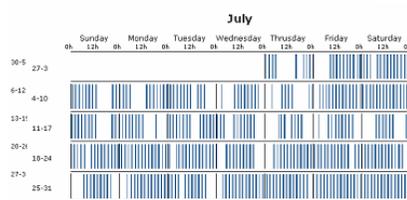
MERCI web interface will be used also for Envisat/ERS (A)ATSR archived data (end 2007)

EO Processing-on-Demand (G-POD)

Alternative way to access to EO data:

→ Grid Processing-on-Demand (G-POD)

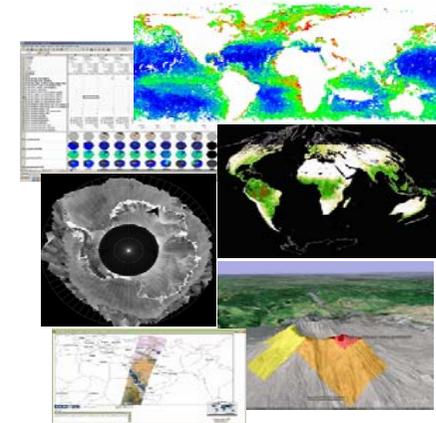
- Promote the development of new algorithms requiring large data and computing resources: “bring the user’s algorithms to the data”
- Build network of competences, promote e-collaboration and sharing of tools, easier transition from science algorithms to new user products ...
- 10 projects selected in 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

The screenshot shows the Earthnet Online website interface. At the top, the ESA logo and 'Earthnet Online Earth Observation' are displayed. Below the navigation bar, there is a search box and a 'go' button. The main content area features several news articles and sections. Two articles are highlighted with blue boxes: 'ACCESS TO ENVISAT DATA' and 'Online Archives'. The 'ACCESS TO ENVISAT DATA' article, dated 24 April 2007, discusses the availability of data and provides links to guides on how to access and apply for EO data. The 'Online Archives' article, dated 13 April 2007, mentions a new page for accessing online archives. Other sections include 'Technical news', 'Events - Workshops', and 'Resources - Documents'. The left sidebar contains a 'Browse to' menu with various categories like 'Observing the Earth', 'eoPortal', 'Disasters Charter', 'Earth Watching', 'DUE', 'EODM', 'GMES', 'Dragon', and 'Tiger'. The bottom left corner features the 'Living Planet' logo.

<http://earth.esa.int>

The image shows the cover of a document titled 'ACCESS TO ENVISAT DATA'. The cover features the ESA logo at the top left and a central illustration of the Envisat satellite in orbit over Earth. To the right of the satellite, there are three small circular images showing different views of Earth. The text 'ACCESS TO ENVISAT DATA' is prominently displayed in the center. At the bottom, it says 'European Space Agency' and 'Agence spatiale européenne', along with the 'Living Planet' logo.

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.