



MERIS US Workshop

14 July 2008

European Space Agency
Agence spatiale européenne



Agenda a.m.

08:10-08:55	H. Laur (ESA)	ENVISAT/MERIS mission status, access to MERIS data and distribution policy
08:55-09:10		Discussion
09:10-09:40	P. Regner (ESA)	Examples of the use of MERIS data in marine & land applications
09:40-10:00	B. Arnone (NRL)	Examples of MERIS data use for U.S. applications
10:00-10:20	S. Delwart (ESA)	MERIS instrument overview
10:20-10:40	S. Delwart	Instrument characterization overview
10:40-10:55		Discussion
10:55-11:10		Coffee break
11:10-11:30	S. Delwart	Instrument calibration methods and results
11:30-11:50		Discussion
11:50-13:20		Lunch break

Agenda p.m.

13:20-13:50	L. Bourg (ACRI)	Level 1 processing
13:50-14:10		Discussion
14:10-14:30	S. Delwart	Vicarious calibration methods and results
14:30-14:50		Discussion
14:50-15:10	L. Bourg	Overview Level 2 products
15:10-15:25		Coffee break
15:25-16:25	L. Bourg	Level 2 processing
16:25-17:10		Discussion
17:10-17:25	P. Regner	BEAM Toolbox
17:25-17:40	H. Laur	Plans and status of the OLCI onboard GMES Sentinel-3
17:40-18:00		Discussion

ENVISAT / MERIS mission status, access to MERIS data and distribution policy

Henri LAUR
*Envisat Mission Manager
& Head of EO Missions Management Office*

The purpose of ESA:

An inter-governmental organisation with a mission to provide and promote - for exclusively peaceful purposes - the exploitation of:

- Space science, research & technology
- Space applications

HEADQUARTERS - Paris, France
Director General's office and general administration



EAC - Cologne, Germany
European Astronaut Centre

ESTEC - Noordwijk, the Netherlands
Satellite development centre

ESRIN - Frascati, Italy
Earth Observation centre

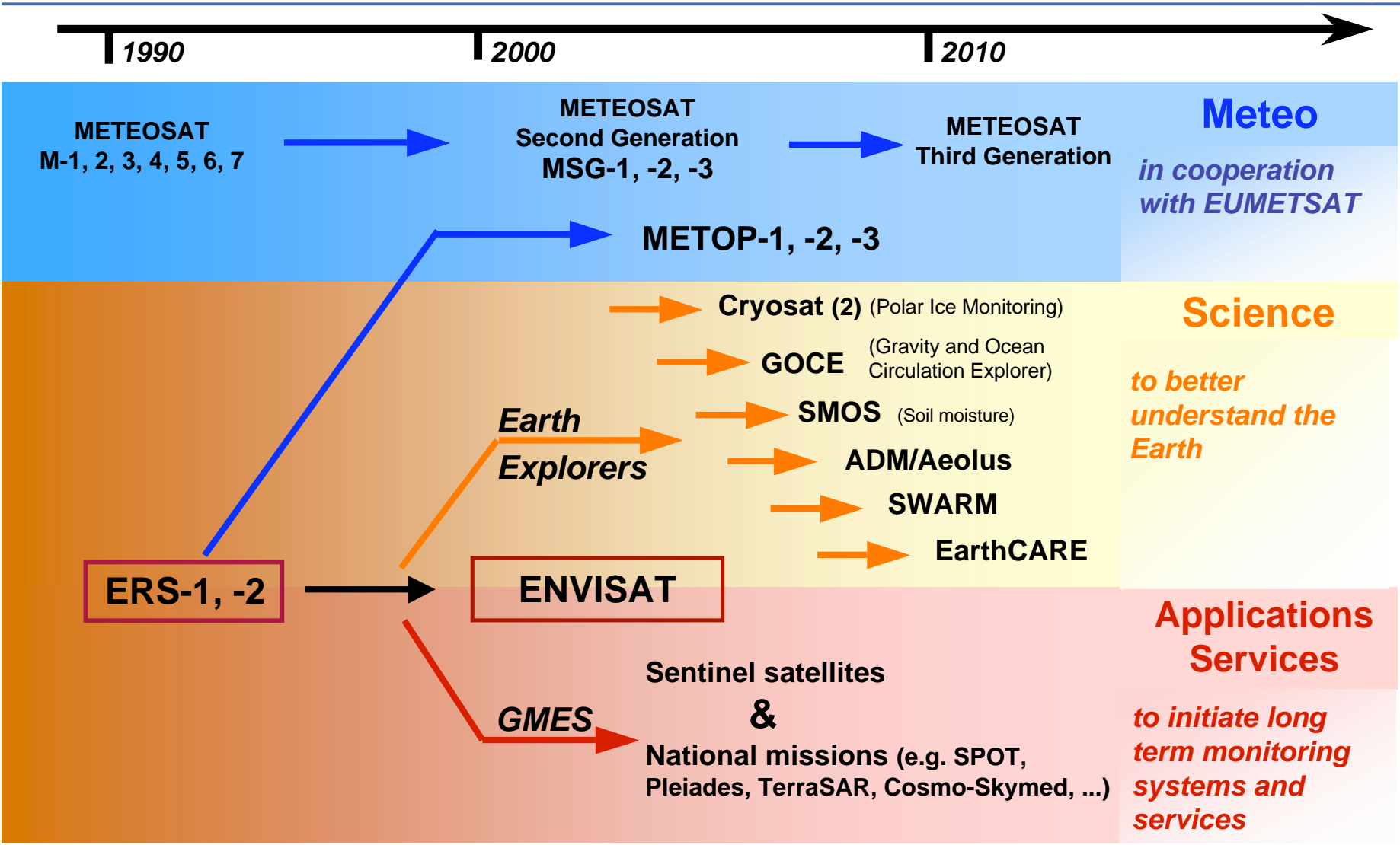
ESOC - Darmstadt, Germany
European Space Operations Centre

ESAC - Villafranca, Spain
European Space Astronomy Centre

Staff in post : ~ 2000



EO missions handled by ESA



and Third-Party Missions: European access to non-ESA missions
 ALOS, SPOT-4, Landsat, Kompsat-2, SeaWIFS, MODIS ...



Envisat MERIS
12 July 2008

Envisat mission and users

European Space Agency
Agence spatiale européenne



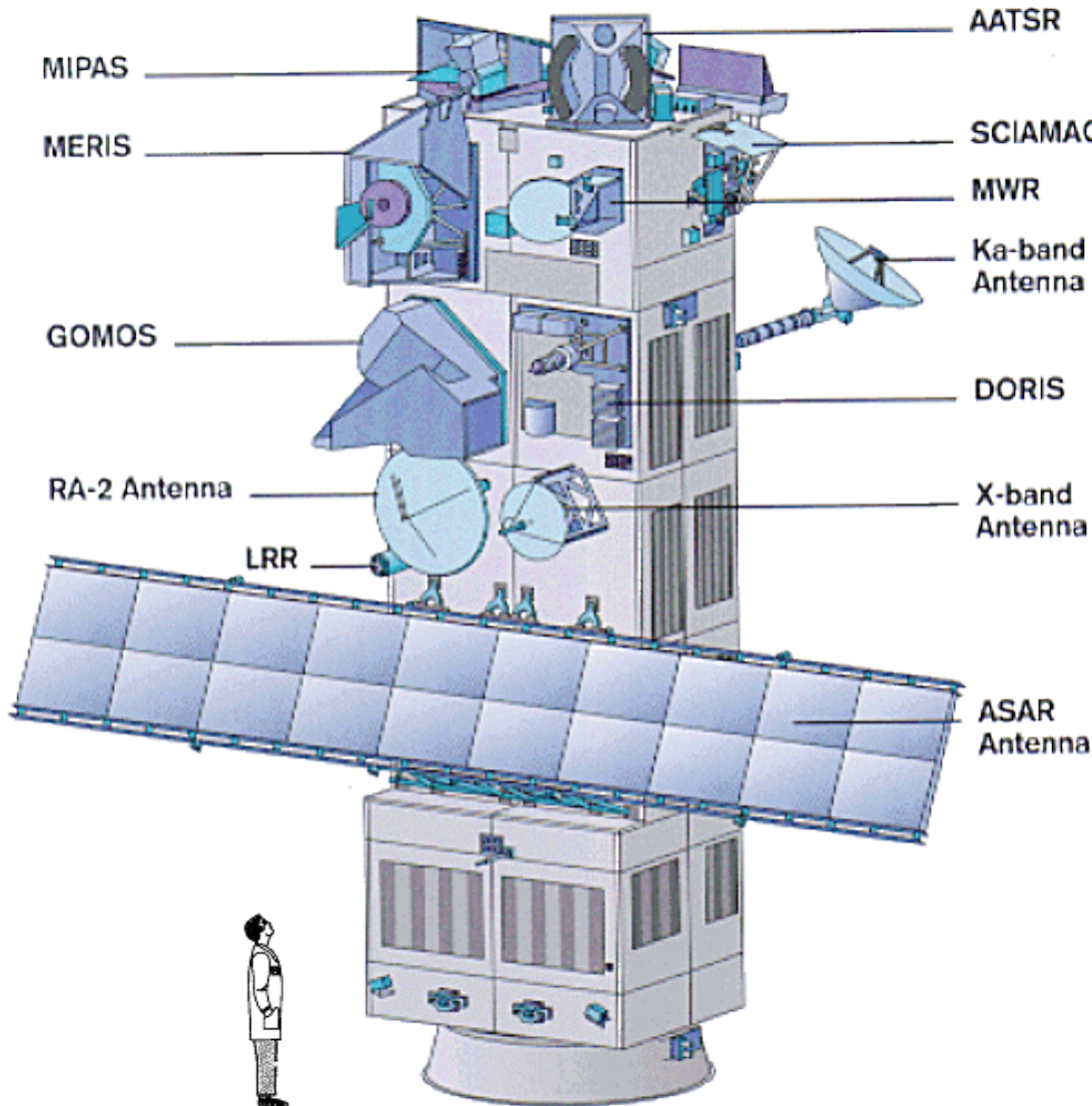
ENVISAT

□ Launch by ESA ARIANE 5
on March 1st, 2002

□ Injection on
perfect orbit



ENVISAT: the largest civilian EO satellite



• Dimensions

Launch configuration:
length 10.5 m
envelope diameter 4.6 m
In-Orbit configuration:
26m x 10m x 5m

• Mass

Total satellite **8140 Kg**
Payload 2050 Kg

• Power

Solar array power:
6.5 kW (EOL)

Average power demand:

	Sun (watts)	Eclipse (watts)
Payload	1700	1750
Satellite	3275	2870

• Orbit

800 km as ERS, sun synchronous
10:00, i.e. 30 minutes before ERS-2

ENVISAT: 10 ways to monitor the Earth

Michelson Interferometric Passive Atmospheric Sounder
MIPAS

MERIS
Medium Resolution Imaging Spectrometer

GOMOS
Global Ozone Monitoring by Occultation of Stars

RA-2 Antenna
Radar Altimeter 2

LRR

AATSR Advanced Along Track Scanning Radiometer

SCIAMACHY
Scanning Imaging Absorption Spectrometer for Atmospheric Cartography

MWR Microwave Radiometer

Ka-band Antenna → to Data Relay Satellite Artemis

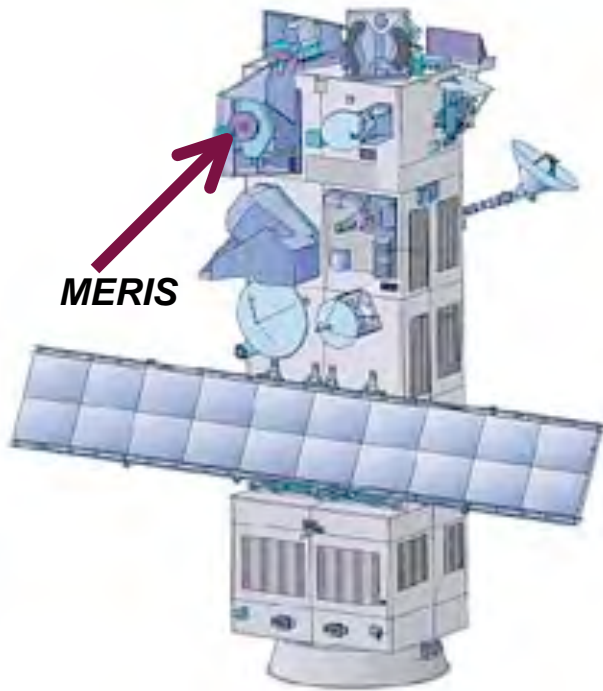
DORIS Doppler Orbitography and Radio-positioning Integrated by Satellite

X-band Antenna → to Ground Stations

ASAR Antenna
Advanced Synthetic Aperture Radar



- **Launch**
1st March 2002
- **Orbit**
800 km, sun synchronous
10:00 am, i.e. 30 minutes before ERS-2



Status:

- **Very stable and excellent performance since launch.**
- **Full redundancy available.**
- **Calibration diffuser degrading as expected.**

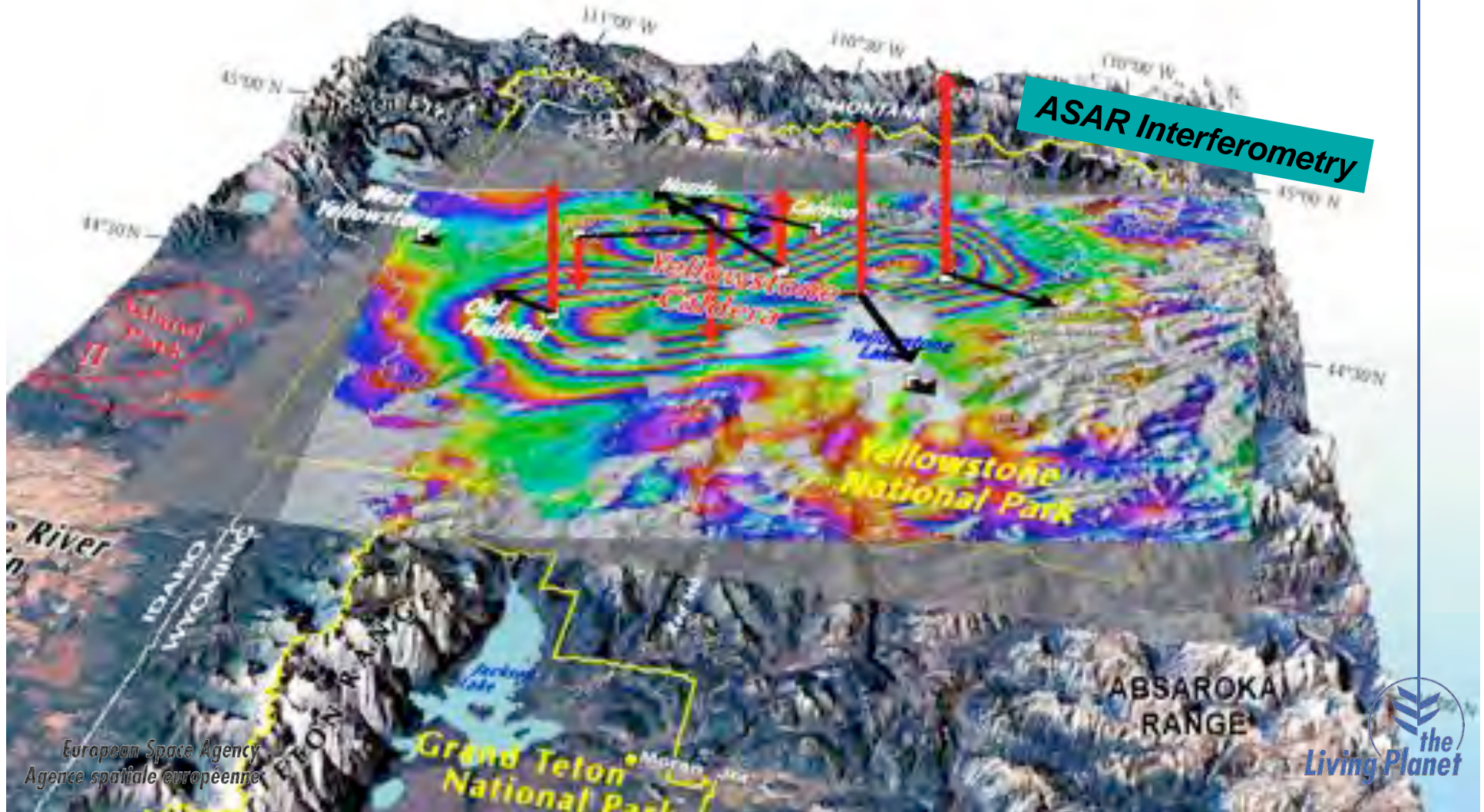
Risks and evolution:

- **Very smooth ageing**
- **With the current ageing rate the required radiometric accuracy of the on-board diffusers can be maintained until 2013**

Current performances: <i>Excellent</i>
Expected evolution: <i>Excellent</i>

Yellowstone caldera accelerated uplift: up to 7 cm / year

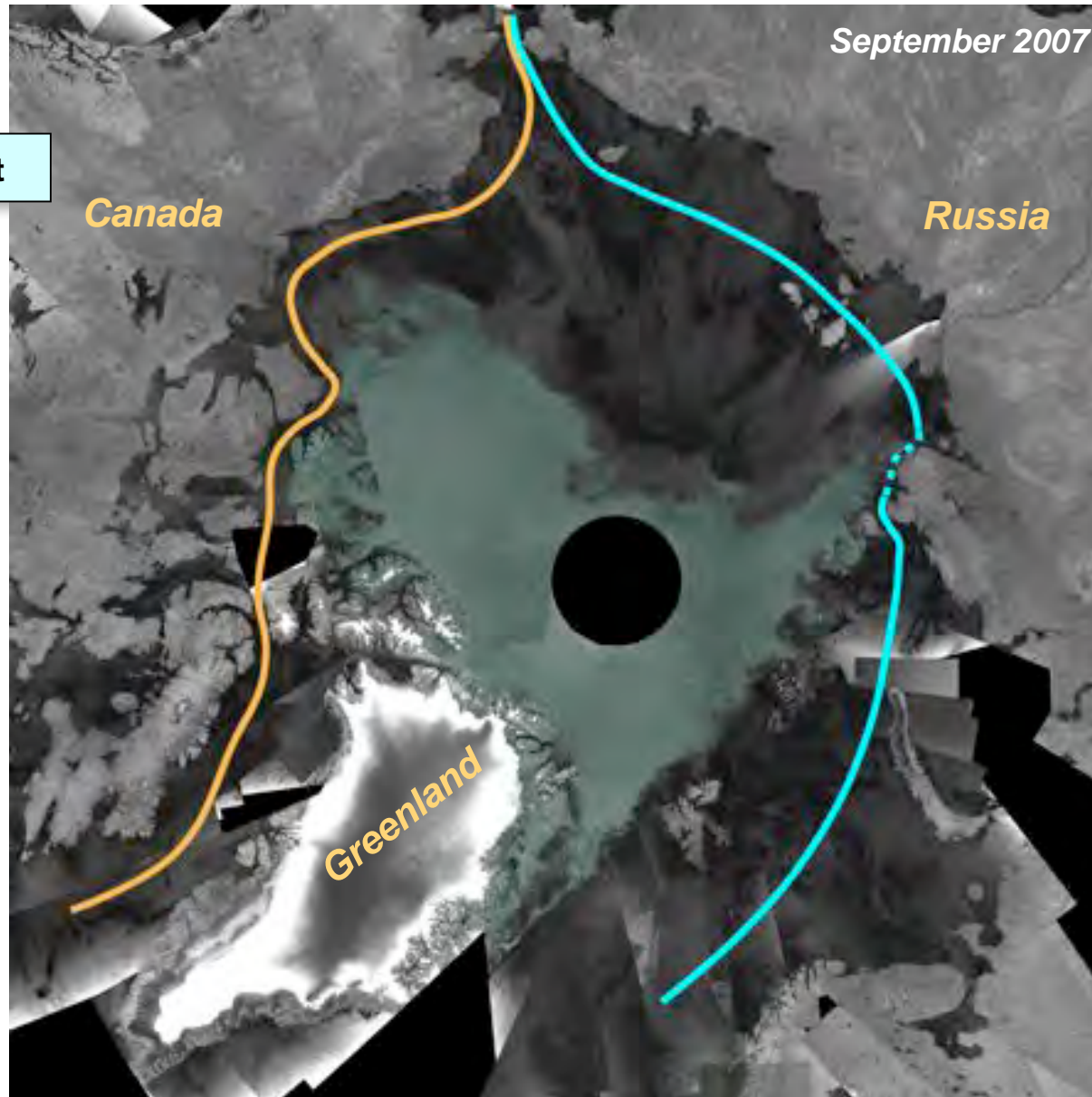
Science, 9 Nov. 2007: "Accelerated Uplift and Magmatic Intrusion of the Yellowstone Caldera, 2004 to 2006", Wu-Lung Chang, et al., Univ. of Utah (ESA Cat-1 project #2765)



September 2007

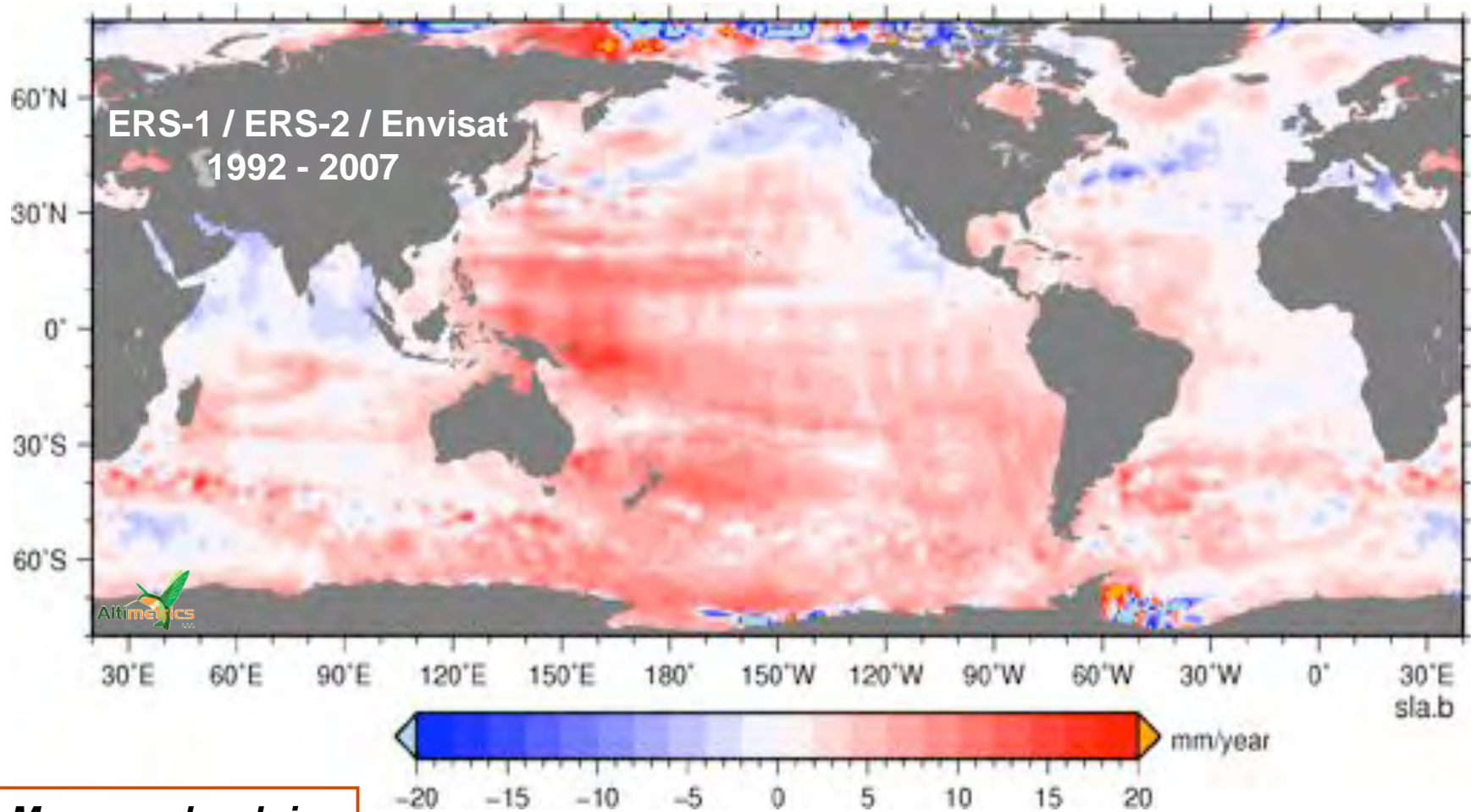
Arctic sea ice extent

Arctic Sea:
Fast decrease
of sea ice extent



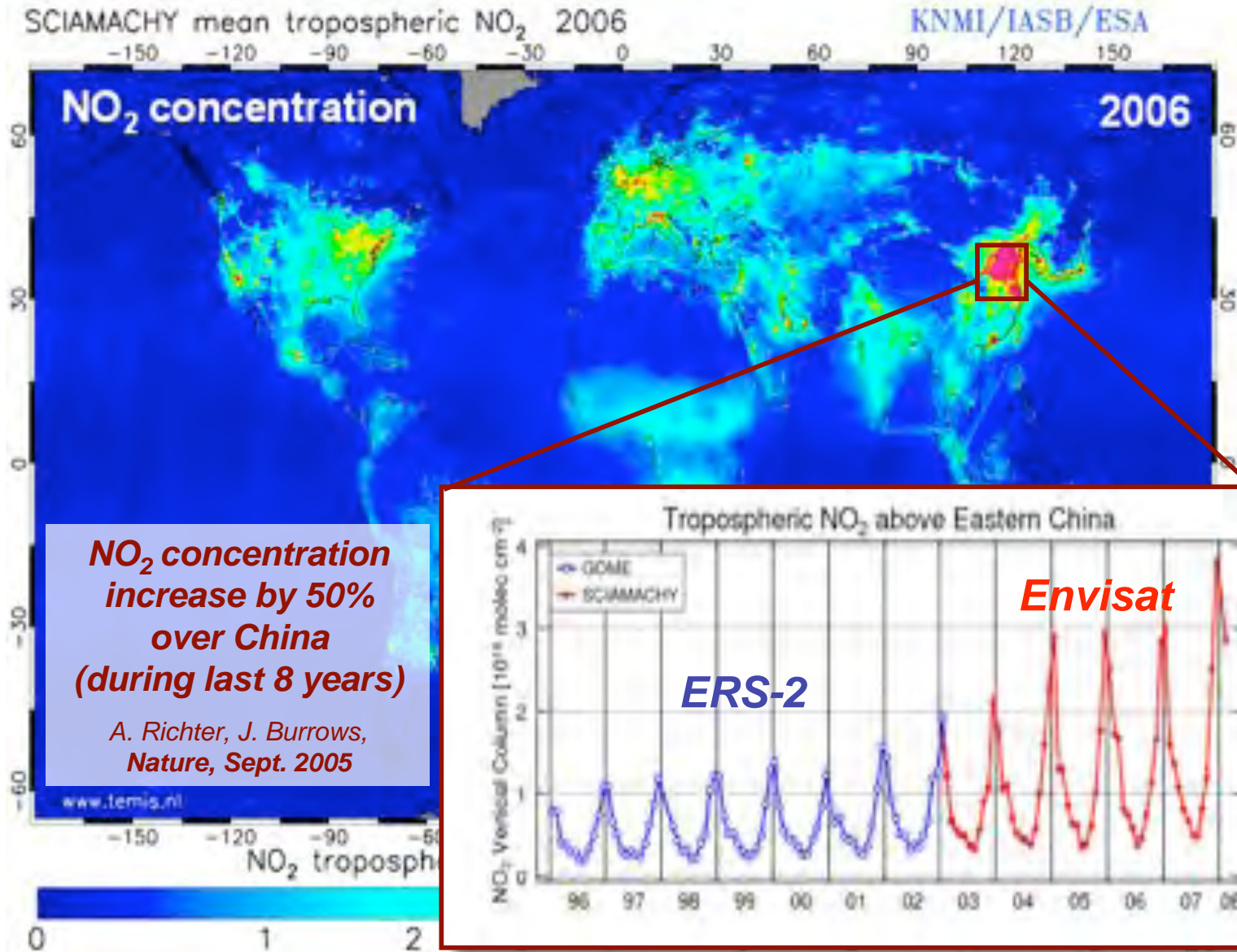
Mosaic of ASAR images
(10-days)

15 years of radar altimetry

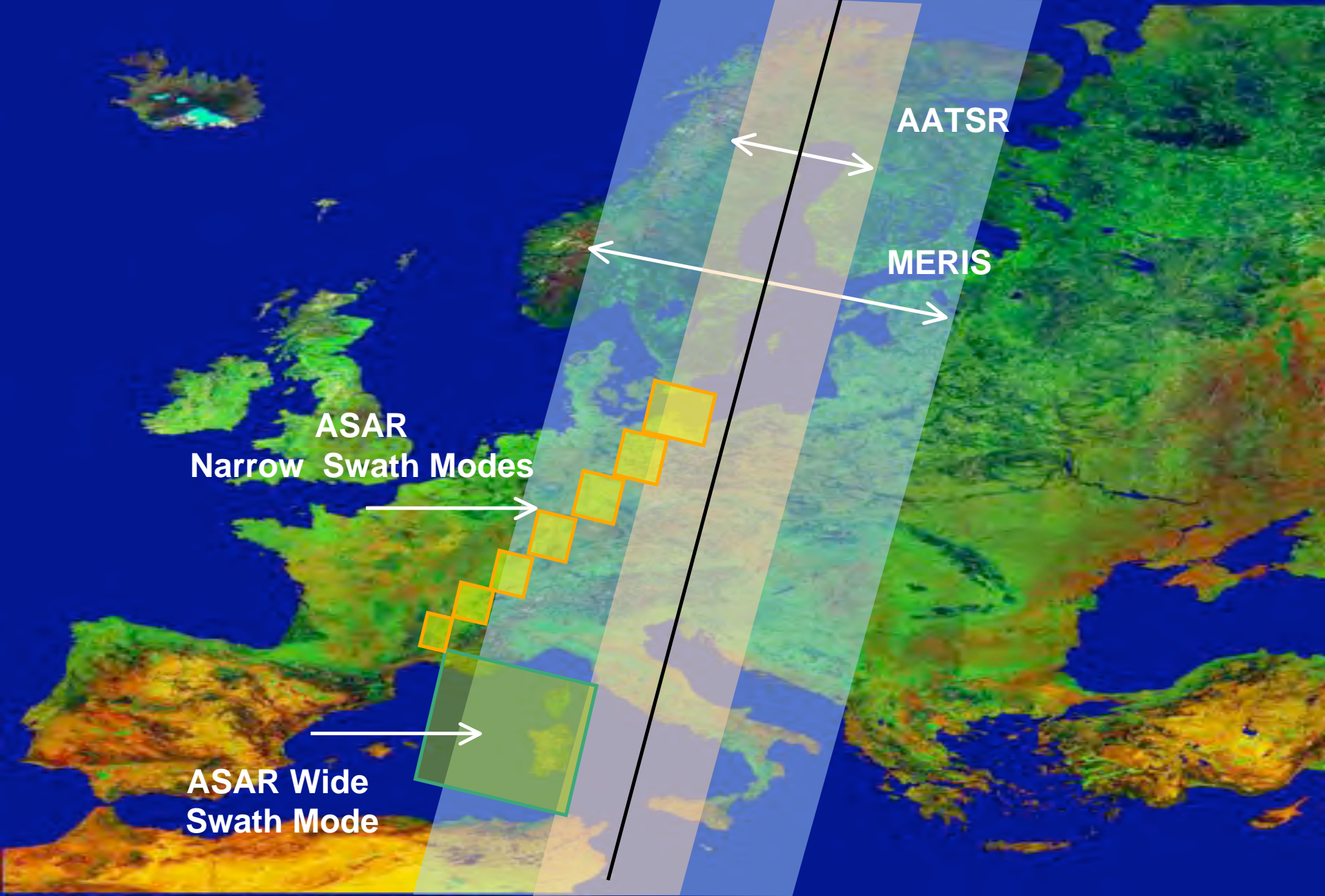


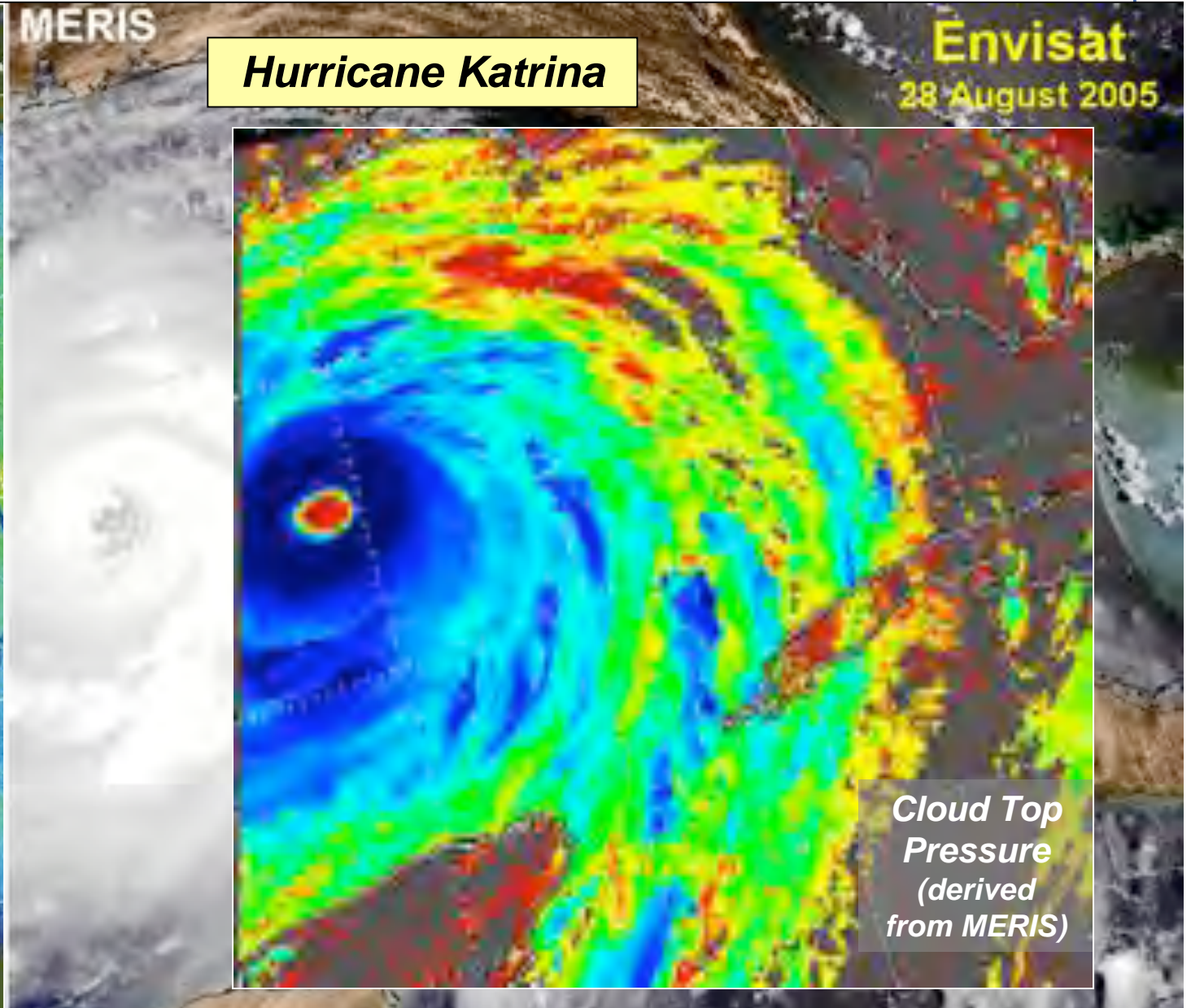
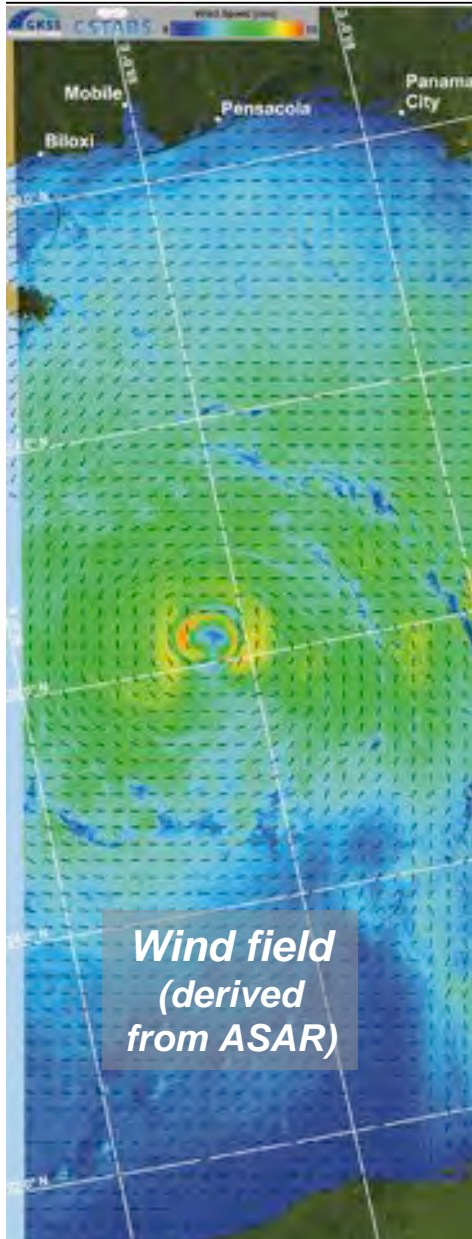
Mean sea level rise

This is one of the Essential Climate Variables (ECV)

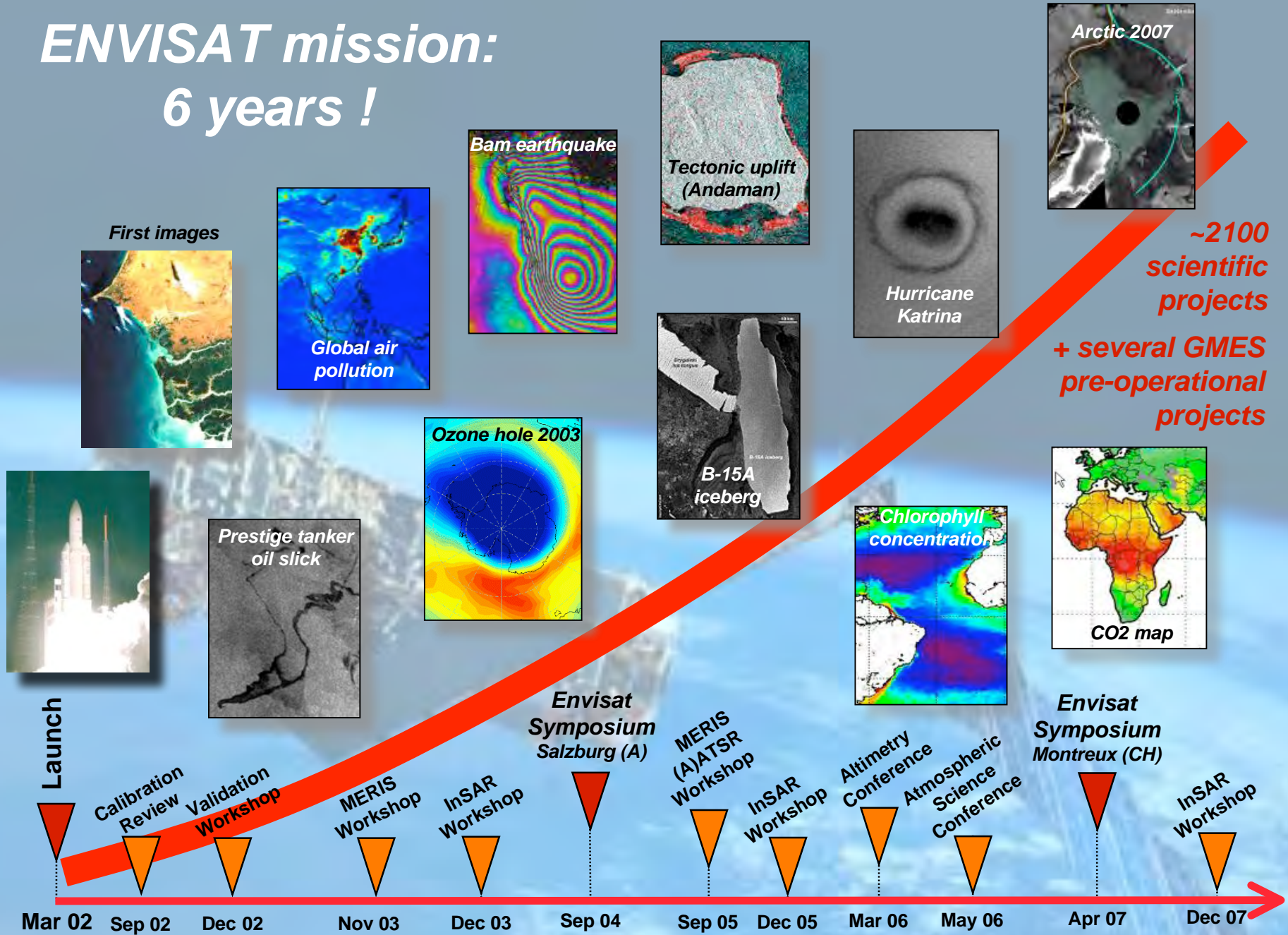


Synergy between ENVISAT imaging instruments





ENVISAT mission: 6 years !





Objectives:

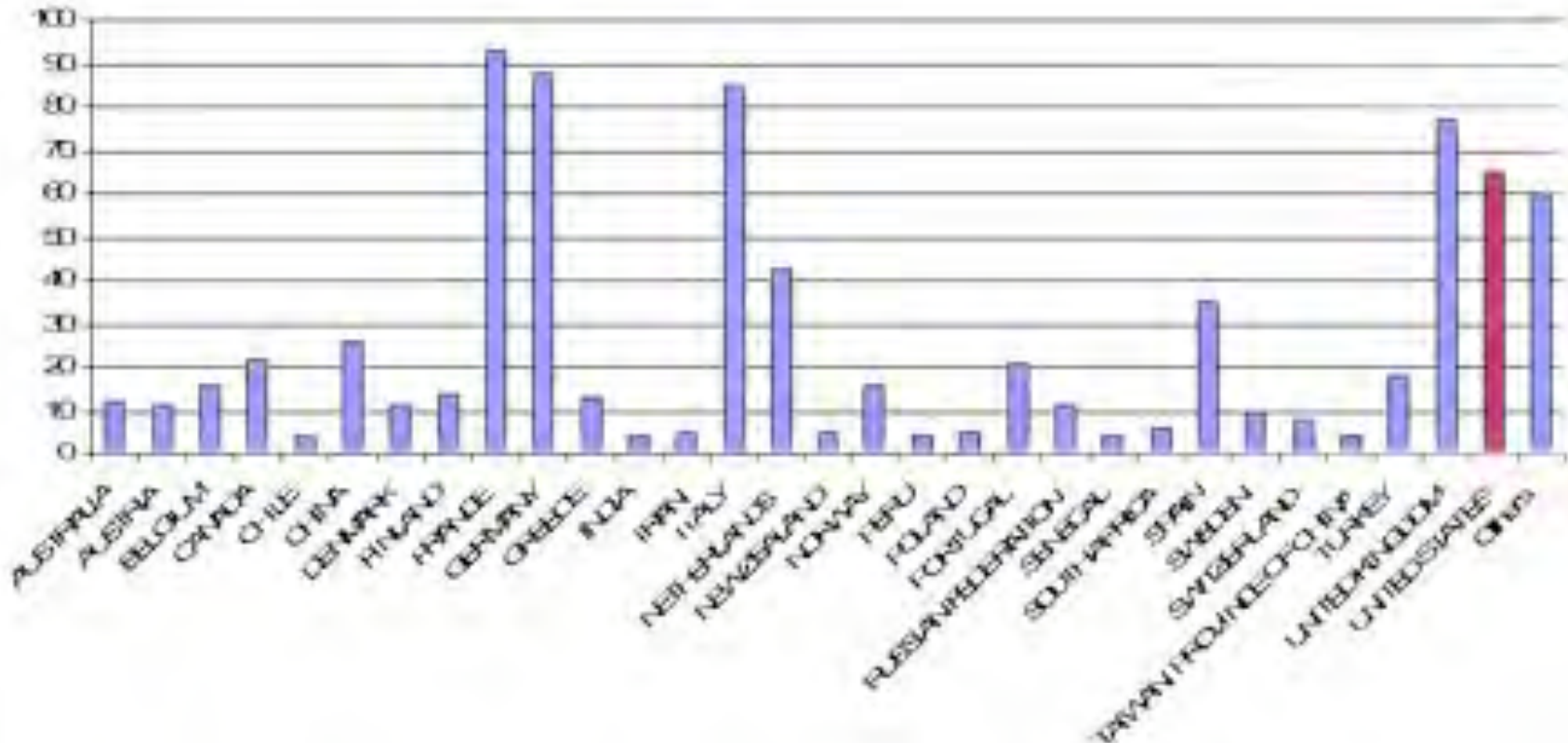
- Present latest results and status of research and development projects
- Update MERIS/AATSR users on instrument performance and product quality
- Formulate recommendations for improved data access and utilization, algorithms, user tools
- Foster collaboration between MERIS and AATSR research groups
- Inform users on the current status of the GMES Sentinel 3 mission
- **105 oral presentations, 75 Posters**

Registration at: http://earth.esa.int/meris_aatsr_2008

esa		22 – 26 September 2008		2nd MERIS - (A)ATSR WORKSHOP		
Envisat Home						
	Monday 22 Building 14	Tuesday 23 Building 14 Magellan		Wednesday 24 Building 14	Thursday 25 Building 14	Friday 26 Building 14
08:30-09:00	Registration	MERIS validation 2	AATSR applications 1	MERIS ocean & coastal zones 3	MERIS land	Global Series (starts 8:40)
	Opening Session	Discussion 20'	Discussion 20'	Discussion 20' Clouds		Discussion 20'
11:00-11:30		Coffee break				
11:30-13:10	AATSR validation	MERIS ocean & coastal zones 1	AATSR applications 2	and atmosphere	MERIS land	Sentinel (to 12:10)
	Discussion 30'		Discussion 30'	Discussion 30'	Discussion 30'	Discussion 20'
13:10-13:40		Lunch break				
13:40-14:40	MERIS validation 1	MERIS ocean & coastal zones 2	Tools & Services	Lakes	Synergy	Summary (starts 12:20)
14:40-16:00						Conclusion (starts 14:30)
16:20-16:50		Coffee break				
	MERIS validation 1	MERIS ocean & coastal zones 2	Tools & Services	Lakes	Synergy	
18:10-18:40	Discussion 30'	Discussion 30'	Discussion 20'	Discussion 20'	Discussion 30'	
18:40-19:40	Welcome cocktail			17:50-19:50 Poster session & Cocktail		

http://earth.esa.int/meris_aatsr_2008

MERIS projects/users per country



358 Category 1 projects from the United States (all types of data)

→ 65 US projects requesting MERIS data (i.e. 18 % of total)

→ 33% asking Red. Res. data, 66% asking Full Res. data



Envisat MERIS
11 July 2008

***MERIS data
acquisition***

European Space Agency
Agence spatiale européenne





MERIS data acquisition

MERIS has 2 operation modes:

Reduced Resolution (RR): 1040 m x 1200 m

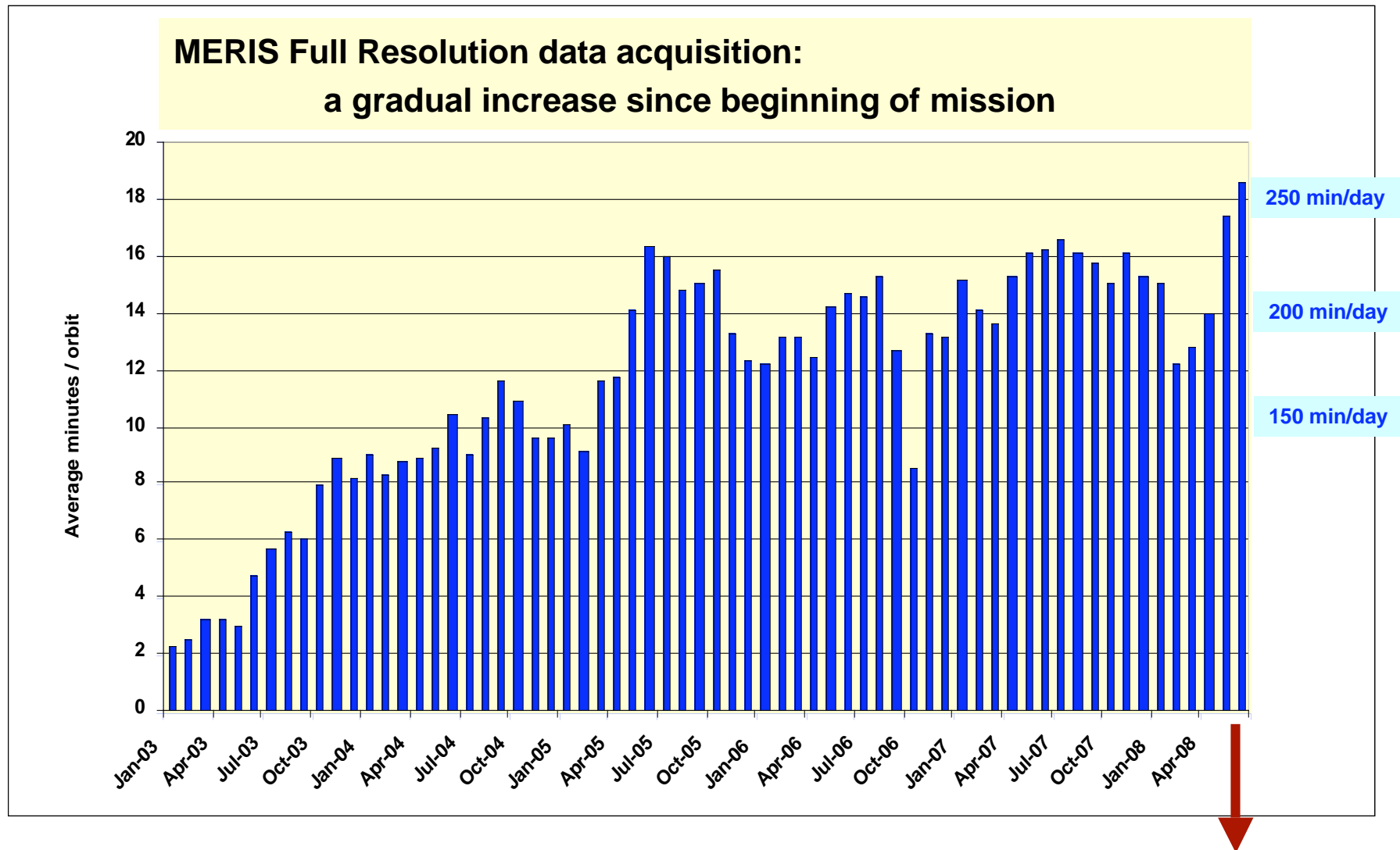
→ acquired systematically (43 minutes per orbit)

Full Resolution (FR): 260 m x 300 m

→ specific planning (currently ~18 min. per orbit)

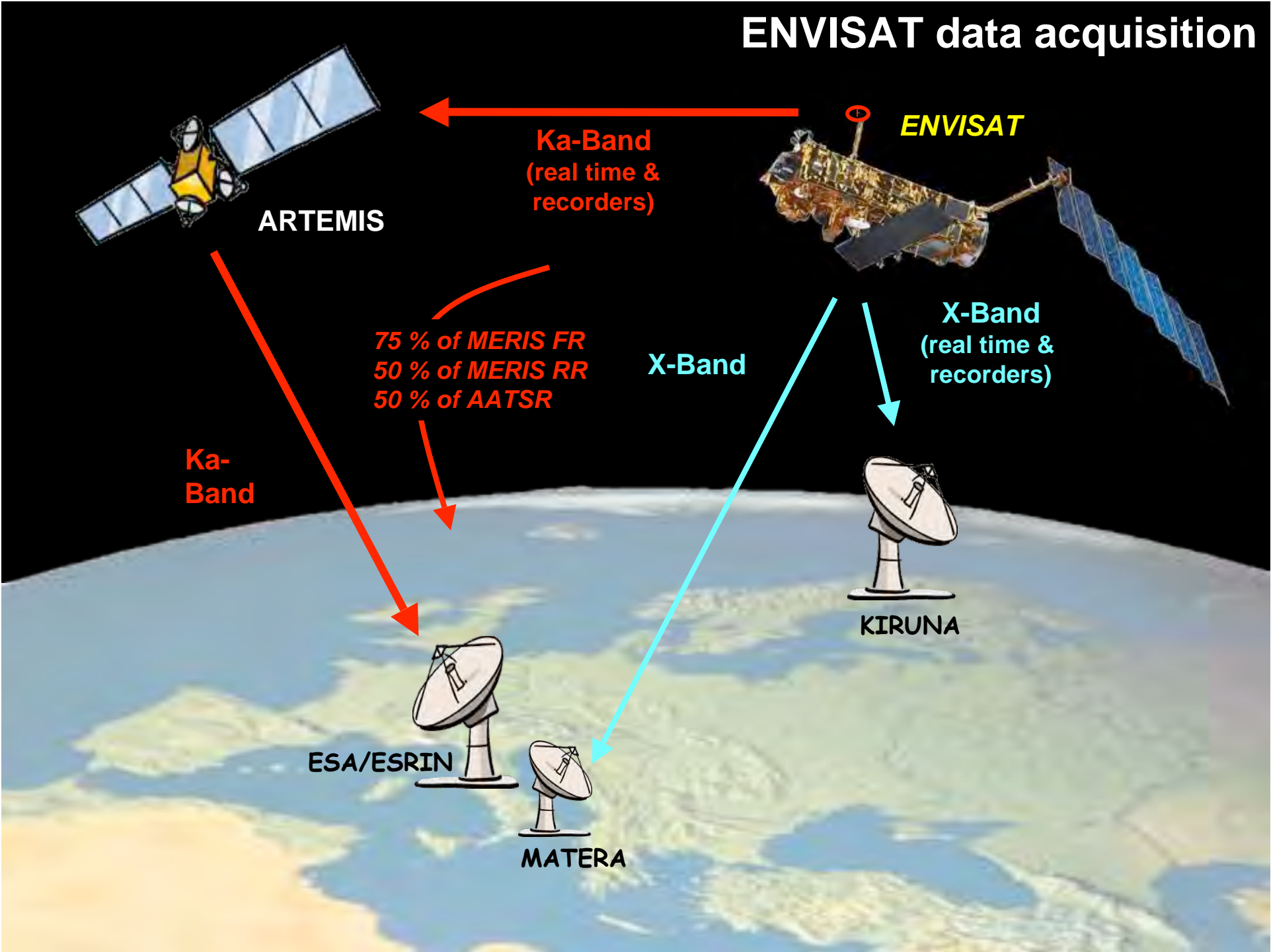
Swath width is 1150 km

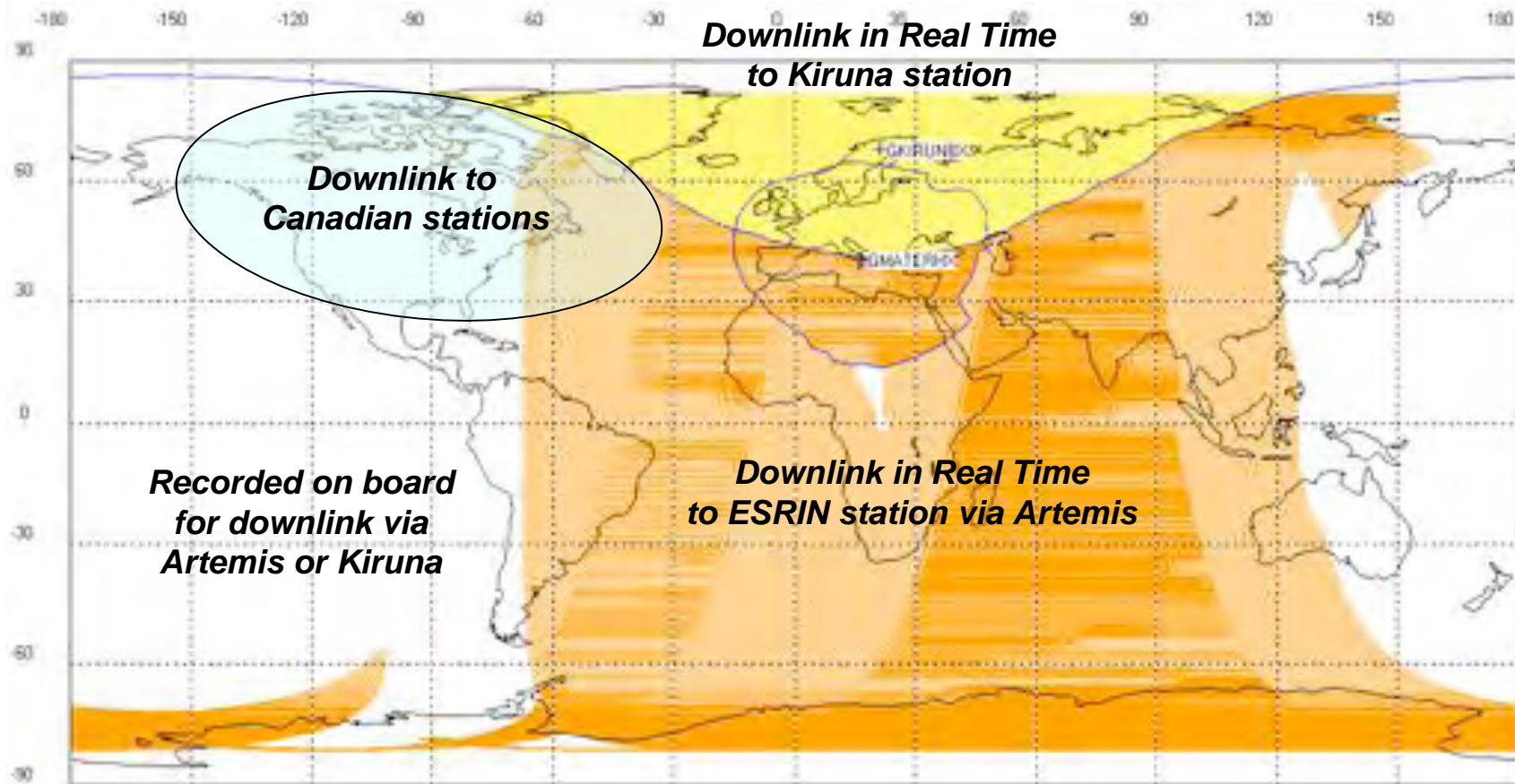
global coverage is reached every 3 days



Recent increase thanks to new Canadian stations

ENVISAT data acquisition





In **yellow**, data that are downlinked in Real Time to ESA Kiruna station.

In **orange**, data that are downlinked in Real Time to ESRIN station via Artemis.

In **white**, data that are recorded on-board, then downlinked to Kiruna or via Artemis.

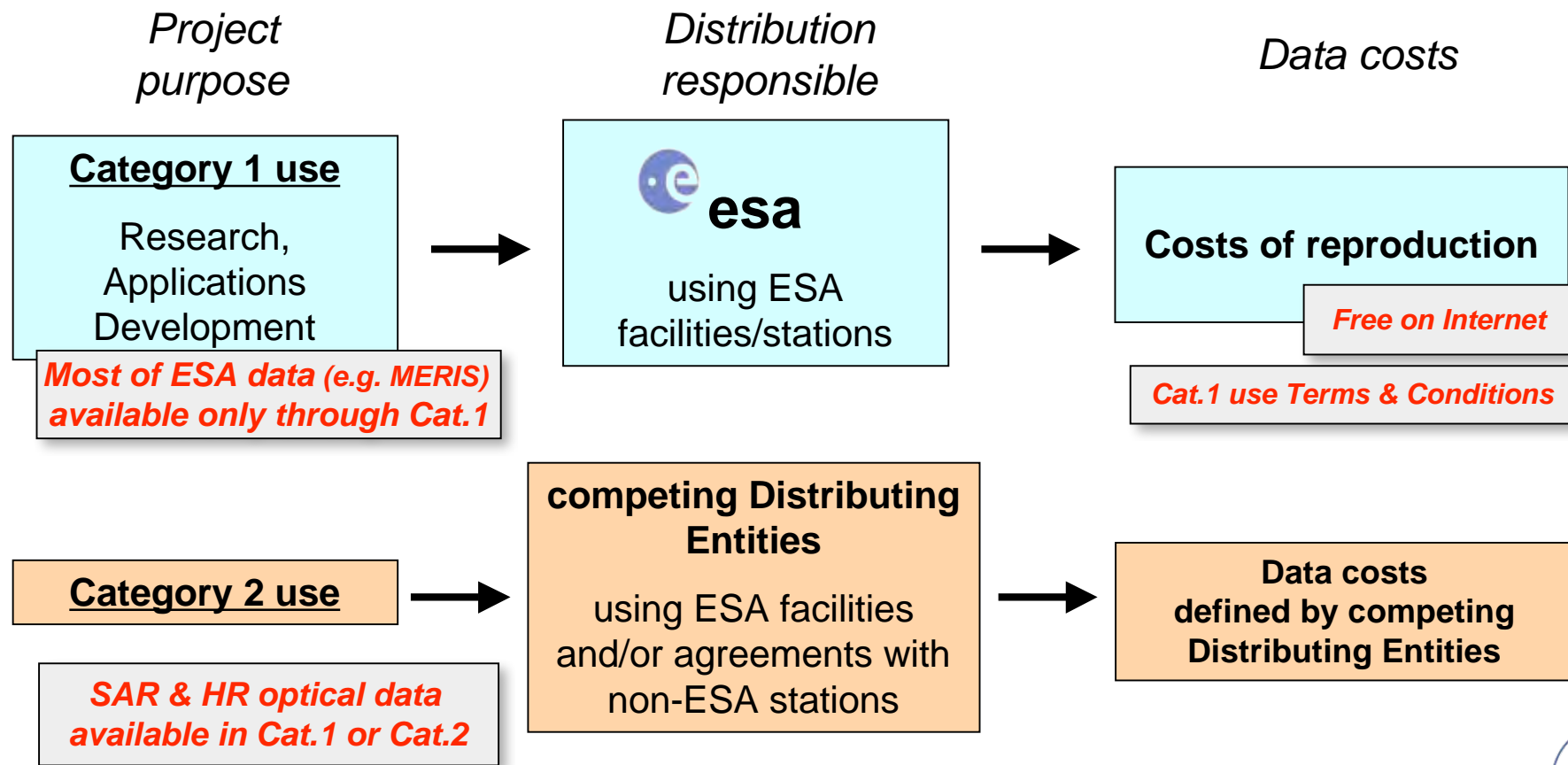
In **blue**, data that are downlinked in Real Time to Canadian stations:

- Temporary set-up: raw data sent by Internet to Kiruna for processing
- Final set-up: processing in Canada (early 2009)

***MERIS data
access***

Data policy defined by ESA Member States in 1997:

- ❑ 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.



Main points:

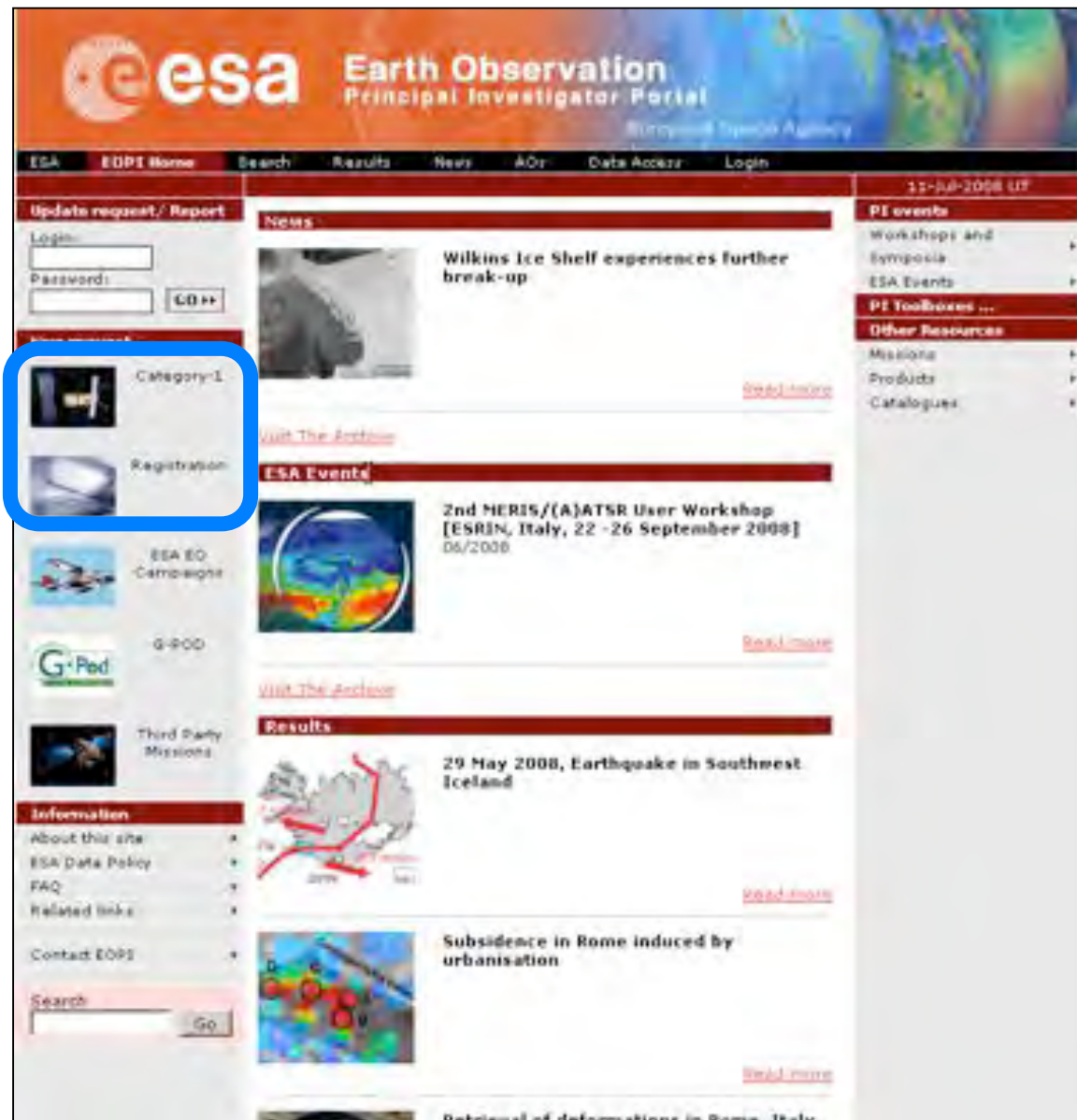
- to use the data provided for Category 1 use only **within the project team** (i.e. PI and co-PIs)
 - i.e. no data redistribution outside the Cat.1 use project team
- to widely **publish** the project results in **scientific publications** or presentations,
 - with data citation:
 - “**[mission or instrument] 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.

<http://eopi.esa.in>

t

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 shows the ESA Earth Observation Principal Investigator Portal. The left sidebar contains several navigation links, with 'Category 1' highlighted by a blue circle. Other links include 'Registration', 'ESA EO Campaign', 'G-Pod', and 'Third Party Missions'. The main content area features news articles, such as 'Wilkins Ice Shelf experiences further break-up' and '29 May 2008, Earthquake in Southwest Iceland'. The top navigation bar includes 'ESA', 'EOPi Home', 'Search', 'Results', 'News', 'AOr', 'Data Access', and 'Login'.



Products systematically available on Internet

→ **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)

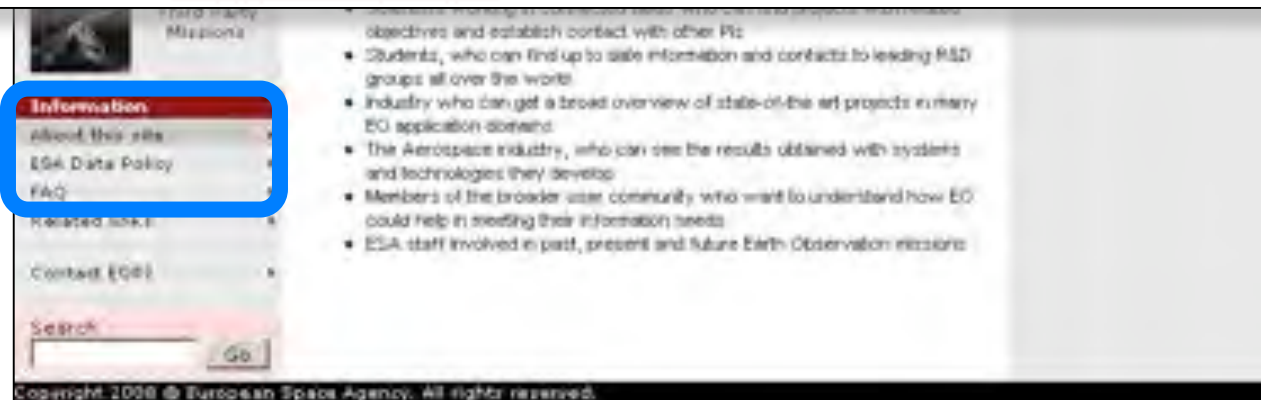
→ **Category 1 Project Proposal**

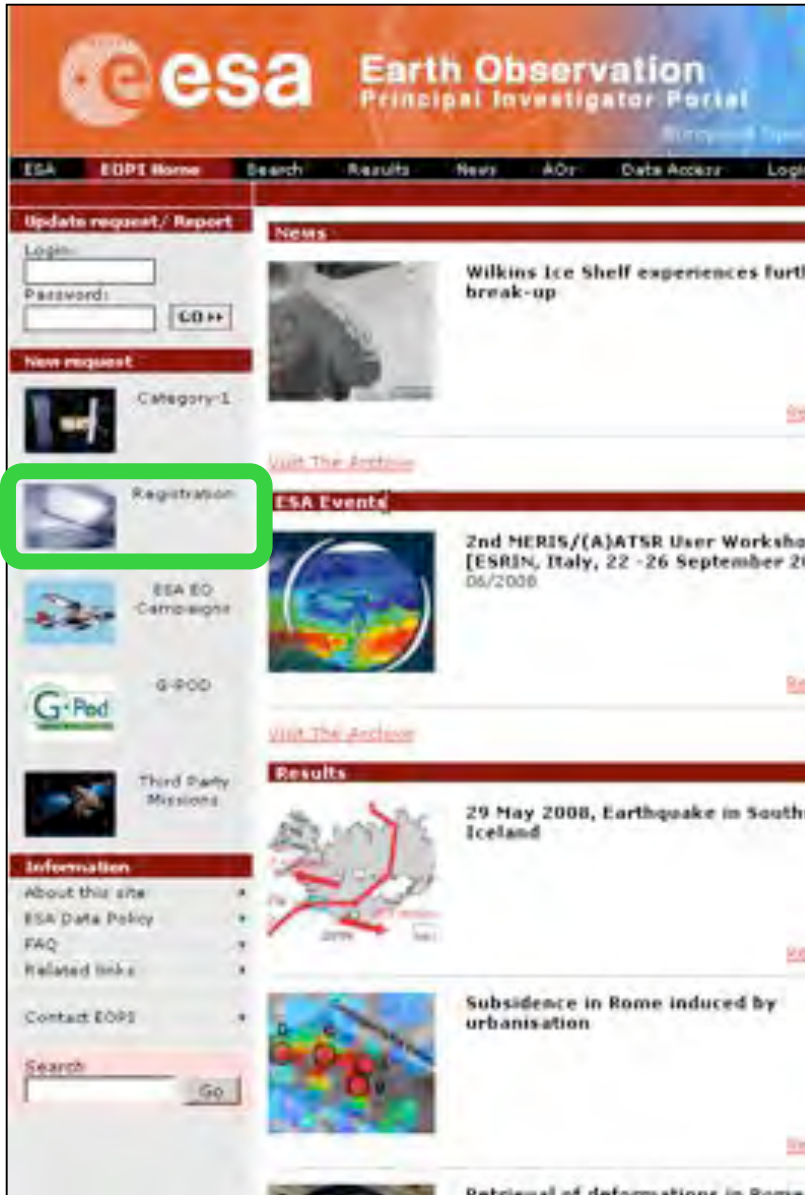
Available at cost of reproduction (ENVISAT, ERS and Third Party Missions)

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





Products systematically generated and available via fast registration - release May 15th, 2008

Mission	Sensor	Product	Internet		DDS Europe
			Archived or Reprocessed	NRT and Recent	NRT
ENVISAT	ASAR	ASA_WGM_1P		last 14 days	
		ASA_JMM_1P		last 14 days	
		ASA_AFM_1P		last 14 days	
		ASA_GM1_1P		last 7 days	
		ASA_WVS_1P	Full mission	last 7 days	
		ASA_WVW_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_FRQ_1P (European coverage)		last 14 days	NRT
		MER_FRQ_2P (European coverage)		last 14 days	
		MER_FRQ_1P (North America coverage)		last 14 days	
	AATSR	ATS_TOA_1P	Full mission reprocessing will be available in Feb 2008	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			
		RA2_IGD_2P			
RA2_GDR_2P					
Atm. Chemistry	RA2_MND_2P	Full mission	last 7 days		
	BCL_NL_1P	Full mission	last 7 days	NRT	
	BCL_NL_2P	2002-2005			
	BCL_OL_2P	Full mission			
	MIP_NL_1P	Full mission	Last 7 days	NRT	
	MIP_NL_2P	July 2002 to March 2004			
	GOM_LIM_1P		last 7 days		
	GOM_TRA_1P		last 7 days		
	GOM_NL_2P	Full mission	last 7 days		
	GOM_RR_2P		last 7 days		
DORIS	DOR_DOP_1P	Full mission			
	DOR_FOR_AX	Full mission	last 3 months		
	DOR_VOR_AX	Full mission	last 3 months		
ERS	SAR	SAR IMM		last 14 days	
		WSC.UWI	From 21/09/2003 onwards	NRT	
	GOME	SWM.UWA	From 15/11/2006 onwards	NRT	
		GOME.LVL13	Full mission		
ALTIMETER	GOME.LVL21	Full mission			
	ALT.URA	From 15/11/2006 onwards	NRT		
ATSR	AT1_TOA_1P and AT2_TOA_1P				
	AT1_AR_2P and AT2_AR_2P	Full mission reprocessing will be available in Feb 2008			
Orbit	AT1_NR_2P and AT2_NR_2P				
	ORB.PRC	Full mission			
Chris. HRC (Proba)	ORB.PRL	Full mission			
	PROBA.CHRS.1A	All available data, including recent			
		PROBA.HRC.1A	All available data, including recent		

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

NRT & recent data	availability	period	coverage
MERIS Red. Resolution (1200 m) Level 1 & Level 2	Systematic (i.e. processing of all data) Products available within 3 hrs from acquisition (95%)	Rolling archive of last 15 days	Worldwide coverage
MERIS Full Resolution (300 m) L1 & L2 – Europe coverage	Systematic (i.e. processing of all data) Products available within 3 hrs (L1) and within 12 hrs (L2) from acquisition (90%)	Rolling archive of last 20 days	Europe coverage <i>Simple registration</i>
MERIS Full Resolution (300 m) L1 & L2 – North America	Systematic (i.e. processing of all data) <u>Temporary set-up:</u> Products available within 9 hrs (L1) and within 24 hrs (L2) from acquisition (90%)	Rolling archive of last 20 days	North America coverage
MERIS Full Resolution (300 m) Other geographical coverages	Not systematic On request Limited quantities	Few hours after acquisition	According to instrument plan <i>Full proposal</i>

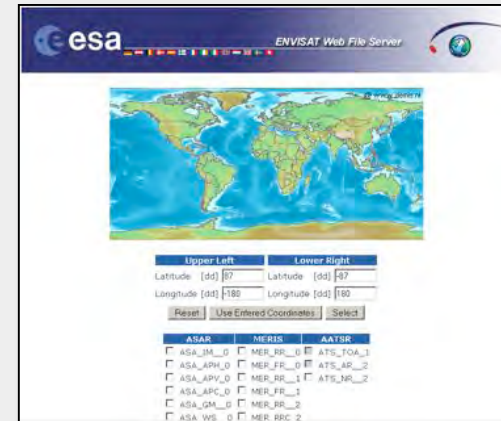
NRT data from other Envisat sensors (e.g. ASAR, AATSR) also available on Internet

Same NRT and recent dataset for both systems



NRT and recent data
Rolling Archives
(ftp or http)

- Complete product (e.g. MERIS orbit)
- Each acquisition station has its own rolling archive



NRT and recent data
Web File Server
(http)

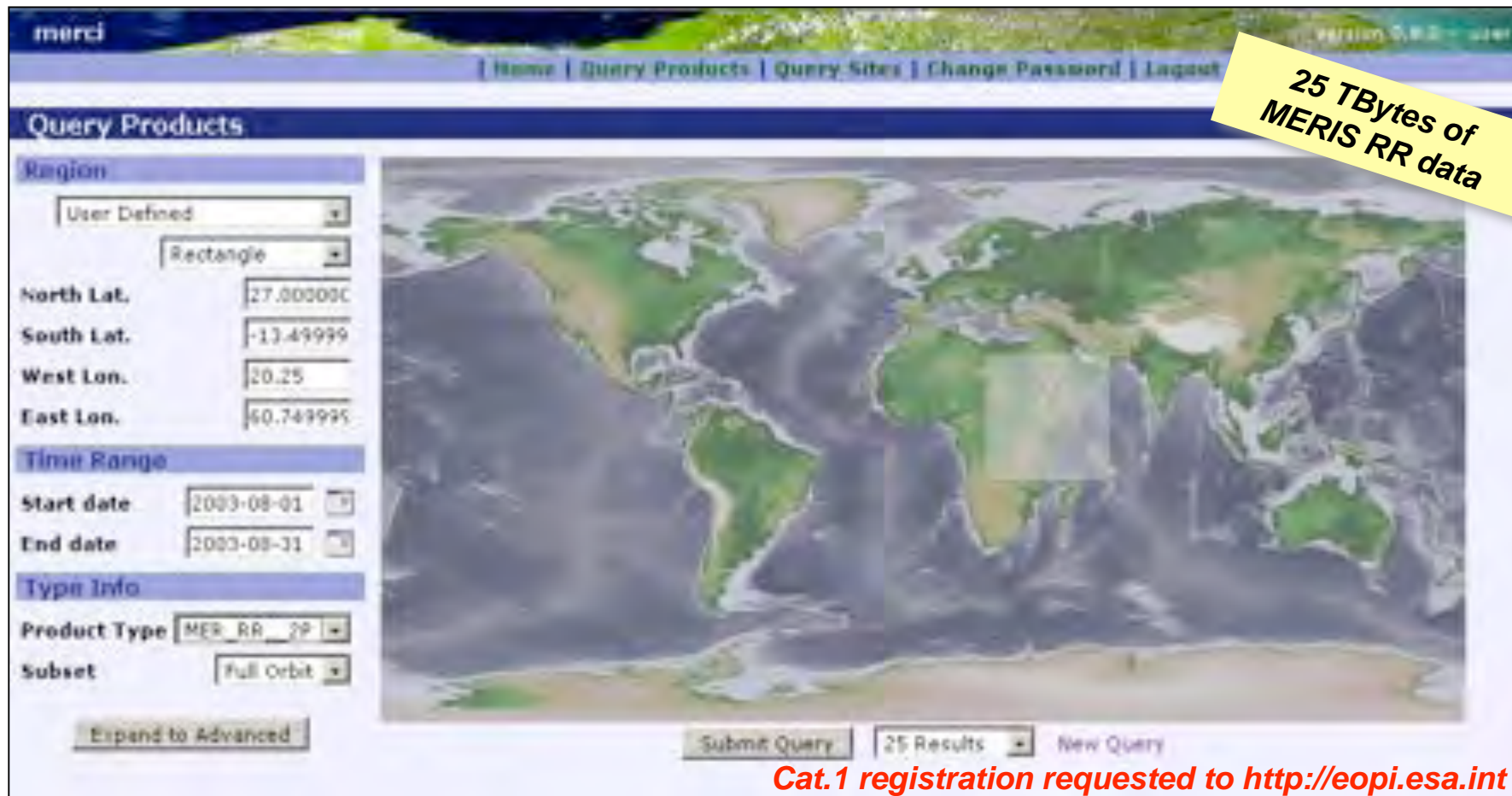
- Geographical selection (with product subset to decrease data volume for download)
- One single web site for all acquisition stations

Current download problems at Kiruna station !

Archived data

Archived	availability	period	coverage
MERIS Red. Resolution (1200 m) Level 1 & Level 2	Systematic (i.e. for each re-processing of the data) MERCI Web Interface	Whole mission since mid-2002	Worldwide coverage <i>Simple registration</i>
MERIS Full Resolution (300 m)	Not systematic On request <i>Limited quantities on Internet Products usually provided on DVD-Rom</i>	Whole mission since mid-2002	Worldwide coverage <i>Full proposal</i>

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

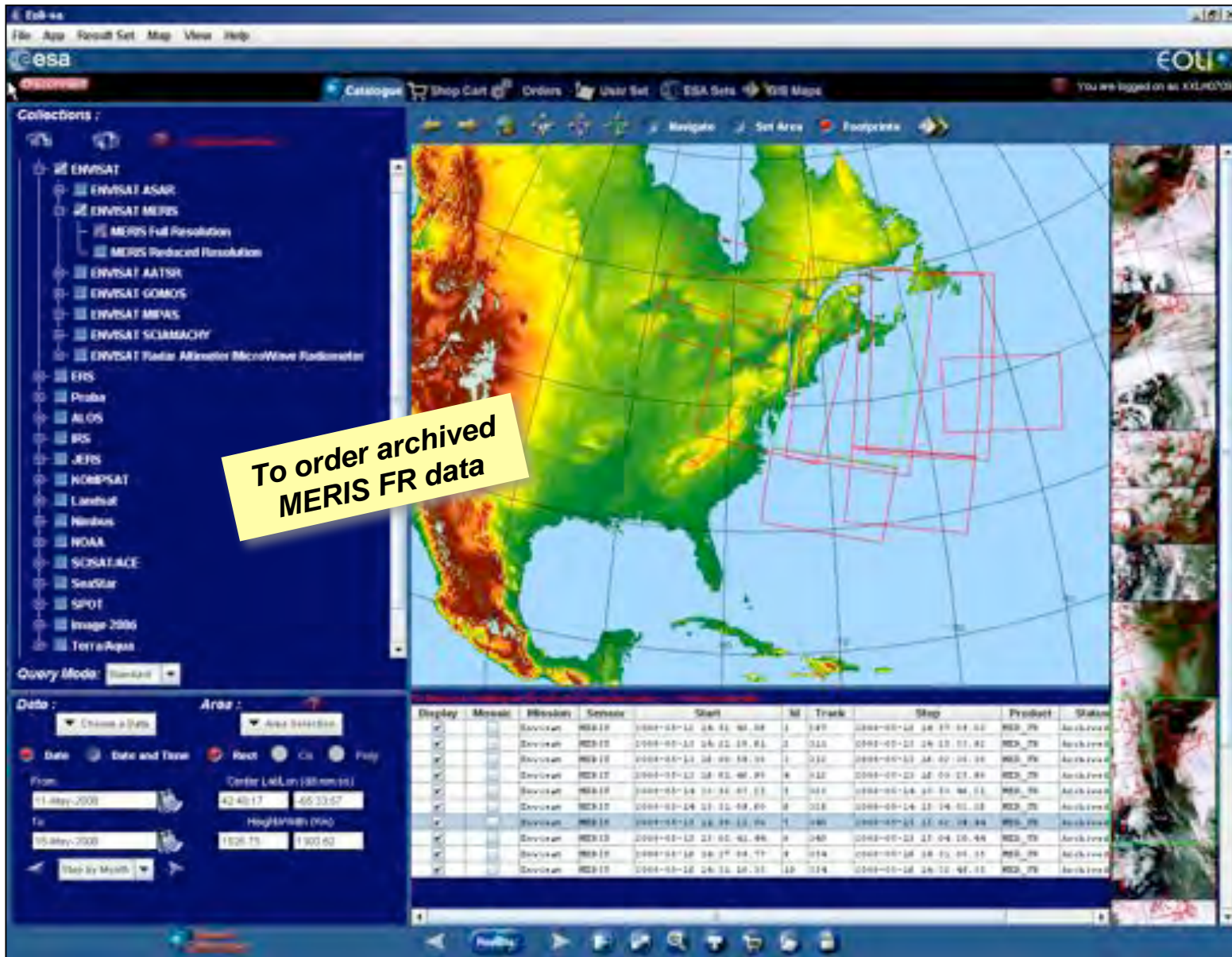


The screenshot shows the MERCI web interface. On the left, there is a 'Query Products' form with the following fields:

- Region: User Defined
- Rectangle: Rectangle
- North Lat.: 27.000000
- South Lat.: -13.499999
- West Lon.: 20.25
- East Lon.: 60.749995
- Time Range: Start date (2003-08-01), End date (2003-08-31)
- Type Info: Product Type (MER_RR_2P), Subset (Full Orbit)

At the bottom of the form is an 'Expand to Advanced' button. To the right of the form is a world map with a red rectangle highlighting a region in the Atlantic Ocean. Below the map are buttons for 'Submit Query', '25 Results', and 'New Query'. A yellow callout box in the top right corner of the screenshot contains the text: '25 TBytes of MERIS RR data'. Below the screenshot, the text reads: 'Cat.1 registration requested to <http://eopi.esa.int>'.

MERCI web interface will be used also for Envisat/ERS (A)ATSR archived data (Oct. 2008)

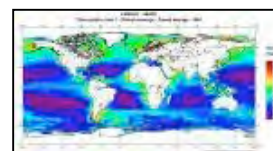


The screenshot shows the EOLI-SA web application interface. On the left, there is a 'Collections' tree listing various satellite missions such as ENVISAT, ERS, and Terra Aqua. The main area features a map of North America with several red rectangular boxes indicating search areas. Below the map is a data table with columns for Display, Mission, Mission ID, Sensor, Start, Stop, and Product. A yellow callout box points to the map with the text 'To order archived MERIS FR data'.

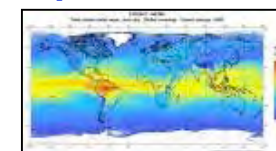
Display	Mission	Mission ID	Sensor	Start	Stop	Product	Status
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 06:51:00.00	2002-02-12 06:51:00.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 06:52:19.00	2002-02-12 06:52:19.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 06:53:38.00	2002-02-12 06:53:38.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 06:54:57.00	2002-02-12 06:54:57.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 06:56:16.00	2002-02-12 06:56:16.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 06:57:35.00	2002-02-12 06:57:35.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 06:58:54.00	2002-02-12 06:58:54.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 07:00:13.00	2002-02-12 07:00:13.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 07:01:32.00	2002-02-12 07:01:32.00	MERIS_70	Archived
<input checked="" type="checkbox"/>	Envisat	MERIS	MERIS	2002-02-12 07:02:51.00	2002-02-12 07:02:51.00	MERIS_70	Archived

code	Product	Data available
n412	Normalised water leaving radiance at 412 nm (n412)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
n443	Normalised water leaving radiance at 443 nm (n443)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
n490	Normalised water leaving radiance at 490 nm (n490)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
n510	Normalised water leaving radiance at 510 nm (n510)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
n560	Normalised water leaving radiance at 560 nm (n560)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
chl1	Chlorophyll-a, case-1 water (chl1) Description	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
t865	Aerosols optical thickness over water at 865 nm (t865)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
a865	Angstrom alpha coefficient over water at 865 nm (a865) Description	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
t443	Aerosols optical thickness over land at 443 nm (t443)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
a443	Angstrom alpha coefficient over land (a443)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
t550	Aerosols optical thickness over land and water at 550 nm (t550)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
a550	Angstrom alpha coefficient over land and water at 550 nm (a550)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
t865	Aerosols optical thickness over water at 865 nm (t865)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
wvcs	Total water vapor column, clear sky (wvcs) Description , Validation	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
absd	ABSOA_DUST flag statistics (absd)	Monthly: 2002 2003 2004 2005 2006 2007 2008 Daily: 2007 2008
mgvi	MERIS Global Vegetation Index Description , Validation	Monthly: 2002 2003 2004 2005 2006 2007 2008
mgvi-plc	MERIS Global Vegetation Index/Plate-Carree	Monthly: 2002 2003 2004 2005 2006 2007 2008

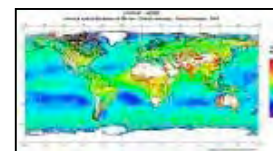
Chlorophyll-a Case 1



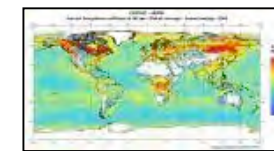
Total water vapour column



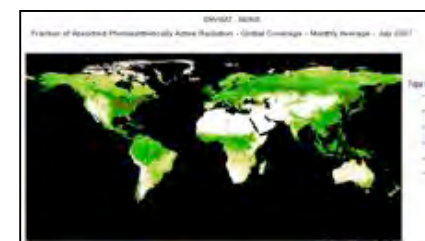
Aerosol optical thickness



Aerosol Angstrom coefficient



Global Vegetation Index



Available at: <http://envisat.esa.int/level3>

No registration required

MERIS Reduced Resolution data reprocessing

- ➔ First data reprocessing in 2004
- ➔ Second data reprocessing in 2006
- ➔ Third data reprocessing was planned for 2nd half 2008, but is postponed to 2009

Main drivers:

- ✓ Observed **discrepancies in water leaving reflectances** with match-ups (Boussole between 13% (490nm) and 31% (412nm) errors).
- ✓ **Vicarious adjustment at Level 2:** same method as applied by NASA for SeaWiFS (Franz et al. 2007 [Applied Optics 46]; Bailey et al. 2007, submitted to JGR). It consists in computing average multiplicative gain factors to correct the TOA signal using a database of match-ups (Boussole, or Moby, or both).
- ✓ **New aerosol properties tables.**

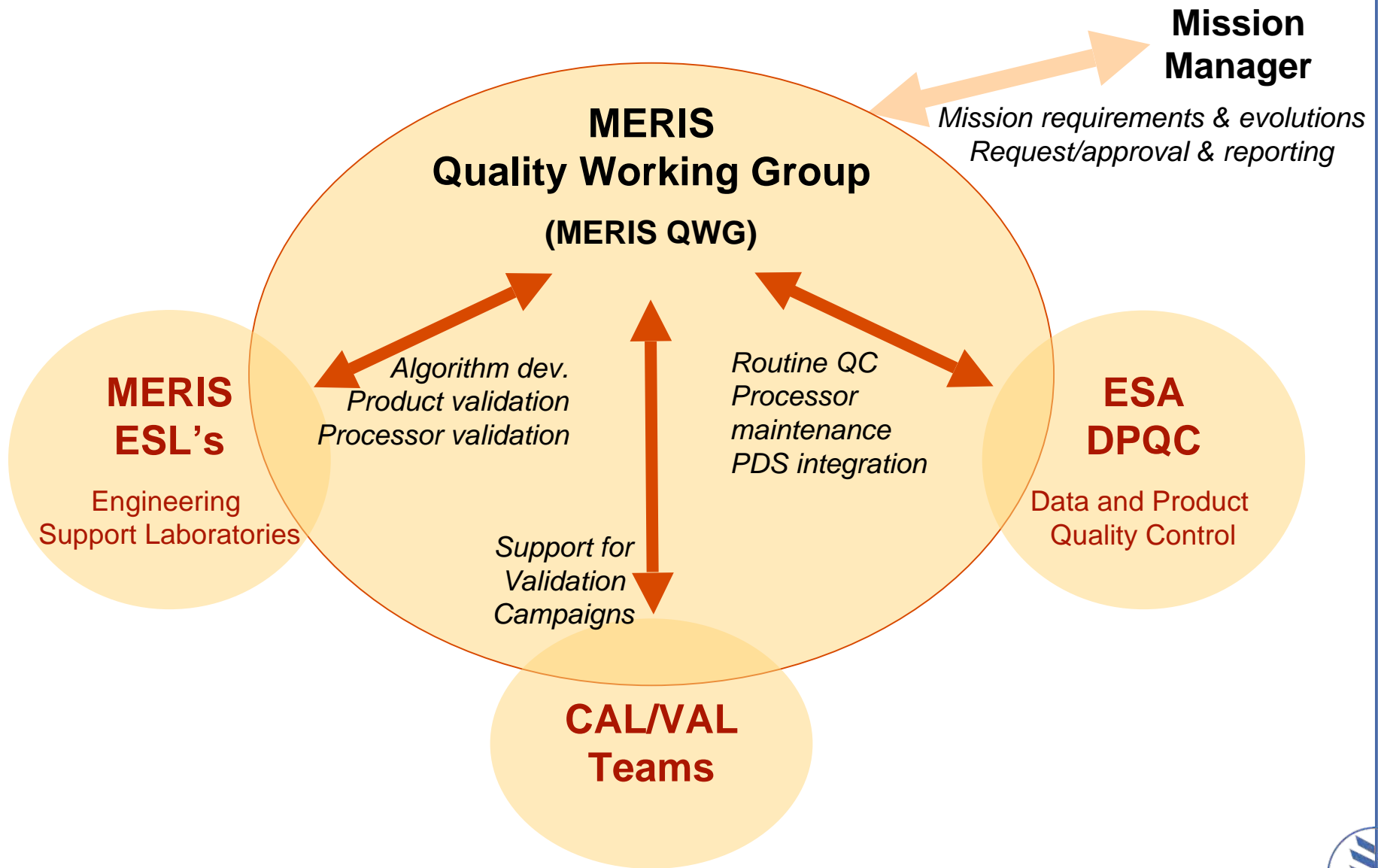


Envisat MERIS
10 July 2008

***MERIS
science
team***

European Space Agency
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10 July 2008

MERIS documentation



The screenshot shows the ESA Earthnet Online website. The main content area features a news article titled "Change announcement for D-PAC FTP server" dated 08 July 2008. The article text states: "In order to enhance the on-line data volume offered on the D-PAC Envisat FTP server 'ftp-ops-dp.esa.int', all SCI_NL_1P and MDP_NL_1P data files located on this server will be compressed to gzip format, starting from the year 2002 successively to present." A blue box highlights the link "Access to Envisat Data (pdf - 4.32 Mb)" in the right-hand navigation menu.

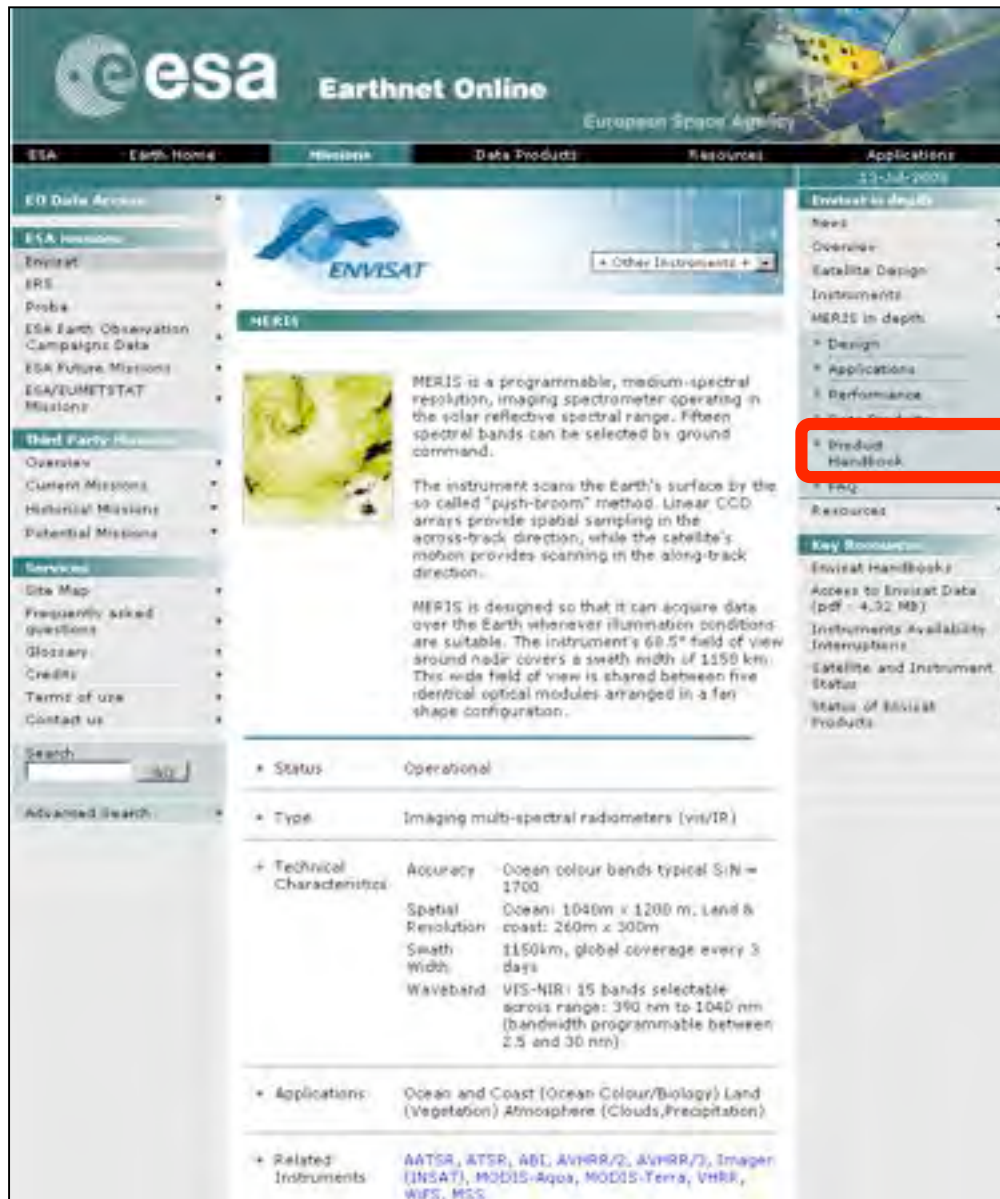
<http://envisat.esa.int>



The image shows the cover of a document titled "ACCESS TO ENVISAT DATA". It features the ESA logo at the top left and a central graphic of a satellite in orbit over Earth. The text "ACCESS TO ENVISAT DATA" is prominently displayed in the center. At the bottom, it includes the ESA logo and the text "European Space Agency" and "Agence spatiale européenne".

eohelp@esa.int

<http://envisat.esa.int/instruments/meris>



Earthnet Online
European Space Agency

19-Jul-2008

MERIS

MERIS is a programmable, medium-spectral resolution, imaging spectrometer operating in the solar reflective spectral range. Fifteen spectral bands can be selected by ground command.

The instrument scans the Earth's surface by the so called "push-broom" method. Linear CCD arrays provide spatial sampling in the across-track direction, while the satellite's motion provides scanning in the along-track direction.

MERIS is designed so that it can acquire data over the Earth whenever illumination conditions are suitable. The instrument's 68.5° field of view around nadir covers a swath width of 1150 km. This wide field of view is shared between five identical optical modules arranged in a fan shape configuration.

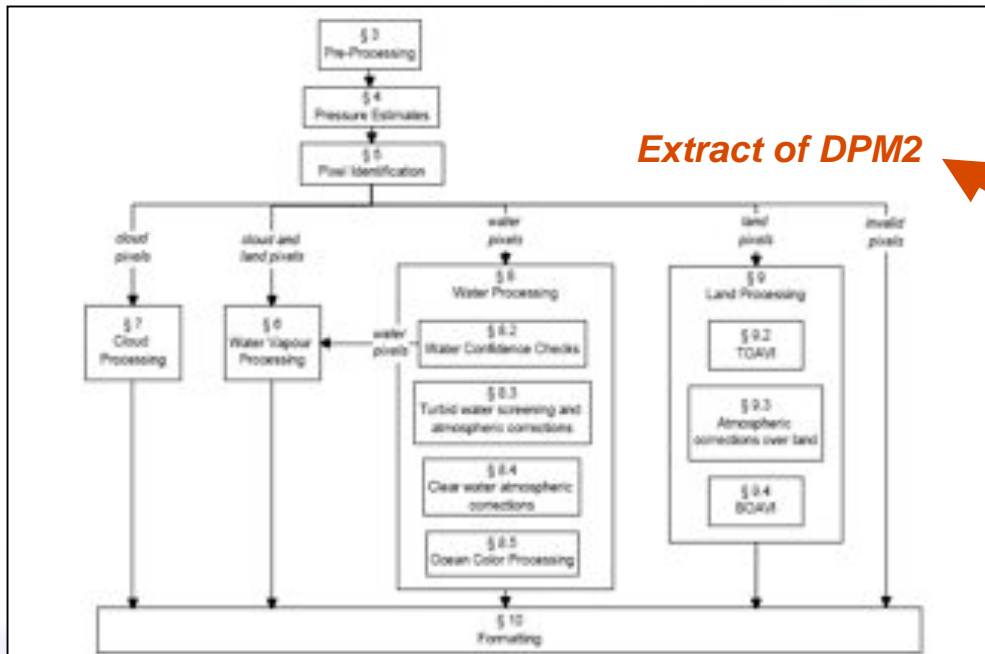
Status	Operational
Type	Imaging multi-spectral radiometers (vis/IR)
Technical Characteristics	Accuracy: Ocean colour bands typical SiN = 1700
	Spatial Resolution: Ocean: 1040m x 1200 m. Land & coast: 260m x 300m
	Swath Width: 1150km, global coverage every 3 days
	Waveband: VIS-NIR: 15 bands selectable across range: 390 nm to 1040 nm (bandwidth programmable between 2.5 and 30 nm)
Applications	Ocean and Coast (Ocean Colour/Biology) Land (Vegetation) Atmosphere (Clouds/Precipitation)
Related Instruments	AATSR, ATSR, ABI, AVHRR/2, AVHRR/3, Imager (INSAT), MODIS-Aqua, MODIS-Terra, VIRR, WIFS, MIS



MERIS Product Handbook

MERIS Product Handbook

Issue 2.0, 14 April 2006



Extract of DPM2

<http://envisat.esa.int/handbooks/meris/>

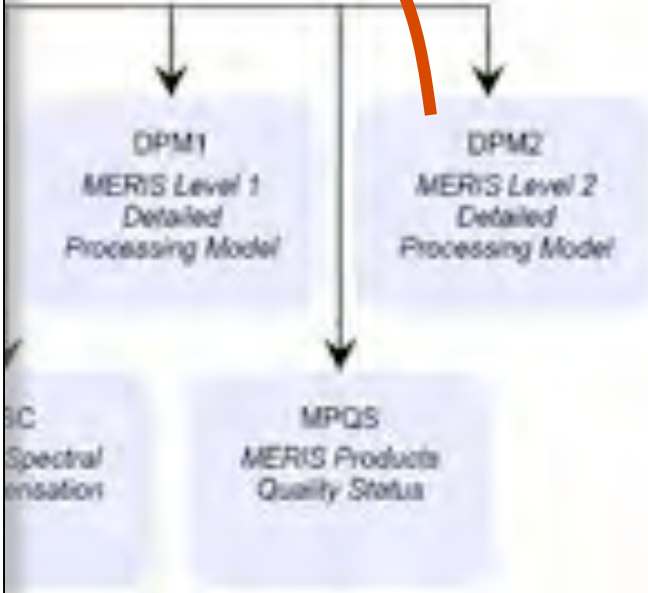


Figure 1.2-1 : Meris level 2 general control flow

1.3 - Guide to this document

- This document is organised as follows:
- Section 2 lists the applicable and reference documents, abbreviations, notations and conventions. Section 2.4, notations and conventions, is essential reading and reference for this specification.
 - Sections 3 to 10 provide the detailed specification of the MERIS level 2 processing. Level 2 processing is hierarchically broken down into algorithm steps. The top level breakdown is shown in fig. 1.2.1 above. The following tables 1.3.1 and 1.3.2 provide the

Documentation about MERIS data

Earth Observation Product Control Service

ERS Envisat

PCB Home 17-Jul-2007

MERIS

Documentation
 MERIS global maps
 Performance Reports

PCB Site Map

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MERIS cyclic reports

The MERIS Cyclic Report is distributed by ESPIN-PCF (Product Control Facility) to keep the MERIS Community informed of any modification regarding the processor, updates of auxiliary products, anomalies of the instrument behavior, data acquisition and processing, and finally the status of the calibration, validation, and quality control activities. The Cyclic Report collects the inputs coming from different groups involved in MERIS data exploitation:

- ESPIN- Product Control Facility (PCF)
- Quality Working Group (QWG)
- MERIS/AATSP validation team (MAVT)
- Brockmann Consult (BC)
- ACR1-st
- Laboratoire d'océanographie de Villefranche (LOV)
- Centre National d'Etudes Spatiales (CNES)
- Freie Universität Berlin (FUB)
- Université du Littoral (ULCO-LISE), Wimereux, France (F)

Performance Reports

Cyclic report

56: 070507_070611
57: 070402_070507
56: 070226_070402
55: 070522_070226
54: 061218_070522
53: 061113_061218
52: 091606_131106
51: 040906_081608
50: 310706_040906
49: 260606_310706
48: 220506_260606

Cyclic Report:

Detailed information of every 35 day period of:

- instrument performance
- modifications in the processing chain
- results of cal/val activities



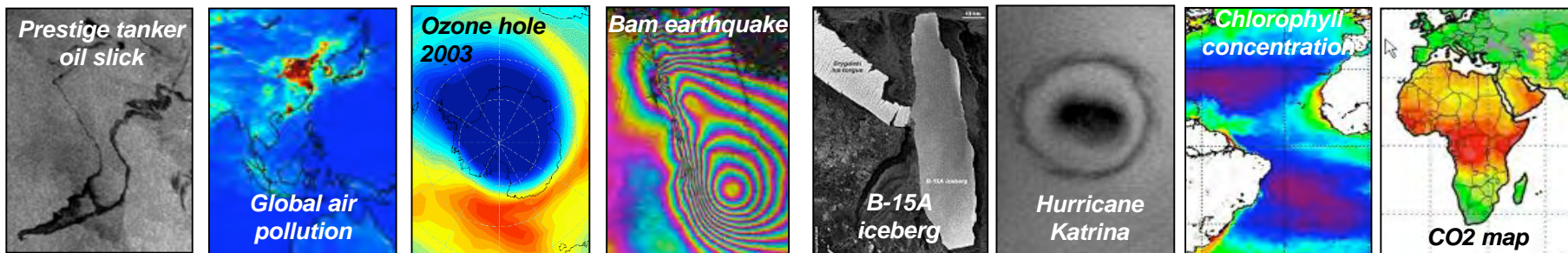
<http://earth.esa.int/pcs/envisat/meris/reports>



Envisat MERIS
10 July 2008

Envisat mission duration

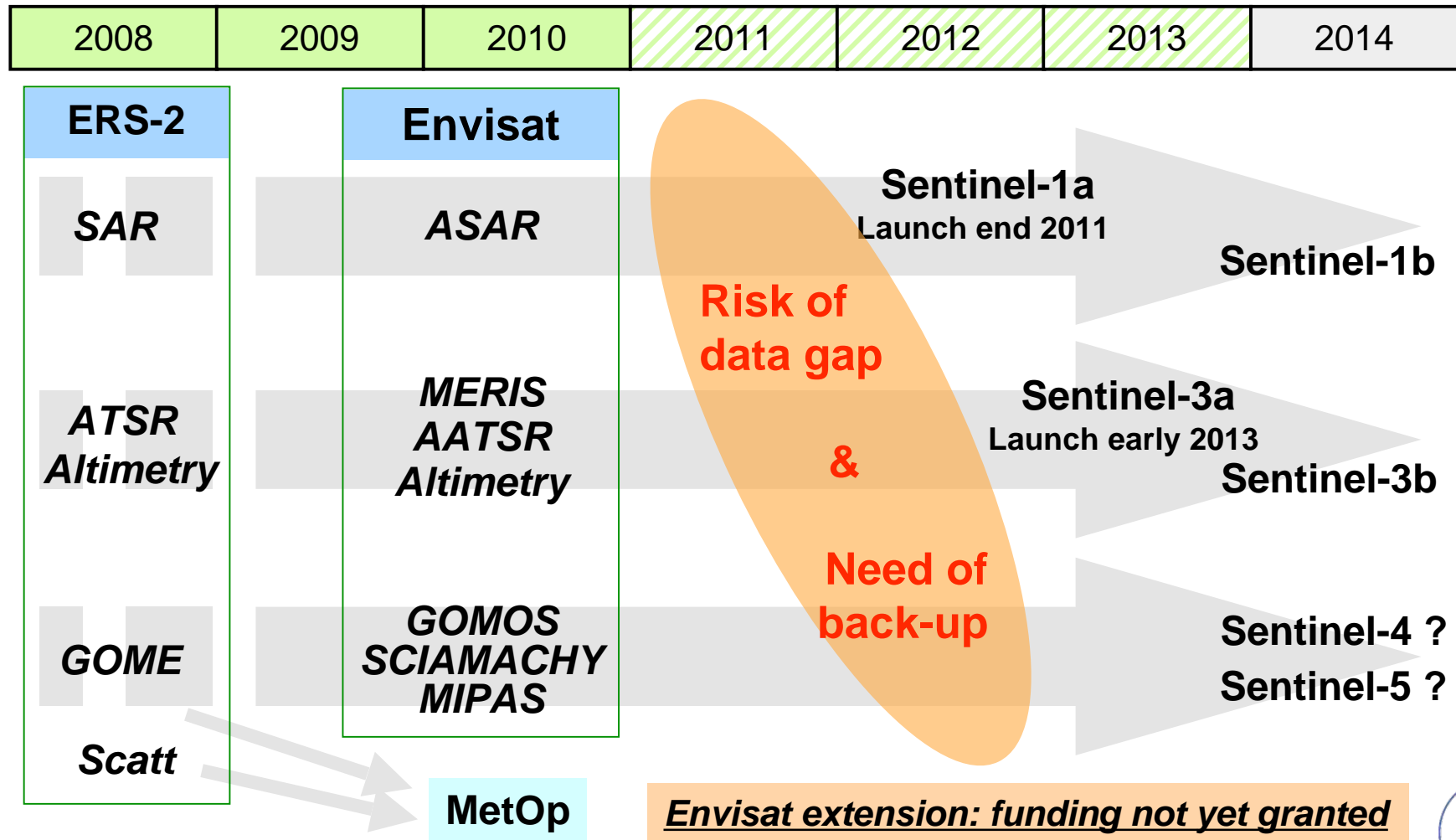
- Envisat satellite is in good health and with an expected reasonable evolution.
→ MERIS instrument is in excellent shape.
- Efficient consumption of on-board hydrazine allow to operate nominally Envisat until 2010. But most of hydrazine will be consumed in 2010.
→ ESA has elaborated a technical solution to further extend mission by 3 years, i.e. until 2013, based on a decrease of orbit altitude.
→ the solution allows to carry on with the current Envisat applications, including MERIS applications.
- **Funding for Envisat operations extension (2011-2013) is however not yet granted.**



Envisat mission extension

Envisat 3-years extension [2011-2013]:

- the need to prevent gaps for long-time series essential for Earth Science
- a growing demand for operational data for GMES





Envisat MERIS
11 February 2008

<http://www.esa.int>

<http://earth.esa.int>

<http://miravi.eo.esa.int>

European Space Agency
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