



# ERS/ENVISAT ASAR Data Products and Services

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# What is Eurimage ?

- **Founded in 1989**
- **Current shareholders:**



- **Since 1989 Commercial Partner of the European Space Agency (ESA)**
- **Premises: Rome**
- **Staff: approx. 30**

# Eurimage Application Provider Network



# Data Distribution Rights

- **QuickBird**
  - Exclusive distributor of QuickBird products in Europe (except Italy) and the Mediterranean Basin
- **Landsat**
  - World-wide exclusive commercial distributor of Landsat data from ESA stations and part of the Business Partner Program with USGS
- **IRS**
  - Distribution rights in Europe for data from Euromap archive
- **Radarsat**
  - Distribution rights for EU countries
- **ASTER**
  - Distribution rights in Europe
- **NOAA / AVHRR**
  - Distribution rights of ESA archive
- **JERS**
  - Distribution rights of European archive
- **Ad-hoc agreements with other missions/centers**

# ERS-ENVISAT Distribution Rights



- **ESA appointed Distributing Entity for global commercialisation and distribution of ERS & ENVISAT data and services**
- **Partners and Roles**
  - Master Distributor: Eurimage
  - Value Adders: ASI, Astrium GmbH, DLR, Infoterra Ltd, QinetiQ, Telespazio
  - Ground Stations: DLR, QinetiQ, Telespazio



# EMMA Roles: Master Distributor

- **Standard Products Distribution, Marketing and Promotion**
- **Contracts for direct reception and access to ERS/ENVISAT satellites**
- **Interface with ESA**
- **Setup & co-ordination of distribution network and Int. Ground Station contracts**
- **Access to Data Archives and Satellite Planning requests collection**
- **Catalogues: Einet and DESCW**

## ERS-1 & 2

- **The first orbiting SAR sensor. Initially for R&D, but has kicked-off many commercial and operational applications**
- **Largest SAR data archive, since 1991**
  - Continuous and routine global acquisitions without the need of specific programming
- **Advantages of SAR for any application**
  - Day/Night Imaging
  - Cloud Cover Penetration
  - Good Data Availability on a global scale

# ERS-1 & 2

**ERS-1 1991-2000**

**ERS-2 April 1995**

## Satellite Orbital Characteristics

<b>Orbit</b>	<b>Sun-synchronous</b>
<b>Altitude</b>	<b>785 Km</b>
<b>Inclination</b>	<b>(98.52°)</b>
<b>Orbit per Day</b>	<b>14.3</b>
<b>Repeat Cycle</b>	<b>35 days</b>
<b>Tandem Mode</b>	<b>ERS-1 24hrs prior to ERS-2</b>

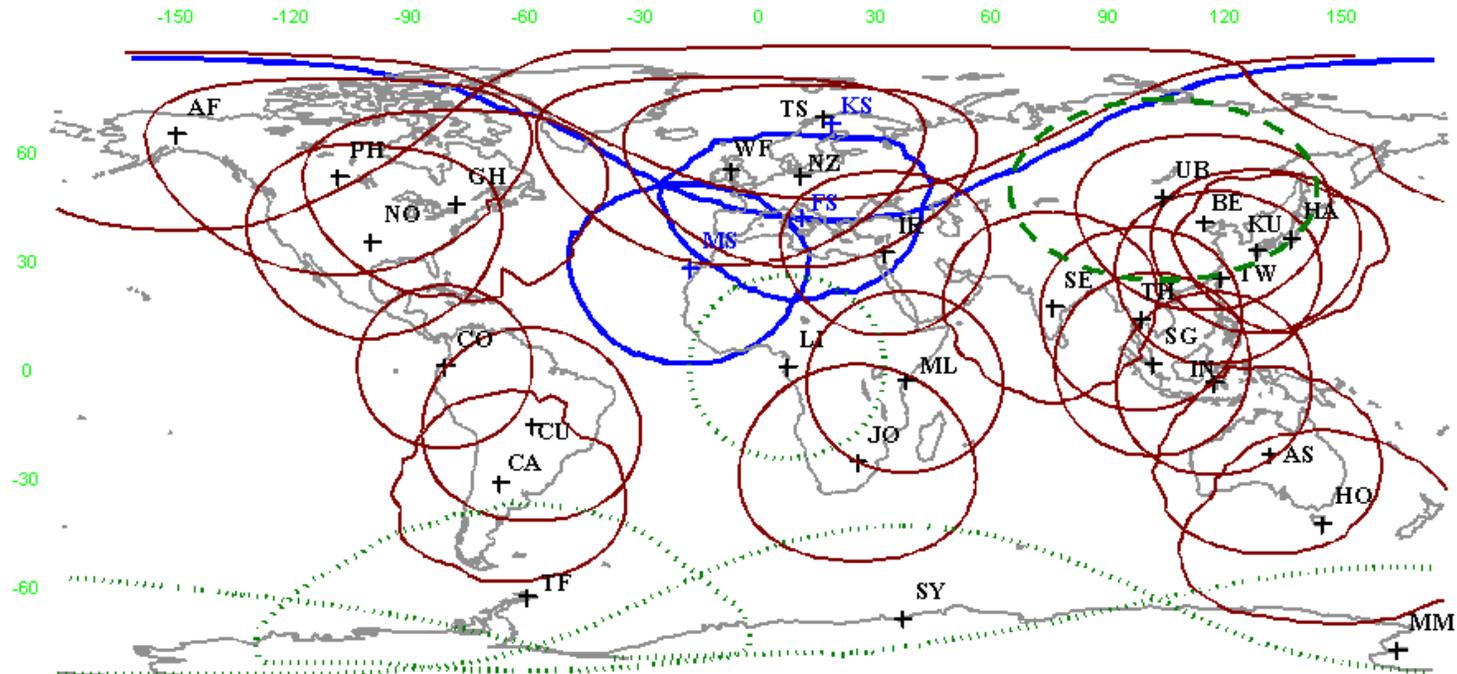
- Subsequent acquisitions since launch of ERS-2, 1995)

# ERS SAR

- **ERS-1 & 2 SAR**
  - Spatial resolution            25 m
  - Area coverage                    10,000 km<sup>2</sup>
  - Frequency                        5.3 GHz (C-band)
  - Polarisation                      Linear-Vertical (VV)
- **14 Years Data Archive:**        **ERS-1: 1.8 Mil. Frames (1991-2000)**  
    **ERS-2: 1.0 Mil. Frames (since 1995)**
- **Over 100,000 Products Generated amongst over 10,000 Users**
- **All-weather Data Availability**
- **ERS SAR Standard Products: RAW, SLC, PRI, GEC, GTC**

# ERS Ground Station Network

## ERS SAR RECEIVING STATIONS



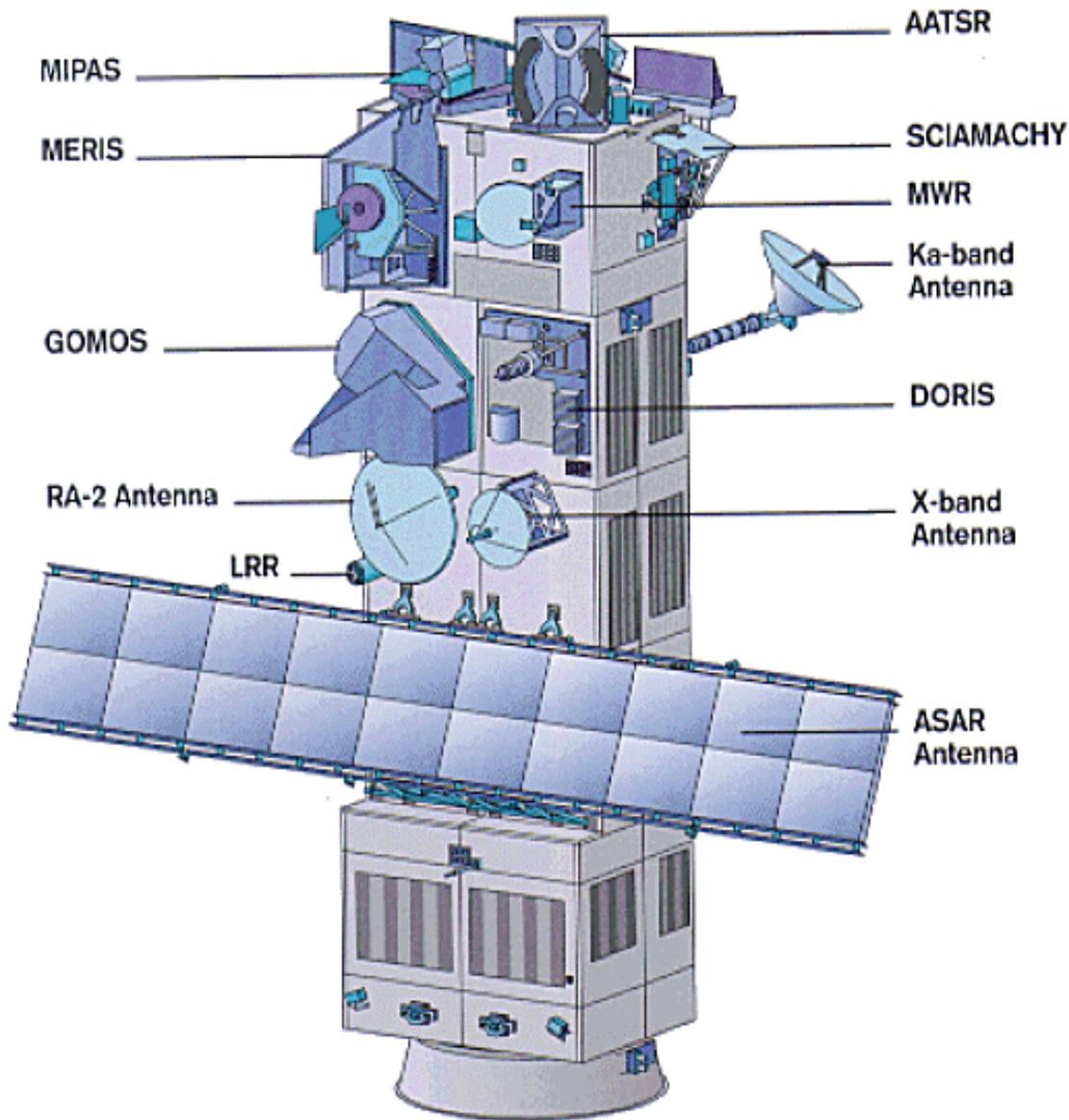
AF	Fairbanks, Alaska, USA	IR	Tel Aviv, Israel	SE	Hyderabad, India
AS	Alice Spring, Australia	JO	Johannesburg, South Africa	SG	Singapore
BE	Beijing, China	KS	Kiruna, Sweden	SY	Syowa, Antarctica, (Japan)
CA	Cordoba, Argentina	KU	Kumamoto, Japan	TF	O'Higgins, Antarctica, (Germany)
CO	Cotopaxi, Ecuador	LI	Libreville, Gabon, (Germany)	TH	Bangkok, Thailand
CU	Cuiabá, Brazil	ML	Mairobi, Kenya (Italy)	TS	Tromsø, Norway
PS	Pucino/Matera, Italy	MM	McMurdo, Antarctica, (USA)	TW	Chang Li, Taiwan
GH	Gateau, Canada	MS	Maspalomas, Spain	UB	Ulan Bator, Mongolia (Germany)
HA	Htoiyama, Japan	NO	Norman, USA	WF	West Freugh, United Kingdom
HO	Hobart, Australia	NZ	Neustrelitz, Germany		
IN	Parepare, Indonesia	PH	Prince Albert, Canada		

- ESA Stations
  - Stations with Agreement
  - - - available during campaign periods
- mobile stations:
- BK Bishkek, Kyrgystan (Germany)
  - DH Dhaka, Bangladesh (The Netherlands)
  - KB Kitab, Uzbekistan (Germany)
  - Dutch Station

# ENVISAT Mission



# The ENVISAT Mission



**Launch Date: March 2002**

- **Dimensions**

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

- **Mass**

Total satellite **8140 Kg**  
Payload **2050 Kg**

- **Launch vehicle**

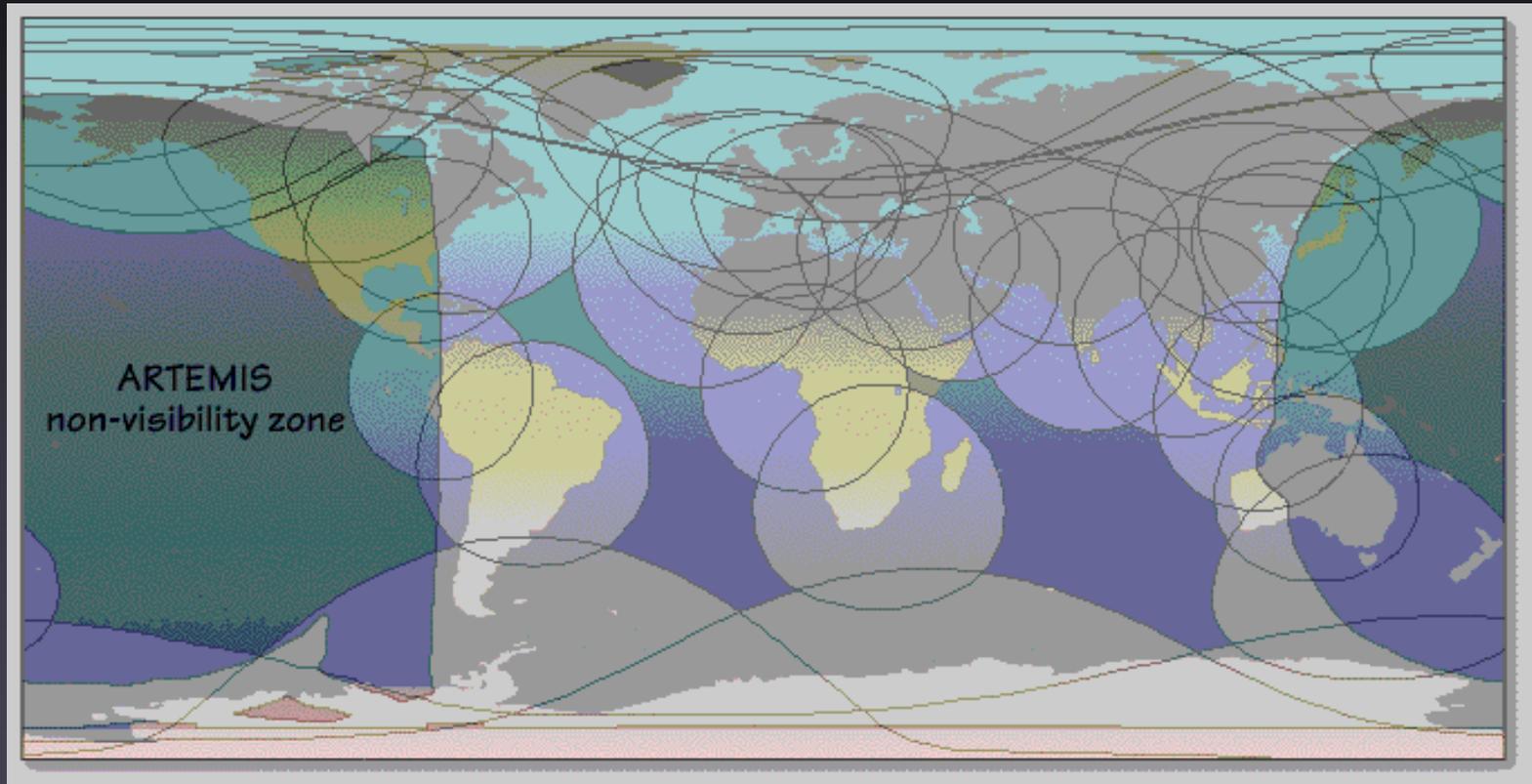
Ariane 5

- **Orbit: 800 km as ERS**

sun-synchronous  
10:00, i.e. 30 min. before ERS-2

**All sensors performing well**

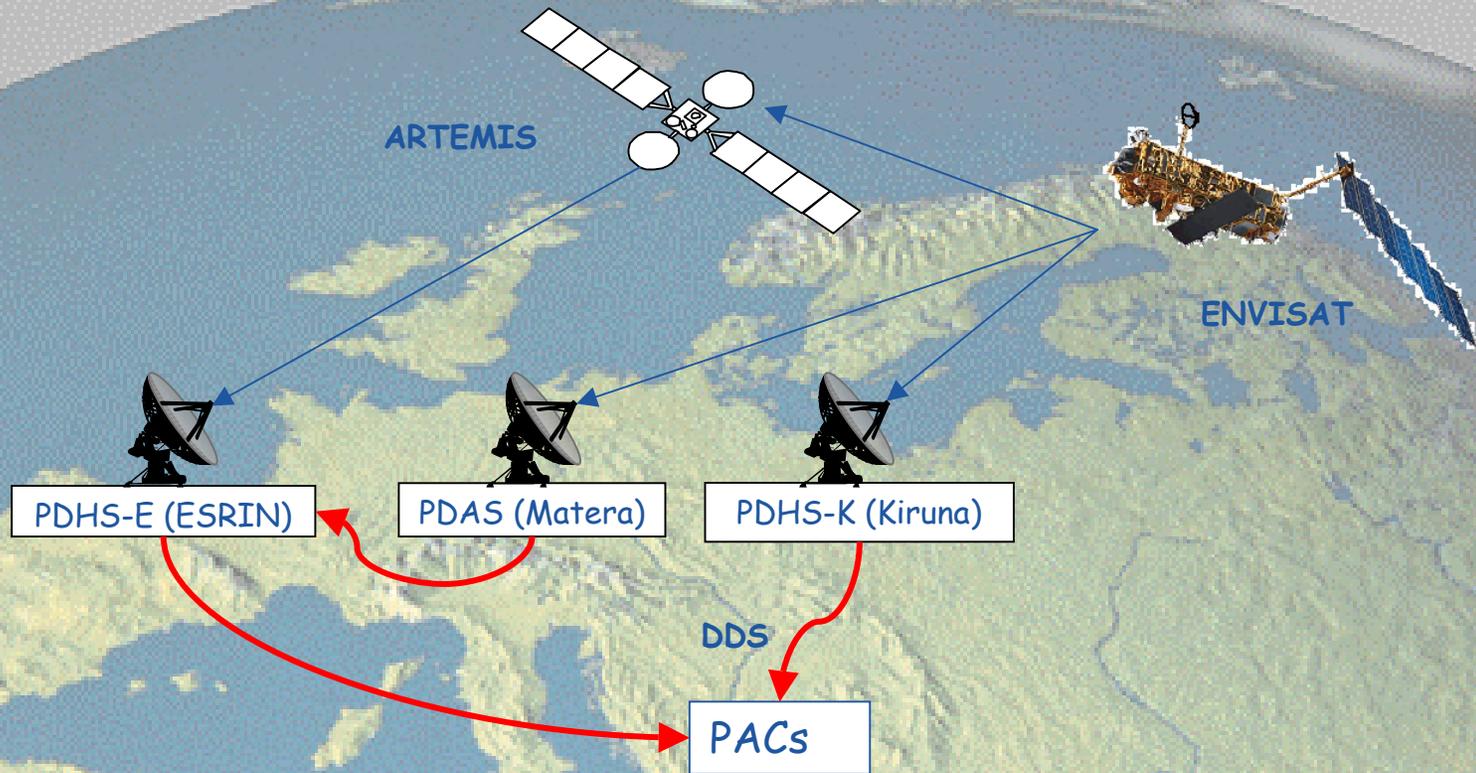
# ENVISAT Improved Characteristics



# ENVISAT Ground Segment



# Kiruna-Artemis scenario



- 4/5 orbits are received in Kiruna
- 8 orbits in ESRIN (6 via Artemis)
- Matera receives ASAR HR and MERIS FR in direct visibility, data sent to ESRIN within a week

# ENVISAT Instruments and Products

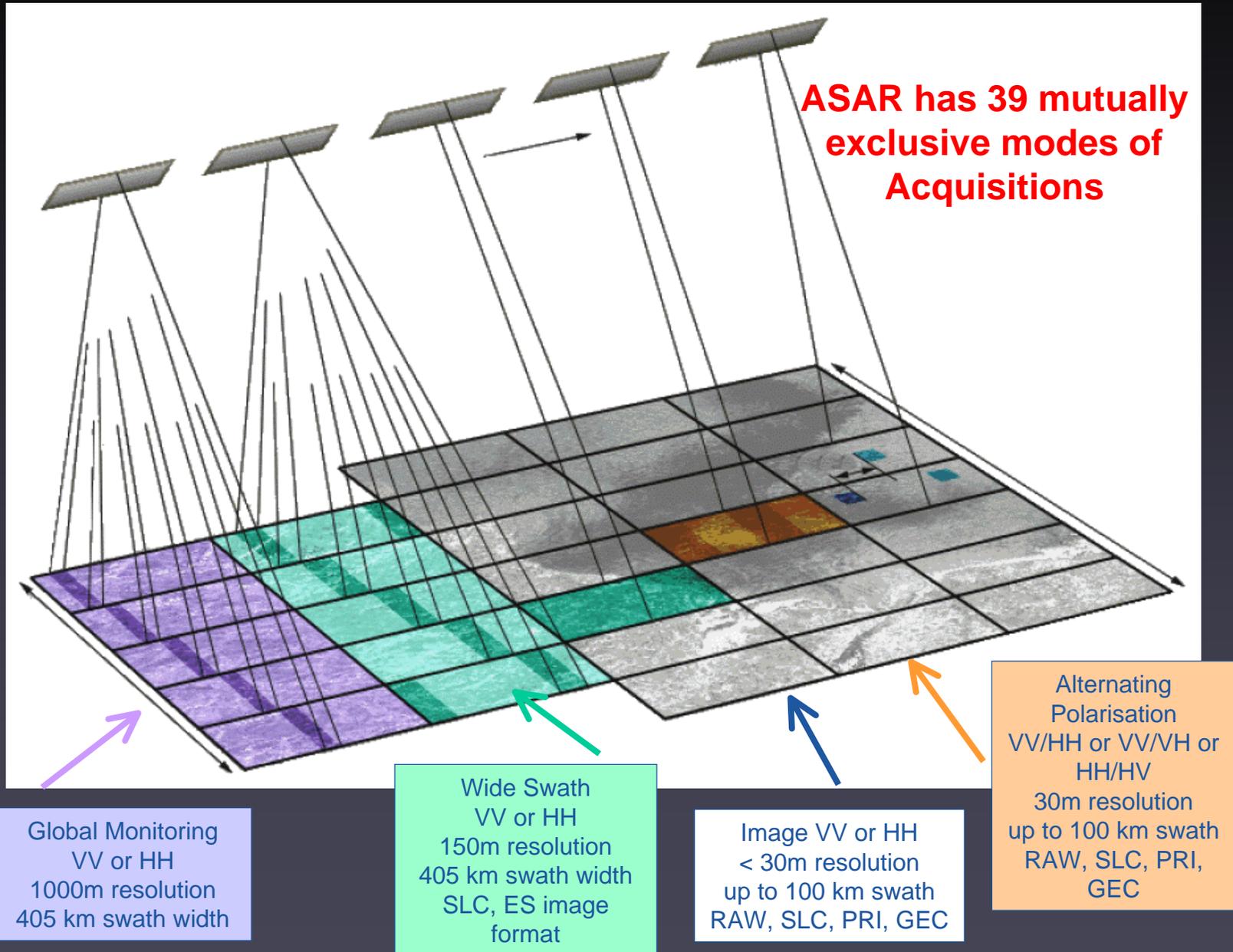
- **ASAR** – **A**dvanced **S**ynthetic **A**perture **R**adar



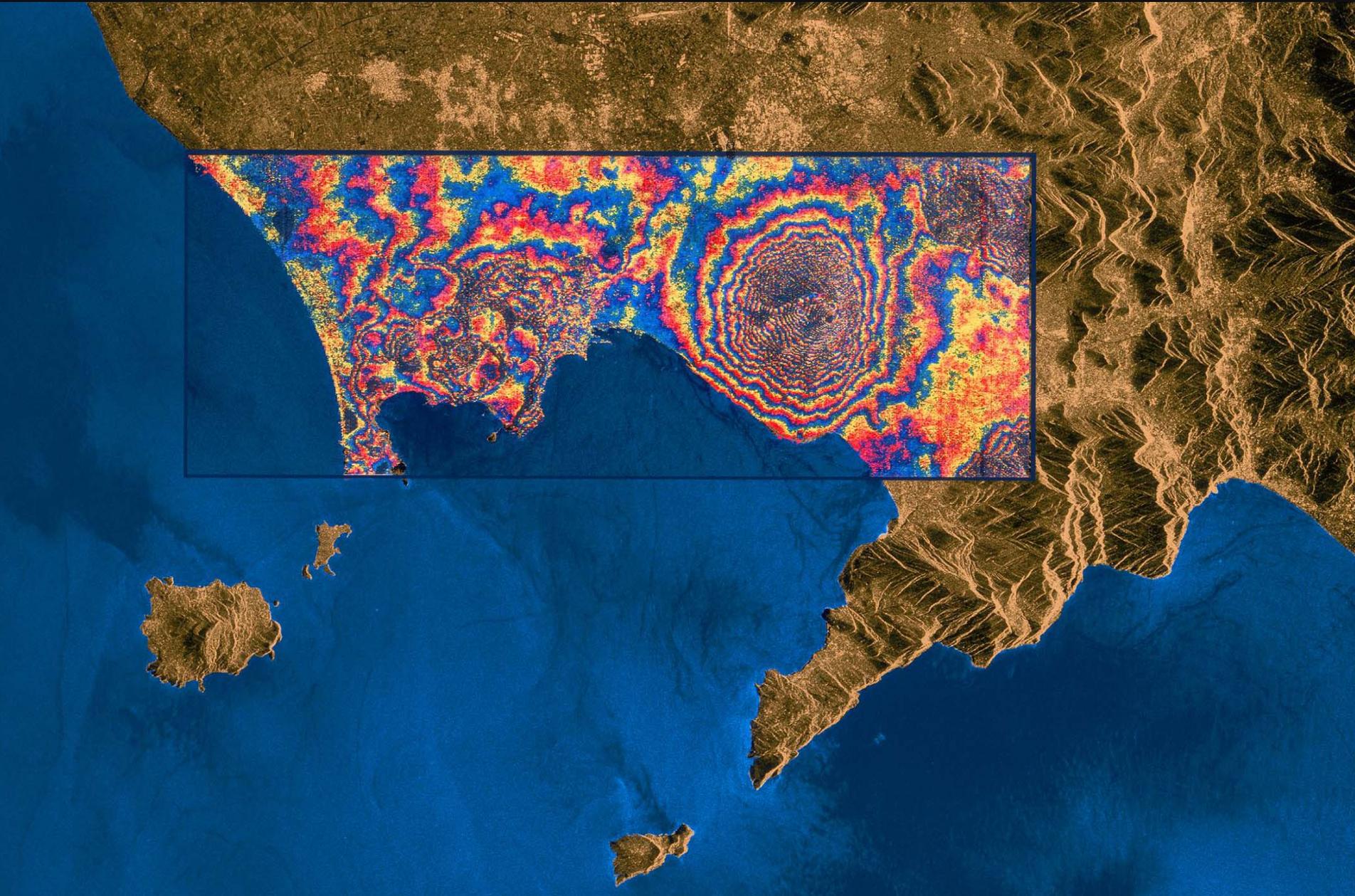
# How ASAR works

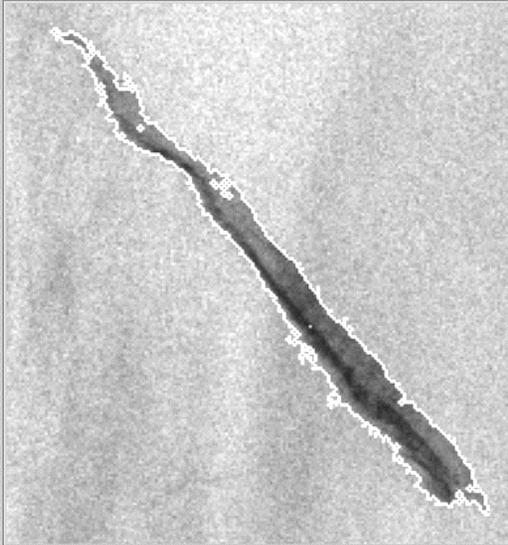
- **ASAR has five mutually exclusive modes of operation:**
  - Image mode
  - Alternate Polarisation
  - Wide Swath
  - Wave
  - Global Monitoring
- **Image Mode, 30 m resolution, similar to ERS SAR.**
  - 7 possible mutual exclusive swaths
  - 2 possible mutual exclusive polarisation (VV or HH)
- **Alternate Pol. Mode, 30 m resolution**
  - 7 possible mutual exclusive swaths
  - 3 possible mutual exclusive polarisation (HH/VV, HH/HV or VV/VH)
- **Wide Swath Mode, 150 m resolution**
  - 1 unique swath (405 km)
  - 2 possible mutual exclusive polarisation (VV or HH)

# ENVISAT ASAR Operation Modes



# Applications





## 1 object

LON.=10°55' LAT.=41°41'

P1 at LON.=11°01' LAT.=41°38'

P2 at LON.=10°47' LAT.=41°45'

SURFACE = 35.41 km<sup>2</sup>

PERIMETER = 64.20 km

LENGHT = 25.0 km

WIDTH mean= 1000 m

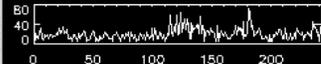
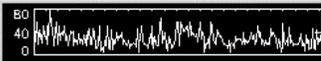
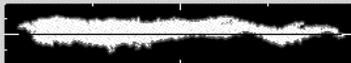
WIDTH max = 2600 m

DIRECTION = 139.7° (-16.3°)

Complexity Index = 3.04

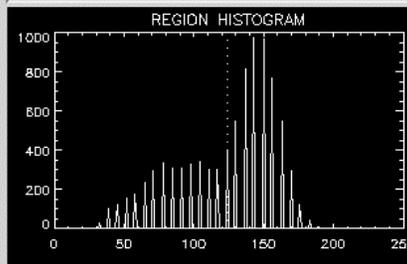
Spreading from Axis = 1 %

min.Box Size = 25000x2900 m



N.N. Confidence: 99 %

	Min (db)	Max (db)	Mean (db)	Std (db)
Value obj.	-22.43	-9.34	-13.26	2.60
Value bak.	-11.36	-4.25	-7.45	1.07
Contrast	1.90	14.98	5.82	
P.Gradient	0.57	7.44	2.21	1.22



124

New Threshold  default=98

ADD new obj. REFRESH (get another)

EXIT Print Save Show FAX Print FAX

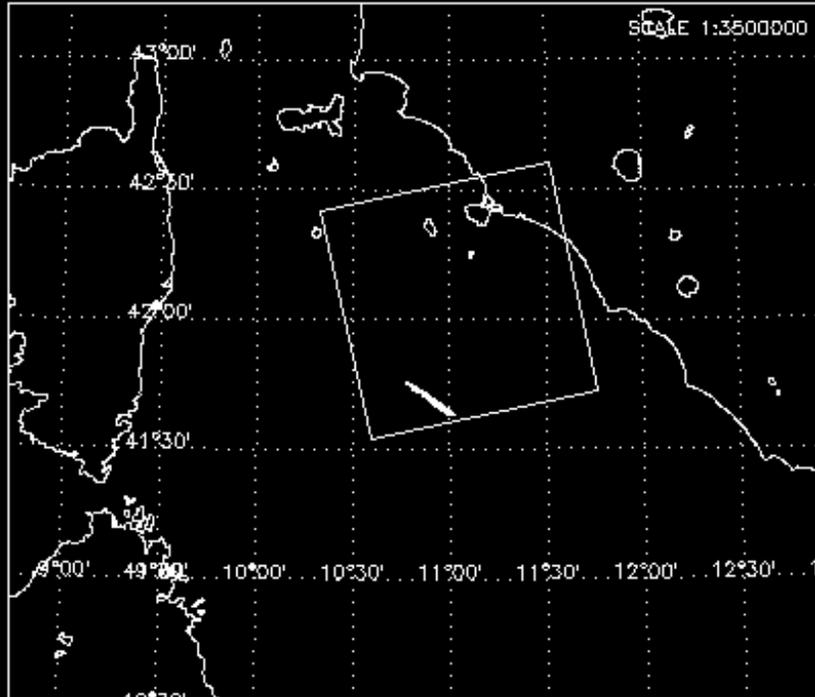
The Oil Spill is analyzed and measured by a dedicated software.

Morphological and Physical parameters are computed.

Multivariate analysis and neural network techniques help the operator in the analysis of the object.

## FAX: Oil Spill Detection Report

ESA/ESRIN Data Utilization Section – DSM Demonstrator  
Oil Spill Report

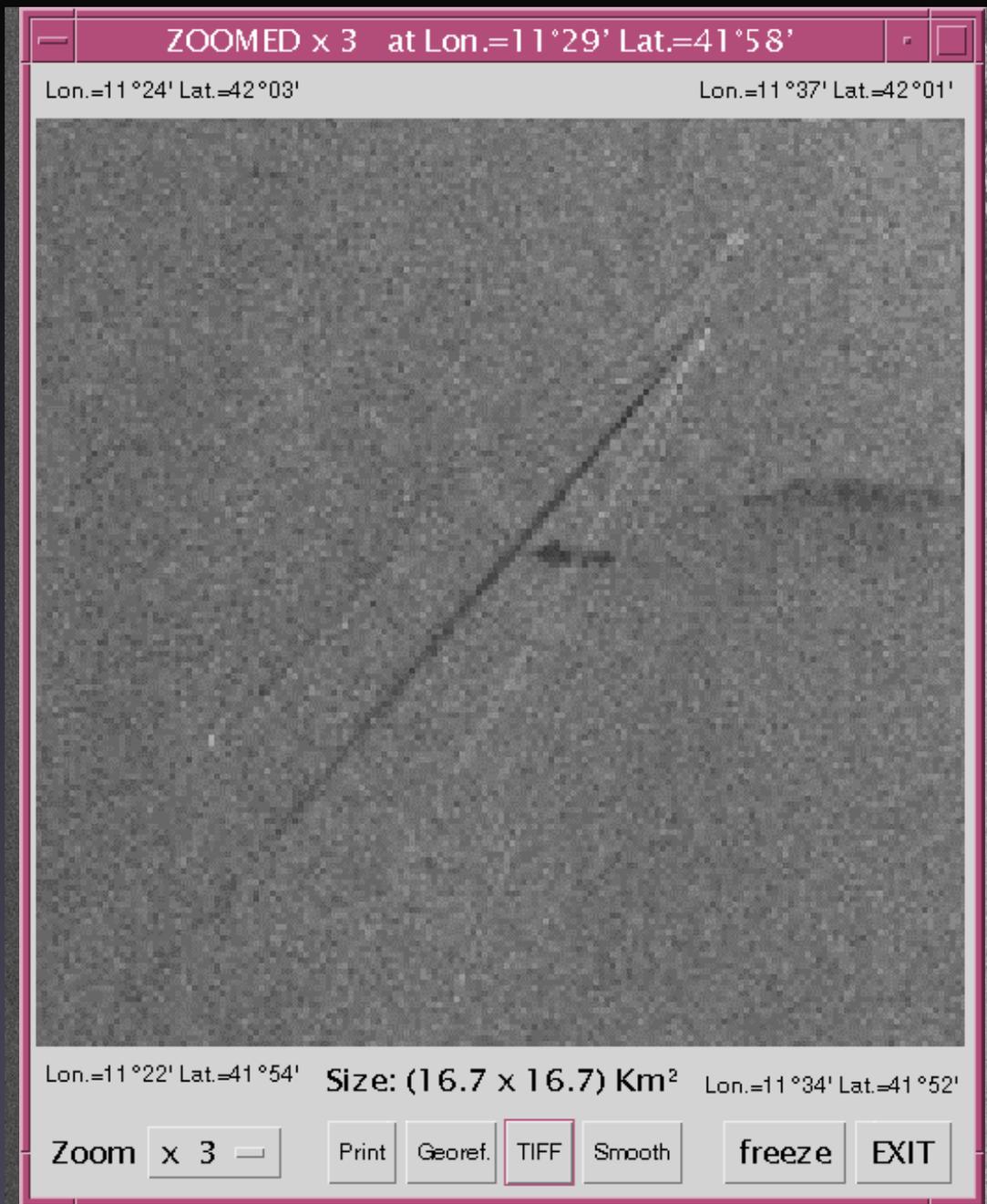


DATE of Observation	= 06/10/1998
TIME of Observation	= 21:29:16 GMT
AREA-code of Observation	= elb
Darkest point at	= LON.10°55' LAT.41°41'
Extreme P1 at	= LON. 11°01' LAT.= 41°38'
Extreme P2 at	= LON. 11°01' LAT.= 41°38'
SURFACE of the oil spill	= 35.41 km <sup>2</sup>
LENGHT of the oil spill	= 25.0 km
WIDTH of the oil spill	= 1000 m (Mean) 2600 m (Max)
DIRECTION symmetry axis	= 123.4° (from North)
Fragmentation	= 1 object
Spreading from axis	= 1 %
Complexity Index	= 3.04
Contrast	= 7.81

# Oil Spill Report

is sent by FAX to  
Coast Guards

Contains all operative  
information for locate  
and define the pollution.



## Ship Detection and Ship-Wake analysis

An automatic algorithm  
detects ships visible in  
the SAR image.

Ships responsible of the  
pollution are indicated.

# Off-Shore Exploration

## ENVISAT Improvements

- Greater coverage (Wide Swath and image Mode VV)
- Deep water exploration outside of station mask with SSR and Artemis



# German Flooding 2002

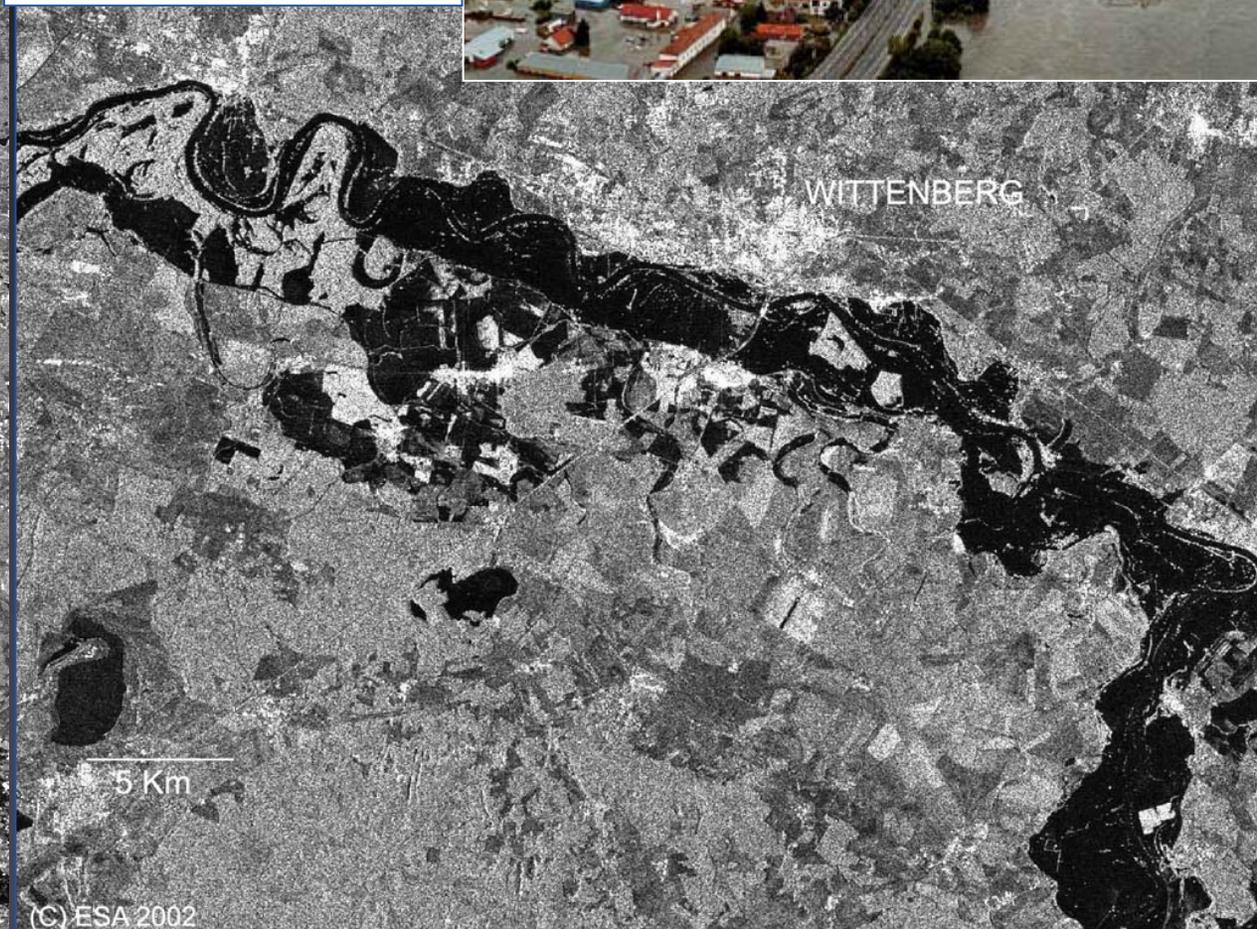
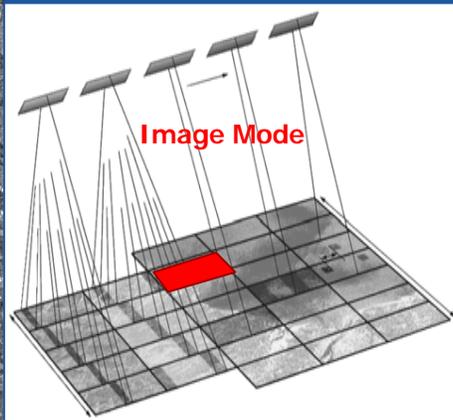


Image Mode, IS4, HH, Zone in Black  
19 August, 22:53

(C) ESA 2002 (C) ESA 2002

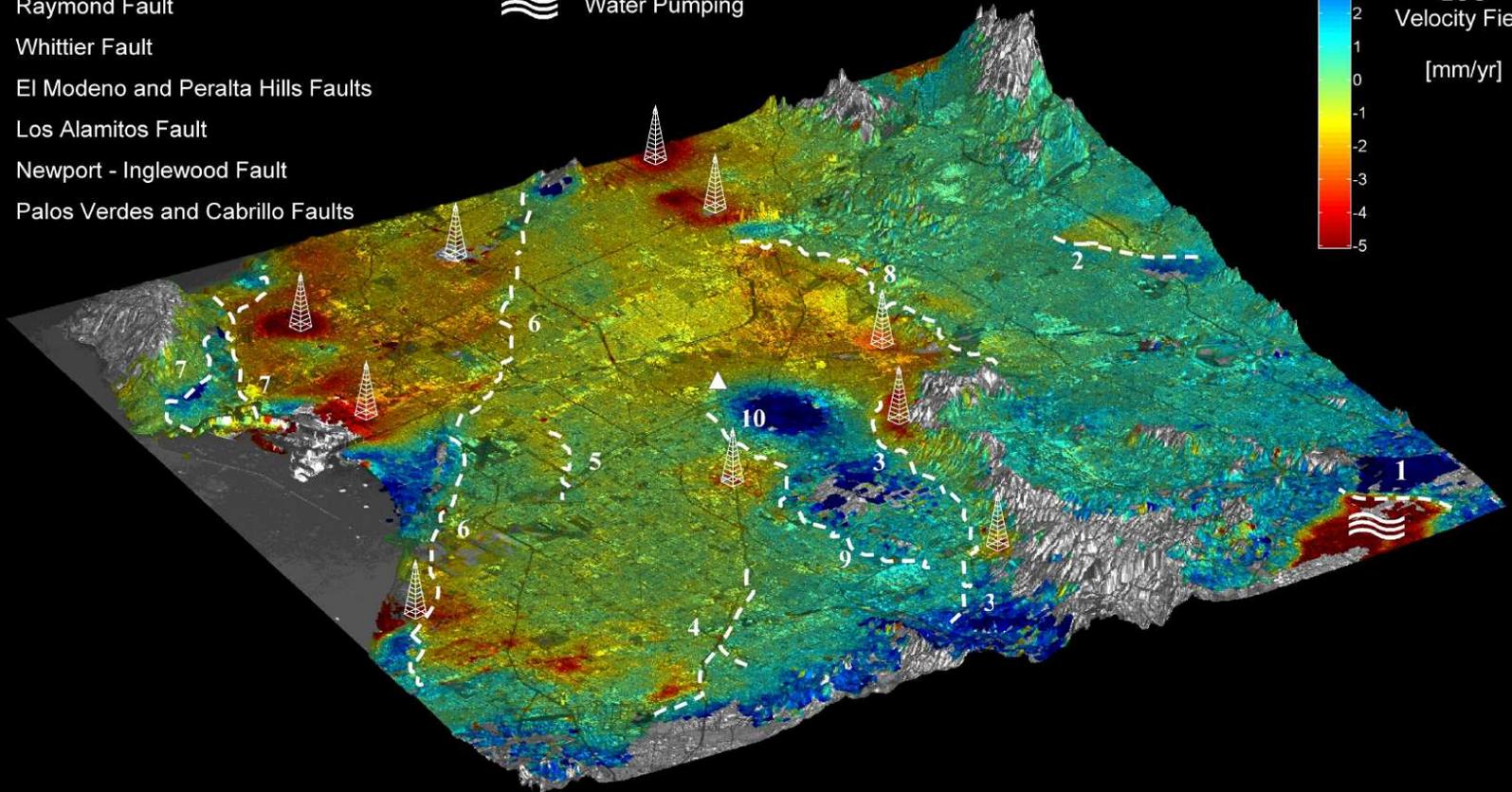
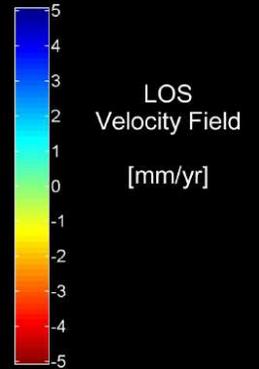
# Subsidence Monitoring

## Seismic Faults in Los Angeles Basin:

1. San Jose Fault
2. Raymond Fault
3. Whittier Fault
4. El Modeno and Peralta Hills Faults
5. Los Alamitos Fault
6. Newport - Inglewood Fault
7. Palos Verdes and Cabrillo Faults

## Subsidence Phenomena:

-  Oil & Gas Fields
-  Water Pumping



8. Elysian Park Blind Thrust (?)
  9. Coyote Hills Blind Thrust (?)
  10. Santa Fe Spring Blind Thrust (?)
- } Puente Hills Blind Thrust (?)

# Monitoring Over Time

1992

1993

1995

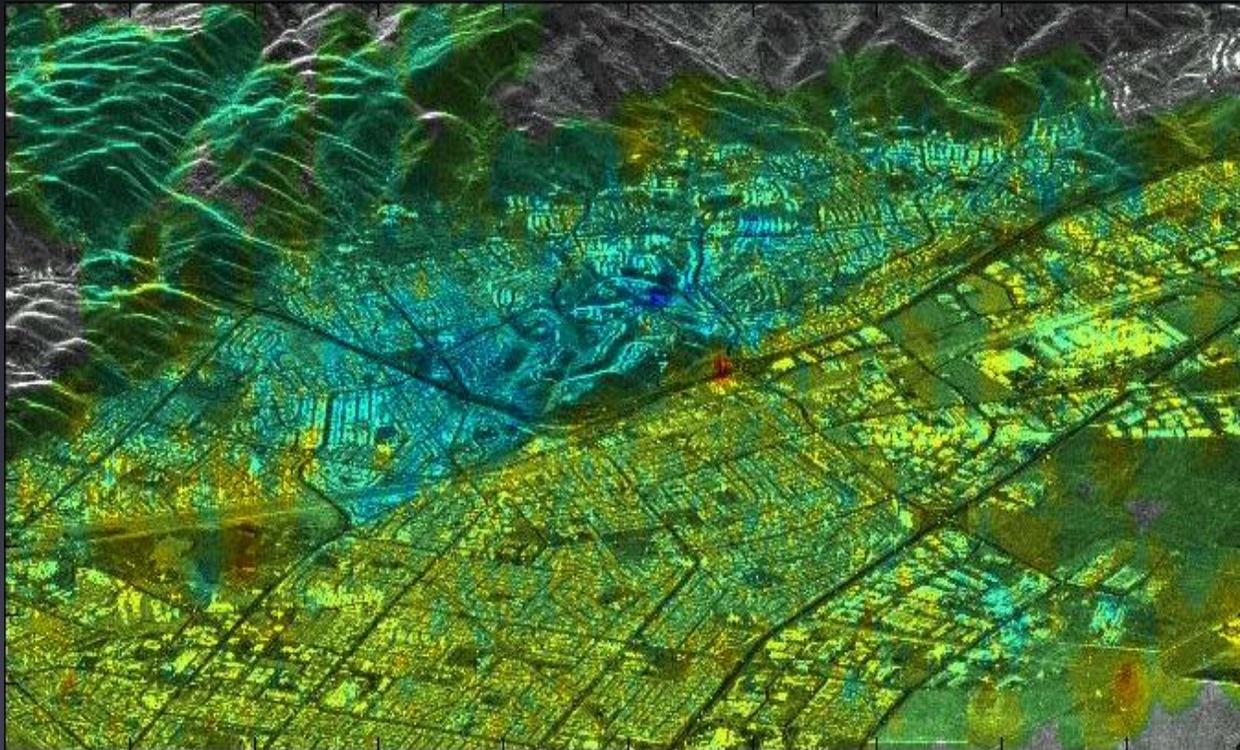
1996

1997

1998

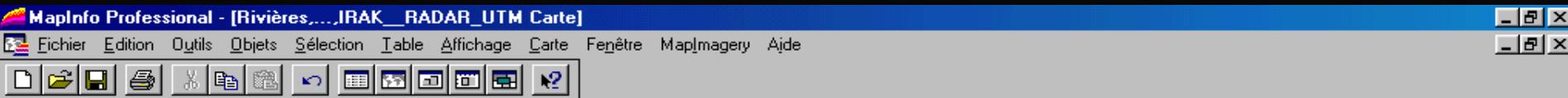
1999

2000

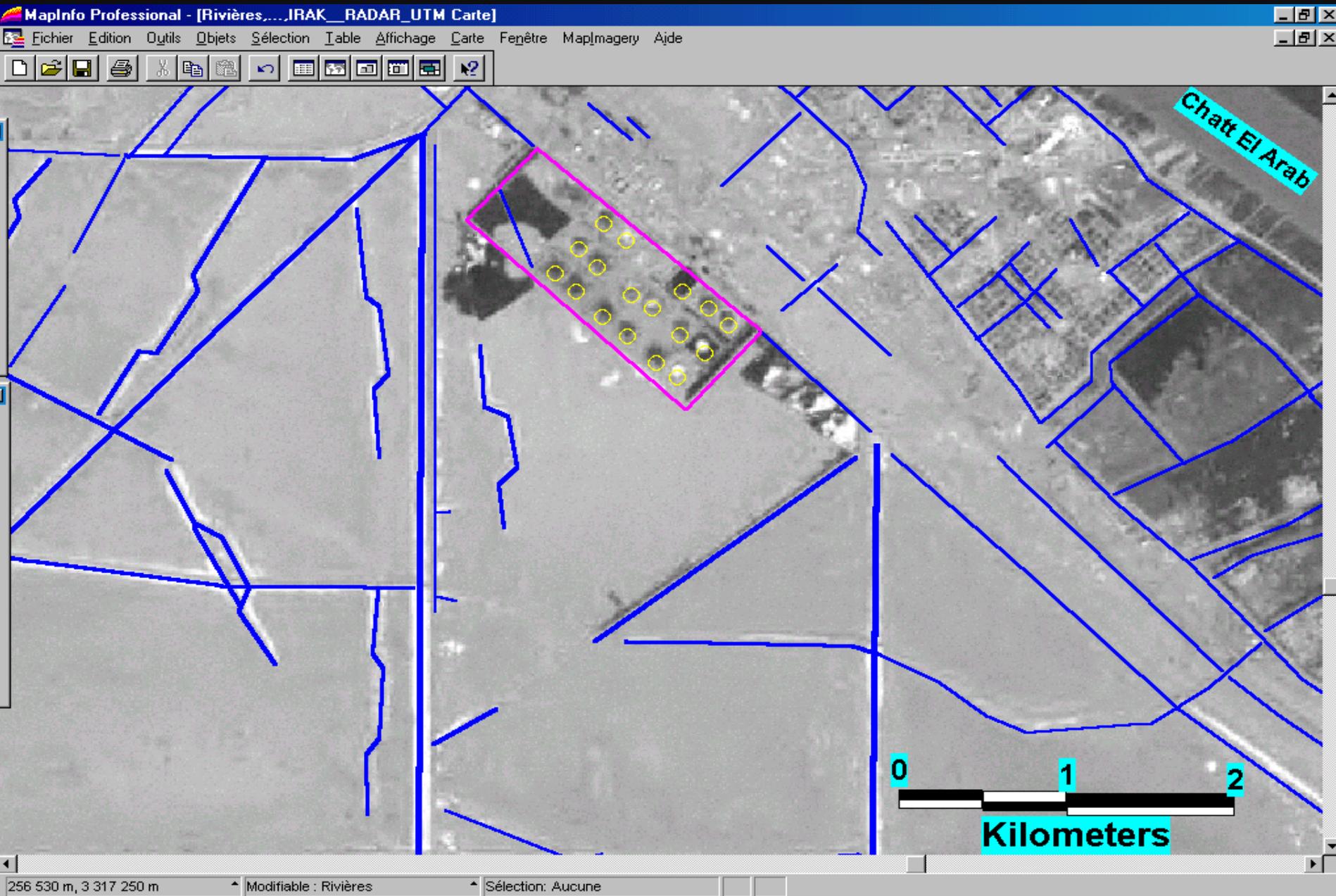


Forward in time from May 1992 to September 2000

# Lineaments and feature Mapping

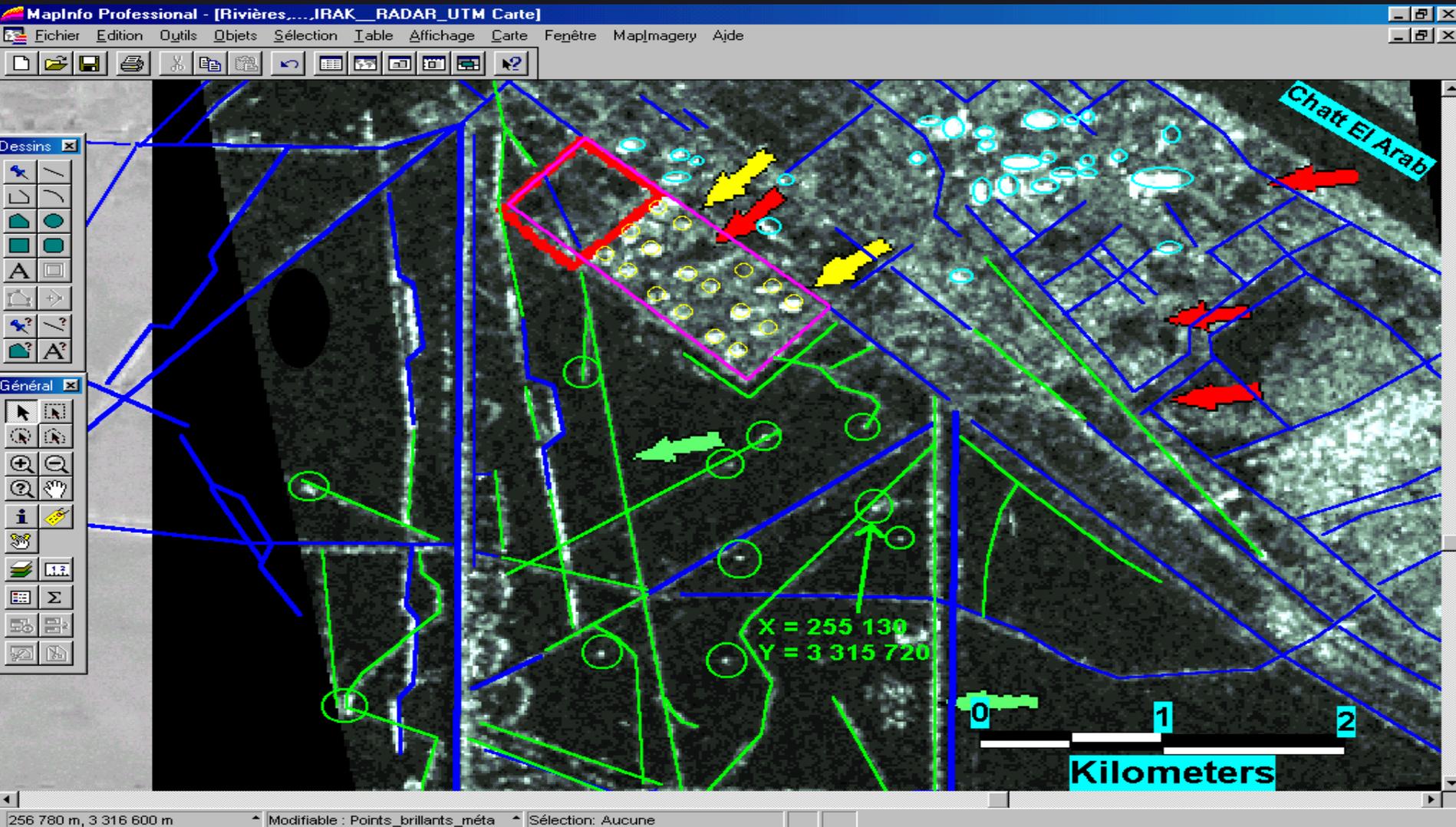


# Optical data : mapping of visible lineaments.



# Radar allows the accurate mapping of all lineaments

- Accurate mapping of residual
- Identification of buried objects



# Geological Structure Mapping

## Data Fusion with optical imagery



# Commercial and Operational Overview

# Eurimage Public Commercial Documentation

Indirizzo <http://www.eurimage.com/products/products.html>

Google Search 1129 blocked Check AutoLink AutoFill Options



## Products and Services; Prices

| quickbird | landsat | envisat | ers | irs | radarsat | noaa |

- [ home ]
- [ products ]
- [ applications ]
- [ gallery ]
- [ research ]
- [ business ]
- [ corporate ]
- [ links ]
- [ search ]

Catalogues:

- [ EiNet ]
- [ DESCW ]

**Eurimage Missions**

**QuickBird** - the world's highest resolution commercial remote sensing satellite

**Landsat** - the longest running commercial mission provides decades of data at medium resolution

**Envisat** - continuity with ERS, with new, advanced sensors for environmental monitoring

**ERS -1 & 2** - all -weather synthetic aperture radar and other advanced sensors from these European Space Agency missions

**IRS** - flexibility in medium-resolution optical data

**Radarsat** - synthetic aperture radar data from Canadian satellite

**NOAA** - low-resolution data since 1978

**ASTER** - medium resolution data

**Eurimage documentation (pdf)**

Complete **Eurimage Products and Services Guide** (4.1 MByte) Chapters for single missions are available through the mission pages at left

**Eurimage Price List**

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**Order Forms:**

- QuickBird Order Forms\***
- QuickBird Order Guide**
- Landsat\***
- Envisat/ERS-1 & 2\***
- ASTER\***
- Other Missions** (IRS, NOAA, RADARSAT, J-ERS)

\*interactive forms - may be completed on screen

# Products and Prices – Archive Data

ERS-1/2; Envisat

SAR; ASAR

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## Products

- SAR and ASAR Narrow Swath products are available as either Full Resolution Imagery or Medium Resolution Imagery (MRI)
- Scenes may be shifted along track at no extra cost
- For data from non-ESA facilities, product availability, prices, formats and media may vary
- Production / processing time from International Ground Stations may be longer than from ESA facilities
- For Envisat data only, acquisitions outside ESA station coverage are available through the on-board recorder and the ARTEMIS data relay satellite
- ASAR Beam and Sensing Modes are mutually exclusive
- ASAR Narrow Swath products are available as IS1 to IS7 (56–100x100 Km swath)
- ASAR Narrow Swath and Wide Swath products are available as either H/H or V/V polarization
- ASAR Narrow Swath Alternating Polarization products are available as either HH/VV or VV/VH or HH/HV
- ERS Images are available as V/V polarization
- MRI available from Archive for Envisat ASAR only. MRI new acquisitions available for global Envisat ASAR and ERS SAR data acquired at Matera (Italy) Ground Station
- Available processing levels: RAW, SLC, PRI, GEC
- Detailed descriptions of all products are in the Eurimage *Products and Services Guide*
- Contact Eurimage Help Desk and Customer Service for further information on these points

## Archive Products

<i>Product</i>	<i>Acquisition Mode</i>	<i>Price (€)</i>	<i>Media</i>
ERS	Narrow Swath	<b>400</b>	CD
ENVISAT	Narrow Swath or Wide Swath	<b>400</b>	CD, ftp
ENVISAT MRI	Narrow Swath	<b>75</b>	CD, ftp

# Future Acquisitions

ERS-1/2; Envisat

SAR; ASAR

## New Acquisitions

- Fulfillment of a New Acquisition request is subject to feasibility, to be confirmed by ESA through Eurimage Customer Service
- Available world-wide for all products
- Envisat Standard programming requests must be submitted at least 15 days before acquisition date
- Envisat Rush programming requests must be submitted at least 8 working days before acquisition date
- Envisat Emergency programming requests must be submitted at least 3 working days before acquisition date. Contact Eurimage Customer Service for more urgent needs
- Price in € per scene, Including Programming Fee and Product Price
- MRI products are discounted by 25% vs Full Resolution products

Satellite	Description	Programming type			Media
		Standard	Rush	Emergency	
ERS SAR	1 Narrow Swath Scene	<b>500</b>	<b>N/A</b>	<b>N/A</b>	CD
ERS SAR	Subsequent contiguous Narrow Swath Scenes (max 3) along the same orbit	<b>400</b>	<b>N/A</b>	<b>N/A</b>	CD
ERS SAR	Additional contiguous Narrow Swath Scenes (from 5 <sup>th</sup> ) along the same orbit segment	<b>425</b>	<b>N/A</b>	<b>N/A</b>	CD
ENVISAT ASAR	1 Narrow Swath or 1 Wide Swath scene	<b>600</b>	<b>900</b>	<b>1,600</b>	CD, ftp
ENVISAT ASAR	Subsequent contiguous Narrow Swath Scenes (max 3) along the same orbit	<b>400</b>	<b>400</b>	<b>400</b>	CD, ftp
ENVISAT ASAR	Additional contiguous Narrow Swath Scenes (from 5 <sup>th</sup> ) along the same orbit	<b>440</b>	<b>440</b>	<b>440</b>	CD, ftp

## Packages

- Discounts are available for large Multi-temporal and Interferometry data sets and for volume orders. Please contact Eurimage for details

# Satellite Planning

ERS-1/2; Envisat

SAR; ASAR

## On-request services

### Programming Fee

- Fulfilment of programming requests is subject to feasibility, to be confirmed by ESA through Eurimage Customer Service
- Available world-wide for all products
- Envisat Standard programming requests must be submitted at least 15 days before acquisition date
- Envisat Rush programming requests must be submitted at least 8 working days before acquisition date
- Envisat Emergency programming requests must be submitted at least 3 working days before acquisition date. Contact Eurimage Customer Service for more urgent needs
- An Envisat segment is the total number of contiguous images programmed along the same orbit
- Fees due in case of programming requests only, not combined with production requests

<i>Satellite</i>	<i>Type</i>	<i>Note</i>	<i>Price (€)</i>
ERS SAR	Standard	First 4 contiguous scenes along the same orbit	<b>100</b>
ERS SAR	Standard	Additional contiguous scene along the same orbit	<b>25</b>
ENVISAT ASAR	Standard	First 4 contiguous Narrow Swath scenes, or one Wide Swath scene, along the same orbit	<b>200</b>
ENVISAT ASAR	Standard	Additional contiguous Narrow Swath scene along the same orbit	<b>40</b>
ENVISAT ASAR	Rush*	Per each programmed segment	<b>300</b>
ENVISAT ASAR	Emergency*	Per each programmed segment	<b>1,000</b>

\*Fee to be added to the total Standard Programming Fee

# Data Ordering



Please Print in CAPITAL letters using black ink  
Return form to Eurimage Distributor or directly to  
Eurimage Customer Service  
Fax (+39) 06 406 94 305

## Order Cover Form

Reset Form

Date

### Billing Address

Contact Person (responsible for payment)	Company	Street address	Postal code	City
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Country	Td	Fax	Email	VAT number
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Credit Card Details

<input type="checkbox"/> Eurocard	<input type="checkbox"/> Master Card	<input type="checkbox"/> Visa	Number	Card holder	Expiration date
			<input type="text"/>	<input type="text"/>	<input type="text"/>

### Shipping Address (if different from billing address)

Contact Person	Technical Contact Person	Company	Street address	Postal code
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
City	Country	Td	Fax	Email
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### End User (if different from billing address)

Contact Person	Company	Street address	Postal code	City
<input type="text"/>				
Country	Td	Fax	Email	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

### Application:

Agriculture    Cartography    Risk Management    Telecom    Geology & Exploration    Environment    Forestry    Security    Utilities    Marine & Coastal    Media & Consumer

Description or other

Your reference

Customer Signature: \_\_\_\_\_

# Data Production Parameters



Please Print in CAPITAL letters using black ink or complete form on screen - use TAB to move between fields, click to check boxes

Return form to Eurimage Distributor or directly to  
Eurimage Customer Service  
Fax (+39) 06 406 94 305

**Reset Form**

## Radar Order Form 4 Envisat ASAR

Orbit Number	or	Acquisition Date DD   MM   YY	Acquisition Start Time HH   MM   SS	Acquisition Stop Time HH   MM   SS	Centre Latitude N/S Degrees   Minutes	Centre Longitude E/W Degrees   Minutes

<b>Swath</b> Wide (WS) <input type="checkbox"/>	<b>Polarization</b> <input type="checkbox"/> H/H <input type="checkbox"/> V/V	<b>Level</b> <input type="checkbox"/> 0 — HR Level 0 (RAW) <input type="checkbox"/> 1 — Wide Swath Image	<b>Processing Type</b> <input type="checkbox"/> 0 — HR Level 0 (RAW) <input type="checkbox"/> 1 — Precision Image (PRI) <input type="checkbox"/> Single Look Complex (SLC) <input type="checkbox"/> Geocoded Image (GEC) <input type="checkbox"/> Medium Resolution (MRI)	<b>Order Type</b> <input type="checkbox"/> Planning only <input type="checkbox"/> Planning & production <input type="checkbox"/> Production from archive  Planning <input type="checkbox"/> Standard <input type="checkbox"/> Rush <input type="checkbox"/> Emergency  Production <input type="checkbox"/> Standard <input type="checkbox"/> Rush  <input type="checkbox"/> <i>Reset all check boxes</i>
<b>Standard</b>				<b>Swath number</b> <input type="checkbox"/> IS 1 <input type="checkbox"/> IS 2 <input type="checkbox"/> IS 3 <input type="checkbox"/> IS 4 <input type="checkbox"/> IS 5 <input type="checkbox"/> IS 6 <input type="checkbox"/> IS 7
Image Mode (IM) <input type="checkbox"/> H/H <input type="checkbox"/> V/V  Alternating Polarization (AP) <input type="checkbox"/> VV/HH <input type="checkbox"/> VV/VH <input type="checkbox"/> HH/HV				Eurimage CS only

ASA_	P
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Please sign both (a) and (b)

By signing this Order Form, Customer also accepts the attached *Eurimage Standard Terms and Conditions of Licence*.

Customer expressly accepts the following clauses of the *Eurimage Standard Terms and Conditions of Licence*: 3.5 (Limitation of Liability); 4.2 (Terms of Payment); 5. (Term; Termination); 6. (Governing Law and Jurisdiction); 7 (Miscellaneous).

Date: \_\_\_\_\_ Customer Signature (a) \_\_\_\_\_

Date: \_\_\_\_\_ Customer Signature (b) \_\_\_\_\_



# DESCW Catalogue

DESCW Windows Application

File Edit View Define Search Database Window Help

Navigation Map:1

Zoom Window: Mission = ENVISAT ASAR Narrow Swath

Scene List

R	M	Orbit	Track	Frame	D	Date	Time	S	nw	ne
038	ES	19586	2494	2637	00	20051128	09:11:33	A	H	V
039	ES	19586	2494	2655	00	20051128	09:11:48	A	H	V
040	ES	19715	2122	2637	00	20051207	09:28:47	A	H	V
041	ES	19715	2122	2655	00	20051207	09:29:02	A	H	V
017	ES	19715	2122	2673	00	20051207	09:29:17	A	H	V
007	ES	20073	2480	2637	00	20060101	09:43:02	A	H	V
008	ES	20073	2480	2655	00	20060101	09:43:17	A	H	V
038	ES	20087	2494	2637	00	20060102	09:11:25	A	H	V
039	ES	20087	2494	2655	00	20060102	09:11:40	A	H	V
009	ES	20130	2036	2619	00	20060105	09:16:53	A	H	V
010	ES	20130	2036	2637	00	20060105	09:17:09	A	H	V
011	ES	20130	2036	2655	00	20060105	09:17:24	A	H	V
012	ES	20130	2036	2673	00	20060105	09:17:39	A	H	V
015	ES	20173	2079	2655	00	20060108	09:23:09	A	H	V
016	ES	20173	2079	2673	00	20060108	09:23:24	A	H	V
042	ES	20216	2122	2619	00	20060111	09:28:23	A	M	V
040	ES	20216	2122	2637	00	20060111	09:28:38	A	M	V
041	ES	20216	2122	2655	00	20060111	09:28:54	A	M	V
017	ES	20216	2122	2673	00	20060111	09:29:09	A	M	V
018	ES	20259	2165	2637	00	20060114	09:34:23	A	M	V
019	ES	20259	2165	2655	00	20060114	09:34:39	A	M	V
020	ES	20259	2165	2673	00	20060114	09:34:54	A	M	V
002	ES	20302	2208	2655	00	20060117	09:40:23	A	H	V
004	ES	20346	2251	2655	00	20060120	09:46:08	A	H	V
028	ES	20402	2308	2673	00	20060124	09:20:34	A	M	V
035	ES	20488	2394	2655	00	20060130	09:31:48	A	M	V
036	ES	20488	2394	2673	00	20060130	09:32:03	A	M	V
042	ES	20717	2122	2619	00	20060215	09:28:23	P		
040	ES	20717	2122	2637	00	20060215	09:28:38	P		
041	ES	20717	2122	2655	00	20060215	09:28:54	P		
017	ES	20717	2122	2673	00	20060215	09:29:09	P		
018	ES	20780	2165	2637	00	20060218	09:34:23	V		
019	ES	20780	2165	2655	00	20060218	09:34:39	V		
020	ES	20780	2165	2673	00	20060218	09:34:54	V		
001	ES	20803	2208	2637	00	20060221	09:40:08	V		
002	ES	20803	2208	2655	00	20060221	09:40:23	V		
003	ES	20846	2251	2637	00	20060224	09:45:53	V		
004	ES	20846	2251	2655	00	20060224	09:46:08	V		
021	ES	20860	2265	2619	00	20060225	09:14:01	V		
022	ES	20860	2265	2637	00	20060225	09:14:16	V		
023	ES	20860	2265	2655	00	20060225	09:14:32	V		
024	ES	20860	2265	2673	00	20060225	09:14:47	V		
025	ES	20903	2308	2619	00	20060228	09:19:46	V		
026	ES	20903	2308	2637	00	20060228	09:20:01	V		
027	ES	20903	2308	2655	00	20060228	09:20:16	V		
028	ES	20903	2308	2673	00	20060228	09:20:32	V		

ERS Shifted Frames

Ref. Frame Number: 2655

Shifted Frame Number: 2650

Delta Nodes: -5

Entering coordinate

Lat:   Find node

Coordinates

North-West	North-East
Lat: 47°56'	Lat: 47°44'
Lon: 017°01'	Lon: 018°23'
Centre	
Lat: 47°23'	
Lon: 017°34'	
South-West	South-East
Lat: 47°03'	Lat: 46°51'
Lon: 016°44'	Lon: 018°05'

OK Cancel

Missions and Filters

Selected Missions

Miss.	Date range	Orbit range	Track	Frame	Status	Pass	Mission dependent info	Station	BtN			
ES	20051001	20060301	18751	20926	0	0	9 7192	all	Desc	Swath 2	All stations	000

Mission and Sensor

- ERS-1 SAR
- ERS-2 SAR
- ERS-1 SAR Tandem
- ERS-2 SAR Tandem
- ENVISAT ASAR Narrow Swath
- JERS-1 SAR
- ENVISAT ASAR Wide Swath
- Landsat-4 TM
- Landsat-5 TM
- Landsat-7 ETM
- Landsat-1 MSS
- Landsat-2 MSS
- Landsat-3 MSS
- Landsat-4 MSS
- Landsat-5 MSS
- MODIS TM1A

Mission Filters

Date Start: 20051001 Date End: 20060301

Orbit Start: 18751 Orbit End: 20926

Track Range: 0 Adjacent: 0

Frame Start: 9 Frame End: 7192

Status:  Acquired  Planned  Visible  All

Pass:  Asc  Desc

Swaths: Swath 1, Swath 2, Swath 3, Swath 4, Swath 5, Swath 6, Swath 7

Add Update Remove Collection

OK Cancel Help

Track n. : 2480 - Frame n. : 2655

Mission	Date	Orbit	Parallel Baseline (m)	Perpendicular Baseline (m)	Delta Days	Doppler(KHz)
EN	20051023	19071	-93	310	-70	99.90
EN	20051127	19572	74	-198	-35	99.90
EN	20060101	20073	0	0	0	99.90

Double clicking to choose the "reference" orbit. All the baselines will be computed vs this one.

WARNING: the baseline information is reliable ONLY if a couple is shown (not a single line)

WARNING: a doppler value of 99.90 means no doppler info available. 12.70 means that the doppler could be over the threshold

OK Print Delete Item Save

Ready

AUSTRIA 95000 kmq

Frames stored: 91

Lat. 43°01' Lon. 006°55'

***Thank you***  
***Any Questions!***

***More Information on Envisat:***

***[www.eurimage.com](http://www.eurimage.com)***

***[www.envisat.esa.int](http://www.envisat.esa.int)***