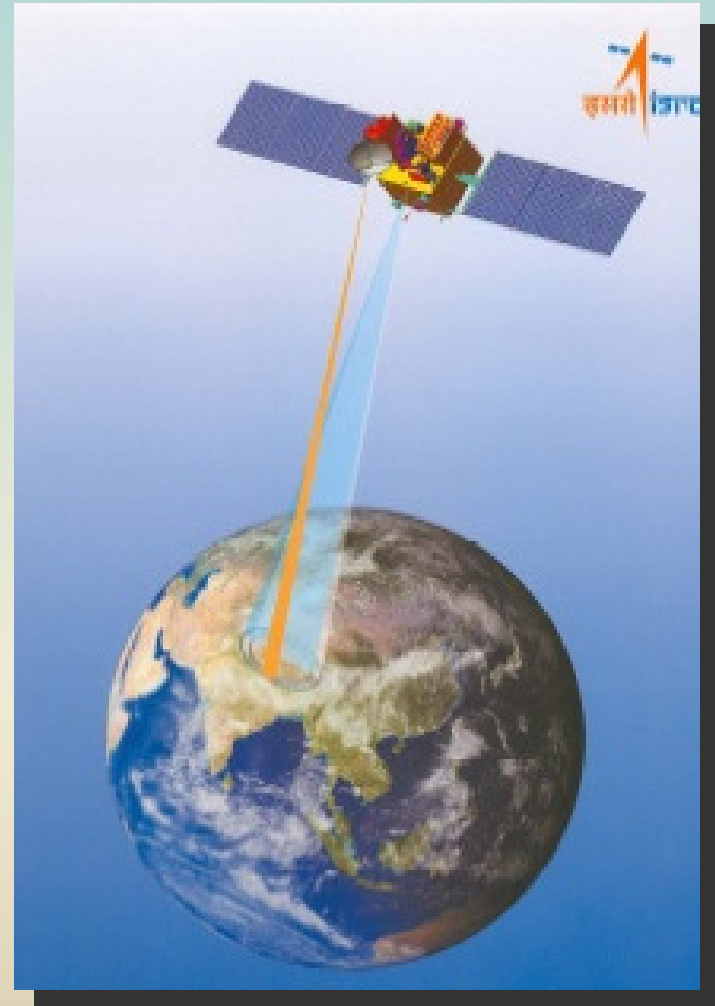
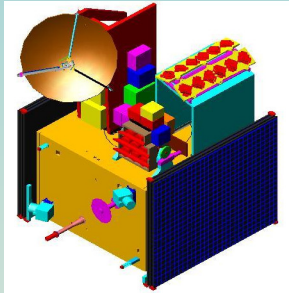


Global Applications of OCEANSAT-2



Presentation by Indian Delegation at the 49th Session of STSC-UNCOPUOS
Vienna - February 2012

OCEANSAT-2 Mission



OCEANSAT-2 is a global mission and is configured to cover global oceans and provide continuity of ocean colour data with global wind vector and characterization of lower atmosphere and ionosphere.

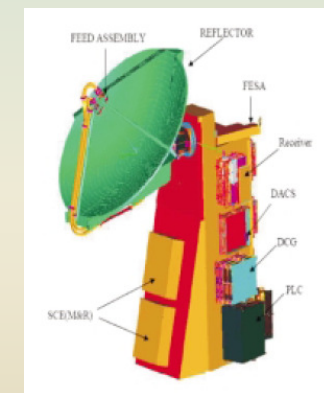
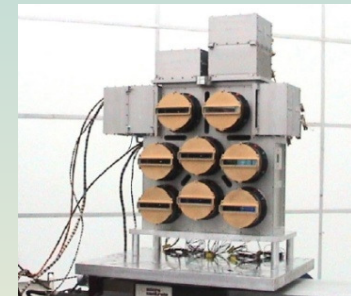
INSTRUMENTS

- An 8-band Ocean Colour Monitor (**OCM**) with 360 m spatial resolution
- A Ku-Band Pencil beam **SCATTEROMETER** with a ground resolution of 50 km x 50 km
- Radio Occultation Sounder for Atmospheric studies (**ROSA**) - Developed by the Italian Space Agency (ASI)

APPLICATIONS:

- Potential Fishing Zone Advisories
- Ocean State Forecasting
- Ocean and coastal studies

LAUNCH: September 23, 2009 by PSLV-C14



Oceansat-2 OCM Data Products

LEVEL-1 Product: Basic Data Products

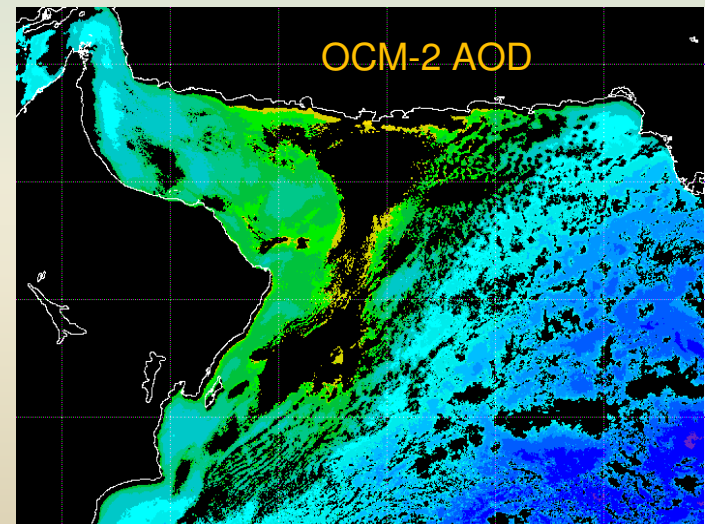
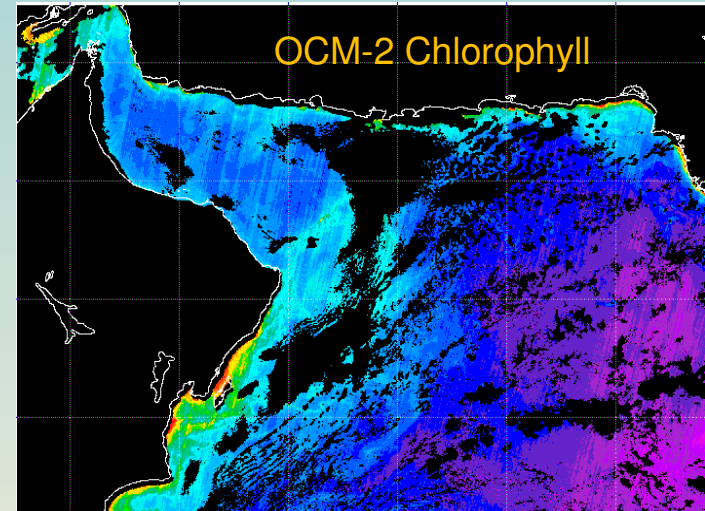
- L1A RAW Products
- L1B Radiance Product
- L1C Radiometrically and Geometrically corrected

LEVEL-2 Product: Geo-Physical Parameters

- Chlorophyll-*a* concentration
- Total Suspended Matter (TSM)
- Diffused Attenuation Coefficients (K_d -490 nm)
- Aerosol Optical Depth (AOD) at 865 nm

LEVEL-3 Product: Binned Products (4 km)

- Weekly
- Monthly
- Yearly



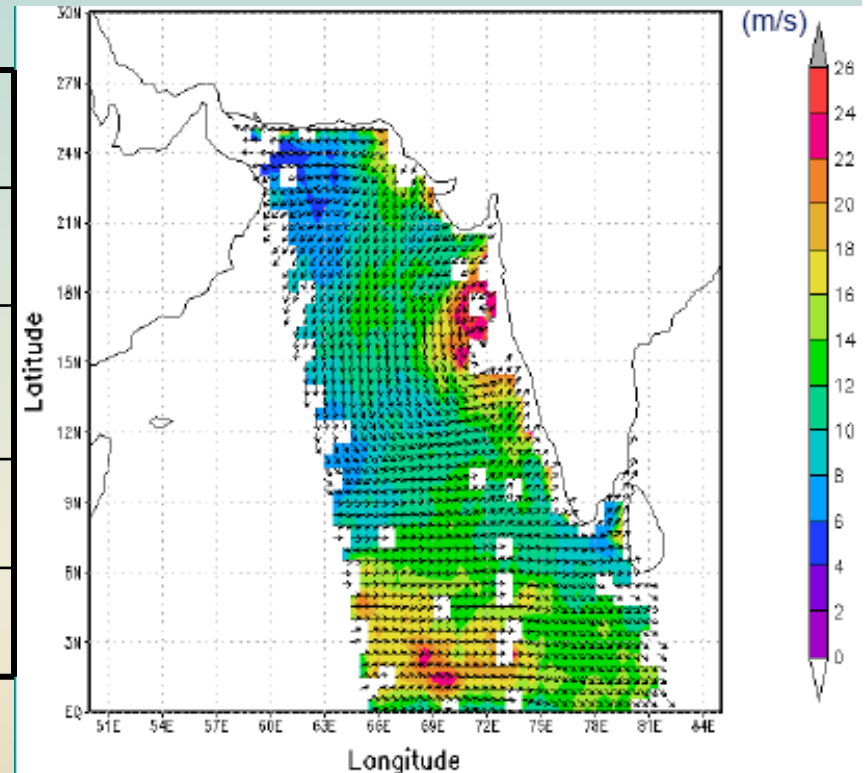
Oceansat-2 OCM LAC Coverage
360 m Spatial Resolution
Real time transmission

Oceansat-2 OCM GAC Coverage
1 Km Spatial resolution
Onboard recording and Playback

OCEANSAT-2 Scatterometer Data Products

Oceansat-2 Scatterometer derived Wind vectors

Processing Level	Parameter	Cell Size	Availability
Level 2A	Sigma-0 (for each orbit)	50 x 50 km ²	Selected users
Level 2B	Wind vector (for each orbit)	50 x 50 km ²	Global users through Web
Level 3S	Sigma-0 (Global)	0.5° x 0.5°	Global users through Web
Level 3W	Wind vector (Global)	0.5° x 0.5°	Global users through Web



November 10, 2009 : 19 GMT
(Phyan Cyclone)

OCEANSAT-2: International Announcement of Opportunity

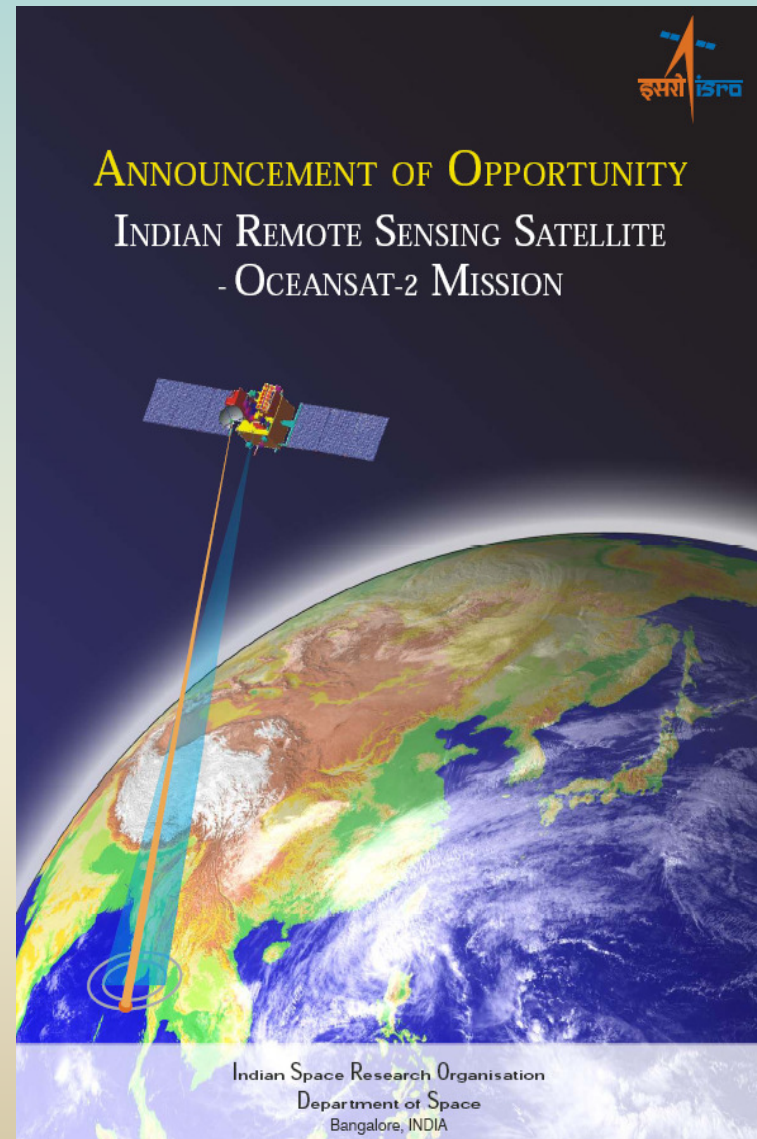
OCEANSAT-2 AO for international users was announced in January 2008

Broad research areas are

- Retrieval algorithms and Calibration & Validation
- Application of ocean colour and Scatterometer data for ocean & atmospheric research
- Synergistic studies using multi-sensor data to understand processes
- Assimilation of geo-physical parameters in models

o **28 AO Projects from 12 countries**

(Australia, Bangladesh, Brazil, France, Italy, Malaysia, Netherlands, Norway, Russia, South Africa, UK, USA)

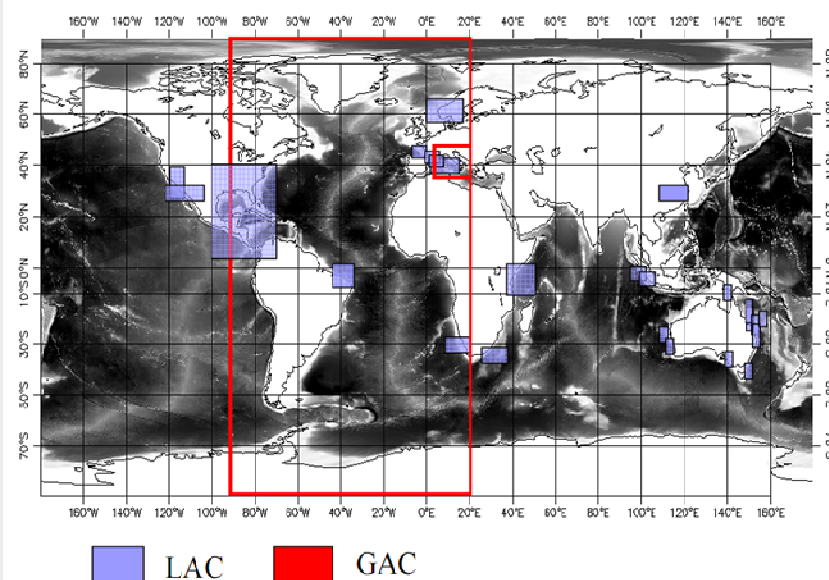


OCEANSAT - 2 AO Proposals

	PI	Country
1	Dr. Thomas Schroeder	AUSTRALIA
2	Dr. Milton Kampel	BRAZIL
3	Dr. Odile Fanton d'Andon	FRANCE
4	Prof. Maria Teresa Chiaradia	ITALY
5	Dr. Claudia Giardino	ITALY
6	Dr. Lim Hwee San	MALAYSIA
7	Dr Mohd. Zubir Mat Jafri	MALAYSIA
8.	Lasse H. Pettersson	NORWAY
9	Dr. Stewart Bernard	SOUTH AFRICA
10	Dr. Nick Hardman-Mountford	UNITED KINGDOM
11	Pawan Gupta	USA
12	Prof. Giovanni Corsini	ITALY
13	Dr. Stefano Pignatti	ITALY
14	Giovanni Laneve	ITALY
15	Dr. Vittorio Barale	ITALY
16	Prof. Avijit Gangopadhyay,	USA
17	Dr. Joaquim I. Goes	USA

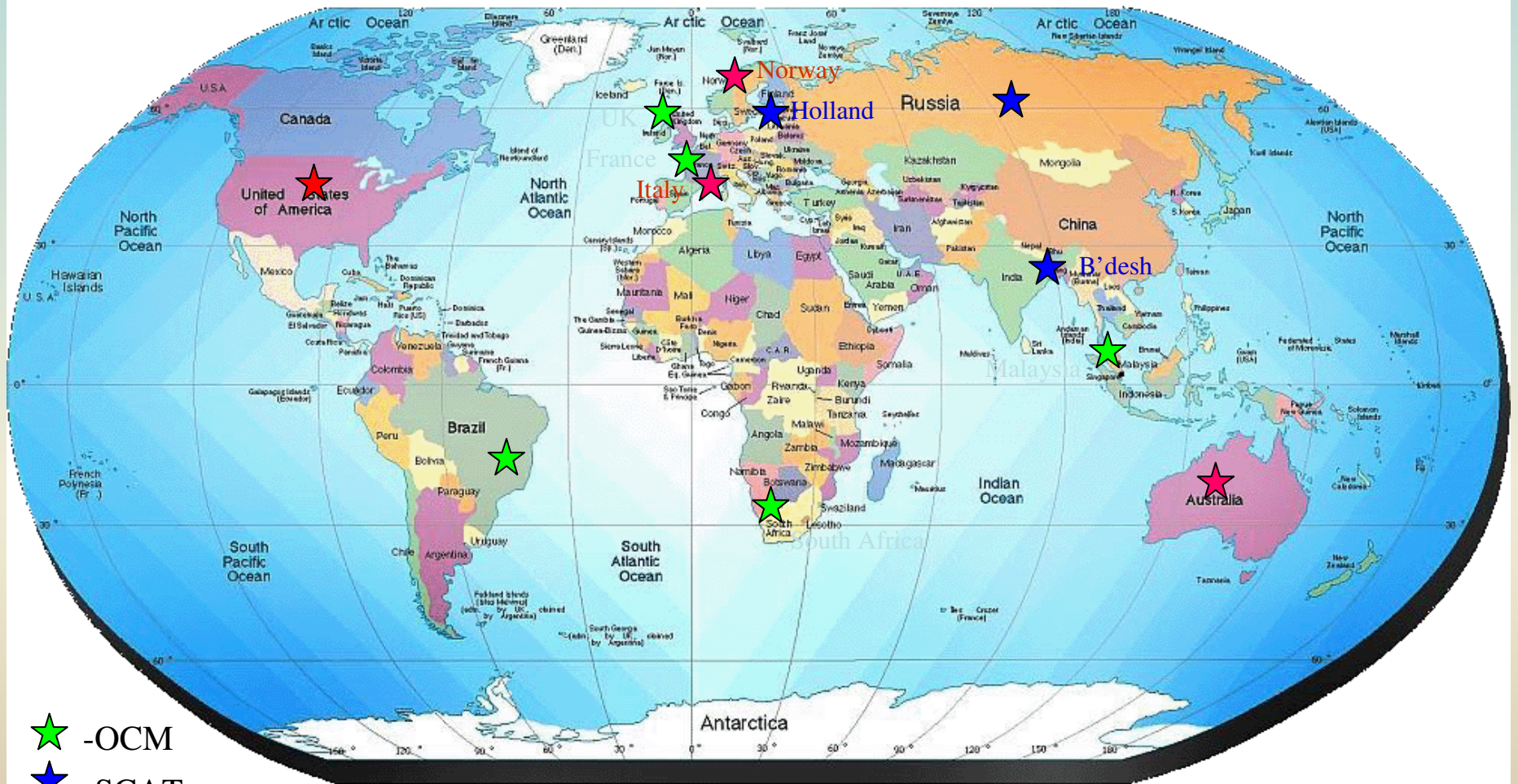
No	PI	Country
18	Dr. Diana Greenslade	Australia
19	Mozammel Haque Sarker	Bangladesh
20	Prof. Maurizio Migliaccio	Italy
21	Dr. Ad Stoffelen	The Netherlands
22	Laurent Bertino	Norway
23	V. Karaev	Russia.
24	Dr. David G. Long	USA
25	Prof. Jerome Patoux	USA
26	Dr. W. Timothy Liu	USA
27	Dr. Mark Bourassa	USA
28	Prof. C. K. Shum	USA

Coverage regions for OCM-2 required by AO PIs



OCM – 11, OCM + SCAT – 6, SCAT - 11

OCEANSAT - 2 AO Proposals



- ★ -OCM
- ★ -SCAT
- ★ SCAT + OCM

International cooperation

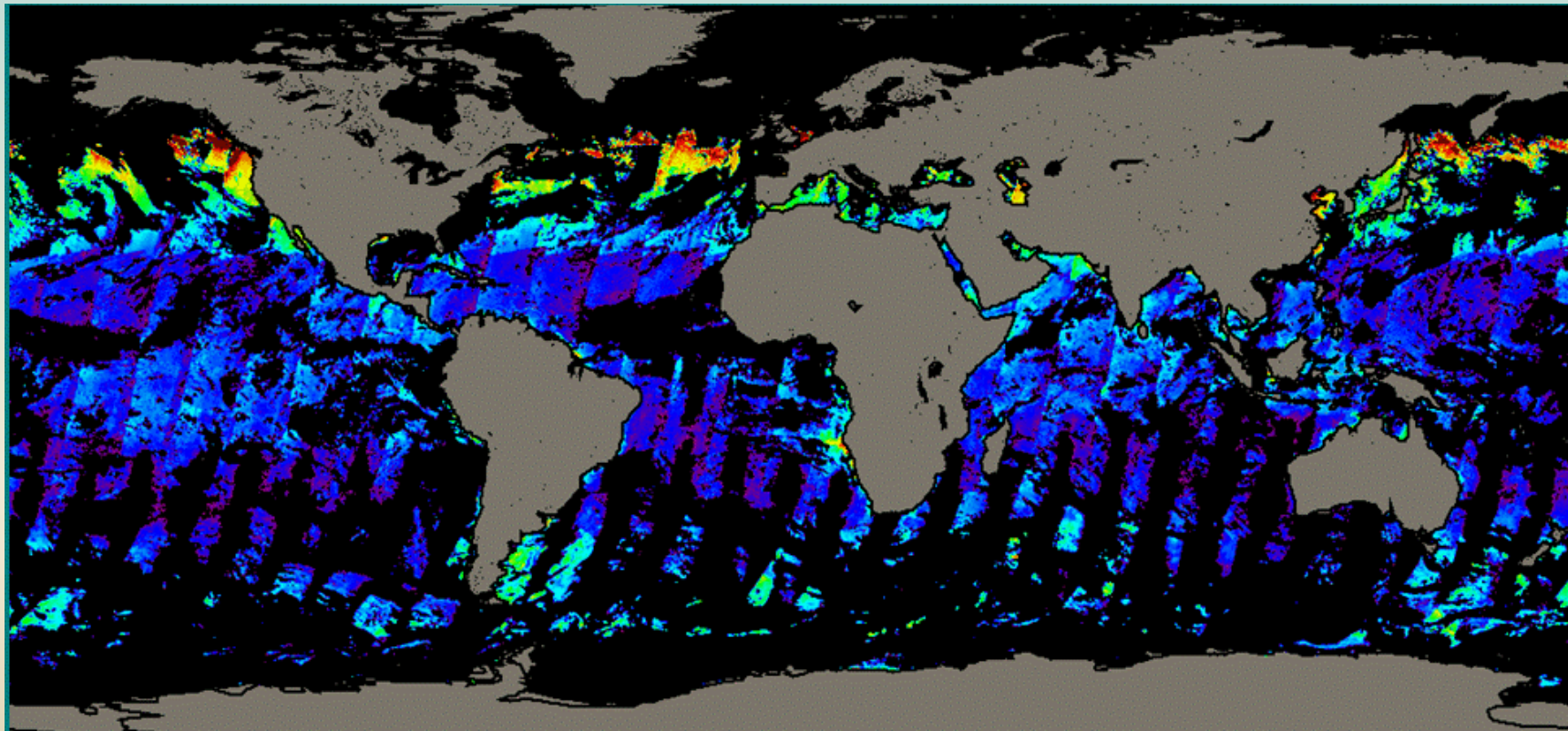
- ❑ **ISRO- ECMWF MOU on Data Exchange (Sep 2009): ECMWF Global Analysis & Forecast of surface fields being received at NRSC and SAC in real time from 23 September 2009 and is regularly used for generation of Scatterometer L2B (Day One / Interim) Products. It is extensively used in assessment of intermediate versions of L2A/L1B products**
- ❑ **ISRO- NASA – NOAA Letter of Intent for cooperation in OCEANSAT-2 data utilisation (November 2009) : QuikSCAT data shared; Joint activities in data quality evaluation; Separate Implementing Arrangements are being signed Access to Scatterometer Level 1B and OCM Level 1B GAC along with the documentation**
- ❑ **ISRO-EUMETSAT Agreement for Meteorological data sharing: In furtherance of Agreement signed in Dec 2008, data and information are exchanged.**

OSCAT Data Dissemination

Requirement of Global community: Scatt wind product - within 180 minutes of data acquisition, achieved through

- Data download over Svalbard (Norway) for every orbit
- Transferred to Shadnagar (NRSC) using high-speed communication link (45 Mbps)
- Data processing, products generation at Shadnagar
- Level-2 data products (wind vector) are uploaded to NRSC web portal within 153 min of acquisition
- Same data products are disseminated to EUMETSAT, Darmstadt via Svalbard through same link in 5-7 min
- Subsequently, upload to EUMETCast for dissemination to EUMETSAT users in Europe, US & South Africa within 160 min
- The data products are also disseminated to NASA/ NOAA from EUMETSAT via 45 Mbps link

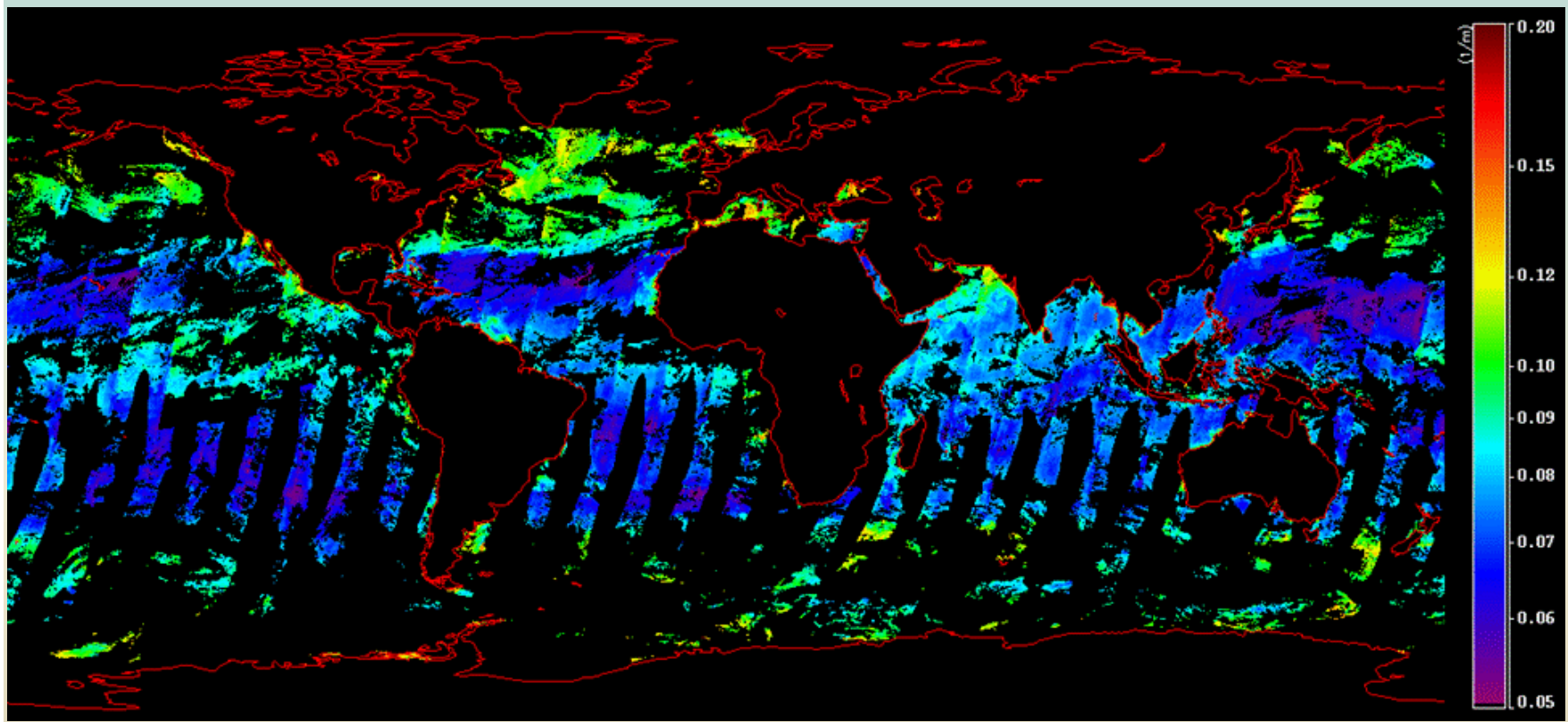
Global Chlorophyll distribution



OCIM-2

SAC/ ISRO

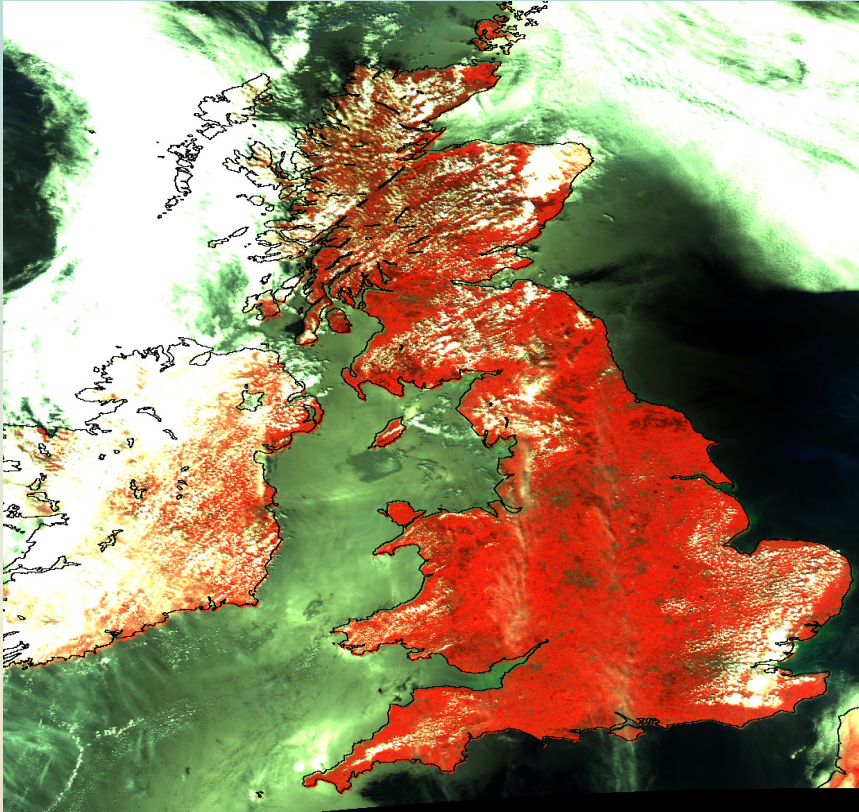
Global Kd 490 distribution



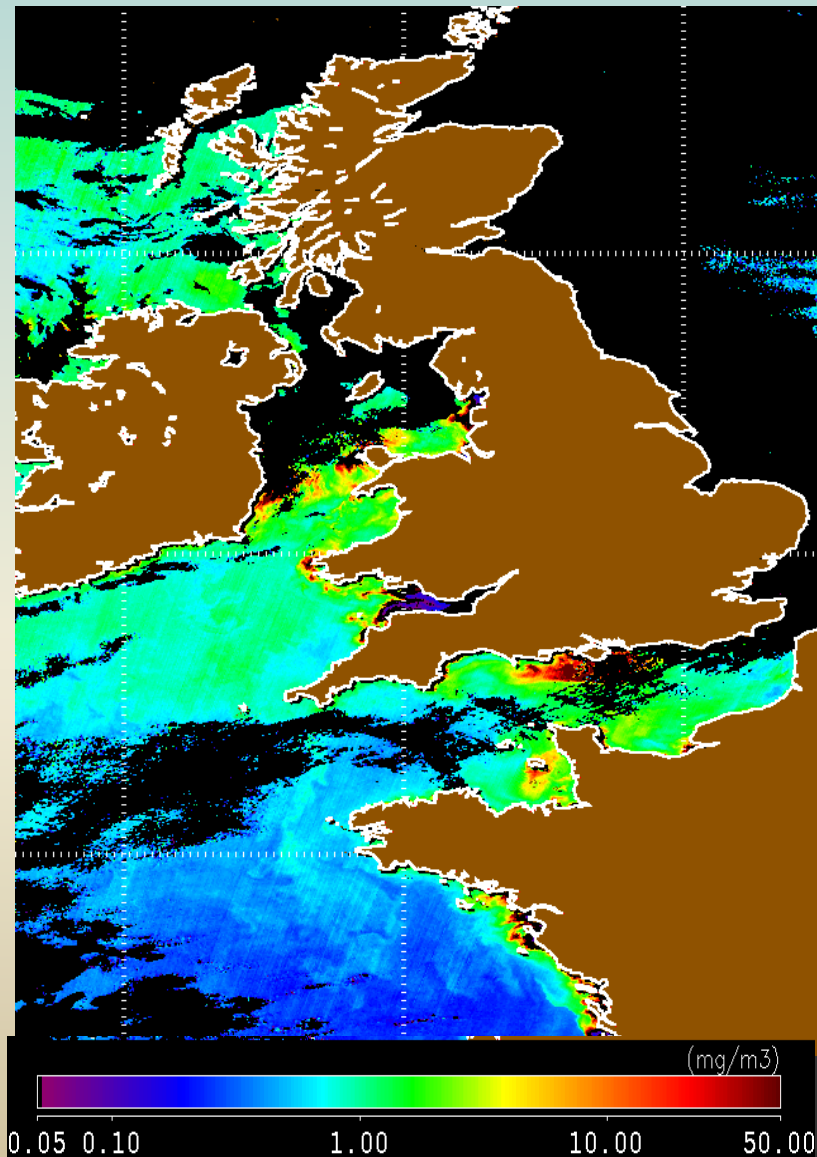
SAC/ ISRO

Ocean Colour images of United Kingdom

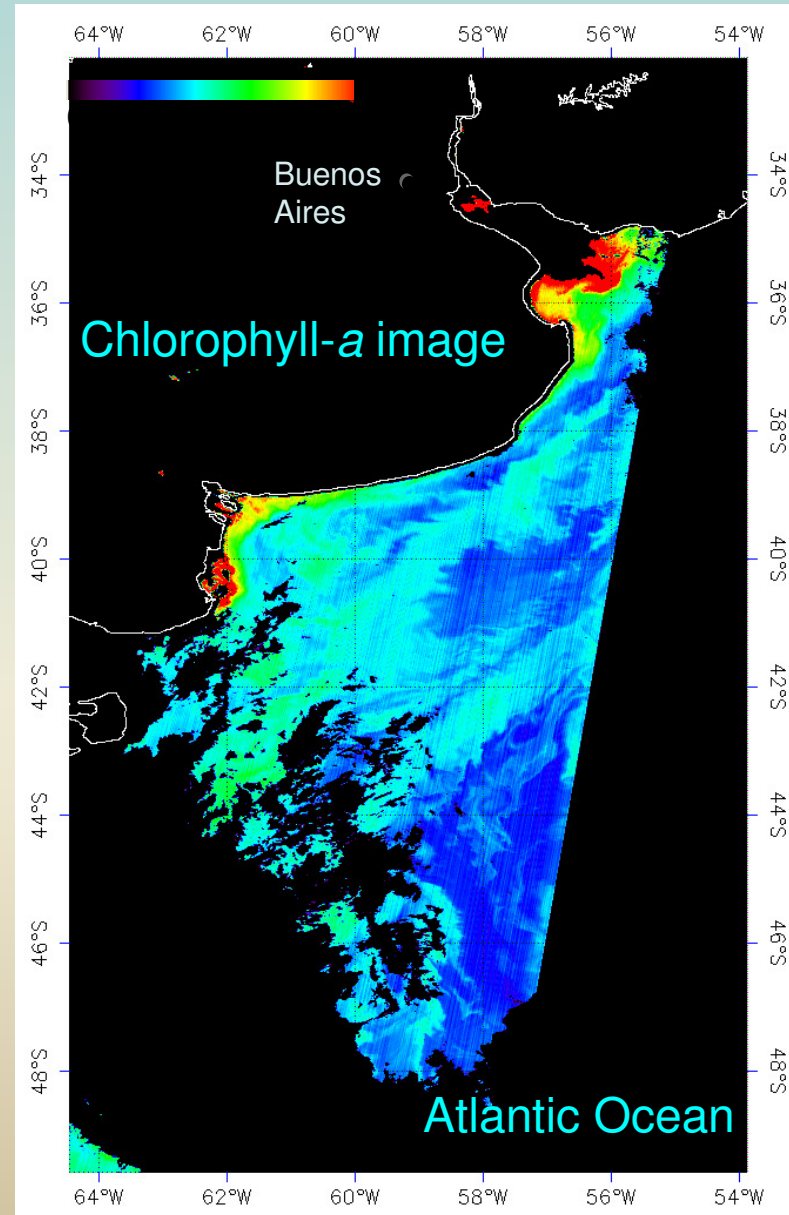
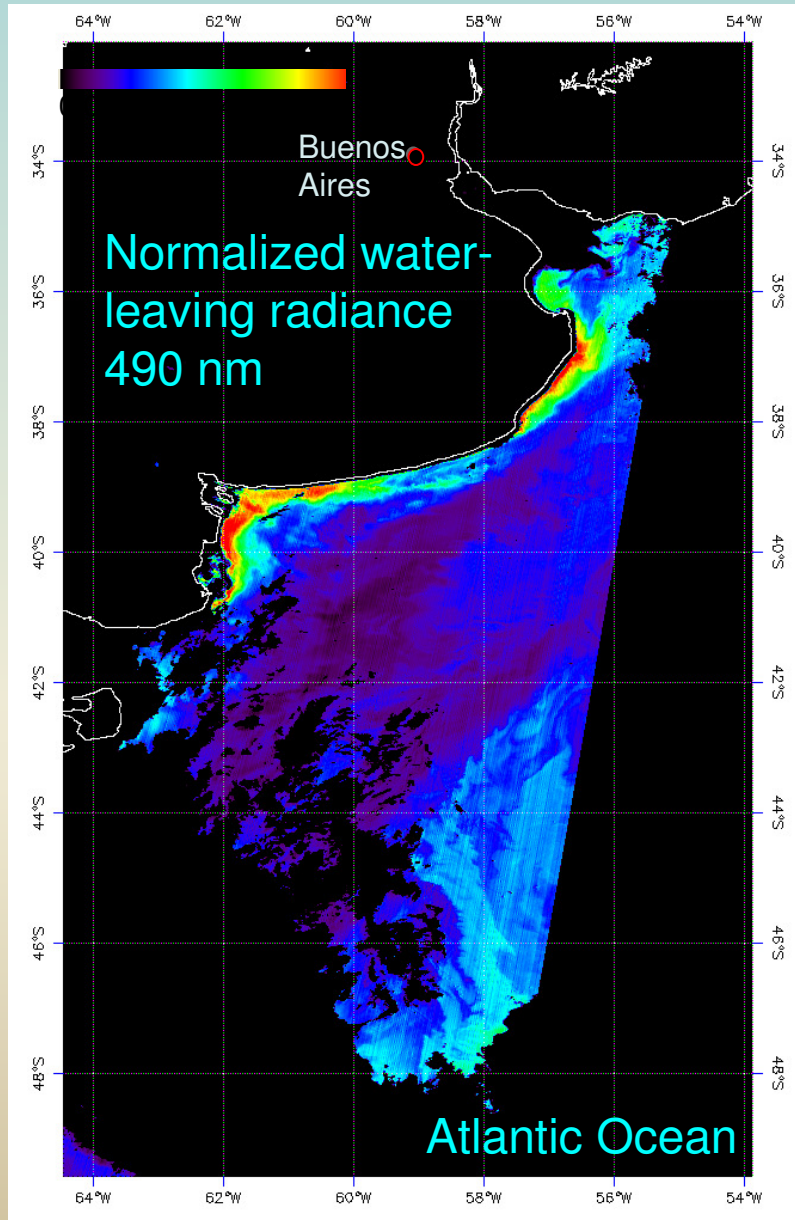
Chlorophyll-a image: Oct 12, 2010



False Colour Composite (865, 620, 490 nm): June 22, 2010

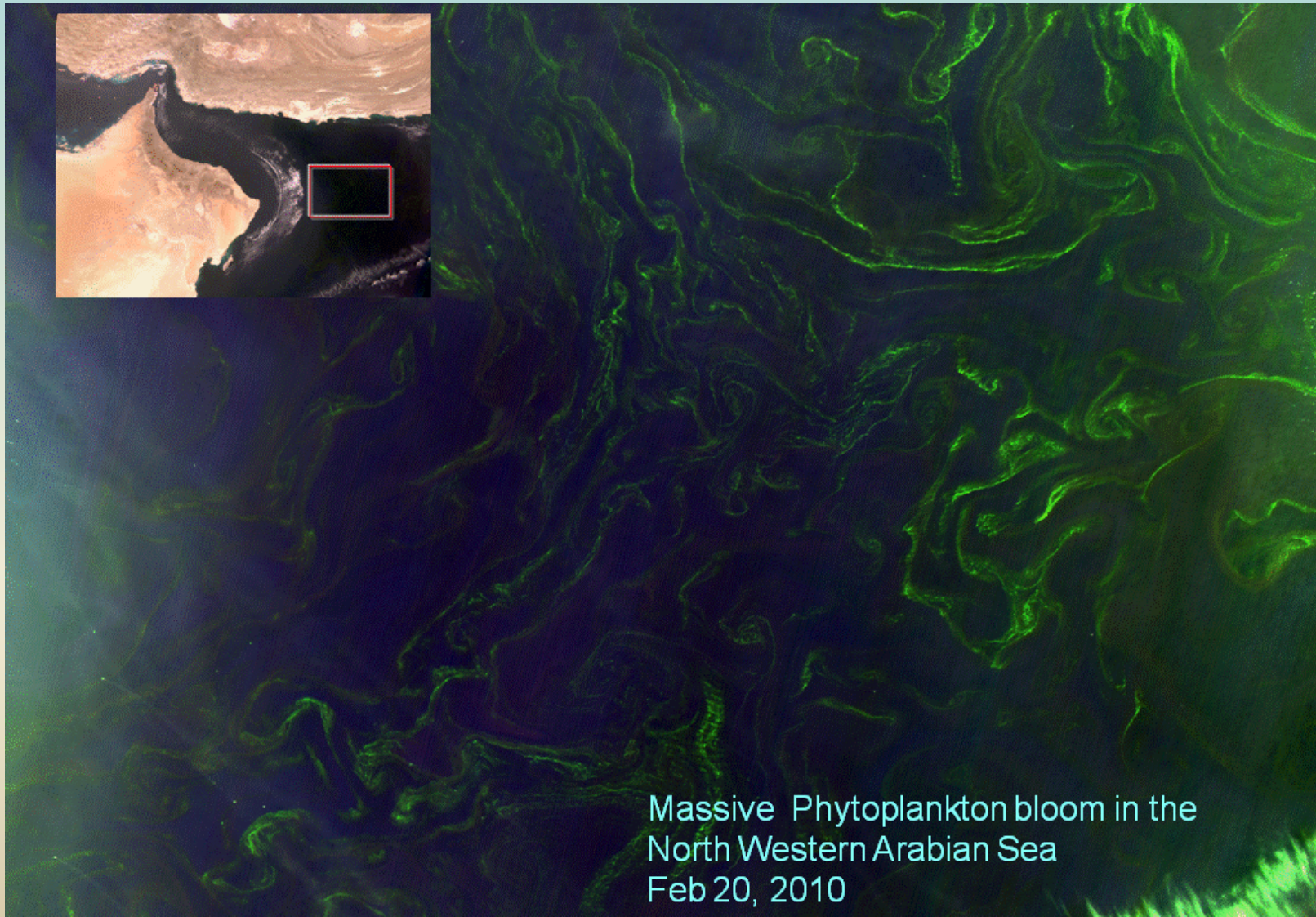


Ocean Colour images Off Buenos Aires, Argentina



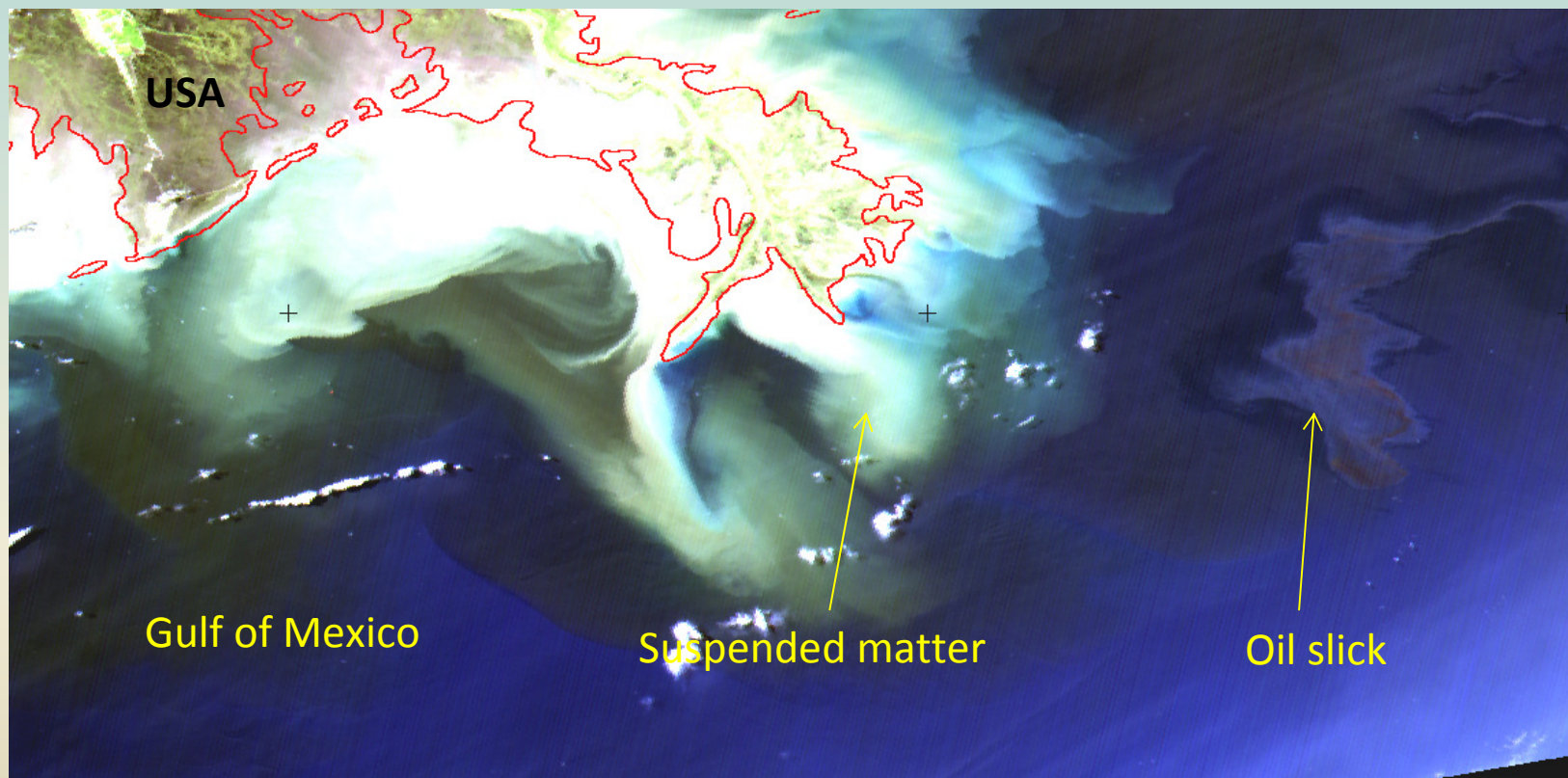
OCCIM-2

Phytoplankton in Arabian Sea



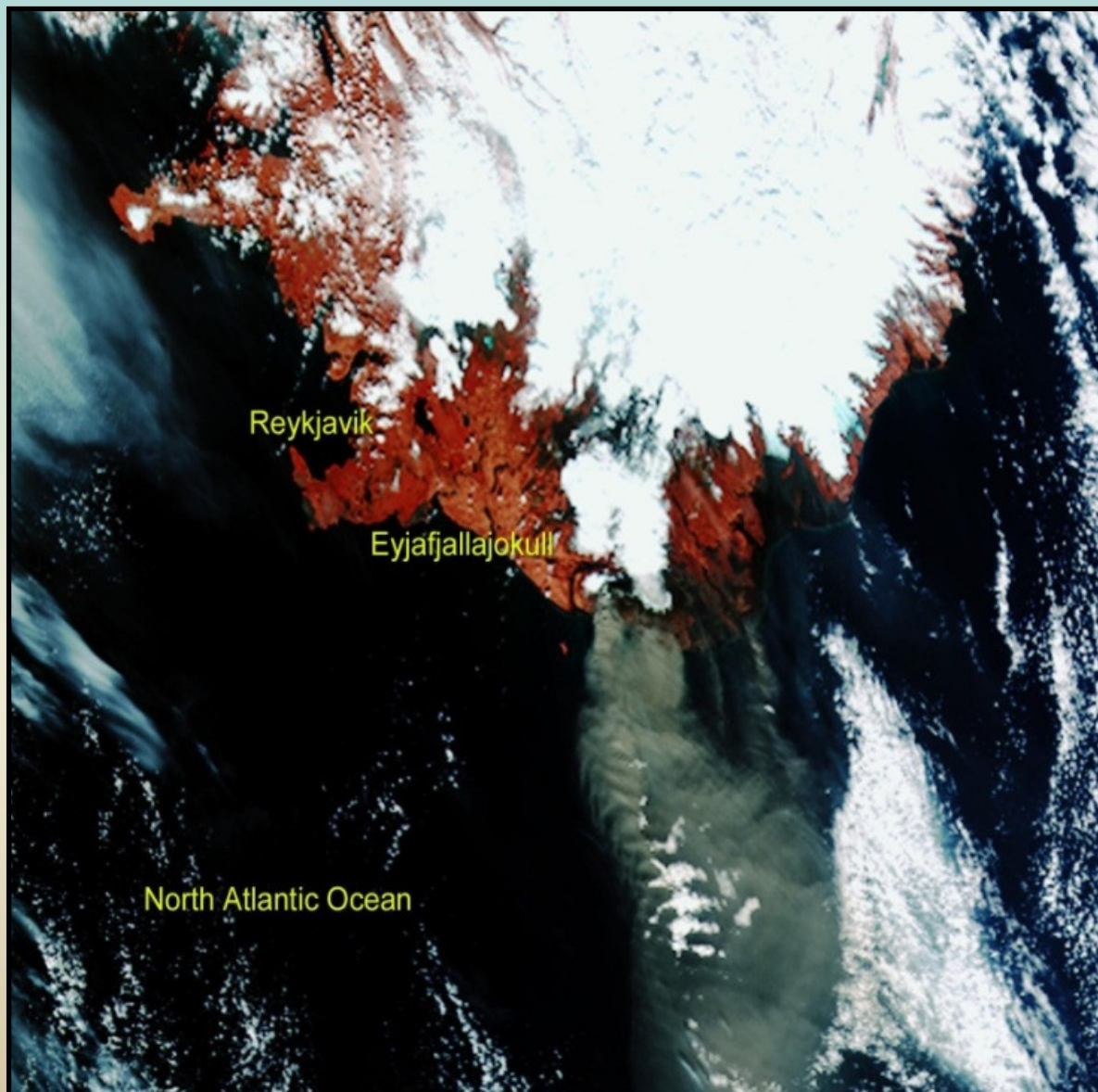
OCIM-2

Oil Slick of Gulf of Mexico: April 25, 2010



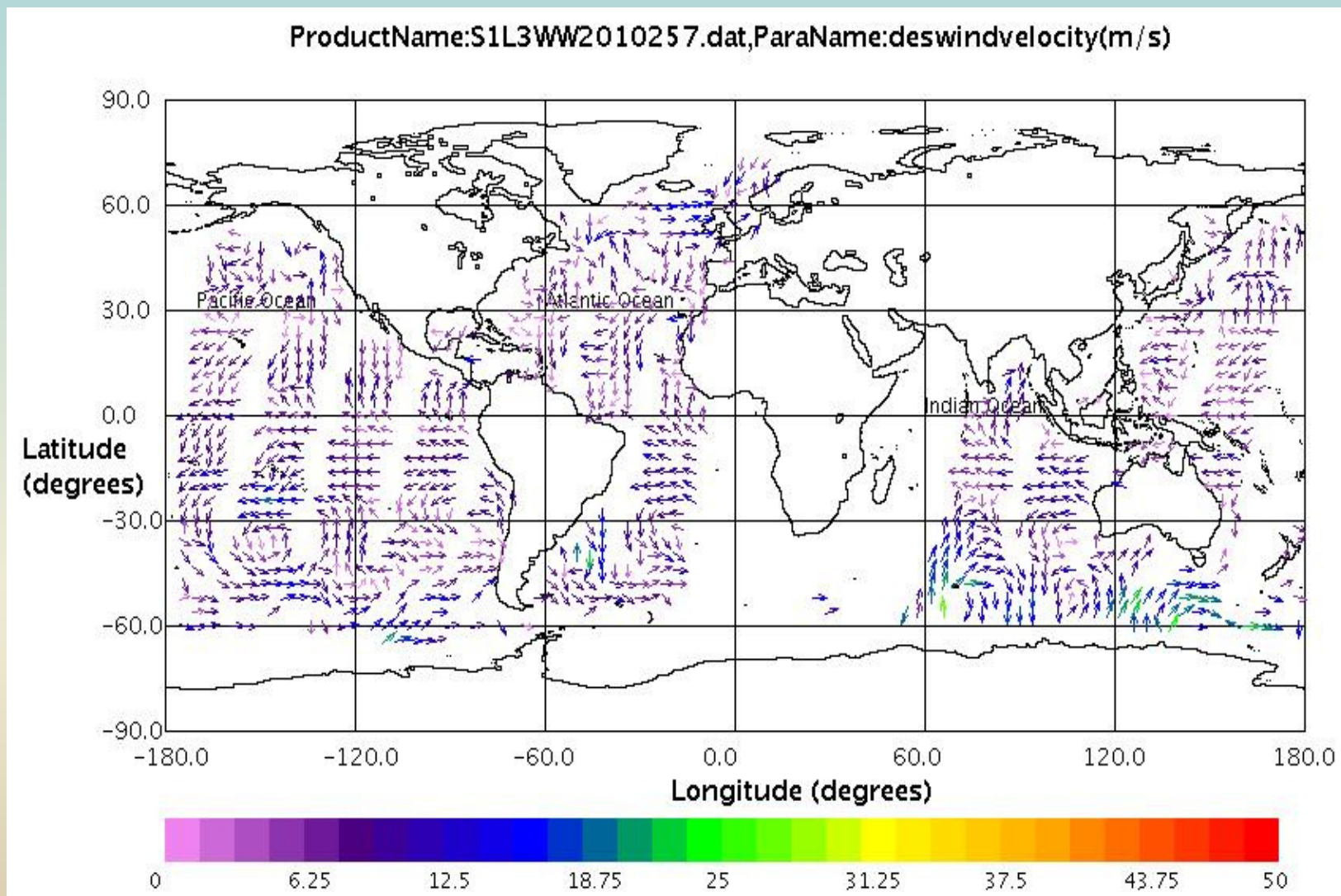
OCIM-2

Iceland Volcano Ash – April 19, 2010



OCIM-2

Global Wind Vector Product



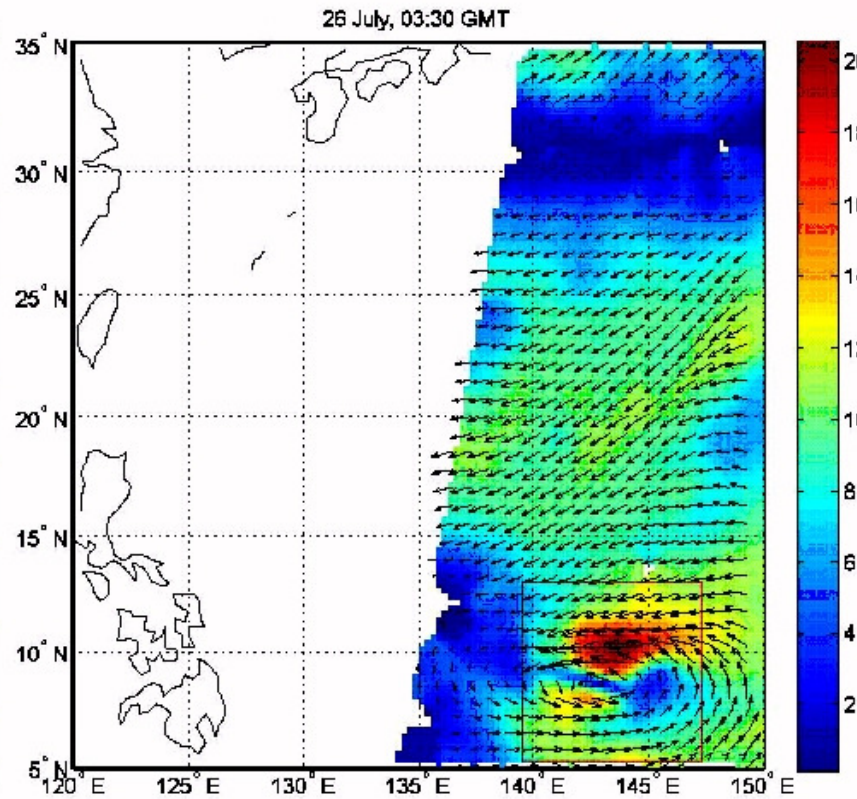
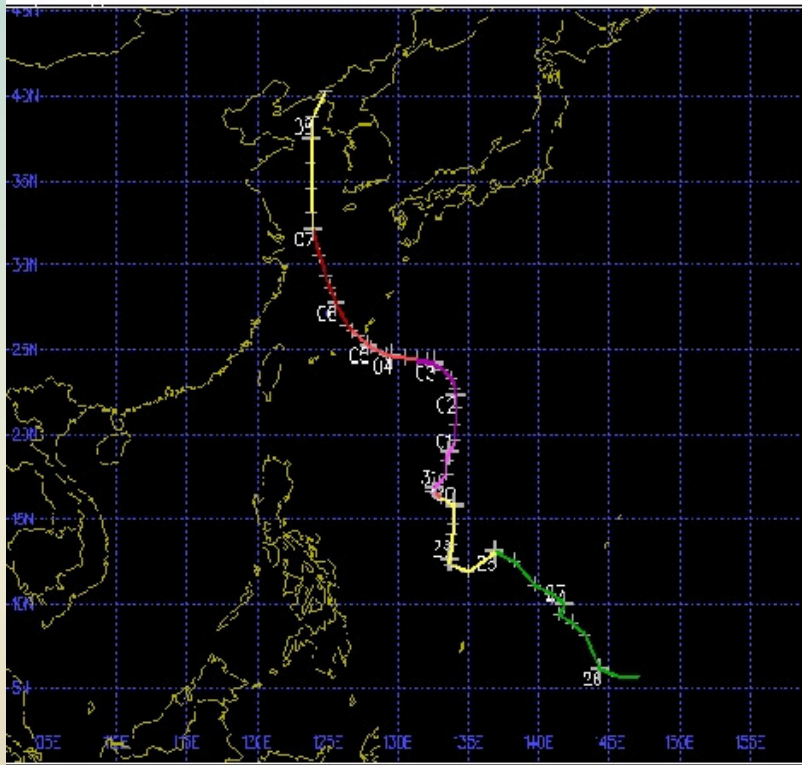
OSCAT



Global SCAT data acquisition, processing & dissemination: within 3 hrs

Cyclone MUIFA

Cyclone MUIFA



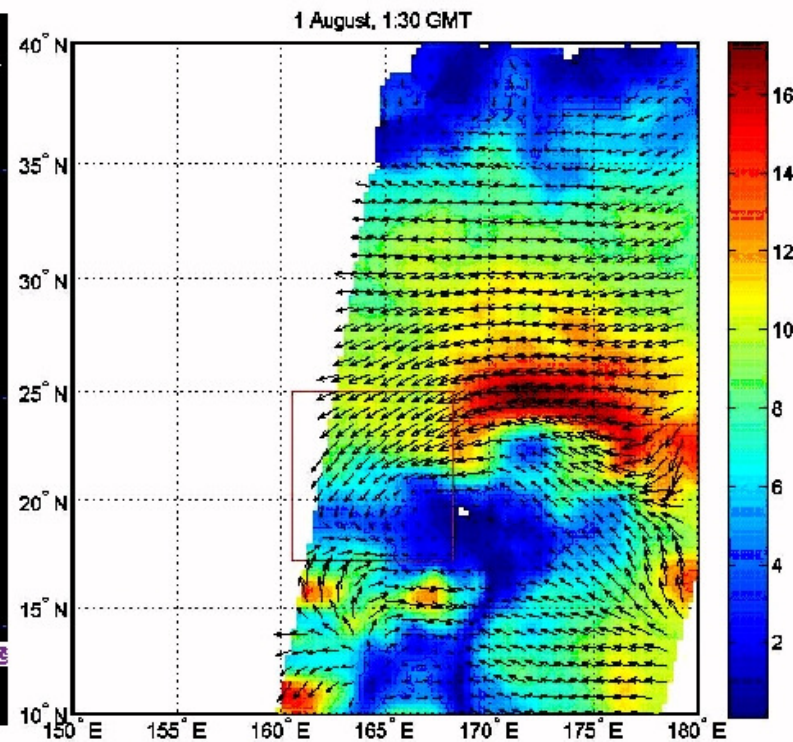
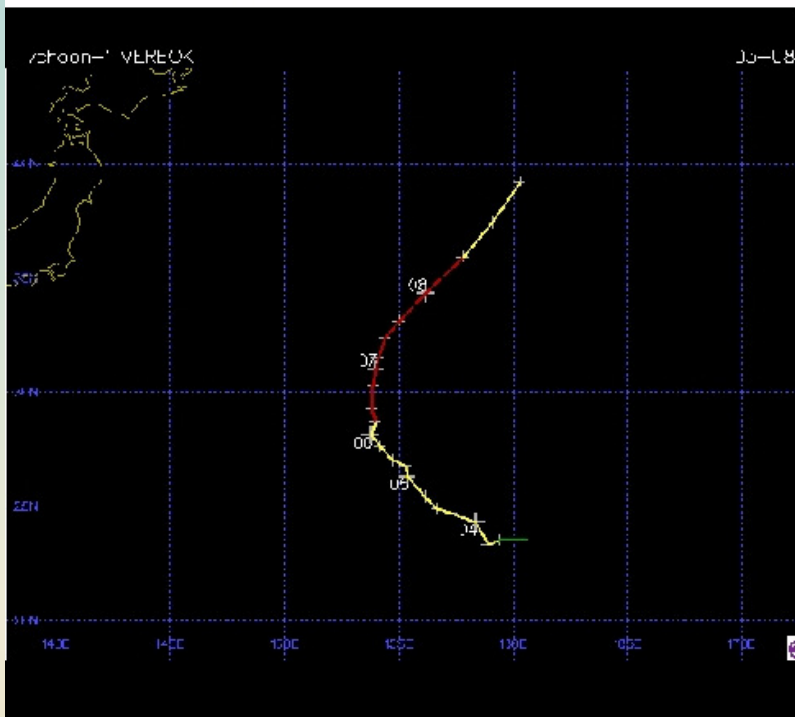
WEST Pacific Cyclone MUIFA:

MI=0.71 TCG predicted with 24 hrs Lead Time

OSCAT

Cyclone MERBOK

Cyclone MERBOK



WEST Pacific Cyclone MERBOK: MI=0.68 TCG predicted with 58 hrs Lead Time

OSCAT

Hurricane Irene winds before Landfall

Ocean-surface wind speeds and directions for Hurricane Irene six hours prior to the storm's landfall in North Carolina on Aug. 27, 2011.

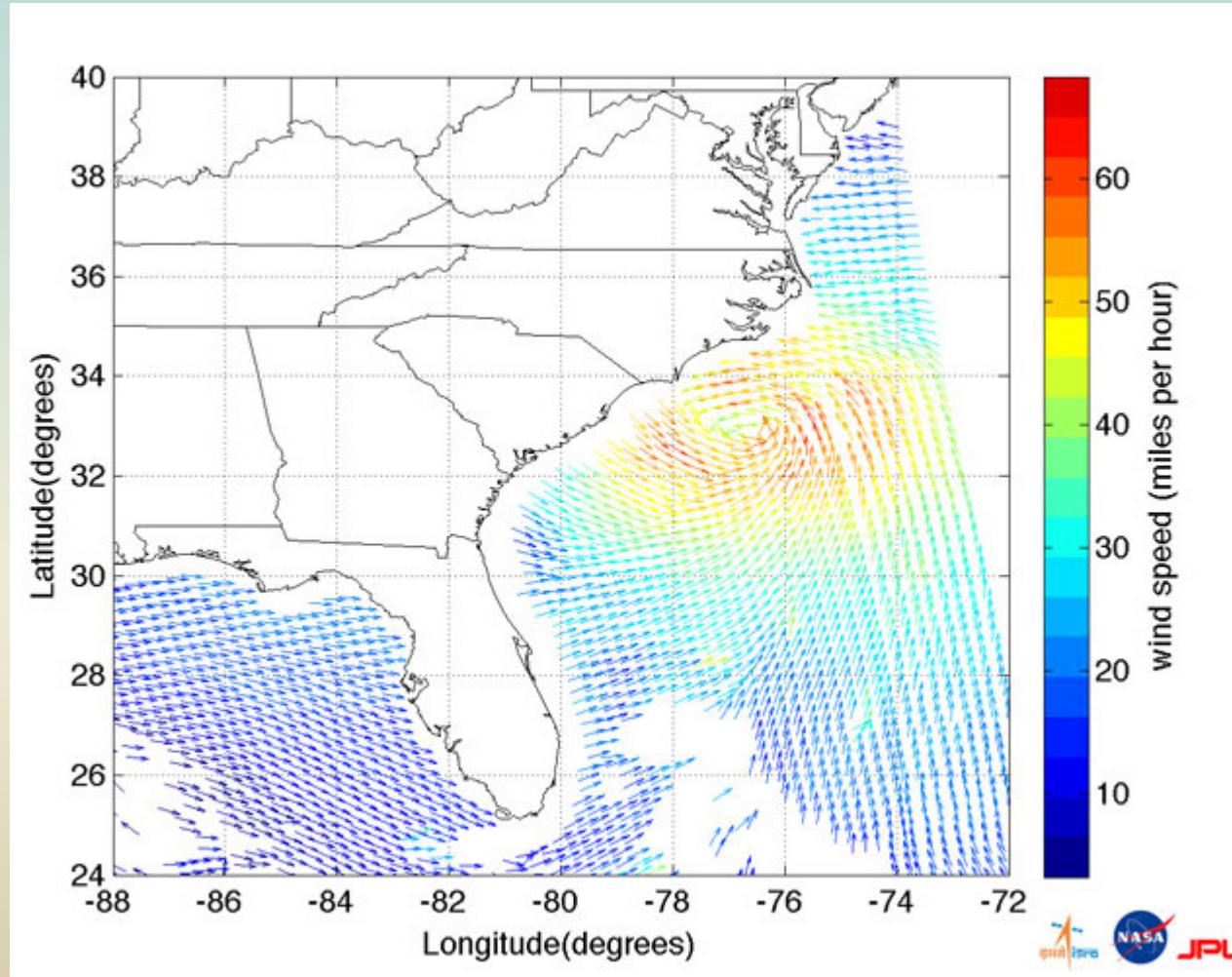
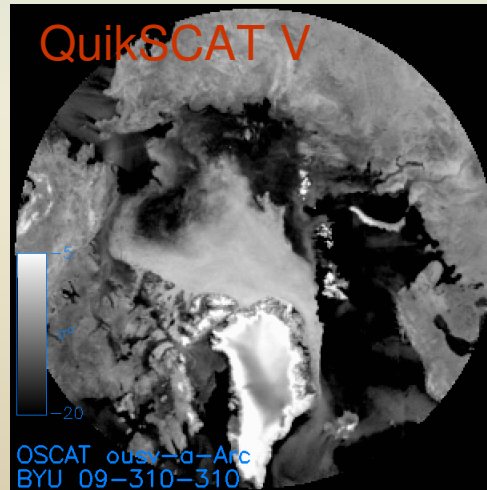
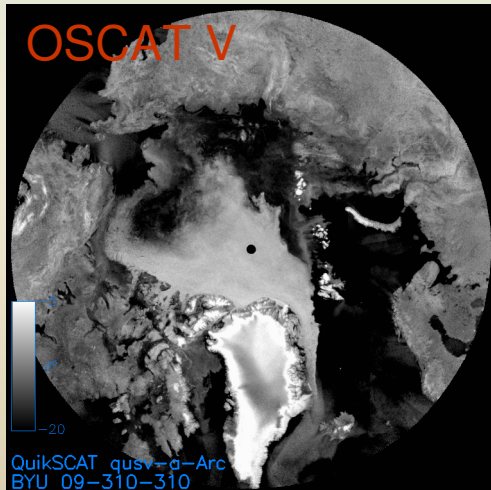
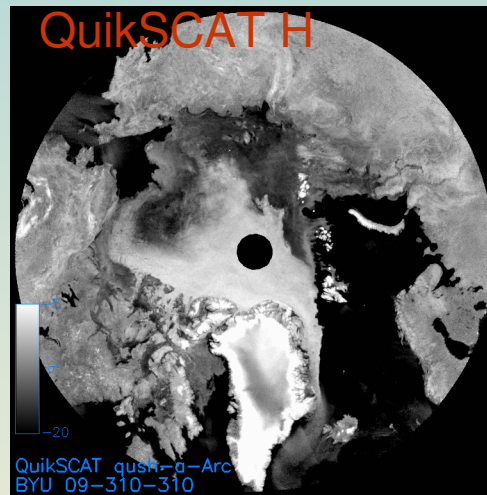
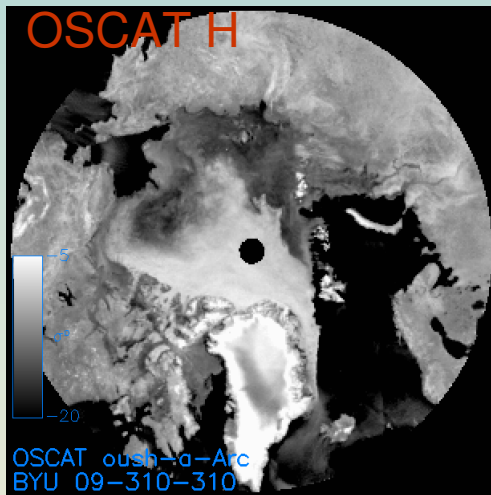


Image credit: ISRO/NASA/JPL-Caltech

OSCAT Products for Climate Record

Sample Polar Images



- Comparison of one day backscatter images
 - OSCAT and QuikSCAT have nearly identical characteristics
 - Differences due to azimuth and local time of day
 - Similar variances and means
- OSCAT can contribute to the multi-decade scatterometer climate record of land and ice observations

OSCAT



Continuing the Ku-band Scatterometer Climate Record with data from the Oceansat-2 Scatterometer: *David G. Long, Brigham Young University*

Current Research Products



Ocean and Sea Ice SAF
Wind Processing Centre

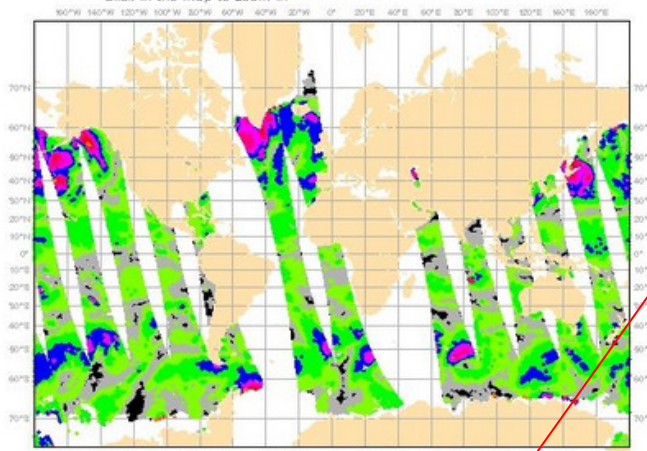
GO TO
OSI SAF CENTRAL
WEB SITE

Updated @ 2012-02-15 21:06 utc

OSI SAF Oceansat-2 50-km product viewer
OSCAT50, status: in development

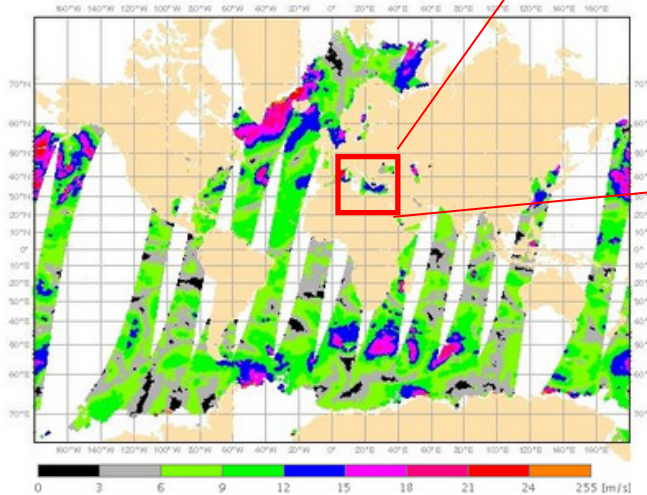
Ascending passes

Click in the map to zoom in



Descending passes

Click in the map to zoom in



Select view

- > Monitoring information
- > Data from previous day

Background information

- > Modifications/anomalies
- > Description of plots
- > Access to products
- > Acknowledgements
- > Oceansat-2 Product User
- > Home OSI SAF Wind Cent

OSI SAF Wind Products

- > ASCAT 25-km winds
- Operational status
- > ASCAT 12.5-km winds
- Operational status
- > ASCAT Coastal winds
- Pre-operational status
- QuikSCAT winds
- Discontinued status
- > Wind Products Processing

Other Wind Services at K

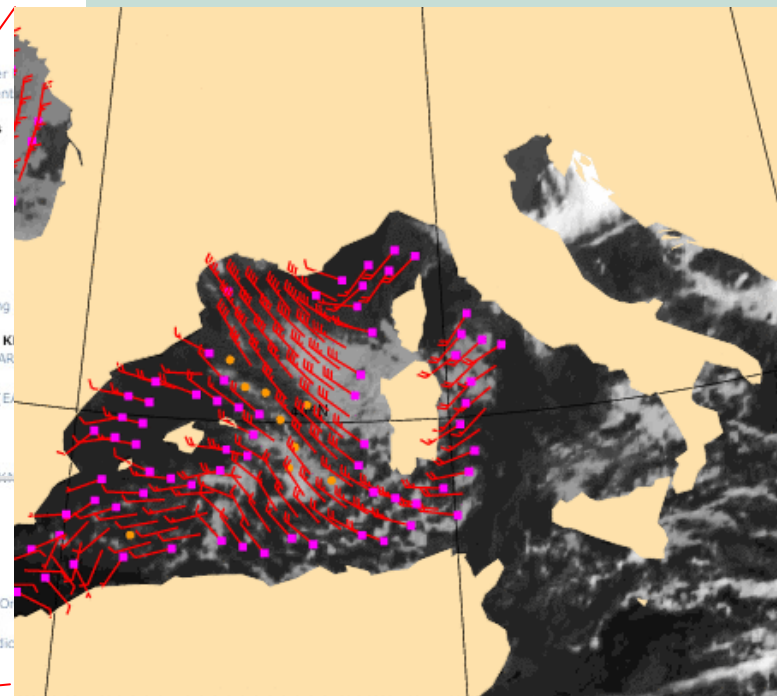
- > ASCAT 25-km winds (EAR)
- Operational status
- > ASCAT 12.5-km winds (E)
- Operational status
- > ERS-2 winds (EARS)
- Discontinued status
- > Coastlines

Software

- > BUFR reader

Related links

- > EUMETSAT
- > Indian Space Research O
- > Ocean and Sea Ice SAF
- > Numerical Weather Predic



OSCAT

Access of OCENASAT-2 Data Products



National Remote Sensing Centre
Indian Space Research Organisation
Department of Space, Government of India



[HOME](#) | [Browser Settings](#) | [Product&Support](#) | [ContactUs](#)

Web Portal for OceanSat-2 Global OCM and Scatterometer Data Products

This site hosts OCM data products (Radiance, Geo-physical Parameter , Binned) and Scatterometer data products. Users can browse and download data products. OCM GAC data products are available from 05-JAN-2010 onwards in the form of strips (consisting of 4-5 rows)

OCM GAC Products		SCATTEROMETER Products	
	Radiance Products Read more		Scatterometer Wind Products Read more
	Geo-physical Parameter Products Read more		Scatterometer Global Sigma-0 Products Read more
	Binned Products Read more		Scatterometer Global Wind Vector Products Read more

[Latest News / Events](#)

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Password:

[NewUser](#)
[Forgot Password](#)

About OceanSat-2

SEQUENCE OF EVENTS



India's Polar Satellite Launch Vehicle, PSLV-C14, in its 16th Mission launched 958 kg Oceansat-2 and six nano-satellites into a 720 km. intended Sun Synchronous Polar Orbit (SSPO) on September 23, 2009. This satellite would carry two payloads Ocean Color Monitor (OCM) and Ku-band Pencil Beam Scatterometer.

[Read more](#)

OCM GAC products and OSCAT products are being disseminated by www.nrsc.gov.in



**Thanks to all the IAO PIs, who contribute
to enhance the value & reach of
OCEANSAT-2 data**

Thank you for your kind attention!