

# (A) ATSR Users and Applications:

**SST, Fire, Aerosol, Cloud, Snow,  
Albedo, Vapour, Temperature,  
Volcano**

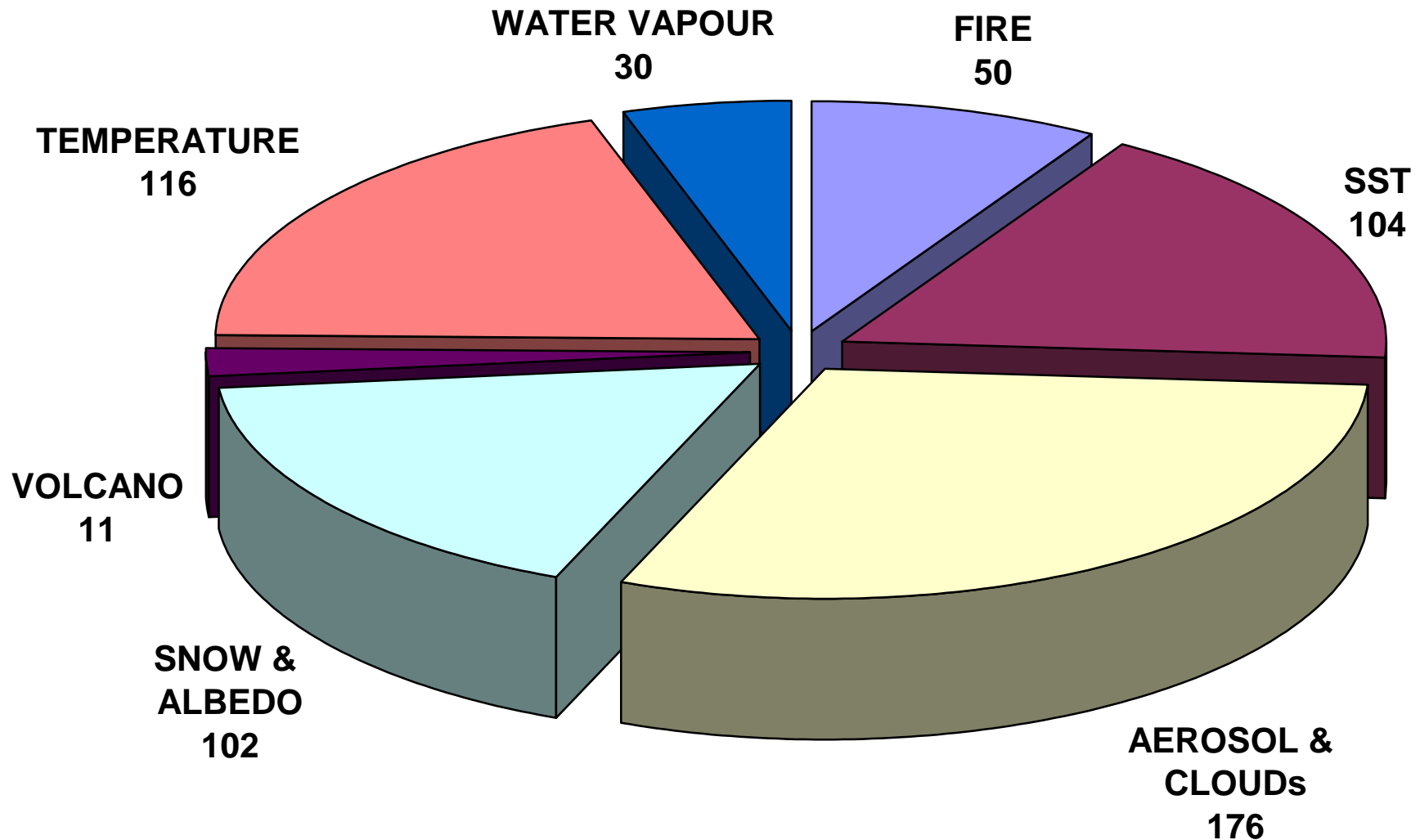
Olivier Arino,

I. Robinson (NOCS), C. Donlon (UK-MET/ESA), J-F. Piolle (IFREMER),  
S. Plummer (IGBP/ESA), S. Casadio (Serco/ESA), S. Pinnock (ESA),  
W. Lengert (ESA), P. Goryl (ESA), N. Houghton (ESA)

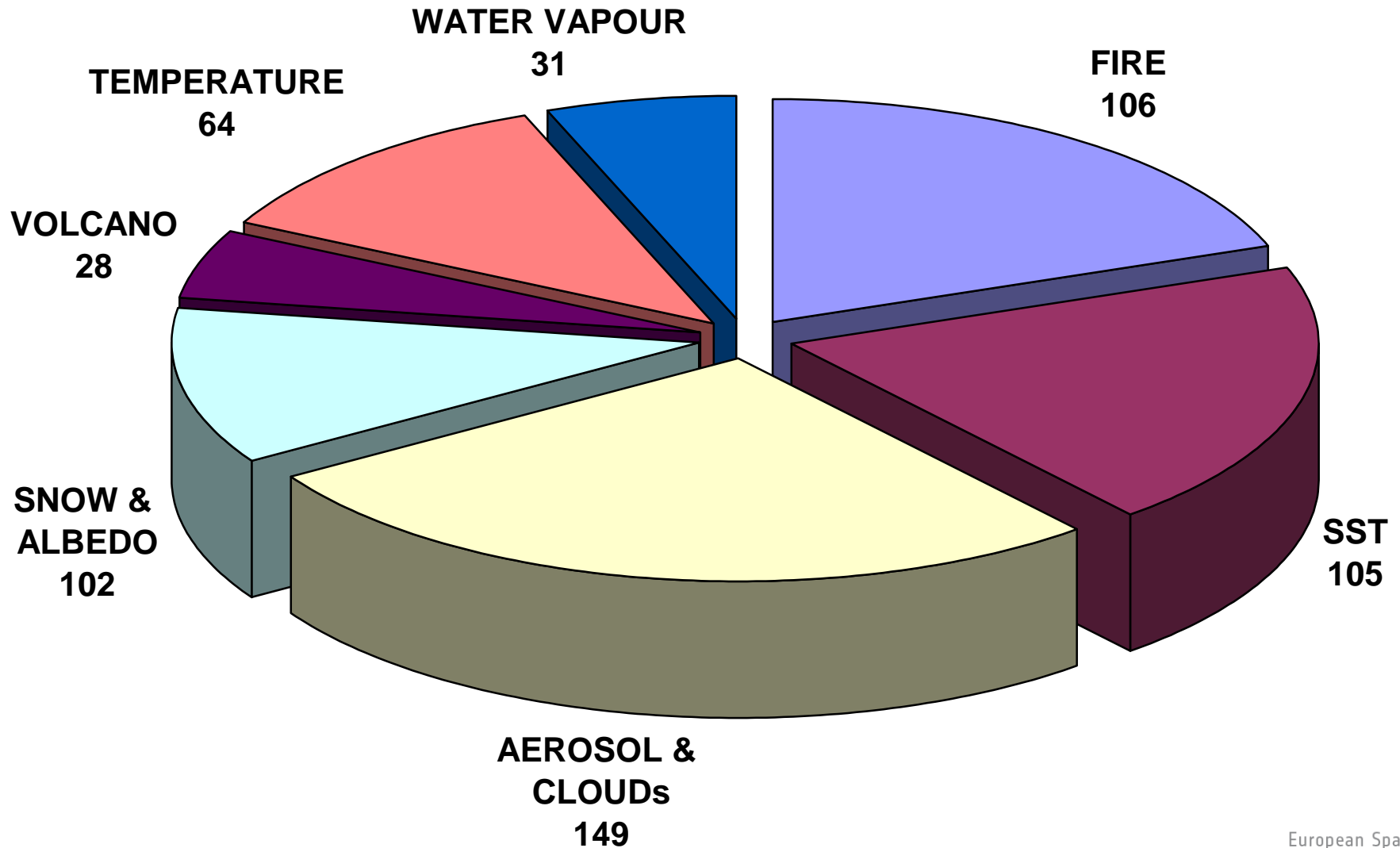
*ATSR Special Event,*  
22/109/2009



# 589 CAT-1 Projects exploiting (A)ATSR data distributed by Application

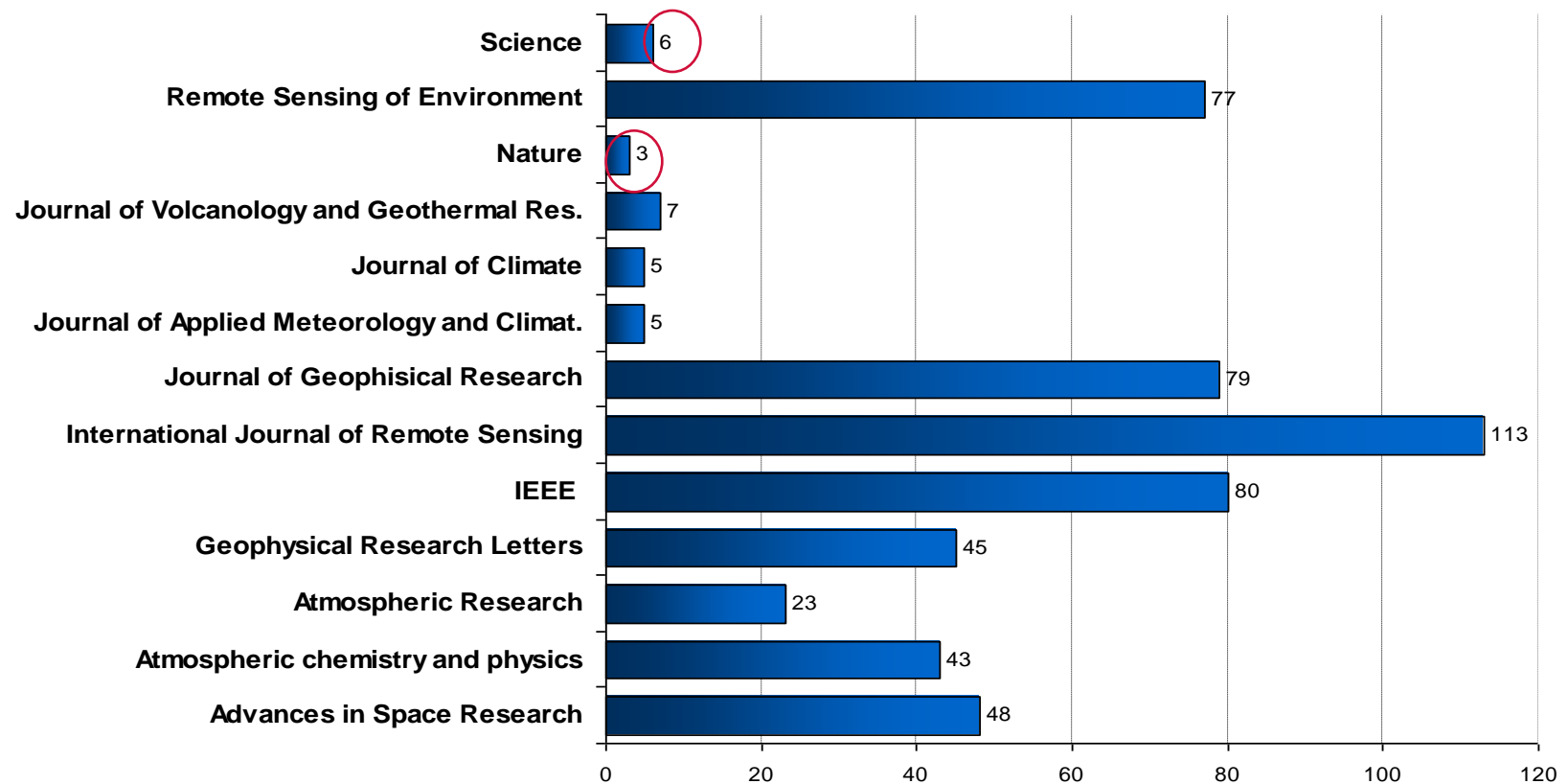


# 585 Publications exploiting (A)ATSR data distributed by Application



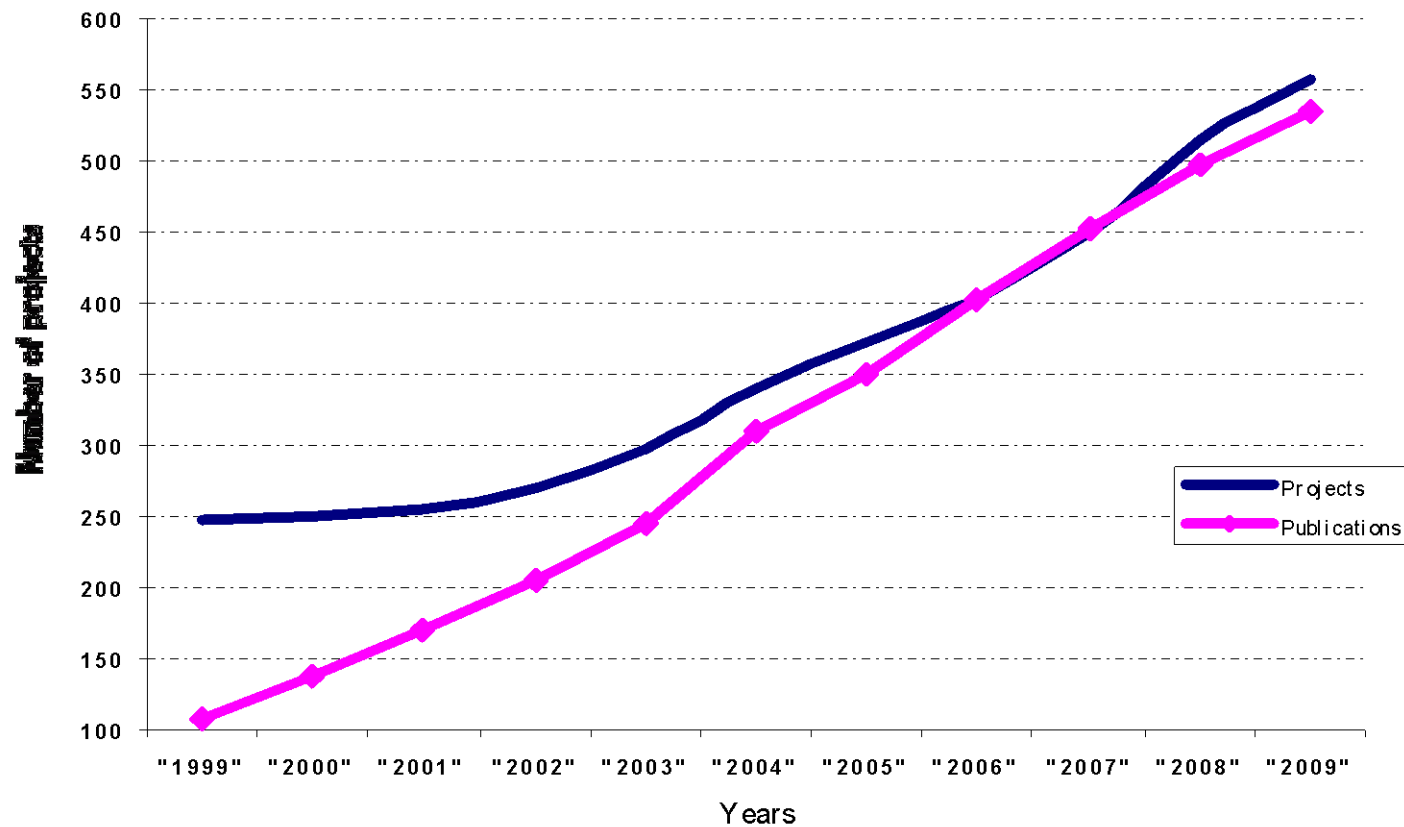
# Publications exploiting (A)ATSR data distributed by Journal

Total of **534** publications using (A)ATSR distributed by Journal

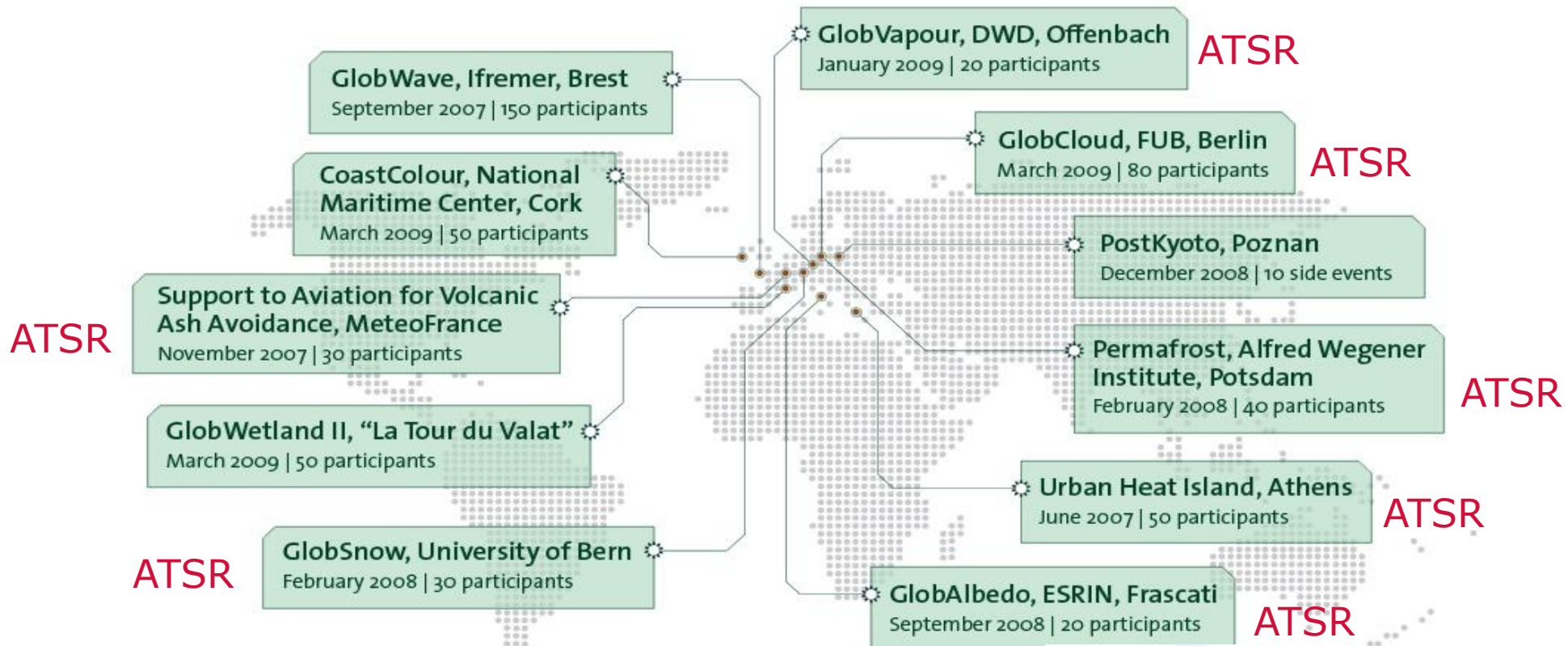


# Cat-1&Publications exploiting (A)ATSR data cumulative distributions

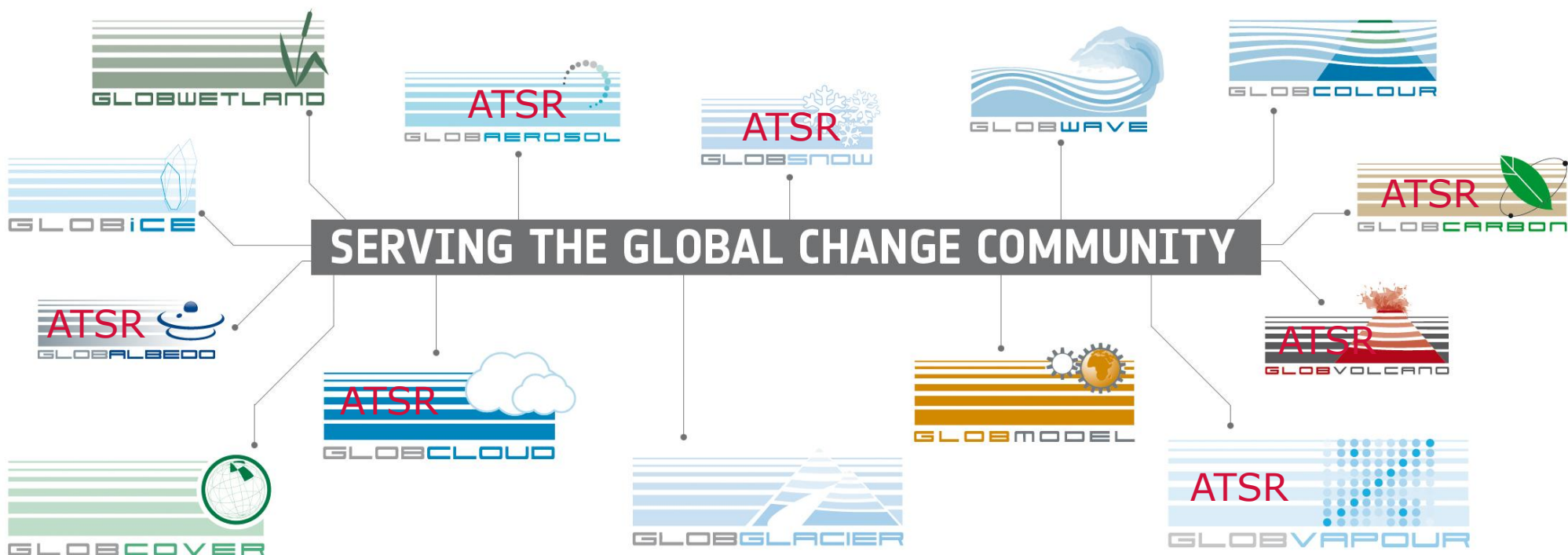
Cat-1 projects & publications using (A)ATSR cumulative distributions



# (A) ATSR in new Projects DUE User Consultations in 2008 and 2009



# (A)ATSR in Global Projects DUE GlobSeries branding



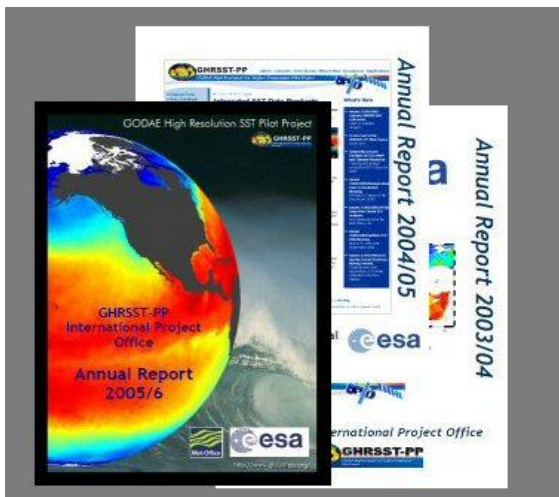
European Space Agency

# Link to International User Program: GODAE GHRSSST-PP



## Funding

GHRSSST office at the  
UK Met from  
2003 to 2008





# Sea Surface Temperature



# DUE Medspiration: Make (A)ATSR an operational service



- **Service Demonstration**: The Medspiration project did provide a European RDAC service to the GHRSSST-PP during 2004-2008 by generating and disseminating European, Atlantic and global area SST data products according to the GHRSSST-PP Detailed Processing Model .
- **User Consultation Meetings**: Medspiration service responds to the request for Ocean forecasting model for operational oceanography. Feedback from user community were presented during the 6 User Consultation meeting.

<b>Budget:</b>	1.2 M€
<b>KO:</b>	January 2004
<b>End:</b>	December 2008

## Project Team: NOCS, UK

- IFREMER, F
- CLS, F
- CMS Meteo, F
- CNR, I
- Met No, NO
- VEGA, UK

## Users Organisations (national and regional public authorities):

- DMI, Denmark
- ECMWF, European
- FOAM, Met Office, UK
- GHRSSST-PP, Intl
- MERCATOR, France
- NOAA/NODC, USA
- MET.NO, Norway
- MFC, Norway
- NPI, Norway
- RDANH, Denmark
- TOPAZ, International

- ✓ Global products derived from AATSR.
- ✓ Daily services
- ✓ Operational oceanography
- ✓ Strong European and international User community



# DUE Medspiration: products, access, dissemination



## European data archive

<ftp://ftp.ifremer.fr/ifremer/medspiration/data/>

OpenDAP : <http://www.ifremer.fr/cgi-bin/nph-dods/data/satellite/medspiration>

*Medspiration* (<http://www.medspiration.org>)

- HR-DDS : <http://www.hrdds.net/>
- Match-up Database : <http://www.medspiration.org/tools/mdb/>
- Google Earth : [http://www.medspiration.org/data\\_access/kml/](http://www.medspiration.org/data_access/kml/)
- Help desk : [fpafr@ifremer.fr](mailto:fpafr@ifremer.fr)

About 660 Gb/month (compressed => ~15 Tb)

Approx 90 users/month

Main users: Operational agencies and met offices

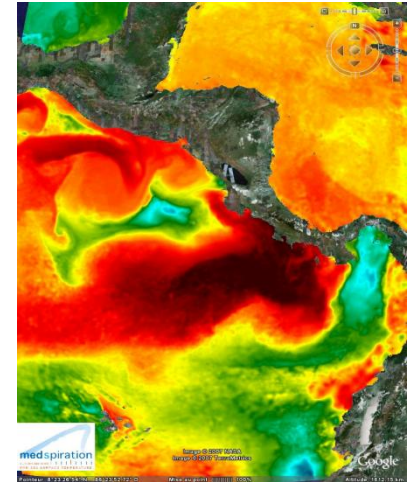
UK : 43%

DK : 35%

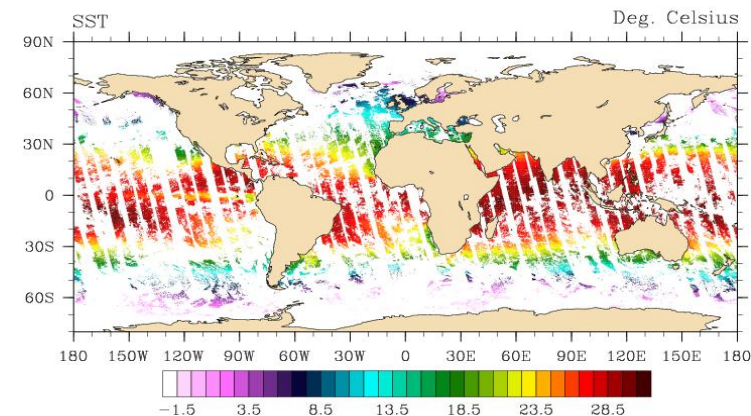
USA : 15.6 %

France : 4.5%

94 000 files produced, about 40 Tb



EUR-L2P-ATS\_NR\_2P, 02 Apr 2007



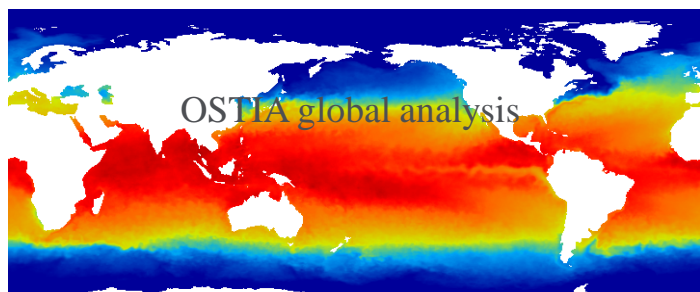
European Space Agency

# DUE Medspiration: data use (1)

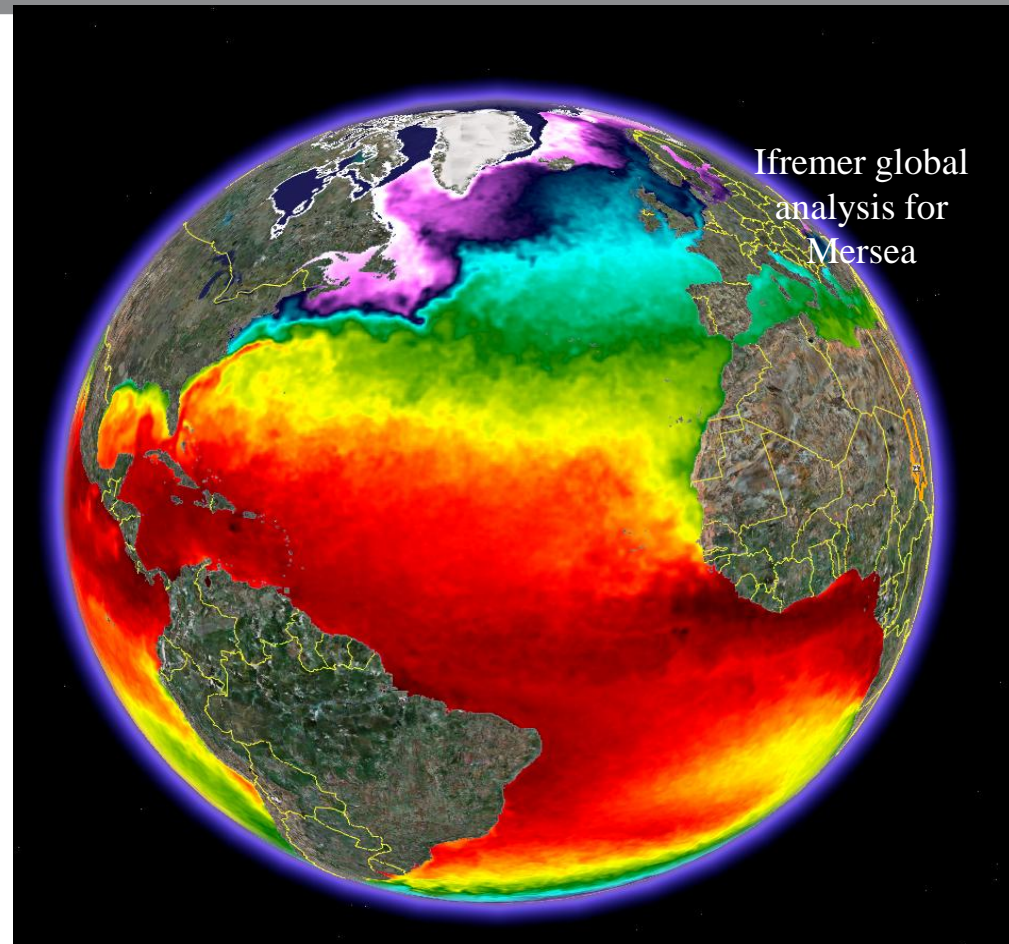


## Multi-sensor analyses

- Mersea (Ifremer) => GMES
- OSTIA (UKMet) => GMES
- Daily, global
- Use all L2P datastreams for merging
- **Use AATSR as reference for large-scale bias correction of all sensors**
- Use MDB for sensor error characterization



20070424\_UKMO\_L4UHfnd\_GLOB\_v02.nc\_720.pp  
Copyright Met Office 2007

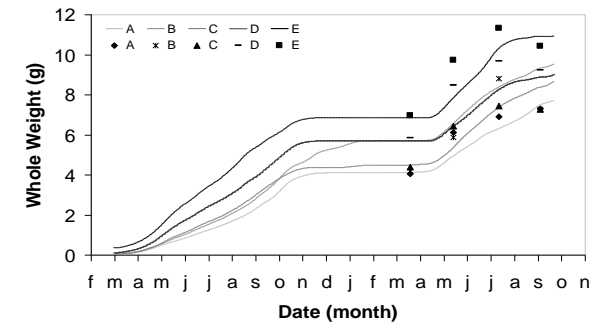
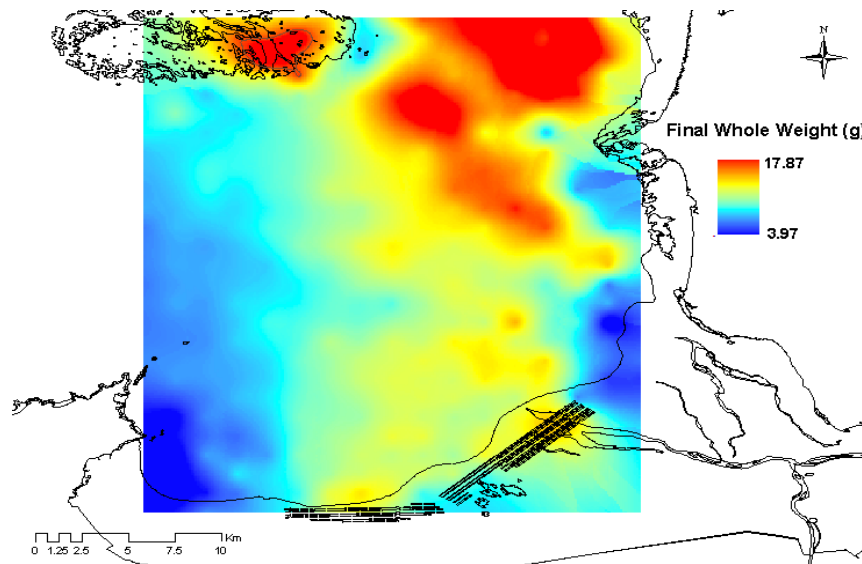
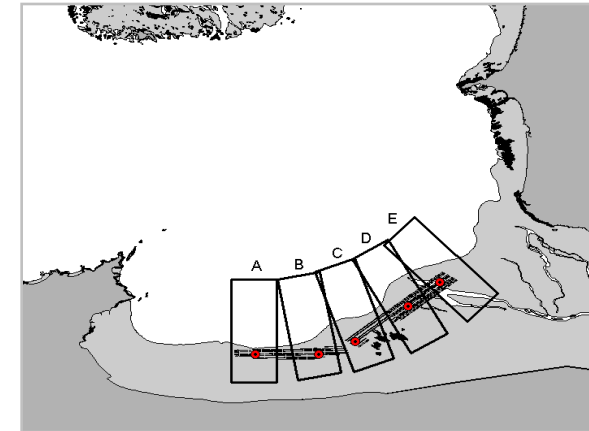


European Space Agency

# DUE Medspiration: data use (2)

Coastal oceanography applications:

Growth Model of mussels in Mont-Saint Michel Bay (Brittany-Normandy), one of the main sites of mussels (*Mytilus edulis*) farming, in France (local production : 10 000 tons / year, french production : 60 000 tons / year)



Final whole weight of mussels, after 19 month of growth simulated from satellite

temperature and chlorophyll,



# DUE Medspiration: data use (3)



**TV5MONDE**

accueil / informations / météo internationale

changer de langue : français

Personnalisation de votre météo

**météo internationale**

Paris Latitude 48°44' N Longitude 2°24' E Altitude 89 m

relevé le lundi 19 à 12:00 (heure locale)

7°C	Humidité relative 93 %
Direction du vent 5	Force du vent 14 km/h
couvert	Levier du soleil nc
	Coucher du soleil nc
	variation +nc
	La lune

Aujourd'hui dans le monde

MAX 42°C Telfer, AUSTRALIE  
MIN -34°C Jakutsk, RUSSIE, Fédération de

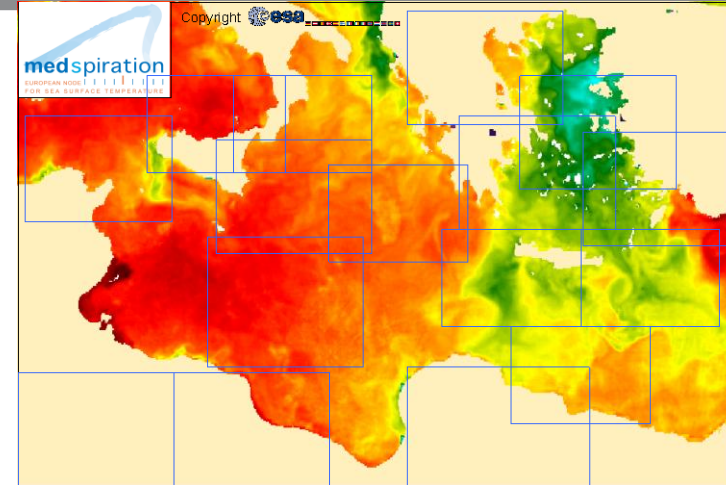
Météoblog : le blog météorologique  
Dernière note : Tendances saisonnières : un hiver doux ?

Météo des plages

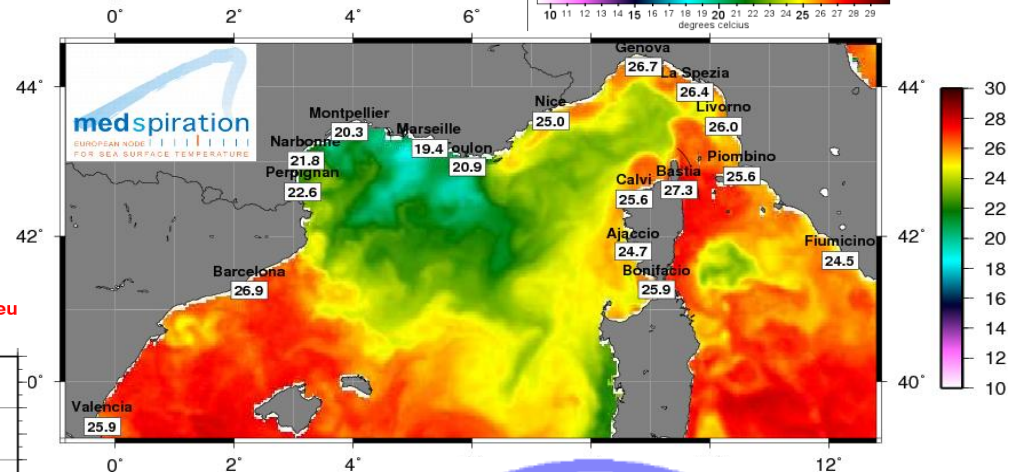
Cartes satellite

Actus météorologiques  
Par Frédéric Glassey

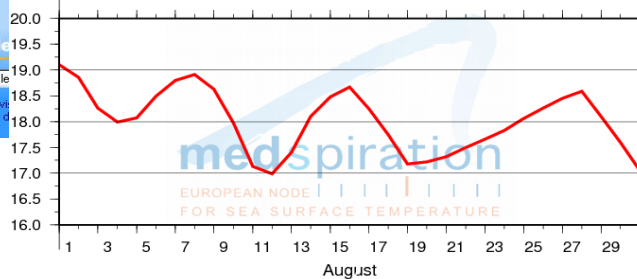
Outils



Medspiration/Golf of Lion – Sea Surface Temperature



Medspiration – Sea Surface Temp. (°C) from 01/08/2006 to 31/08/2006



European Space Agency

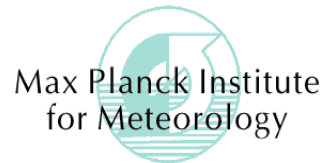
# Carbon cycle



# DUE GlobCarbon 'Champion' Users



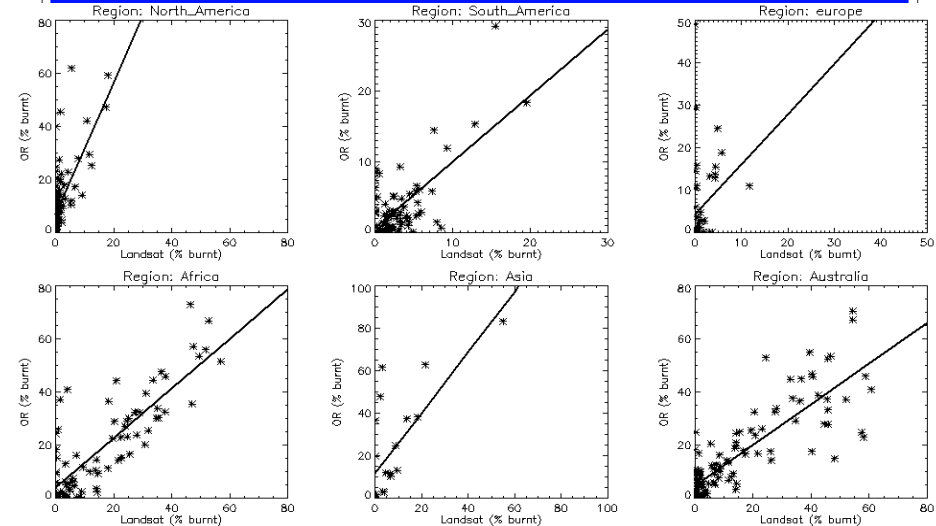
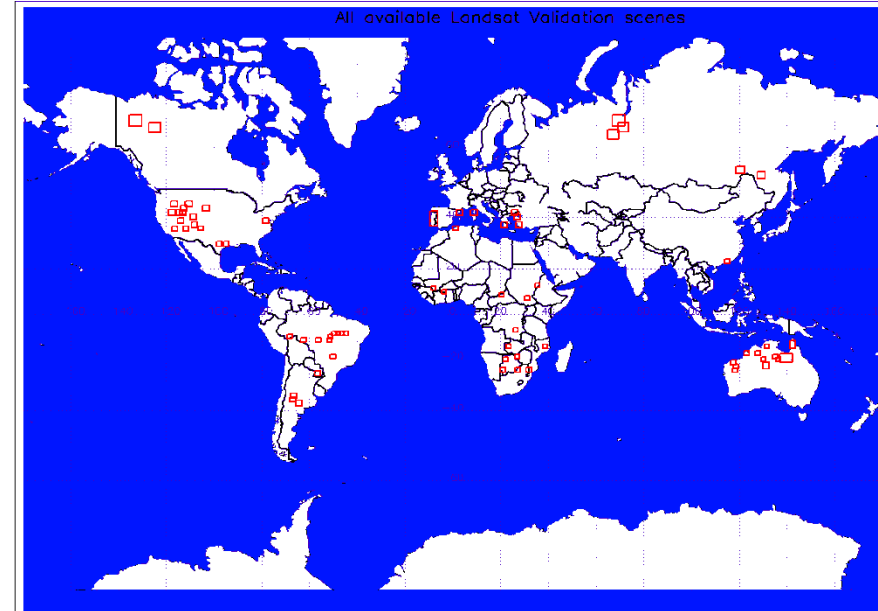
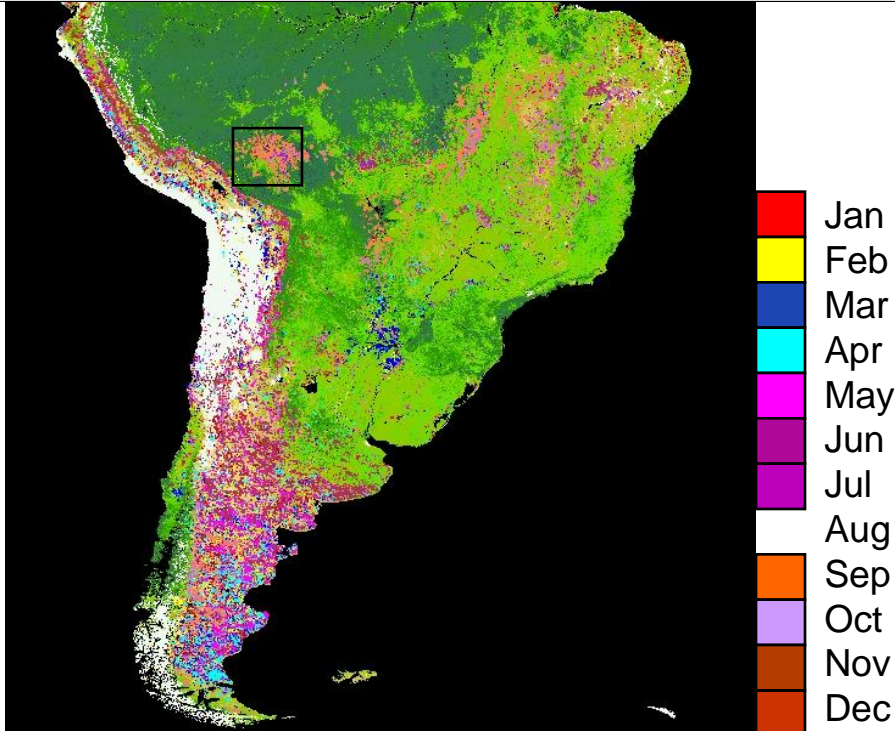
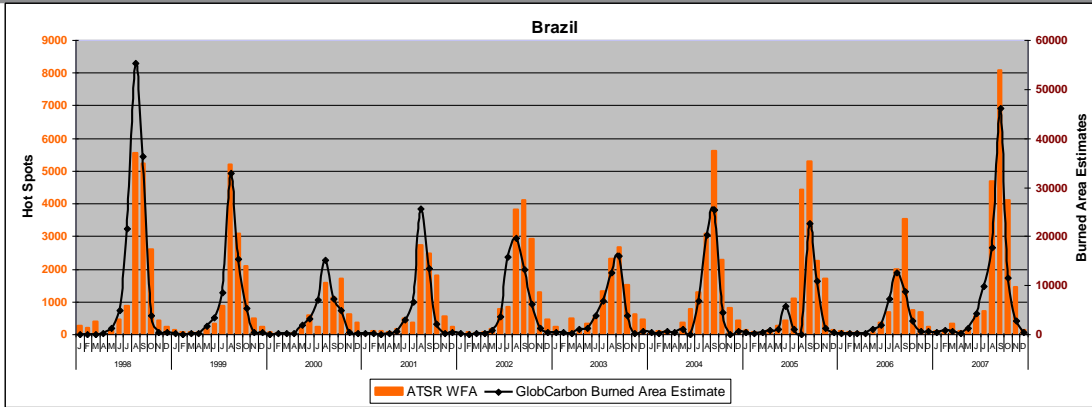
Four key research institutes, one GMES project and one key programme involved to specify needs and use products. VITO implemented and operated the processing.



European Space Agency



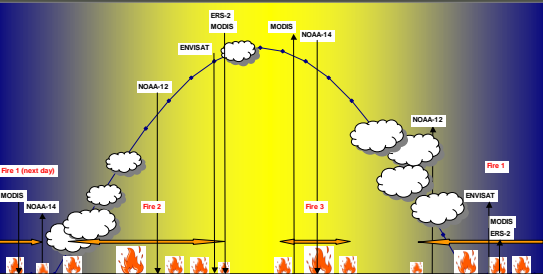
# DUE GlobCarbon products & Validation



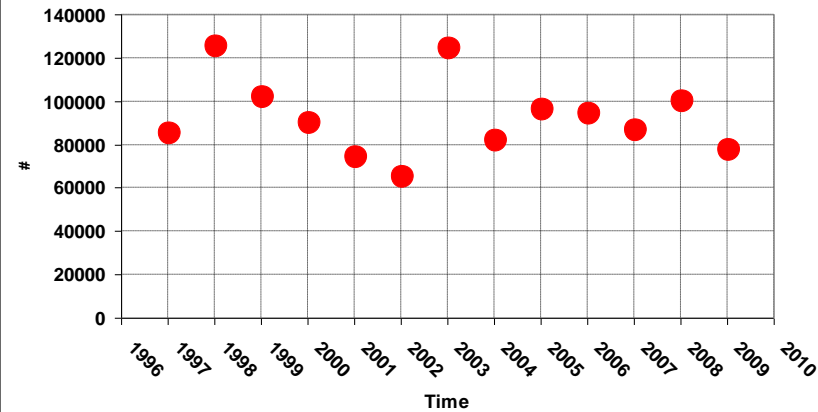
# ATSR World Fire Atlas



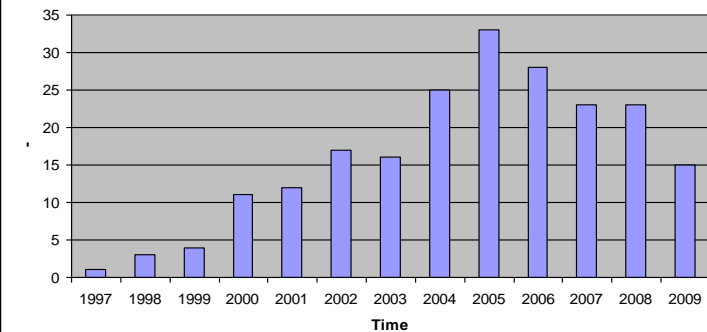
07 - 1996



ATSR-WFA ALGO1 hot spots



Papers related to ATSR-WFA

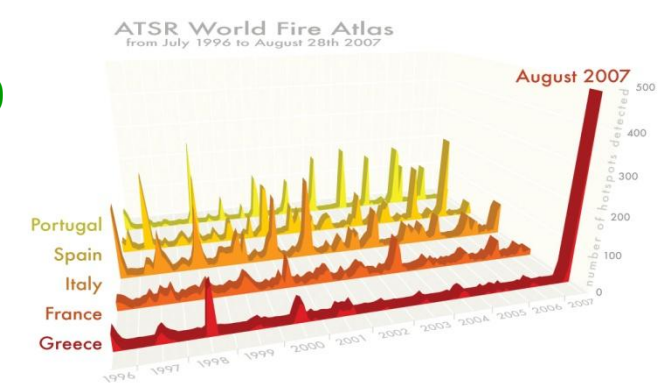
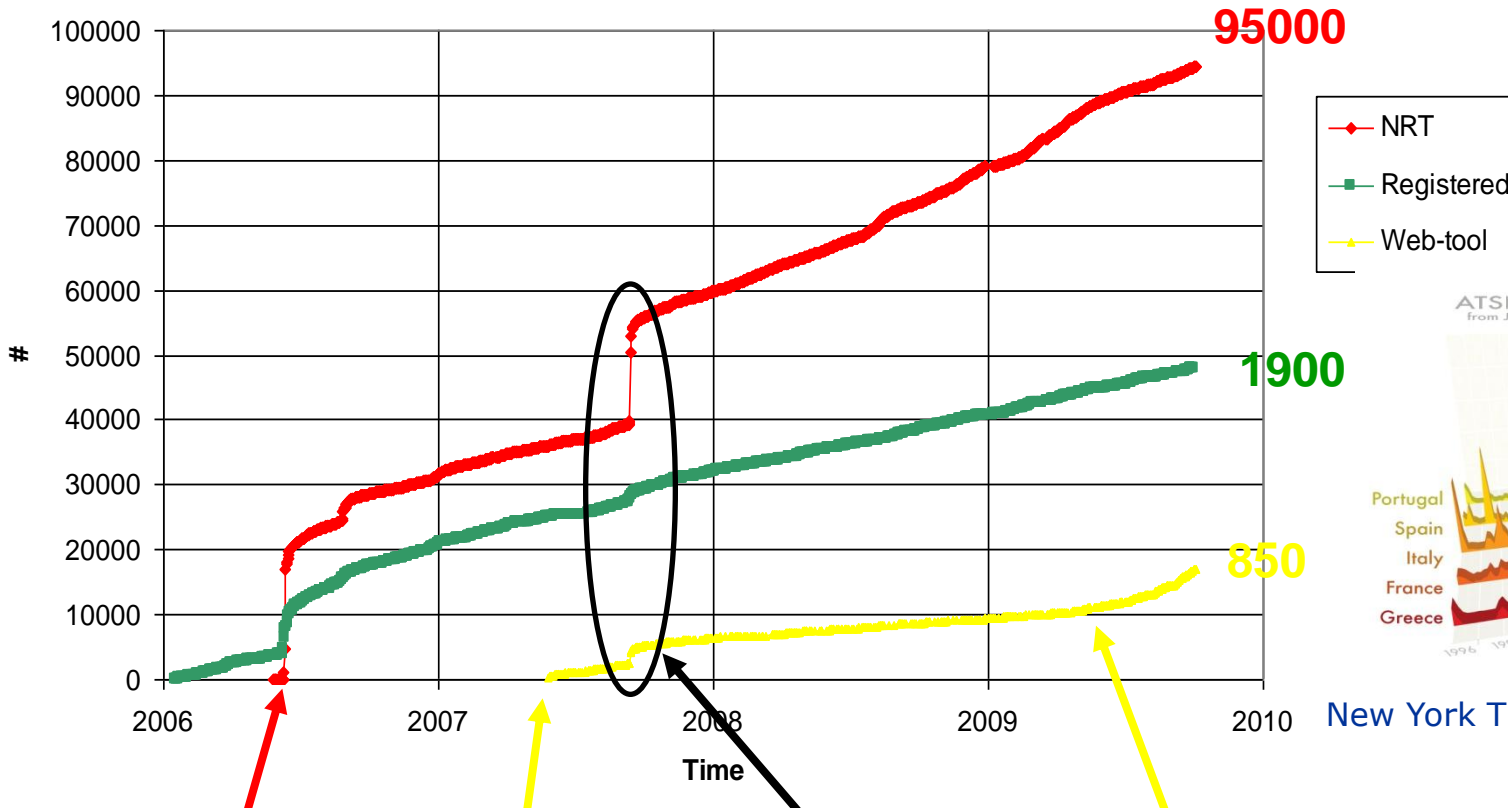


Arino and Casadio, 2009

# ATSR-WFA: user trends



## ATSR-WFA Users



New York Time, Liberation, 30 August 2007

**NRT on-line  
May 2006**

**Web-Tool  
May 2007**

**Fire Greece  
Aug 2007  
ESA web story**

**Web-Tool + Google  
May 2009**

**Registered before 2006 ~ 70**

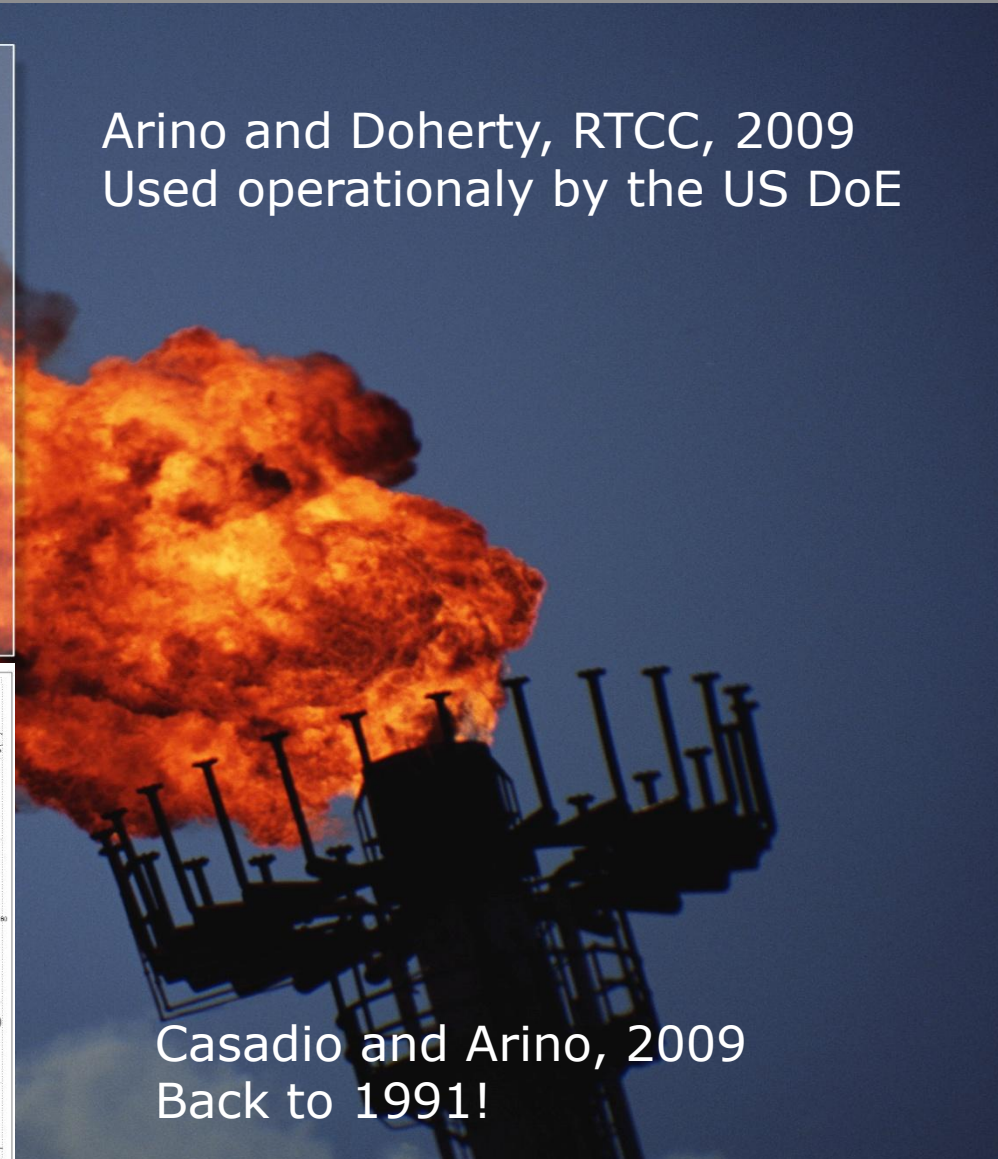
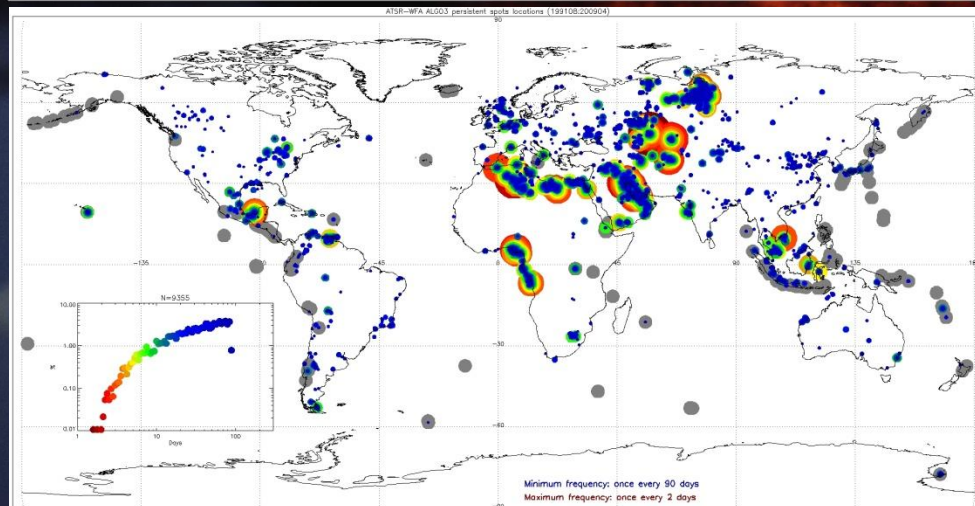
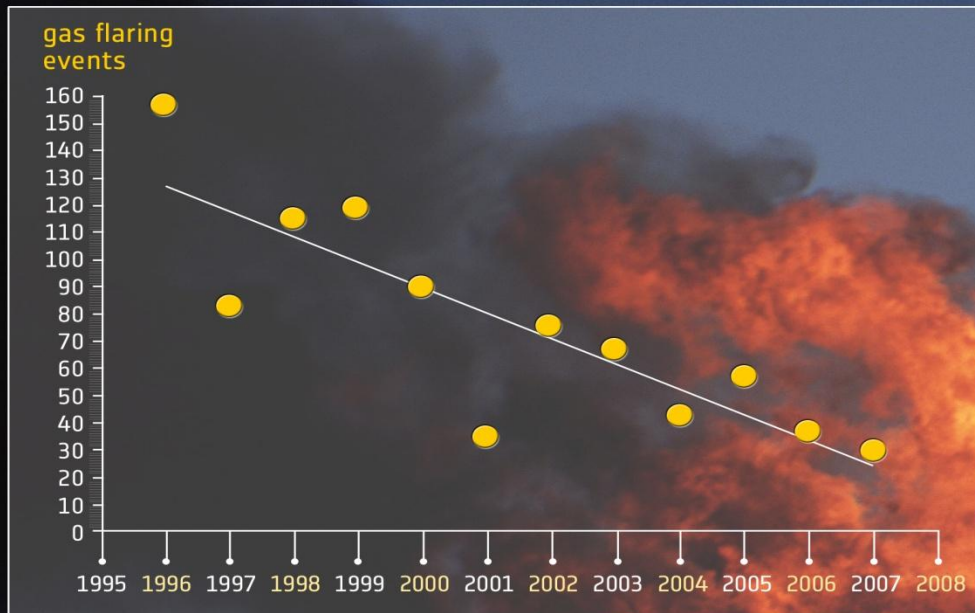


European Space Agency

# Gas Flares



# ATSR-Gas Flares



Arino and Doherty, RTCC, 2009  
Used operationally by the US DoE

Casadio and Arino, 2009  
Back to 1991!

# Aerosol



# DUE GlobGlobAerosol 'Champion' Users



## Objective:

- Respond to users needs in atmospheric modelling (Users: ECMWF, MPI-Met, EMEP, ...)
- Produce a global aerosol data set covering 1995-2007 using ATSR-2, AATSR, MERIS and SEVIRI
- Perform trial exploitation in chemistry transport models

## Status:

- 12 year aerosol data set (AOD, Angstrom, speciation, error estimates) completed
- Validation and intercomparison with AERONET, MODIS, MISR, AVHRR
- Pilot exploitation experiments in chemistry transport models

All project results available from: [www.globaerosol.info](http://www.globaerosol.info)

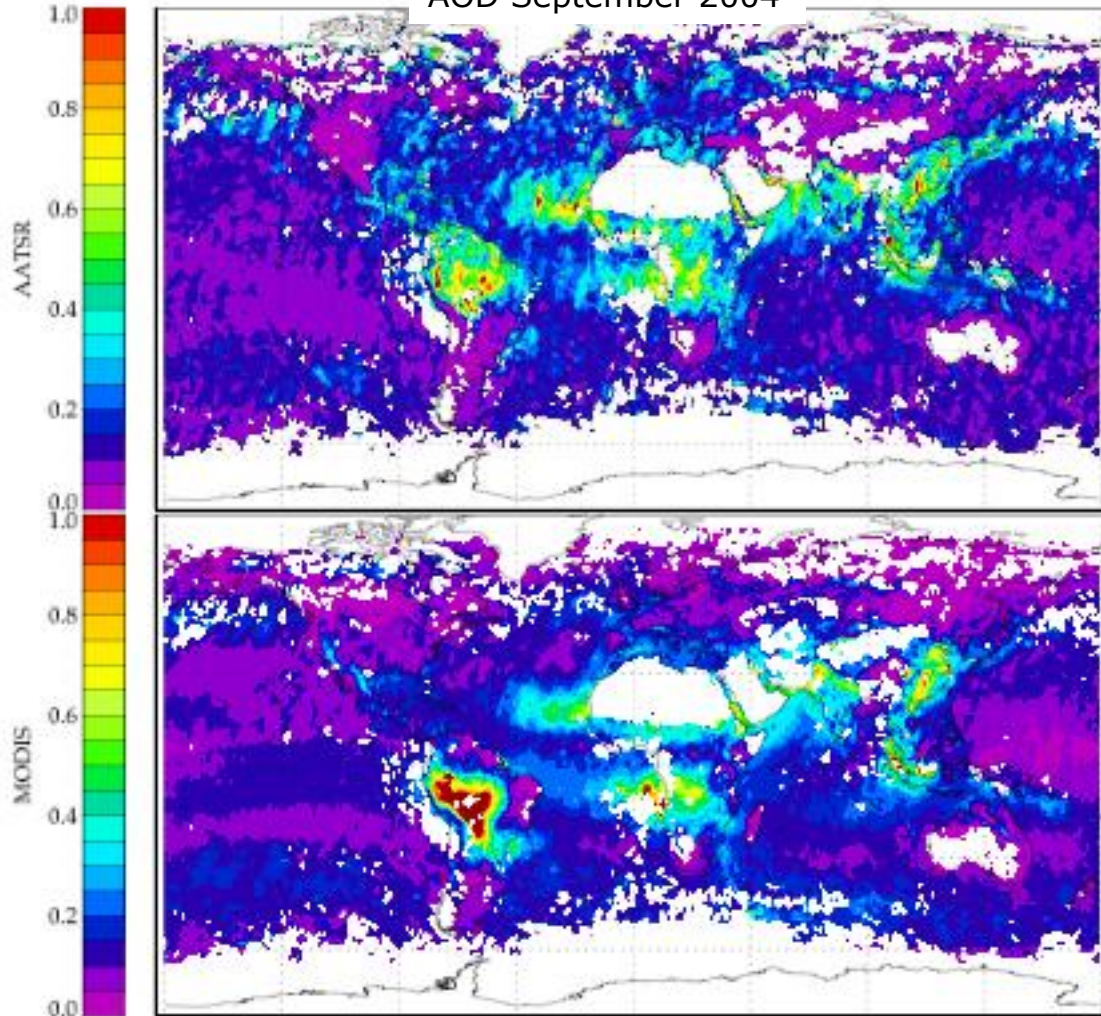


European Space Agency

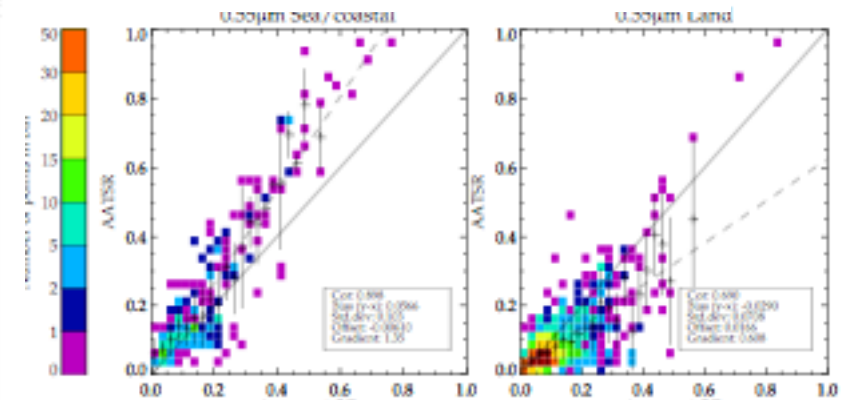
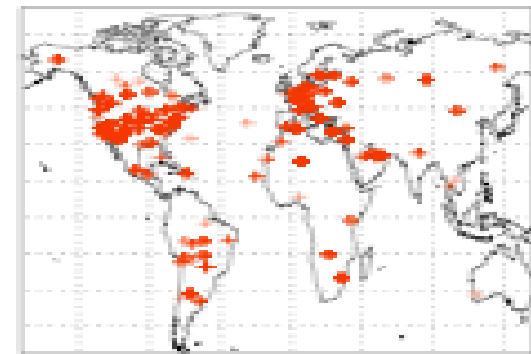


# DUE GlobGlobAerosol products and validation

AOD September 2004



## AATSR Validation & Intercomparison

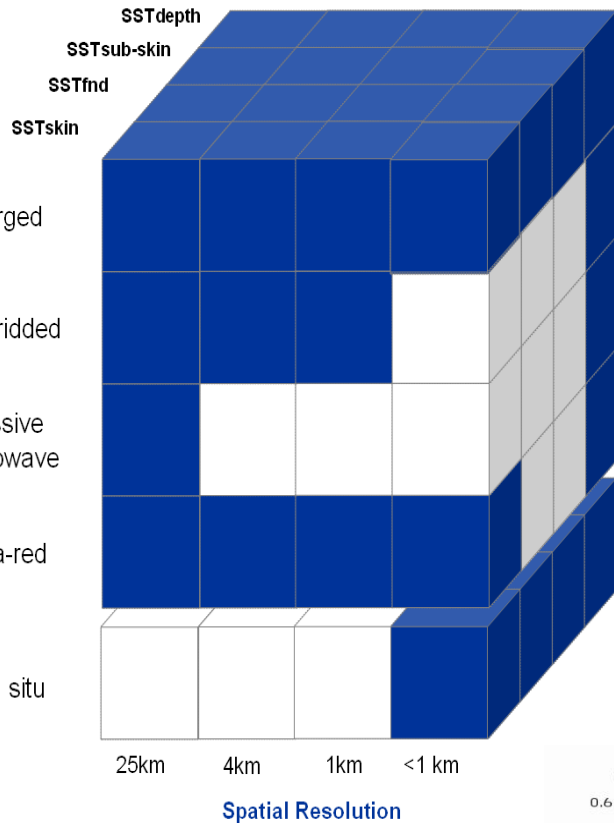


AERONET sun photometer AOD

# Climate Change Initiative



# The CCI's ECVs: SST, Fire, Aerosol

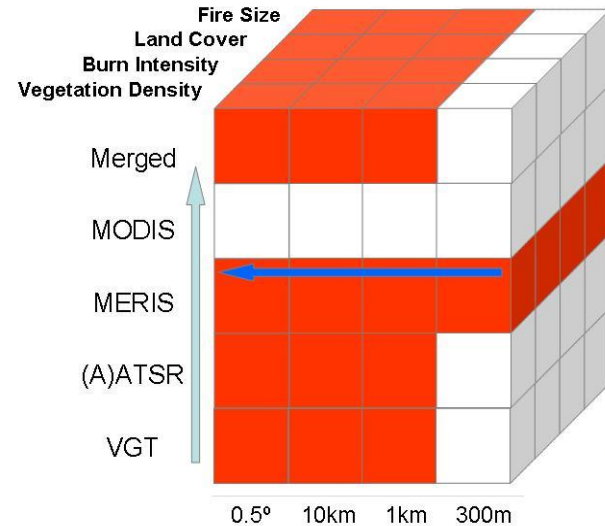


**Key Science Bodies:**  
GHRSS, CLIVAR, GCOS  
SST/SI WG

**Key Users:**  
Short term, seasonal, decadal  
forecasting systems and  
climate projection modelling  
community.

Time n – other cubes exist for  
n+1 etc

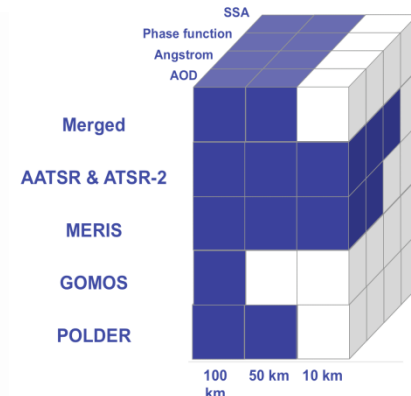
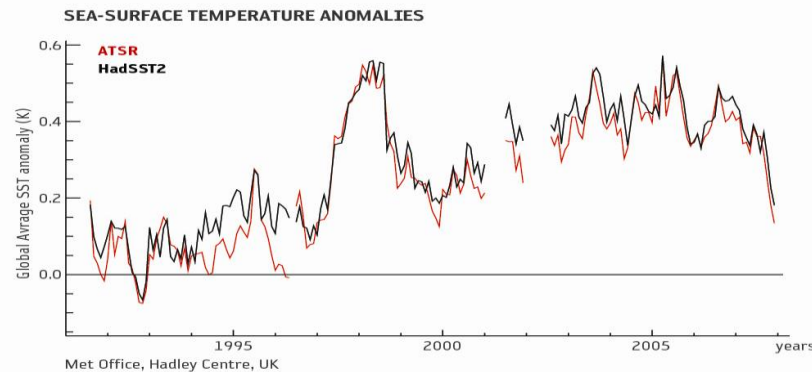
**Key Science Bodies:**  
CEOS, GCP, GOFC, AIGES



**Users:**  
Met Offices  
e.g. UKMO,  
MPI-M, ECMWF  
ES Science  
Projects e.g.  
AIMES/GEIA,  
QUEST, DGVM  
Modellers  
(LSCE, LPJ,  
CTCD)

Time n – other cubes  
exist for n+1 etc

→ Merging across satellites → Spatial Aggregation



## The next 20 Years

- GMES Sentinels free and open data policy
- Facilitating data access
- Doing science with operational observations
- Stimulating exploitation (GMES services)
- Consolidating Climate Change Initiative
- Developing Harwell Space Innovator Center