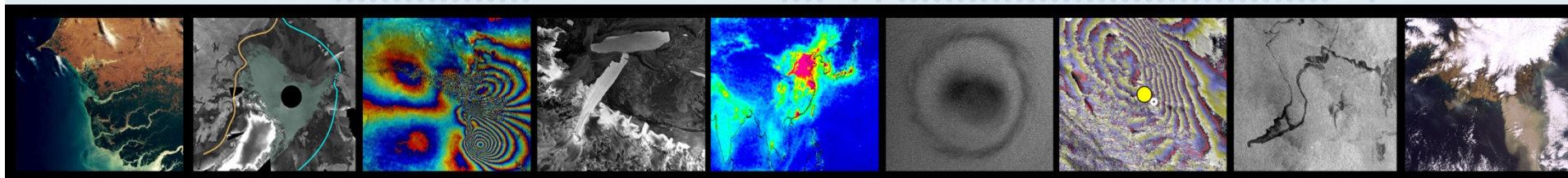
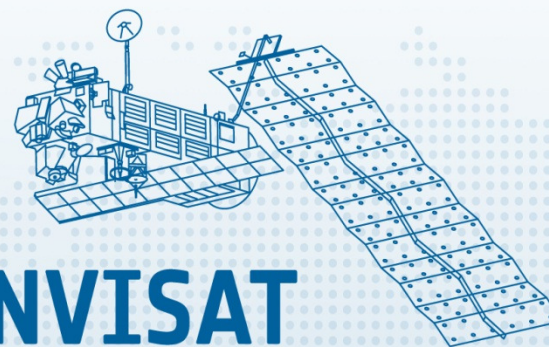


Ifremer, Brest, 8th March 2012



→ 10 YEARS OF ENVISAT



Henri Laur
Envisat Mission Manager

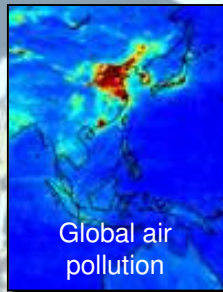
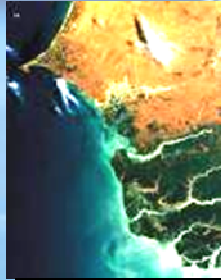


ENVISAT mission: 10 years



Launch

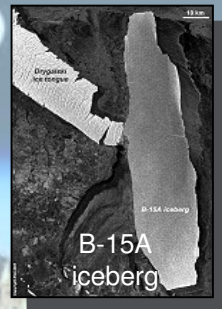
First images



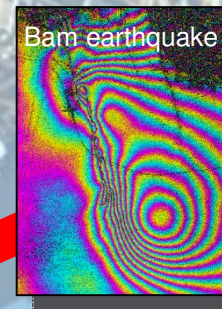
Global air pollution



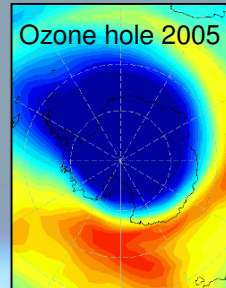
Prestige tanker oil slick



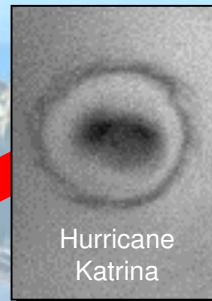
B-15A iceberg



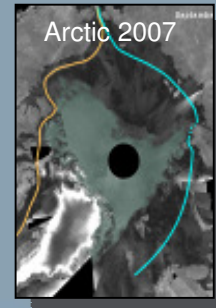
Bam earthquake



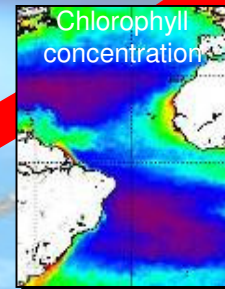
Ozone hole 2005



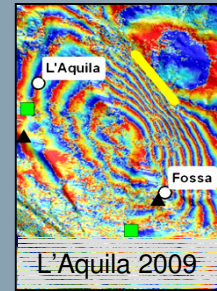
Hurricane Katrina



Arctic 2007



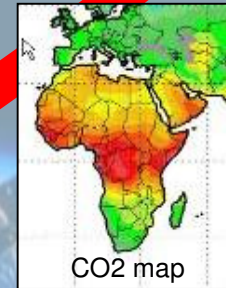
Chlorophyll concentration



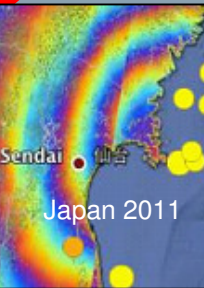
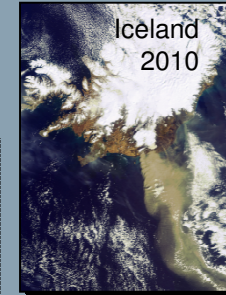
L'Aquila

Fossa

L'Aquila 2009



CO2 map



Sendai

Japan 2011

**Serving
4000 scientific projects
and
many operational users**

Envisat
Symposium
Salzburg (A)

Envisat
Symposium
Montreux (CH)

Living Planet
Symposium
Bergen (N)

Mar 02

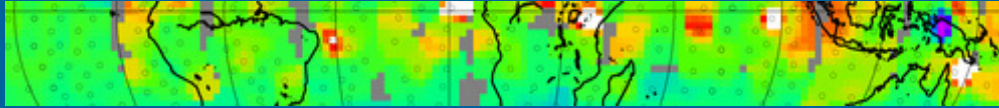
Sep 04

Apr 07

Jun 10

Mar 12

and many workshops dedicated to specific Envisat user communities



MIPAS



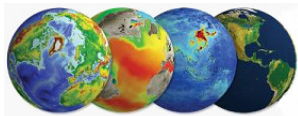
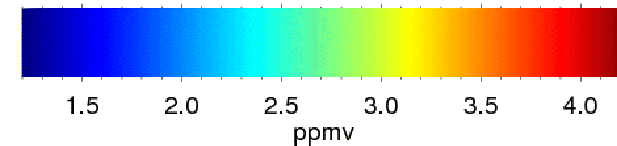
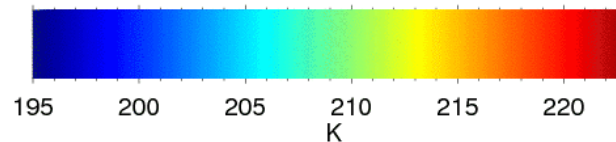
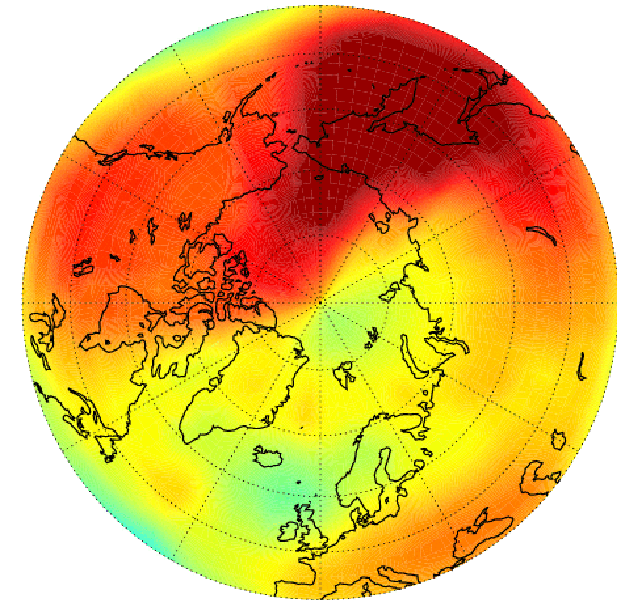
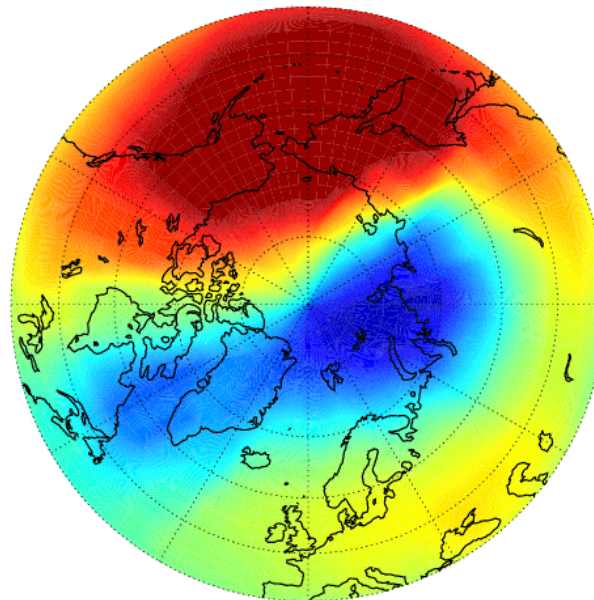
Arctic ozone depletion in spring 2011



MIPAS Temp 20110202 50.00 hPa

MIPAS O3 20110202 50.00 hPa

Exceptionally strong ozone depletion was observed in Arctic at end of winter 2011



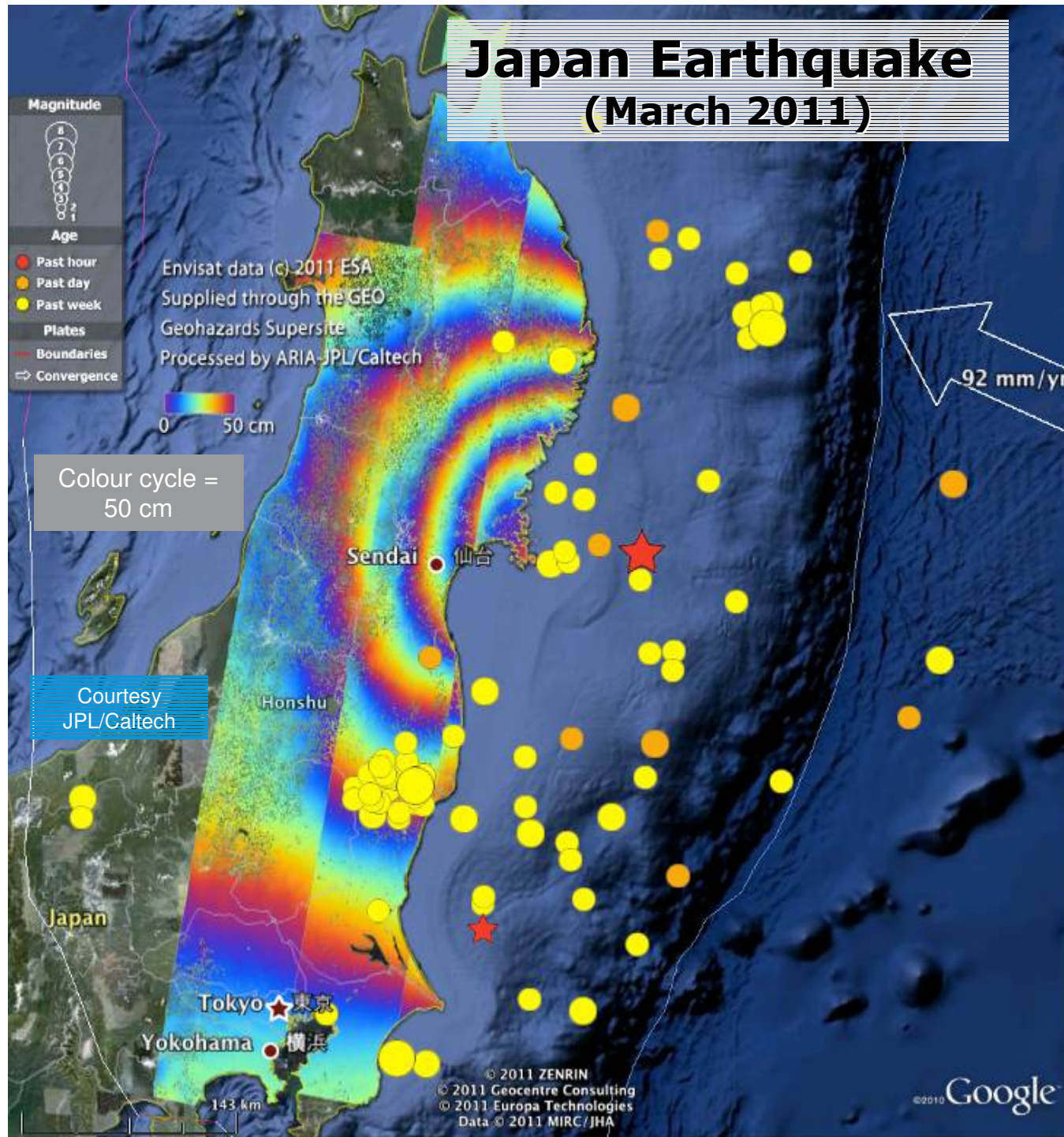
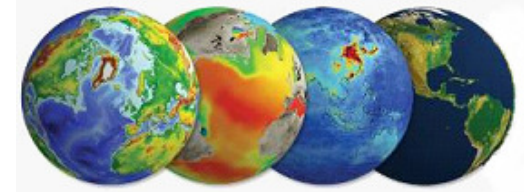
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Karlsruhe Institute of Technology (KIT)

→ 10 YEARS

European Space Agency

Japan Earthquake (March 2011)



Thanks to the background data acquisitions (pre-seismic acquisitions in February 2011), it is possible to generate a mosaic derived from many Envisat ASAR interferograms (combining with post-seismic acquisitions in March 2011).

The mosaic provides a detailed estimation of the terrain movement on a very large scale.

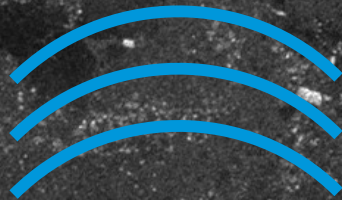
Colour cycle: 50 cm (line of sight)

Japan tsunami caused icebergs to break off in Antarctica



12 MARCH 2011

*Sulzberger
Ice Shelf*



16 MARCH 2011

→ 10 YEARS

A constant objective:

→ *ease access to Earth Observation data*

- ❑ **Common objective for all missions data handled by ESA:**
Envisat, ERS, Earth Explorers, and Third Party Missions
- ❑ **ESA EO data policy simplified in 2010:**
 - **open and free of charge** for most data (user registration)
 - some restrictions for some SAR data and some 3rd Party Missions
- ❑ **Internet access to Near Real Time (NRT) data and to archived data**
- ❑ **Development of alternative ways to provide data (e.g. processing on demand, toolboxes)**
- ❑ **Maintain effort in improving quality of products (algorithms, validation)**
- ❑ **Maintain effort in exploiting data (e.g. ESA Climate Change Programme)**

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→ 10 YEARS

10 years of successful exploitation



□ 10 years of exploitation:

✓ *Envisat was designed for 5 years nominal lifetime*

□ Satellite:

✓ *good status of platform*

✓ *ten on-board instruments work satisfactorily, except GOMOS*

□ Ground segment:

✓ *80+ types of operational products*

✓ *1000 TBytes of data so far*

□ Earth sciences users:

✓ *4000 science projects*

✓ *2000 science publications*

□ Operational users:

✓ *strongly used by GMES Services*

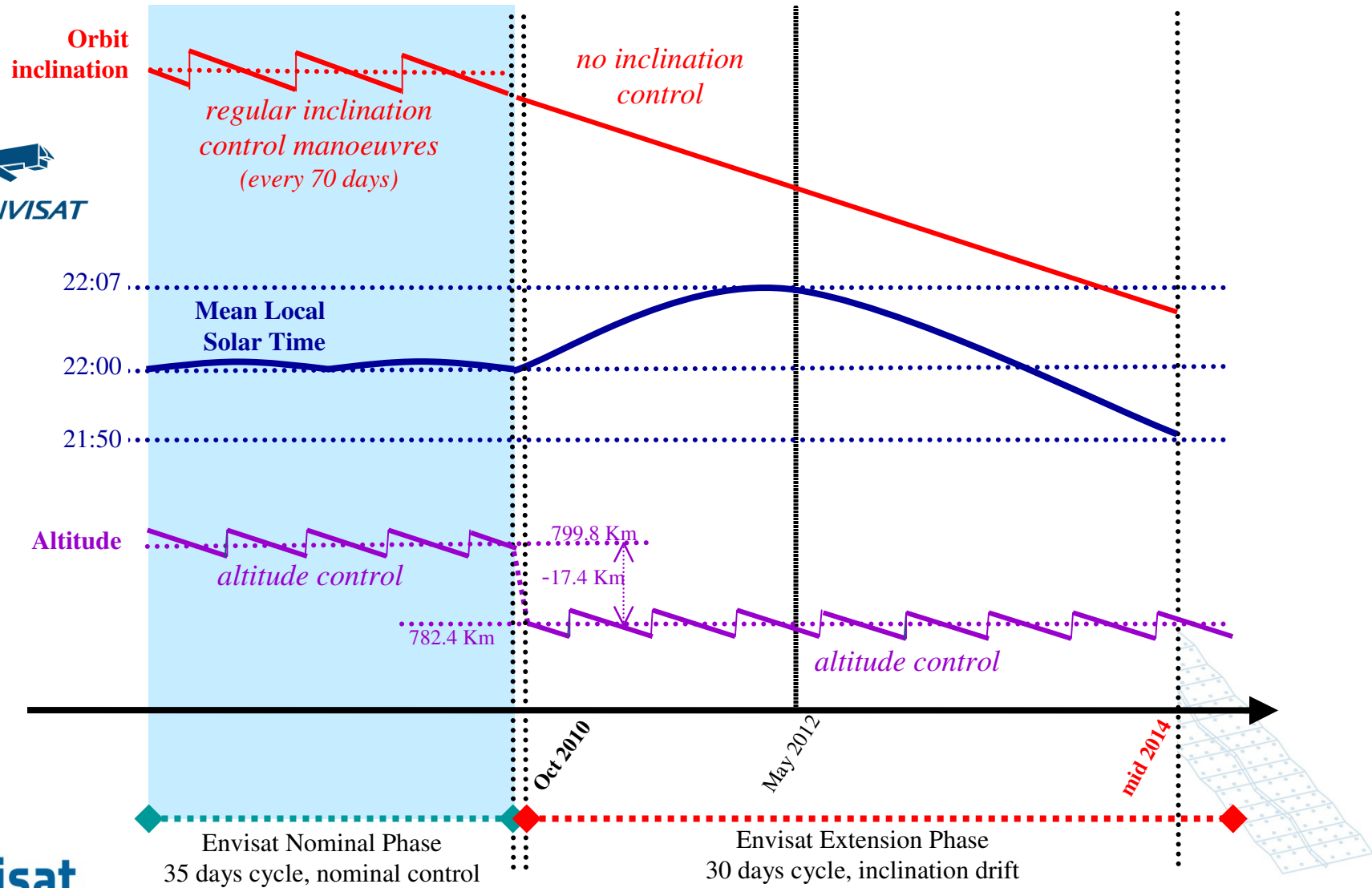


- The Envisat mission is currently within a **3-years extension phase**: years 2011 and 2012 approved within ESA Earth Observation Envelope Programme 3rd period (2008-2012), and year 2013 proposed within Earth Observation Envelope Programme 4th period (2013-2017).
- This 3-years extension phase, decided by ESA Member States in 2009, was technically possible through a **scenario allowing a strong reduction of the fuel consumption** with the lowest possible impact on the data quality of the ten on-board instruments.

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Envisat orbital scenario decided in 209



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→ 10 YEARS

At time of the preparation of the new orbital strategy in 2007-2008, the assumption was that the extension would be technically possible and needed until end 2013.

Since then, **3 key parameters and assumptions have evolved:**



❑ Different context for the follow-on Sentinel missions:

Sentinel-1A (SAR), Sentinel-3A (OLCI, SLSTR, Altimetry) and Sentinel-5P (Atmospheric composition) will ensure the Envisat follow-on measurements. These missions will not be in a position to **fully** substitute the Envisat data operational delivery before 2014 and in some cases before 2015.

❑ Good health of the platform and payload:

The overall status of the platform and the ten instruments is **satisfactory**, after almost 10 years of operations. The only exception is the GOMOS instrument.

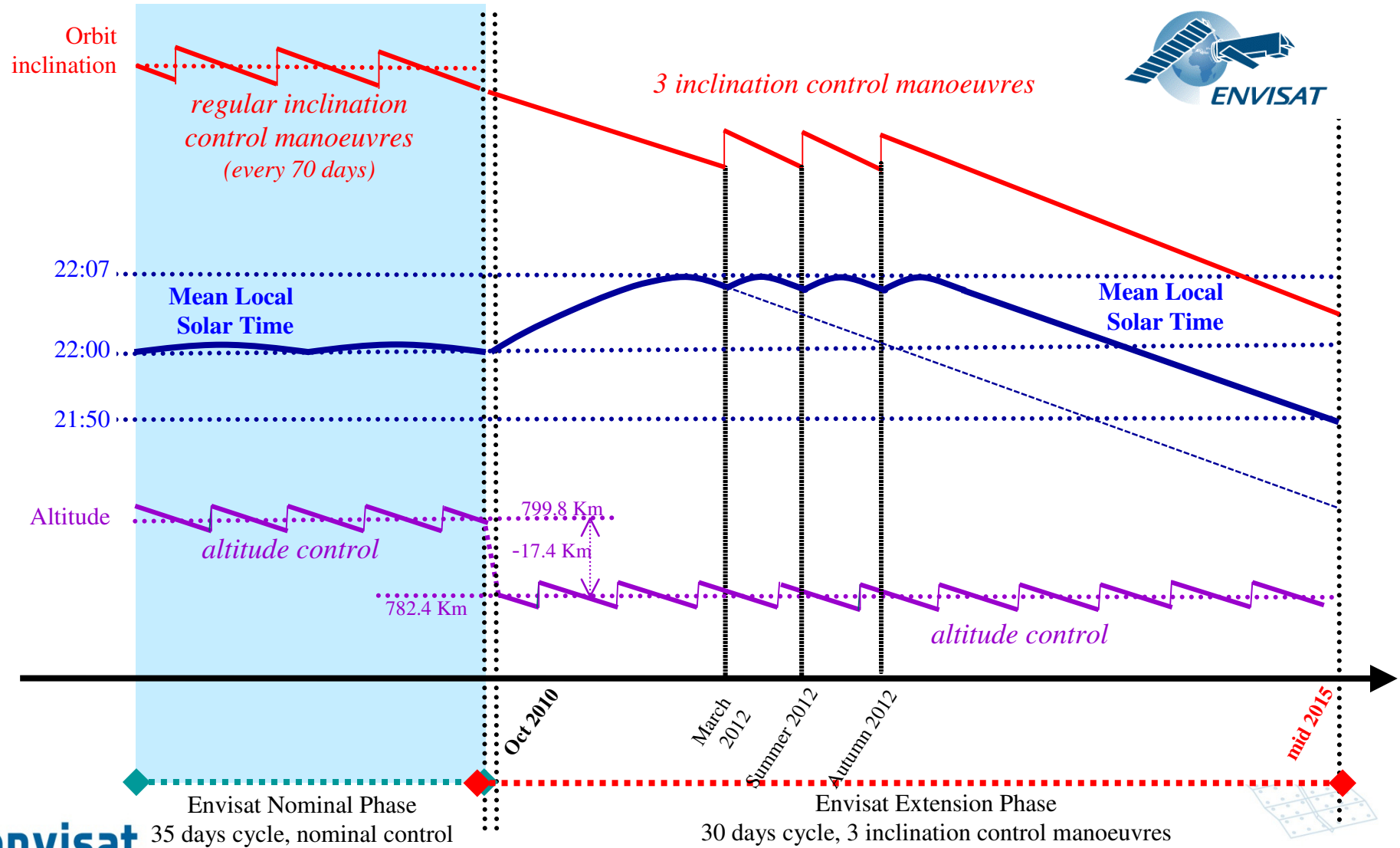
❑ Updated estimation of the remaining on-board fuel:

The assumptions on the fuel consumption were conservative.

The 2010 orbital change went flawlessly, with less fuel consumption than estimated. In addition there was no anomalies (e.g. safe mode) that would consume an high quantity of fuel during the recent years. Note that the collision avoidance manoeuvres (7 manoeuvres in the last two years) do not consume a lot of fuel (average 0.2 kg per avoidance manoeuvre).

+ **lessons learned from ERS-2 deorbitation**

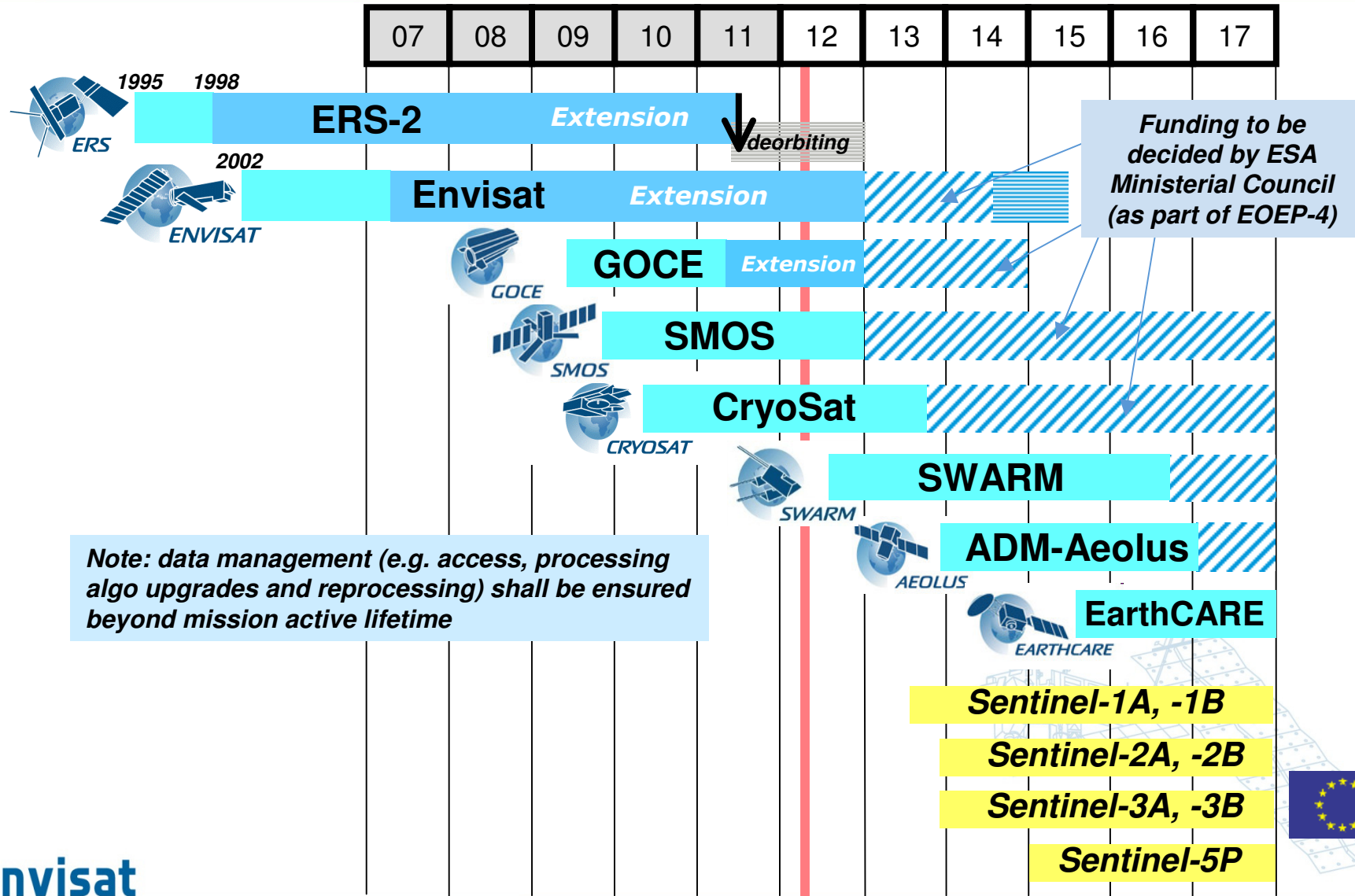
... leading to a refinement of the 2009 strategy



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→ 10 YEARS

EO missions in operations



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→ 10 YEARS





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

<http://www.esa.int/envisat>

***Brittany seen by Envisat MERIS on 8 April 2011
(sand from Sahara / plankton bloom)***