

PROBA2 MISSION OVERVIEW

PROBA2 Science Meeting 6, November 6 2012
Académie Royale de Belgique, Brussels

TIMELINE SINCE SWT5

- 3 May '12: “On-Orbit degradation of solar and space weather instruments” workshop at ROB
- 4 May '12: **SWT5** at the Royal Observatory of Belgium
- 27 June '12: Mission Extension Operations Review ESTEC -> **green light for PROBA2**
- 30 June '12: Deadline for proposals in **Guest Investigator Program III**
- 31 July '12: Selection of 7 Guest Investigators for Sep 2012 - Jun 2013
- 8 October '12: **Mission Extension Plan** presented at Solar System Exploration Working Group

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- November '12: **SPC decision on PROBA2 Mission Extension** until 2014 (or 2016)

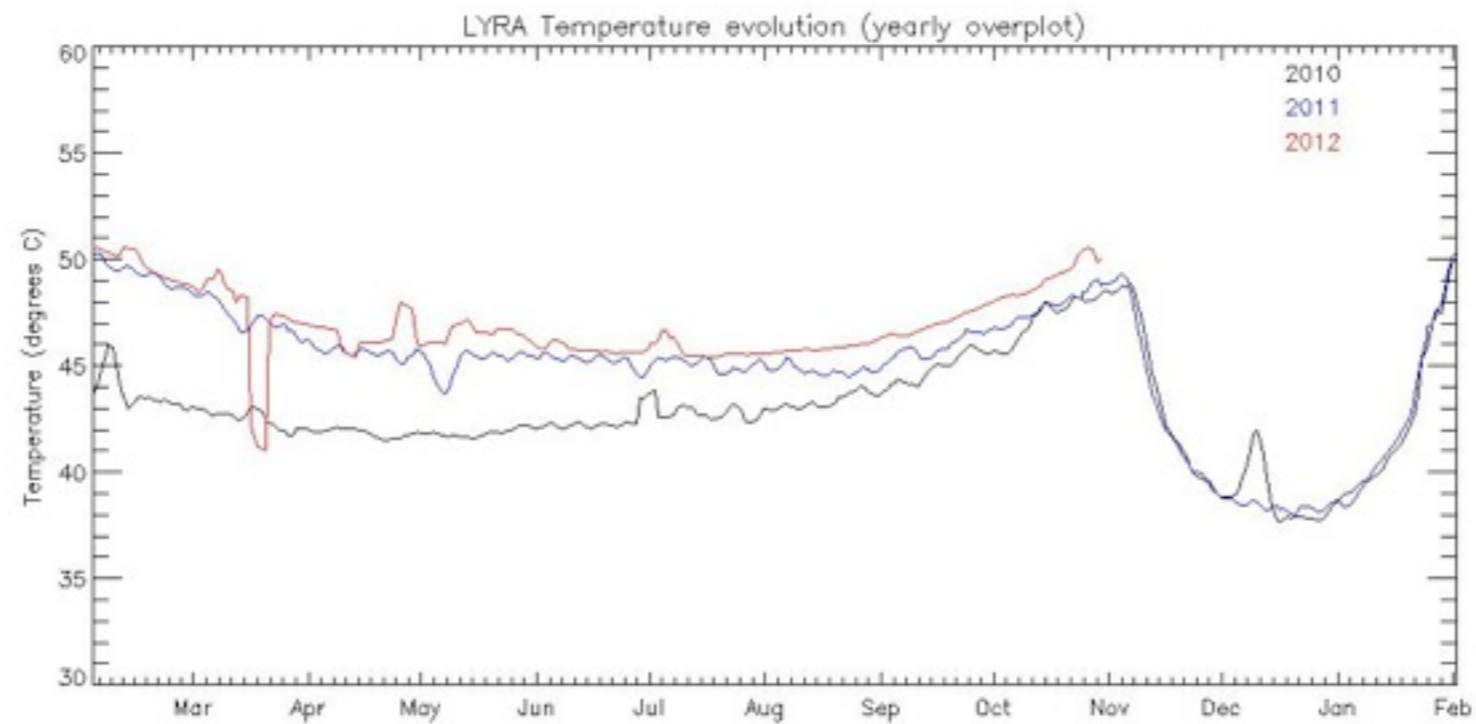
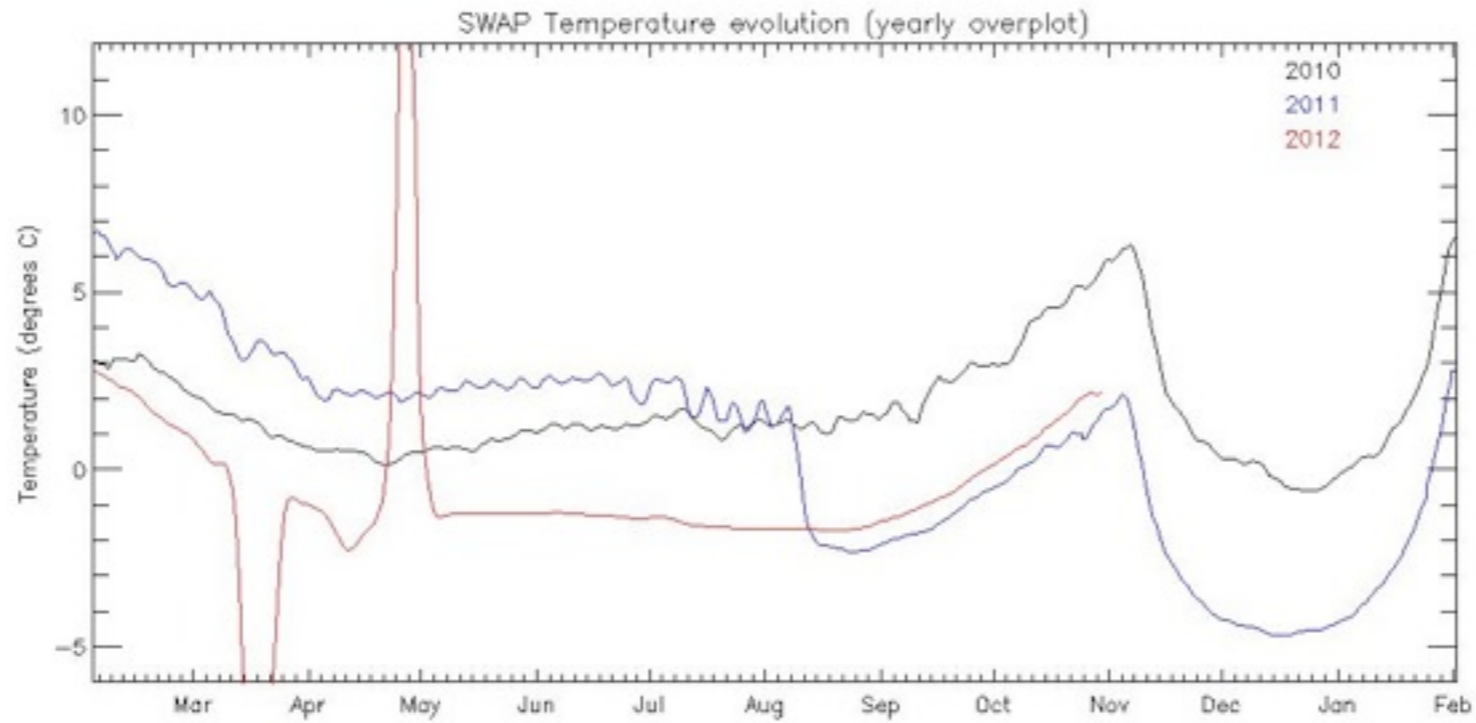
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- Science and Technology Operations Working Group (STOWG): Meetings/Telecon (on average) every 2-3 months

PLATFORM & TECHNOLOGY DEMONSTRATOR OVERVIEW

- Orbit: stable and suitability confirmed for 10+ years
- Spacecraft and subsystems are healthy and operational (see MEOR)
- 18+ technology demonstrators that are operated either continuously, regularly or temporarily on request
- Commanded directly via Ground Segment (Redu)
- Typically the techno operations do not interfere with science payload, exceptions are
 - Propulsion experiment -> finished
 - ESP creates small gaps in SWAP data
 - LOCOOS (Low Cost Orbit and Orientation State estimation)
- Platform thermal situation under control

THERMAL EVOLUTION SWAP & LYRA



PROBA2 GUEST INVESTIGATOR PROGRAM III

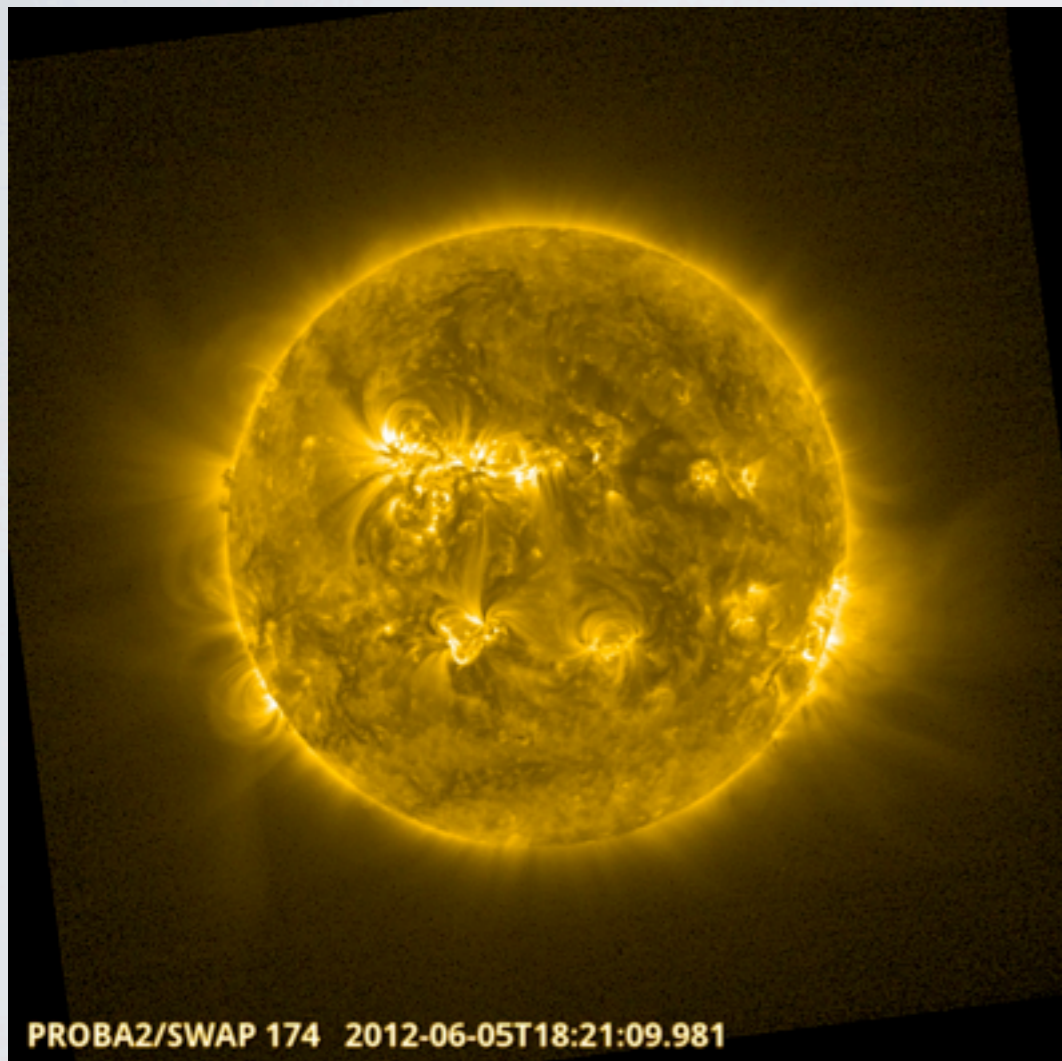
- September 2012 - June 2013
- 13 proposals, 7 selected by review committee of Science Consortium

ID	Instr.	Title
04_Byrne	SWAP	Studying the Low-Corona Initiation Phase of CMEs
06_Madjarska	SWAP	EUV/Xray jets from coronal holes and the origin of the solar wind
05_Inglis	LYRA	Enhancing understanding of pulsations in flares using LYRA data
08_Lu*	SWAP	Observations and Modeling of Solar Coronal Structures Using High-Resolution Eclipse Images and Space-based telescopes with Wide FOV
11_Srivastava	SWAP/LYRA	Role of eruptive filaments/prominences in initiation and propagation of CMEs in heliosphere using SWAP & LYRA Observations
03_Jones & McMullin	LYRA	<i>Degradation analysis of SDO-EVE and PROBA-2 LYRA data</i>
07_Goryaev	SWAP	Study of EUV emission of the inner corona and its modeling using the PROBA2/SWAP and Hinode/EIS data

PUBLIC OUTREACH

- 5-6 June 2012: Venus transit

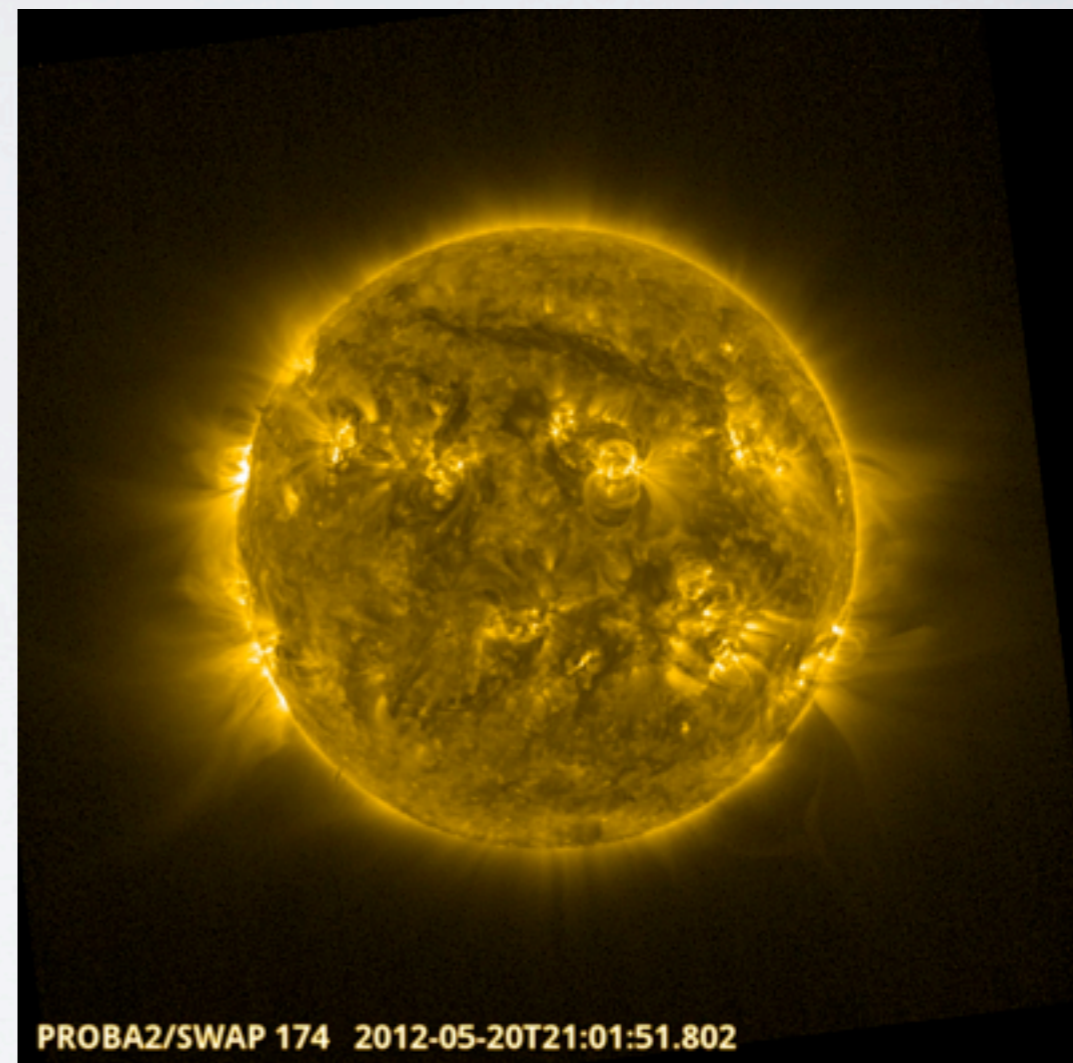
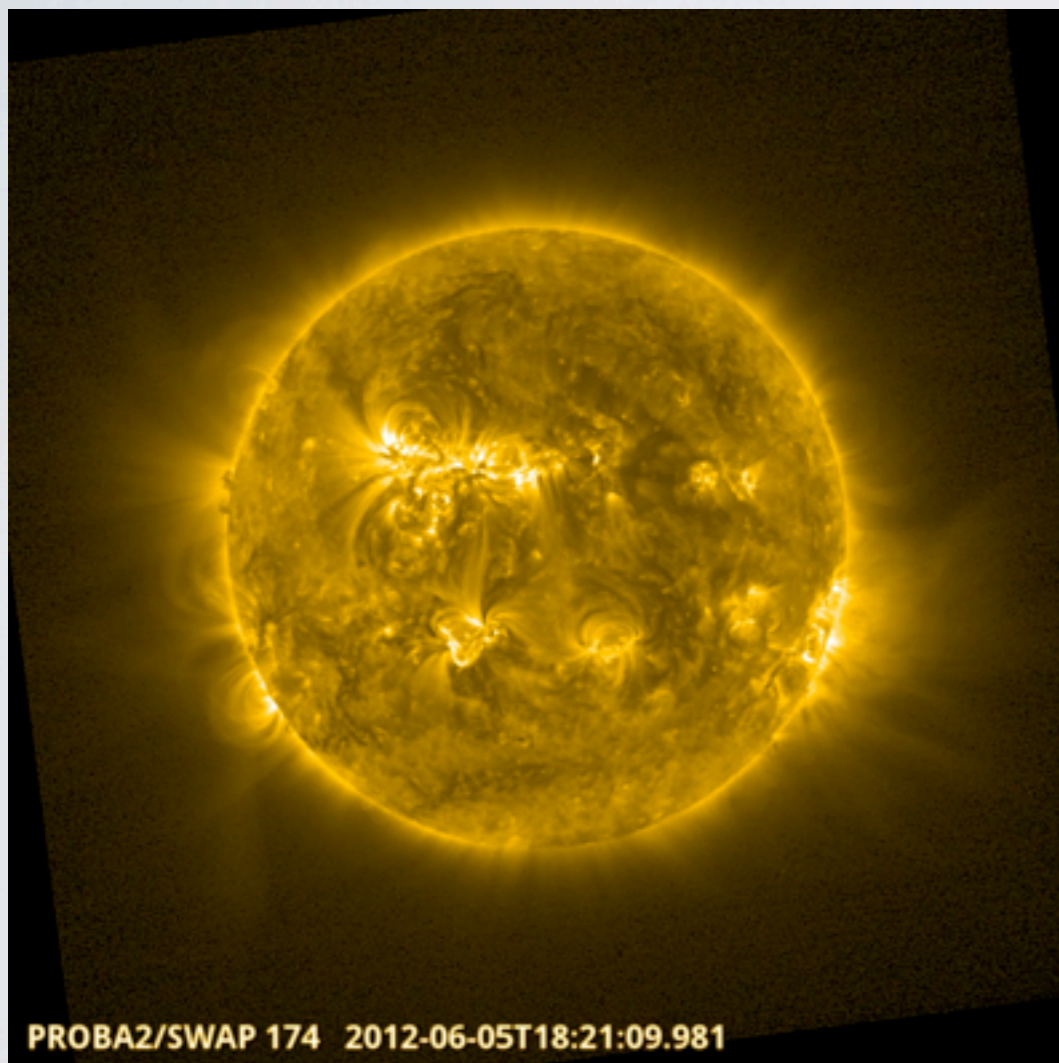
20 May 2012: Partial solar eclipses



PUBLIC OUTREACH

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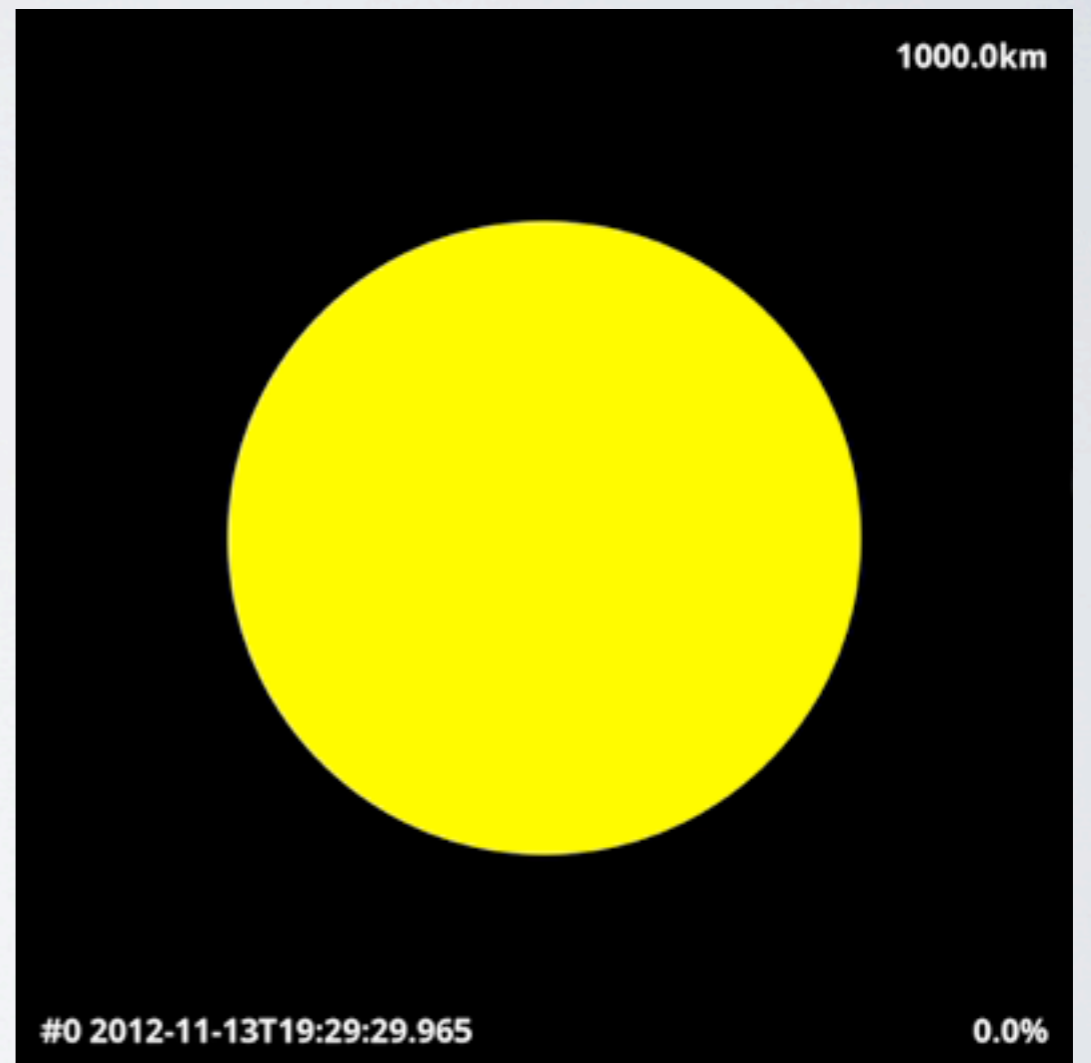
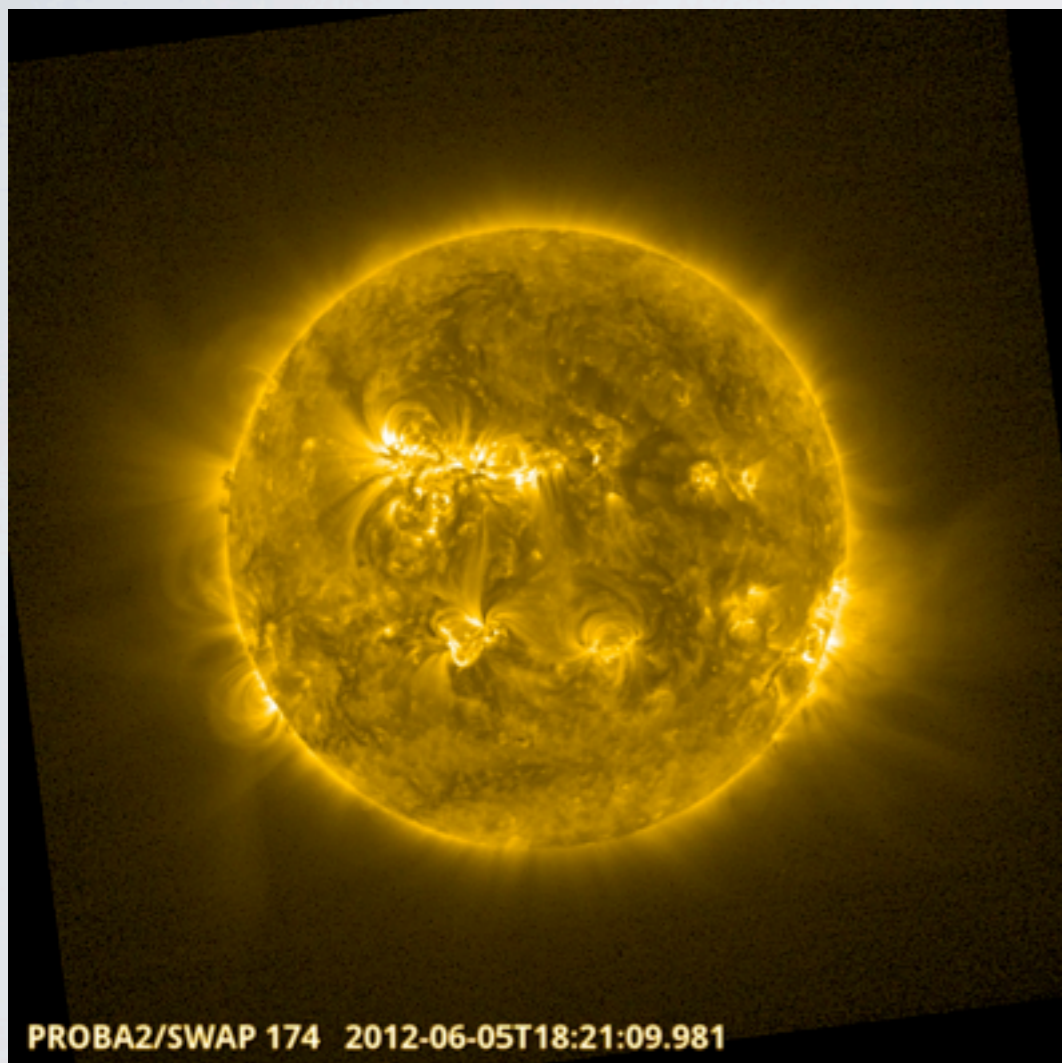
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PUBLIC OUTREACH

- 5-6 June 2012: Venus transit

13 November 2012: Total solar eclipse (from Earth)



SCIENTIFIC IMPACT

- 20 peer-reviewed publications after launch
- PROBA2 topical issue in Journal Solar Physics
- All data products widely available online within one hour after S/C contact
- > 500 users/month at PROBA2 website

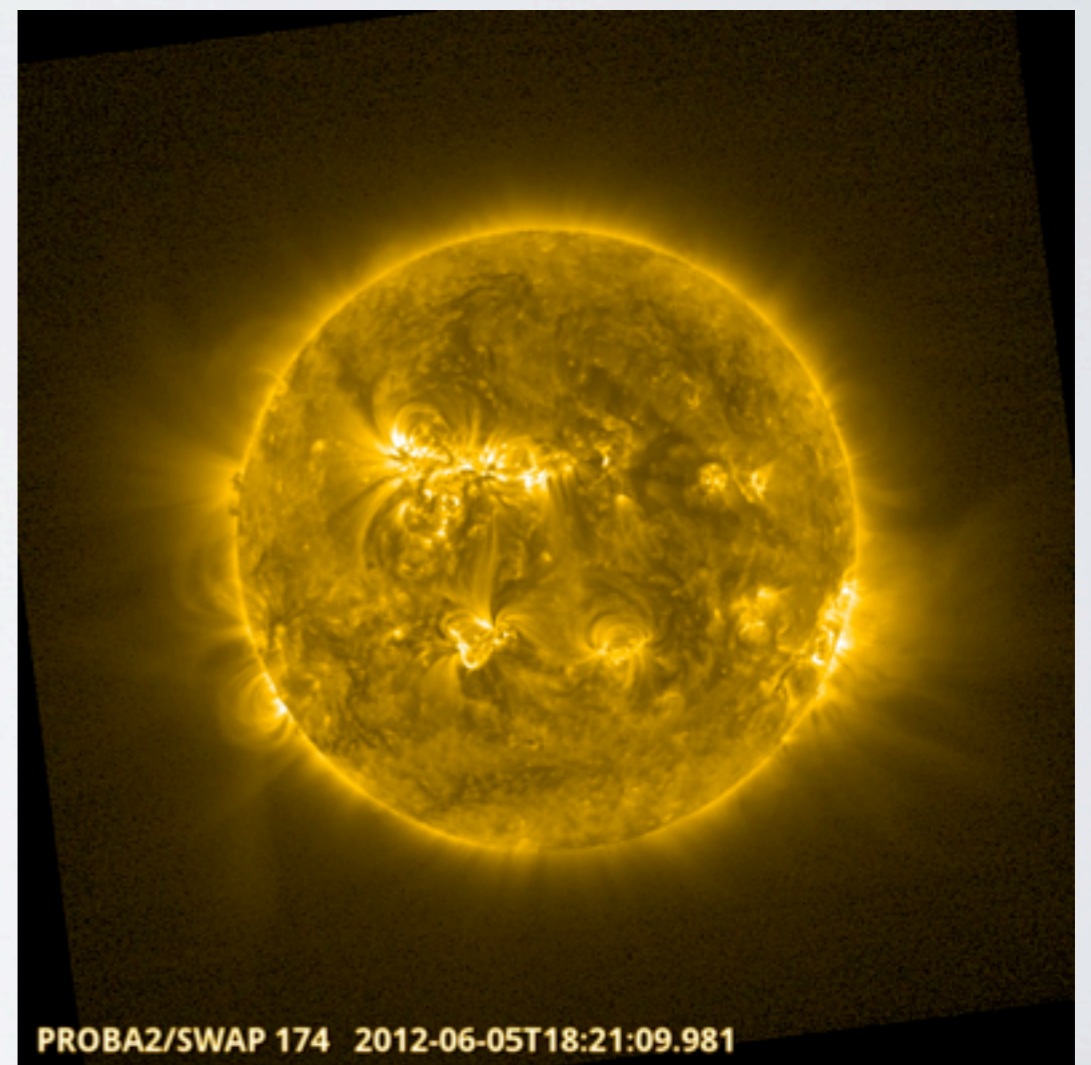
- 4 PhD theses ongoing on PROBA2 data
- Educational projects in secondary schools
- Public Outreach: several web releases on lunar transits, Venus transit, large eruptions, ...



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PROBA2 GUEST INVESTIGATORS & SOL. PHYS. TOPICAL ISSUE

- PROBA2 Guest Investigator programme

GI round	# proposals	# selected	# publications
2010-2011	17	11 (10)	8
2011-2012	15	7	ongoing
2012-2013	13	7	n.a.

- PROBA2 Topical Issue in peer-reviewed Solar Physics Journal:

# submitted	# accepted	# still under review
18	13	5

- Authors spread over 13 institutes
- Most accepted papers are already published in Solar Physics Online First
- Publication as separate Solar Physics issue planned for later this year

DATA AVAILABILITY

Calibrated data available via:

- ✓ PROBA2 website
- ✓ Helioviewer
- ✓ Solar Monitor
- ✓ HELIO
- ✓ IDL solarsoft library
- ✓ ESAC archive
- ✓ VSO (soon)

PROBA2 Welcome to the PROBA2 Science Center

About PROBA2

- Mission
- Spacecraft
- Launch and Orbit
- Science Payload

Science

- PROBA2 Guest Investigator Program
- PROBA2 Papers

Data

- LYRA Data
- SWAP Data
- Data analysis software
- PROBA2 Ancillary Data
- Terms of use

Community

- Scientific community involvement in PROBA2
- Meetings
- Outreach

Highlights

- Latest News
- Gallery

About the PROBA2 Science Center

The PROBA2 Science Center, located at the Royal Observatory of Belgium in Brussels, oversees scientific operations and data processing for ESA's PROBA2 spacecraft. The P2SC is the primary archive and distribution center for data from SWAP and LYRA, as well as the primary maintainer of calibration tools, data analysis software, and additional instrument data. The P2SC is also home to the science operations center, where instrument observing plans are devised and, with the help of ESA's Spacecraft Operations Center in Redu, Belgium, loaded onto the spacecraft. Finally, the P2SC serves as the main site for coordination of the PROBA2 Science Working Team, coordinating special scientific campaigns, supporting science data users and guest investigators, and organizing PROBA2 outreach efforts.

PROBA2 is a small ESA satellite with a scientific mission to explore the active Sun and its effect on the near-earth environment and a broader mission to provide a test platform for new instrument and platform technology. The mission overview page provides additional information about PROBA2 and its on board instrumentation and advanced platform technology.

If you require special assistance, you can contact the instrument teams directly using the contact page on this site.

LYRA Latest

SWAP Latest

Venus transit

Click to read more

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The screenshot displays the Helioviewer.org interface. At the top left is the logo and name 'Helioviewer.org'. Below it are controls for 'Time', including 'Date' (2012/06/15), 'Time' (09:55:25 UTC), and 'Time-step' (5 Mins). The 'Images' section lists two items: 'SWAP 174' (2012/06/15 05:56:09) and 'LASCO C2' (2012/06/15 03:00:05). Each image entry has an 'Opacity' slider and dropdown menus for 'Observatory', 'Instrument', 'Detector', and 'Measurement'. The central panel shows a large solar image with a bright yellow sun and red solar wind. To the right, there is a 'News' section with headlines like 'SWAP movie of the transit of Venus' and 'Helioviewer discussion forum is now online!'. Below the news is a 'YouTube Recently Shared' section with two video thumbnails. At the bottom, there is a navigation menu with links: Help, Glossary, About, Usage Tips, Wiki, Community, Blog, Helioviewer, API, Contact, Report Problem.

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www.SolarMonitor.org

Date Search 13 June 2012 NOAA Search

←20120612 ←Week ←Rotation Today Rotation→ Week→ 20120614→

Main Far-side SDO short-wave SDO long-wave

NOAA
9 Active Regions

SMART
No Data

CHARM
No Data

GOES
ACE
SDO/EVE
GeoMag
Events
Forecast

IDL Access

LATEST Region most likely to flare: NOAA 11504 – Probabilities: X(5%) M(24%) C(48%)

Today's NOAA Active Regions						
Group Number	Location	Hale Class	McIntosh Class	Sunspot Area	Number of Spots	Flares History
11494	S16W91 (907°, -259°)	α/α	Hsx/Hax	0050/0080	01/01	-
11499	N15W85 (908°, 242°)	β/β	Bxo/Bxo	0010/0010	03/05	-

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The screenshot shows the HELIOPHYSICS INTEGRATED OBSERVATORY website. The main content area displays a table of data for the 'PROBA2_SWAP' instrument. The table has columns for instrument_name, provider_instrument, url, provider, time_start, and time_end. There are 10 rows of data, all with 'PROBA2_SWAP' as the instrument name and 'PROBA2-SC' as the provider. The time_start and time_end values range from 2011-02-14T00:01:27 to 2011-02-14T00:14:47.

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The screenshot displays the SOHO Science Archive v1.7.2 web interface. The main window shows a list of observations for SWAP #1, with 529 results displayed on page 1 of 53. The table lists observations with columns for Instrument, Detector, Observation Type, and Begin Date. A detailed view of a specific observation (ID: 146046966) is shown on the right, providing metadata such as Instrument (SWAP), Observatory (PROBA2), Detector (SWAP), and various technical parameters like Wave Range, Fov Position, and Exp Time. A small image of the Sun is visible at the bottom right of the details panel.

Instrument	Detector	Observation Type	Begin Date
SWAP	SWAP	CDS	00:00:47 04/06/2012
SWAP	SWAP	CDS	00:02:57 04/06/2012
SWAP	SWAP	CDS	00:09:27 04/06/2012
SWAP	SWAP	CDS	00:13:47 04/06/2012
SWAP	SWAP	CDS	00:15:57 04/06/2012
SWAP	SWAP	CDS	00:20:17 04/06/2012
SWAP	SWAP	CDS	00:22:27 04/06/2012
SWAP	SWAP	CDS	00:26:47 04/06/2012
SWAP	SWAP	CDS	00:28:57 04/06/2012
SWAP	SWAP	CDS	00:33:17 04/06/2012

Swap Obs Details [146046966]

- id: 146046966
- Instrument: SWAP
- Observatory: PROBA2
- Detector: SWAP
- Obs Type: CDS
- Object: Full Sun/Full Disk
- Objective: Variable off-pointing
- Proc Level: 1
- Begin Date: 00:00:47 04/06/2012
- End Date: 00:00:57 04/06/2012
- File Name: swap_lv1_20120604_000047.fits
- File Format: FITS
- File Size: 2111040 bytes
- Wave Range: 174 Angstrom
- Obs Mode: Variable off-pointing
- Fov Position: [41.11,106.32] arcsec
- Fov Angle: 180.00 degrees
- Fov Size: [3238.16,3238.16] arcsec
- Spatial Res: 3.16 arcsec/pixel
- Exp Count: 1
- Exp Time: 10.0000 seconds
- Origin: ROB
- Wave List: N/A Angstrom
- Filter: All
- Compression: jpeg

20120604_000047_swap174_1024.jpg

LYRA & SWAP FOR SPACE WEATHER



Welcome to the PROBA2 Science Center

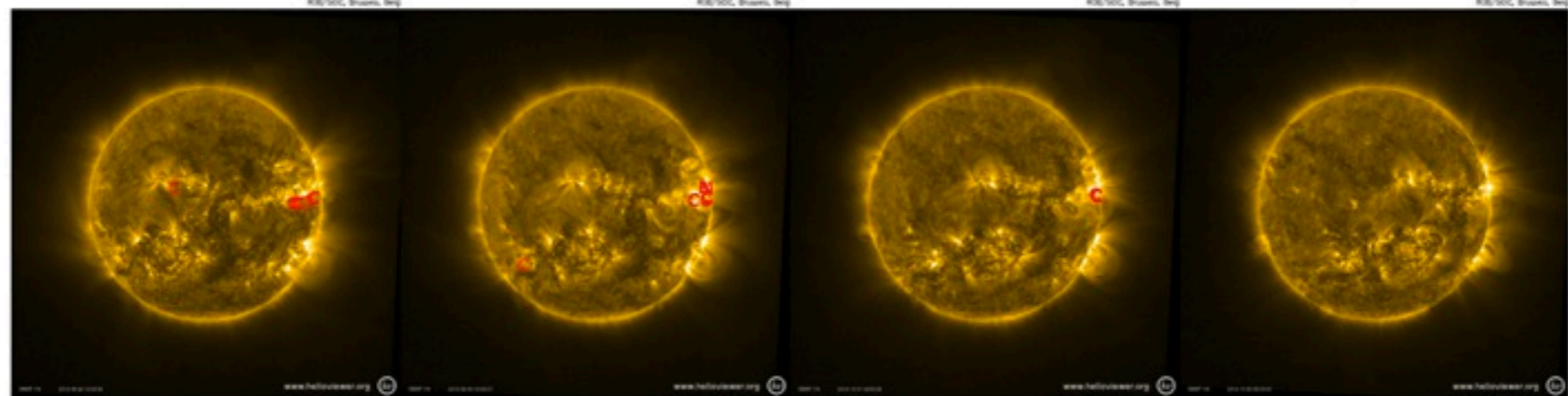
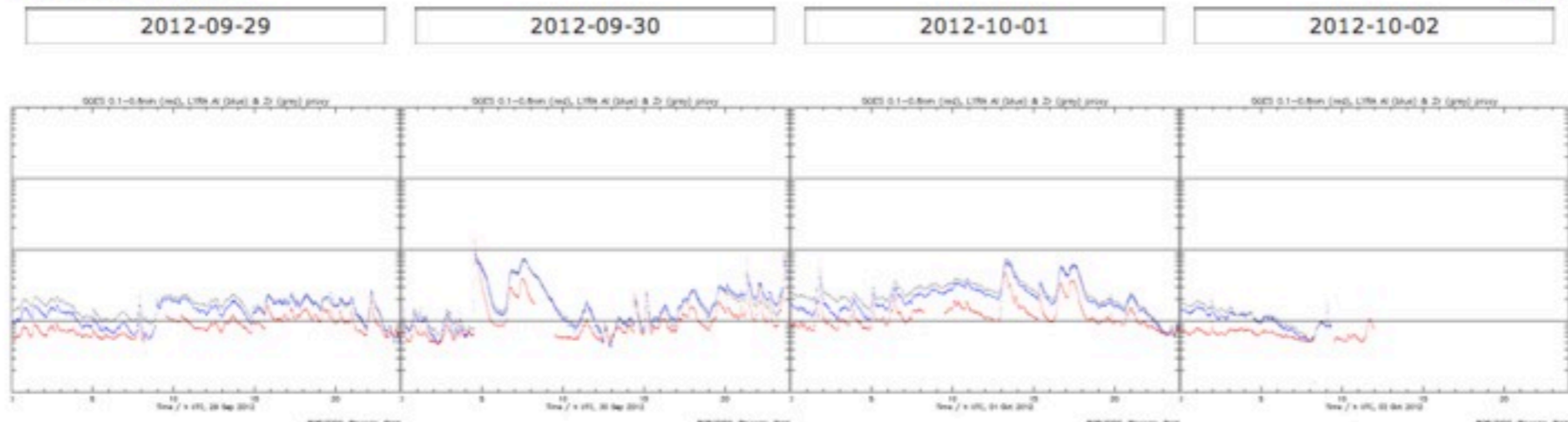
Home SSA Services Contact Acknowledgments

Home

Space Situational Awareness, services provided by PROBA2

<<<27d <<4d <1d

Today



SWAP movie | SWAP diff SWAP movie | SWAP diff SWAP movie | SWAP diff SWAP movie | SWAP diff

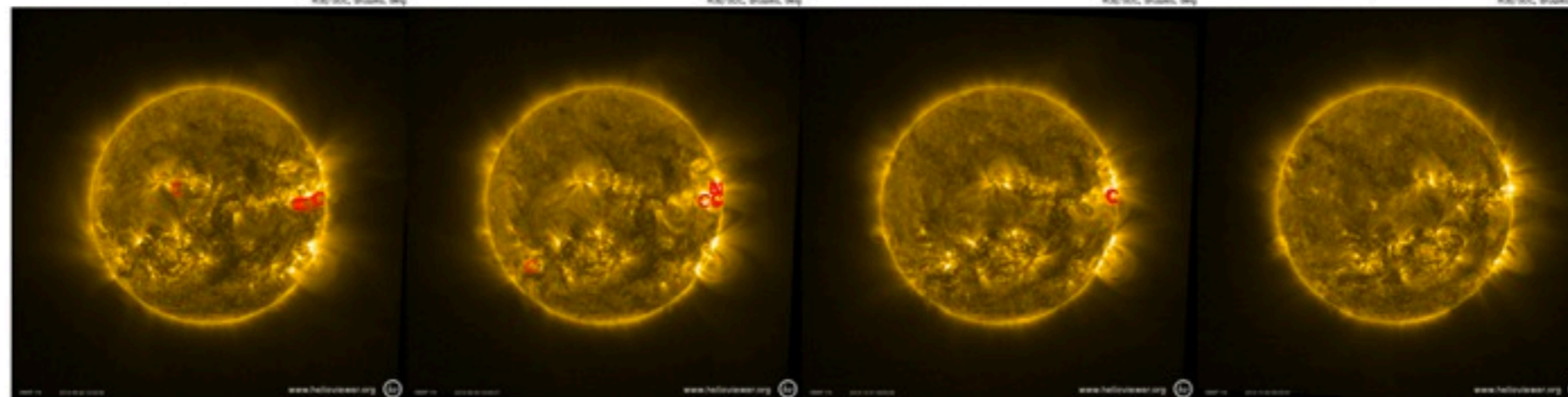
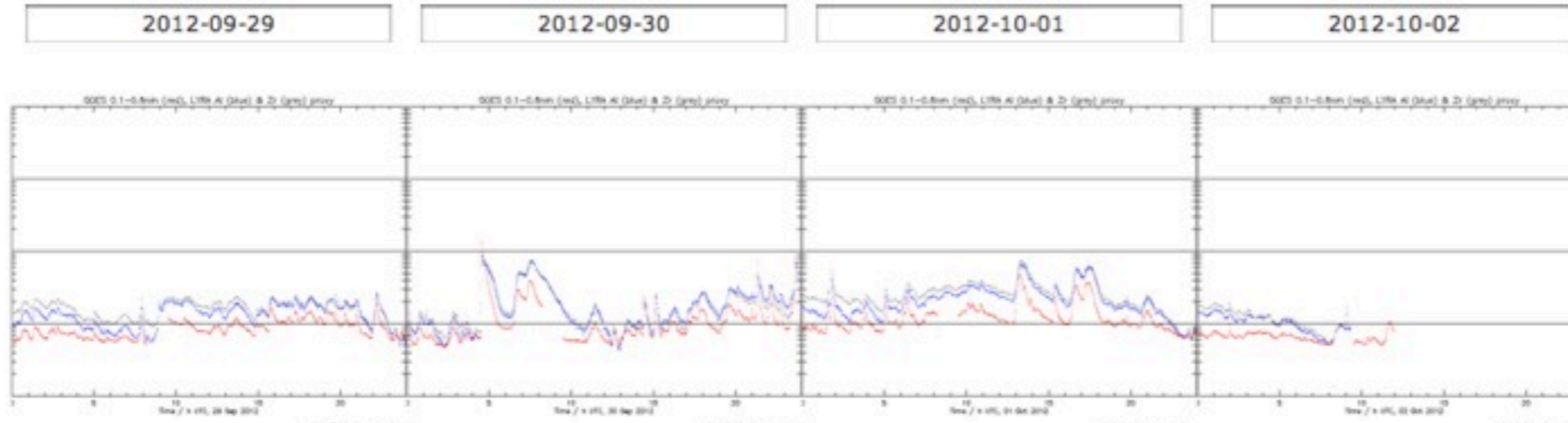
Date	Start	Peak	Stop	Flare class	Location	NOAA region
2012-10-02	09:00	09:04	09:06	C1.1	//	//
2012-10-02	01:52	01:55	01:58	B9.8	//	//

Home

Space Situational Awareness, services provided by PROBA2

<<<27d <<4d <1d

Today



[SWAP movie](#) | [SWAP diff](#)
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2012-10-01	15:16	15:22	15:29	C2.3	N07W95	1575
2012-10-01	13:00	13:13	13:26	C4.8	N07W94	1575
2012-10-01	08:16	10:06	11:10	C1.9	//	//
2012-10-01	06:17	10:06	11:47	C1.8	//	//

2,5 YEARS OF SWAP DATA

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PROBA2/SWAP 17.4nm 2-FEB-10