


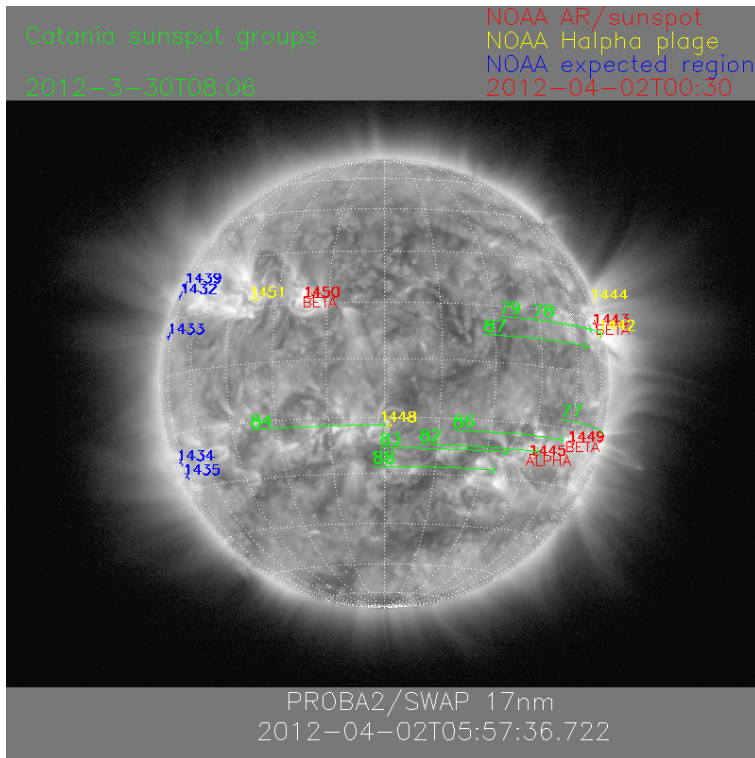
P2SC-ROB-WR-106- 20120402 Weekly report #106	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Apr 02 to Sun Apr 08, 2012 11 Apr 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP Deputy PI, dan.seaton@sidc.be	http://proba2.sidc.be ++ 32 (0) 2 373 0 559
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1. Science

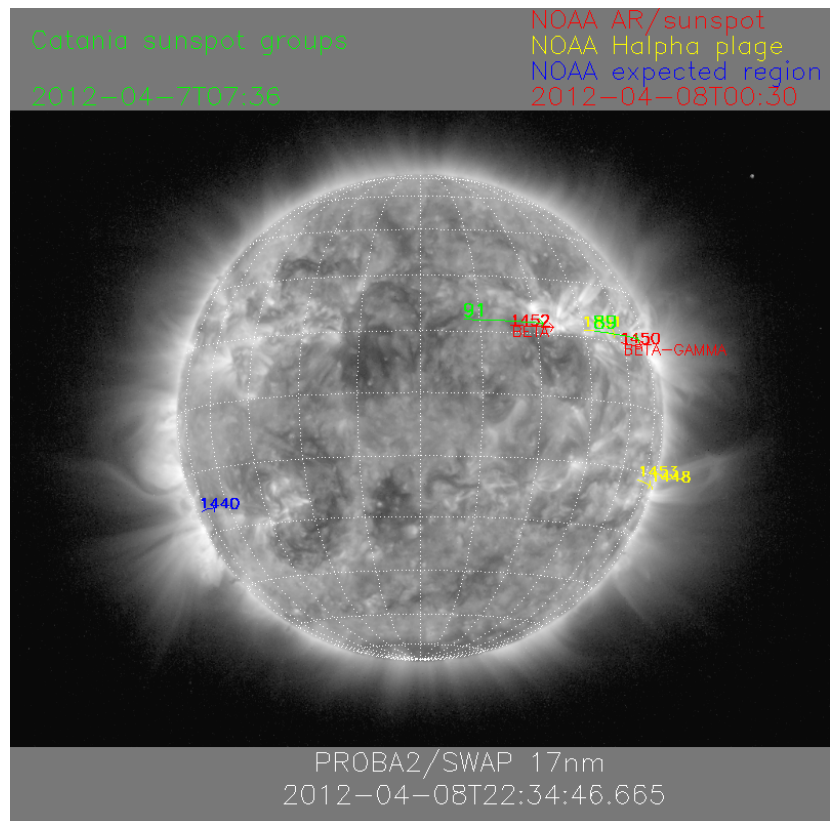
Solar & Space weather events							
<u>Overview</u>							
The level of solar activity this week ¹ and associated M- and X-flares (if any):							
	Monday 02 Apr	Tuesday 03 Apr	Wednesday 04 Apr	Thursday 05 Apr	Friday 06 Apr	Saturday 07 Apr	Sunday 08 Apr
Activity	very low	very low	low	low	low	very low	low
Flares	-	-	-	-	-	-	-

¹ See appendix.

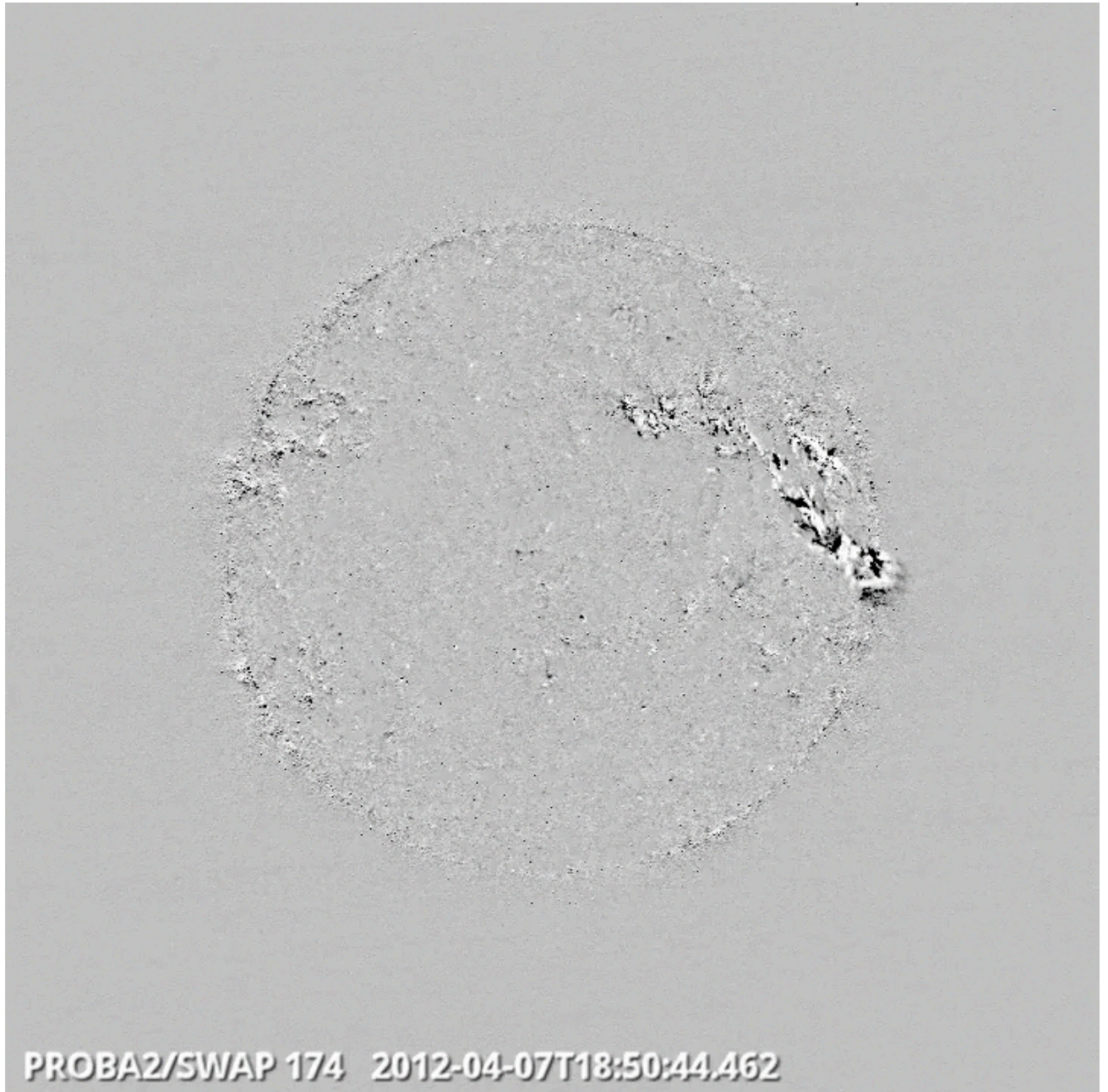
The SWAP images of Apr 02 and Apr 08 are shown below, with annotated active regions.



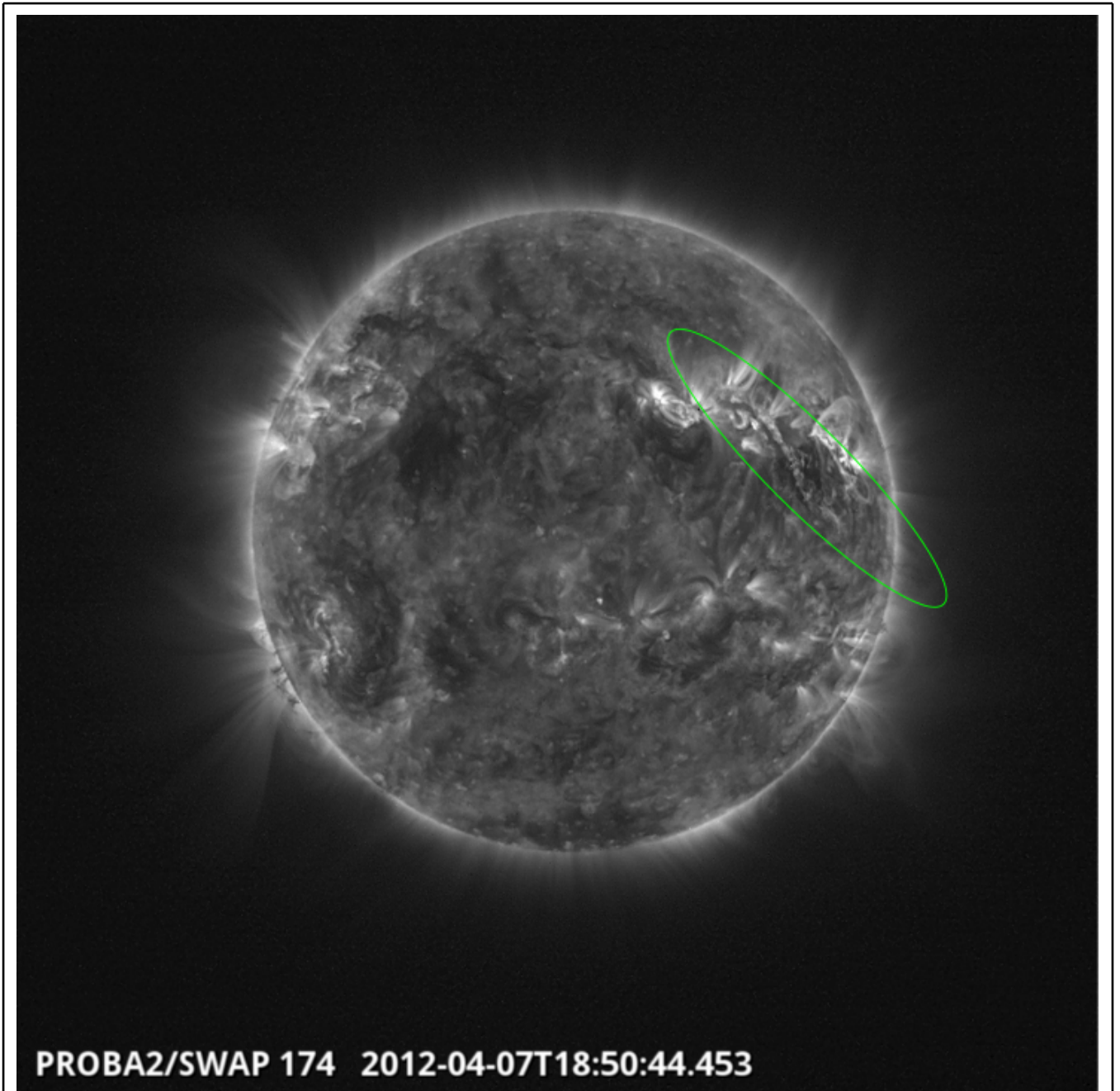
<http://sidc.be/html/CmapPage.html>



The Sun's activity was very low to low. No M- or X-flares occurred. However, interesting events were recorded by SWAP (and/or LYRA) and some of them are shown below:

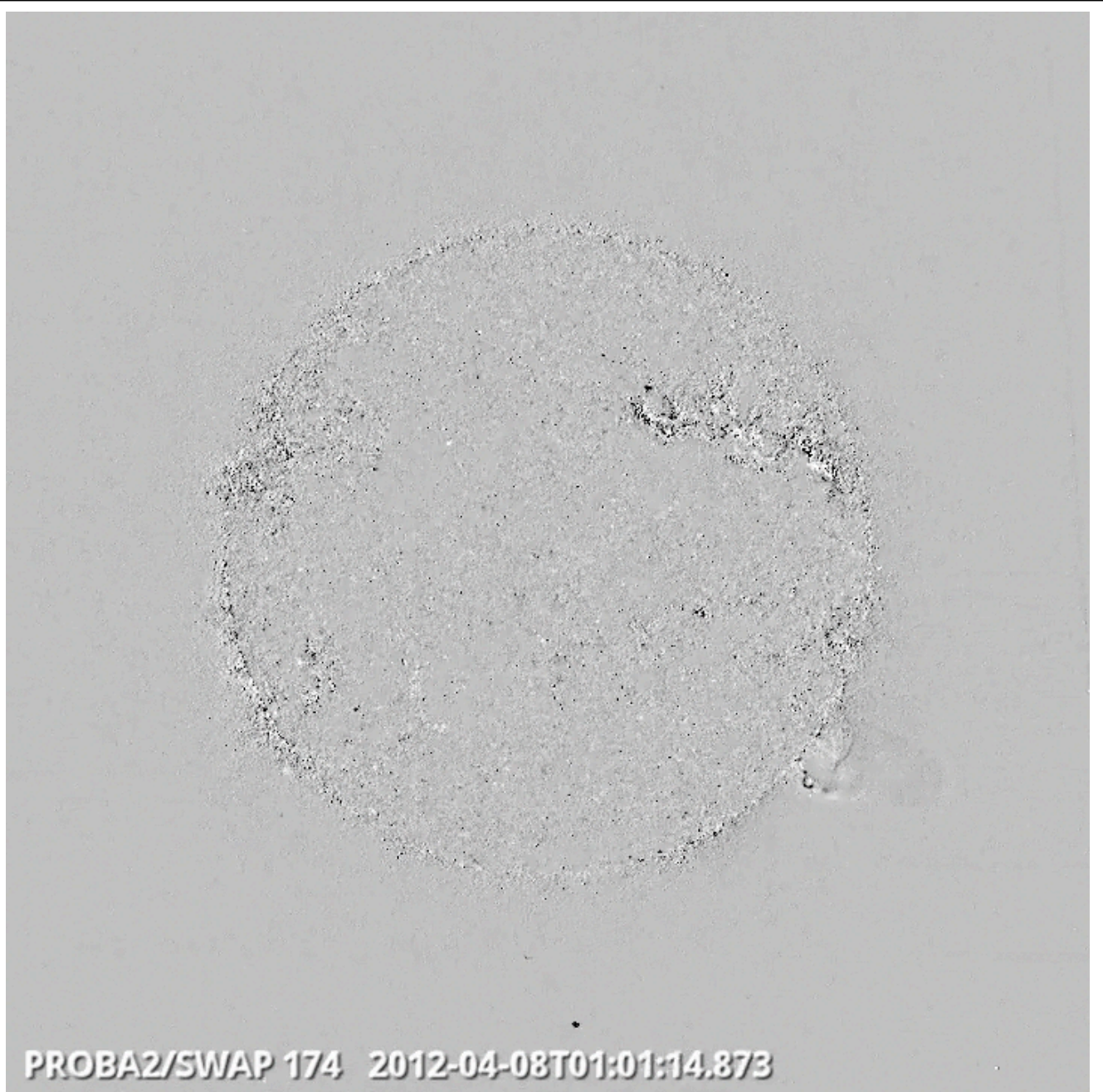


Eruption - North quadrant, 07/04 @ 18:50 - image taken from SWAP difference movie - http://proba2.oma.be/swap/data/mpg/movies/201200407_swap_diff.mp4



PROBA2/SWAP 174 2012-04-07T18:50:44.453

Same as previous - normal image: Eruption - North quadrant, 07/04 @ 18:50 - http://proba2.oma.be/swap/data/mpg/movies/201200407_swap_movie.mp4



Eruption on SW limb, 08/04 @ 01:01 - image taken from SWAP difference movie - http://proba2.oma.be/swap/data/mpg/movies/201200408_swap_diff.mp4

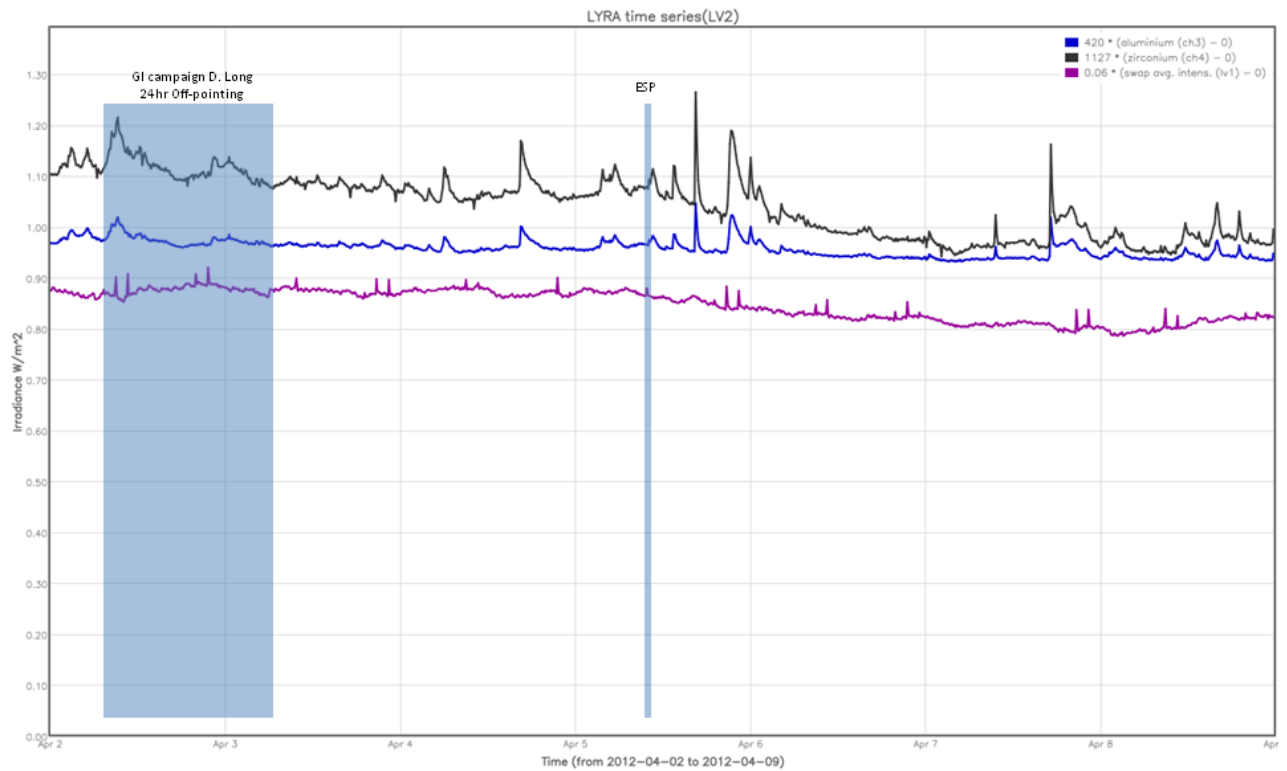


Eruption on W limb, 08/04 @ 03:04 - image taken from SWAP difference movie - http://proba2.oma.be/swap/data/mpg/movies/201200408_swap_diff.mp4

An overview of the weekly LYRA & SWAP data is provided below:

The following curves are visible:

- black: Zirconium Channel LYRA Unit 2
- blue: Aluminium Channel of LYRA Unit 2
- purple: SWAVINT (solar intensity derived from 'integrated' SWAP images)



The blue shaded periods correspond to, from left to right:

- GI D. Long off-pointing campaign for 24hr on Monday
- an ESP campaign on Thursday

The orange shaded periods correspond to, from left to right:

- none

The red shaded periods correspond, from left to right, with:

- none.

Scientific campaigns

The following LYRA and SWAP specific scientific campaigns have been performed this week:

- Daily LYRA campaign with Unit 3, opening the cover for 15 minutes.

Outreach, papers, presentations, etc.

- The science section of this document was also submitted to the weekly STCE Newsletter # 14.

2. LYRA instrument status**Calibration**

No calibration occurred this week.

IOS & operations

Monday 02 Apr	Tuesday 03 Apr	Wednesday 04 Apr	Thursday 05 Apr	Friday 06 Apr	Saturday 07 Apr	Sunday 08 Apr
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00234	LYIOS00234 -> 235	LYIOS00235	LYIOS00235	LYIOS00235	LYIOS00235	LYIOS00235

No specific operations campaigns were performed.

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 47.2 (peak values during daily U3 campaign) to 46.5 degrees Celsius under nominal circumstances.

To be explored

/

3. SWAP instrument status

<p>Calibration</p> <p>No calibration occurred this week.</p>																											
<p>MCPM errors</p> <p>The number of MCPM recoverable errors increased from 47 to 93.</p> <p>The number of MCPM unrecoverable errors is still 0.</p>																											
<p>IOS & operations</p> <table border="1"> <thead> <tr> <th>Monday 02 Apr</th> <th>Tuesday 03 Apr</th> <th>Wednesday 04 Apr</th> <th>Thursday 05 Apr</th> <th>Friday 06 Apr</th> <th>Saturday 07 Apr</th> <th>Sunday 08 Apr</th> </tr> </thead> <tbody> <tr> <td>nominal acquisition 130s cadence</td> <td>Nominal acquisition</td> <td>Nominal acquisition</td> <td>Nominal acquisition + ESP</td> <td>Nominal acquisition</td> <td>Nominal acquisition</td> <td>Nominal acquisition</td> </tr> <tr> <td>IOS00379 -> 380 663 images</td> <td>IOS00380 491 images</td> <td>IOS00380 -> 381 602 images</td> <td>IOS00381 650 images</td> <td>IOS00381 659 images</td> <td>IOS00381 664 images</td> <td>IOS00381 642 images</td> </tr> </tbody> </table> <p>No specific SWAP science campaigns were performed. The weekly ESP campaign was performed on Thursday.</p>							Monday 02 Apr	Tuesday 03 Apr	Wednesday 04 Apr	Thursday 05 Apr	Friday 06 Apr	Saturday 07 Apr	Sunday 08 Apr	nominal acquisition 130s cadence	Nominal acquisition	Nominal acquisition	Nominal acquisition + ESP	Nominal acquisition	Nominal acquisition	Nominal acquisition	IOS00379 -> 380 663 images	IOS00380 491 images	IOS00380 -> 381 602 images	IOS00381 650 images	IOS00381 659 images	IOS00381 664 images	IOS00381 642 images
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<p>SWAP detector temperature</p> <p>The SWAP Cold Finger Temperature fluctuated between -0.97 and -1.52 degrees Celsius, under nominal operations.</p>																											
<p>To be explored</p> <p>/</p>																											

4. PROBA2 Science Center Status

The main operator is Koen Stegen; Erik Pylyser provides support, when needed.

The weekly 'P2SC Operations meeting' was held on 04/04/2012.

The following changes were made to the P2SC:

- DCVC: 04/04/2012: [r4432](#)
- LMAT-UI: 03/04/2012: [r4429](#)
- PTI: 03/04/2012: [r4431](#)

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 7478 to 7540) was nominal, except for:

- **7497 & 7498**: for both passes the SWAP images (BINSWAP) were lost; LYRA data (BINLYRA) were recuperated during pass 7499, as well as the associated HK data (LYRA_AD).

Data coverage HK

All HK data files (LYRA_AD) have been received.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for:

- BINSWAP_7497, BINSWAP_7498; no SWAP images between 02:48 and 06:03 on Wed 04/04

Total number of images between 2012 Apr 02 0UT and 2012 Apr 09 0UT: 4419

Highest cadence in this period: 130 seconds

Average cadence in this period: 136.88 seconds

Number of image gaps larger than 300 seconds: 30

Largest data gap: 34.33 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except for:

- BINLYRA_7497 & _7498 - the content of these files was provided in BINLYRA_7499

6. APPENDIX Frequently used acronyms

ADP	Ancillary Data Processor
ADPMS	Advanced Data and Power Management System
AOCS	Attitude and Orbit Control System
APS	Active Pixel image Sensor
ASIC	Application Specific Integrated Circuit
BBE	Base Band Equipment
CME	Coronal Mass Ejection
COGEX	Cool Gas Generator Experiment
CRC	Cyclic Redundancy Check
DR	Destructive Readout
DSLPL	Dual Segmented Langmuir Probe
EIT	Extreme ultraviolet Imaging Telescope
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System
HAS	High Accuracy Star tracker
HK	Housekeeping
ICD	Interface Control Document
IIU	Instrument Interface Unit
IOS	Instrument Operations Sheet
LED	Light Emitting Diode
LEO	Low Earth Orbit
LYRA	LYman alpha RAdiometer
LYTMR	LYRA Telemetry Reformatter (software module of P2SC)
LYEDG	LYRA Engineering Data Generator (software module of P2SC)
MCPM	Mass Memory, Compression and Packetisation Module
MOC	Mission Operation Center
NDR	Non Destructive Readout
OBET	On board Elapsed Time
OBSW	On board Software
PE	Proximity Electronics
PGA	Programmable Gain Amplifier
PI	Principal Investigator
P2SC	PROBA2 Science Center
PPT	Pointing, Positioning and Time (software module of P2SC)
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SEU	Single Event Upset
SOHO	Solar and Heliospheric Observatory
SWAP	Sun Watcher using APS detector and image Processing
SWAVINT	SWAP AVerage INTensity
SWBSDG	SWAP Base Science Data Generator
SWEDG	SWAP Engineering Data Generator (software module of P2SC)
SWTMR	SWAP Telemetry Reformatter (software module of P2SC)
TBC	To Be Confirmed
TBD	To Be Defined
TC	Telecommand
UTC	Coordinated Universal Time
UV	Ultraviolet

7. APPENDIX Solar Activity Definitions

In the science section we use the following solar activity standards.

The standard scale for solar activity is:

- very low (almost no flares, only B)
- low (a few C flares)
- moderate (many C flares and at least an M flare)
- high (several M flares and an X flare)
- very high (continuous background of C flares, numerous M flares, more than one X flare)
- (+ extreme?)