P2SC-ROB-WR-108- 20120416 Weekly report #108	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Apr 16 to Sun Apr 22, 2012 25 Apr 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

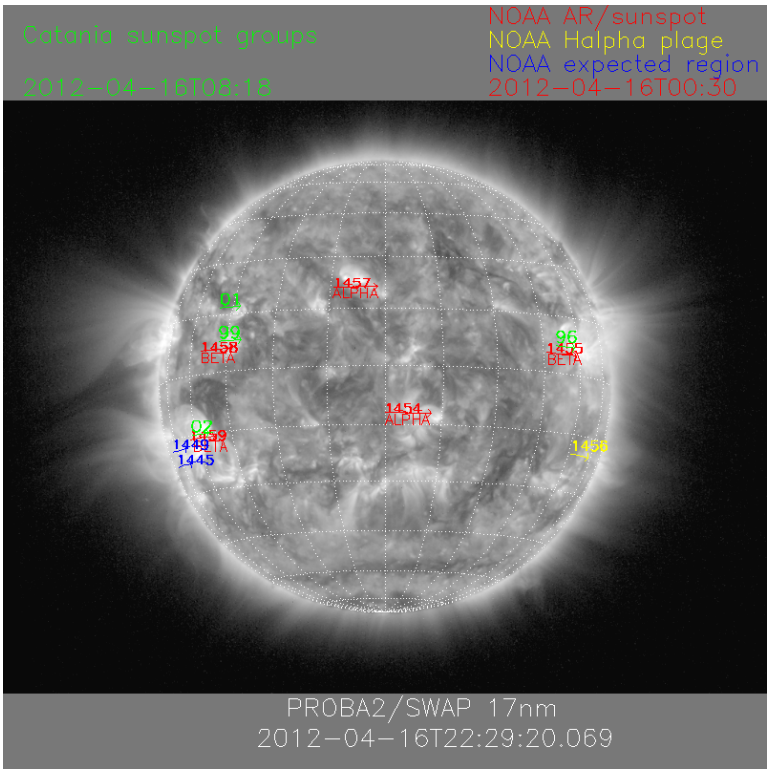
Overview

The level of solar activity this week[1] and associated M- and X-flares (if any):

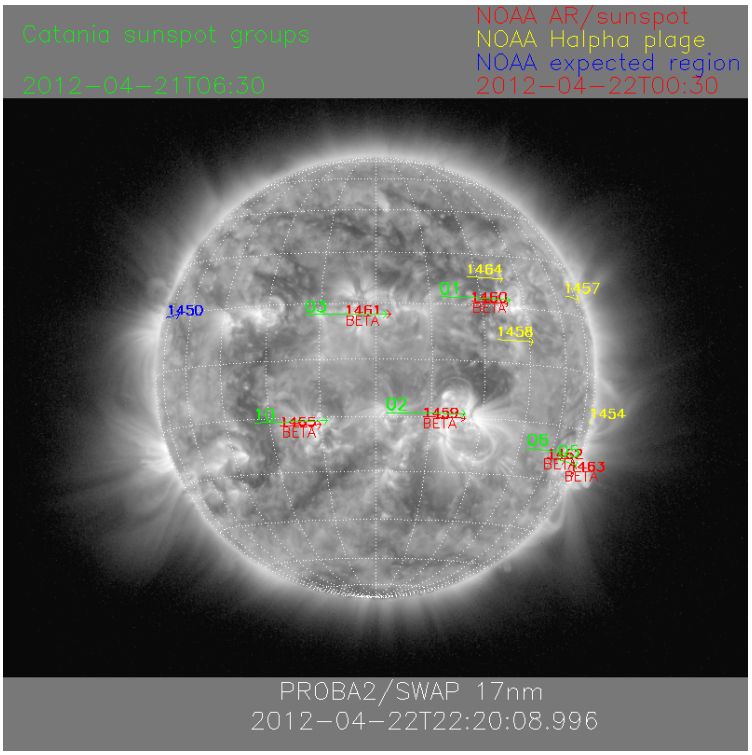
	Monday 16 Apr	Tuesday 17 Apr	Wednesday 18 Apr	Thursday 19 Apr	Friday 20 Apr	Saturday 21 Apr	Sunday 22 Apr
Activity	moderate	low	low	low	low	low	low
Flares	M1.7@17:24	-	-	-	-	-	-

[1] See appendix.

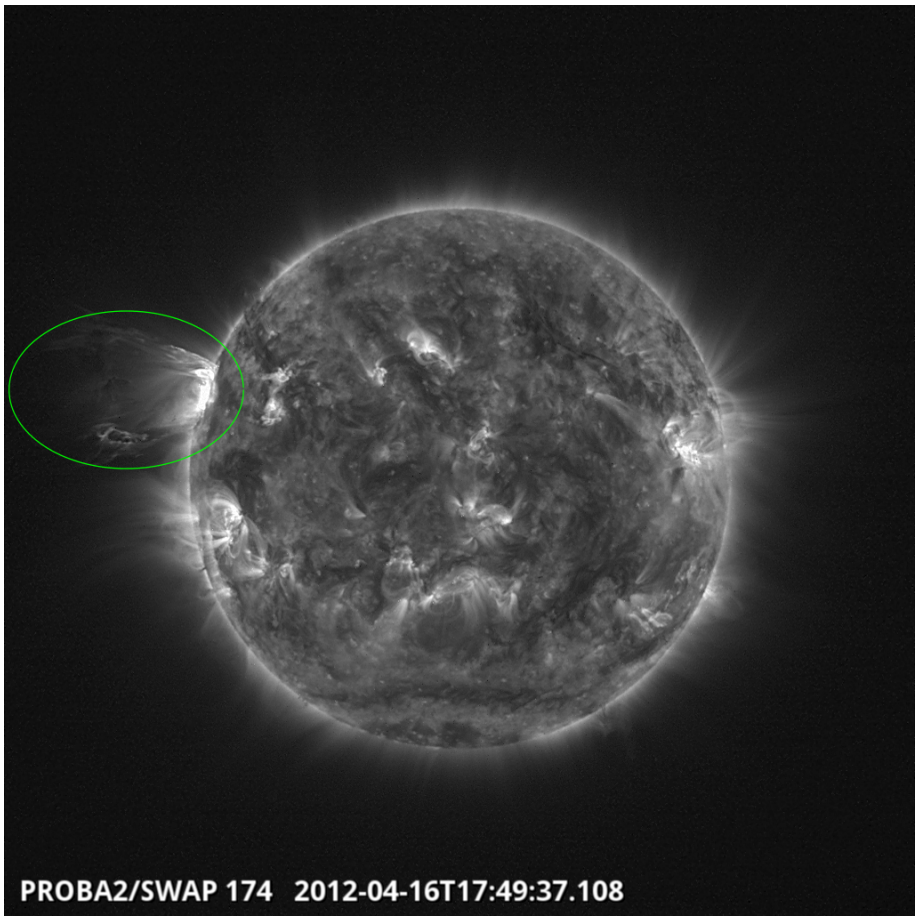
The SWAP images of Apr 16 and Apr 22 are shown below, with annotated active regions.



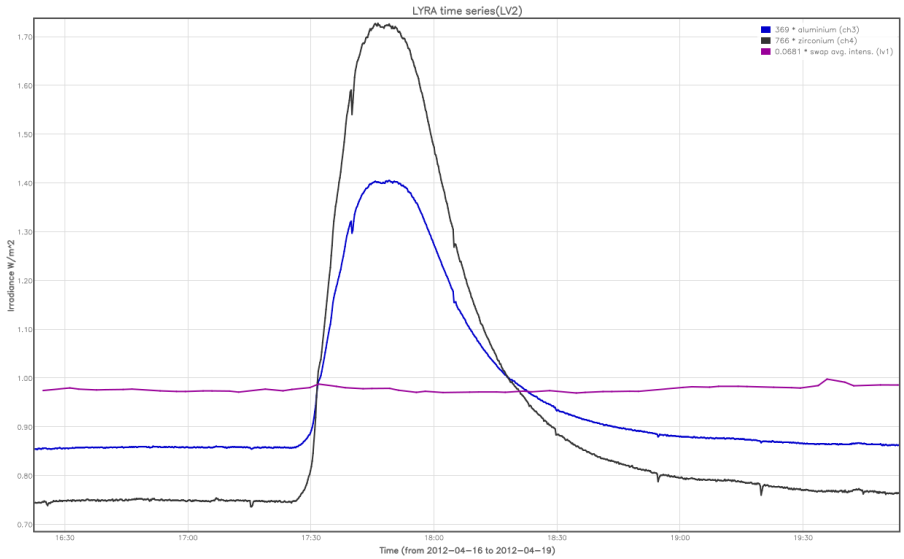
http://sidc.be/html/CmapPage.html



This week, the Sun's activity was low to moderate. 1 M-flare occurred on Monday 16th, 17:24 (see below). Two videos of this event can be found here. One of them is the PROBA2 original movie, the other is providing a 'mix' of an SDO movie extended with the SWAP additional FOV part.

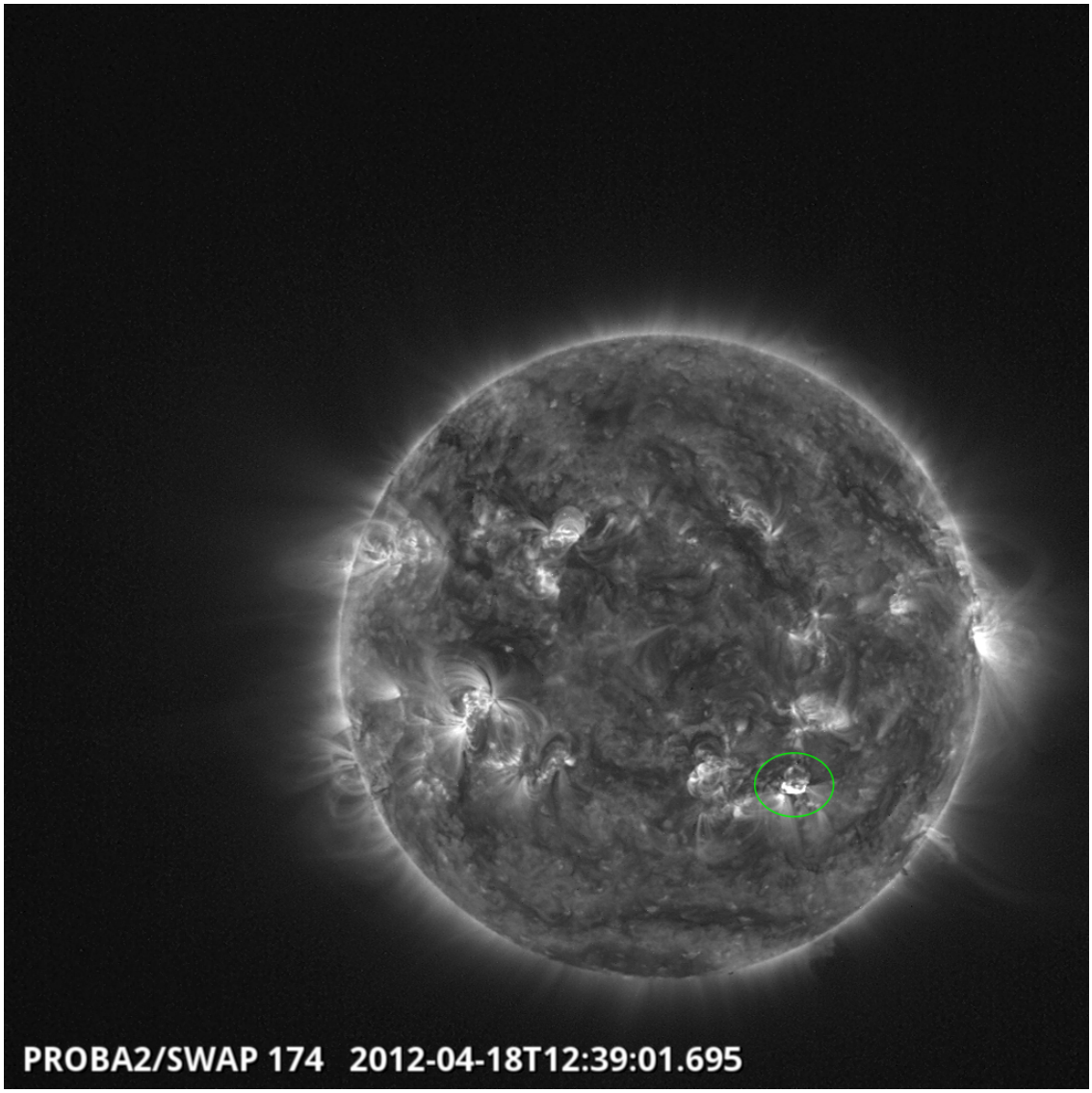


M1.7 Flare - East limb, 16/04 @ 17:49 - SWAP image - http://proba2.oma.be/swap/data/mpg/movies/201200416_swap_movie.mp4



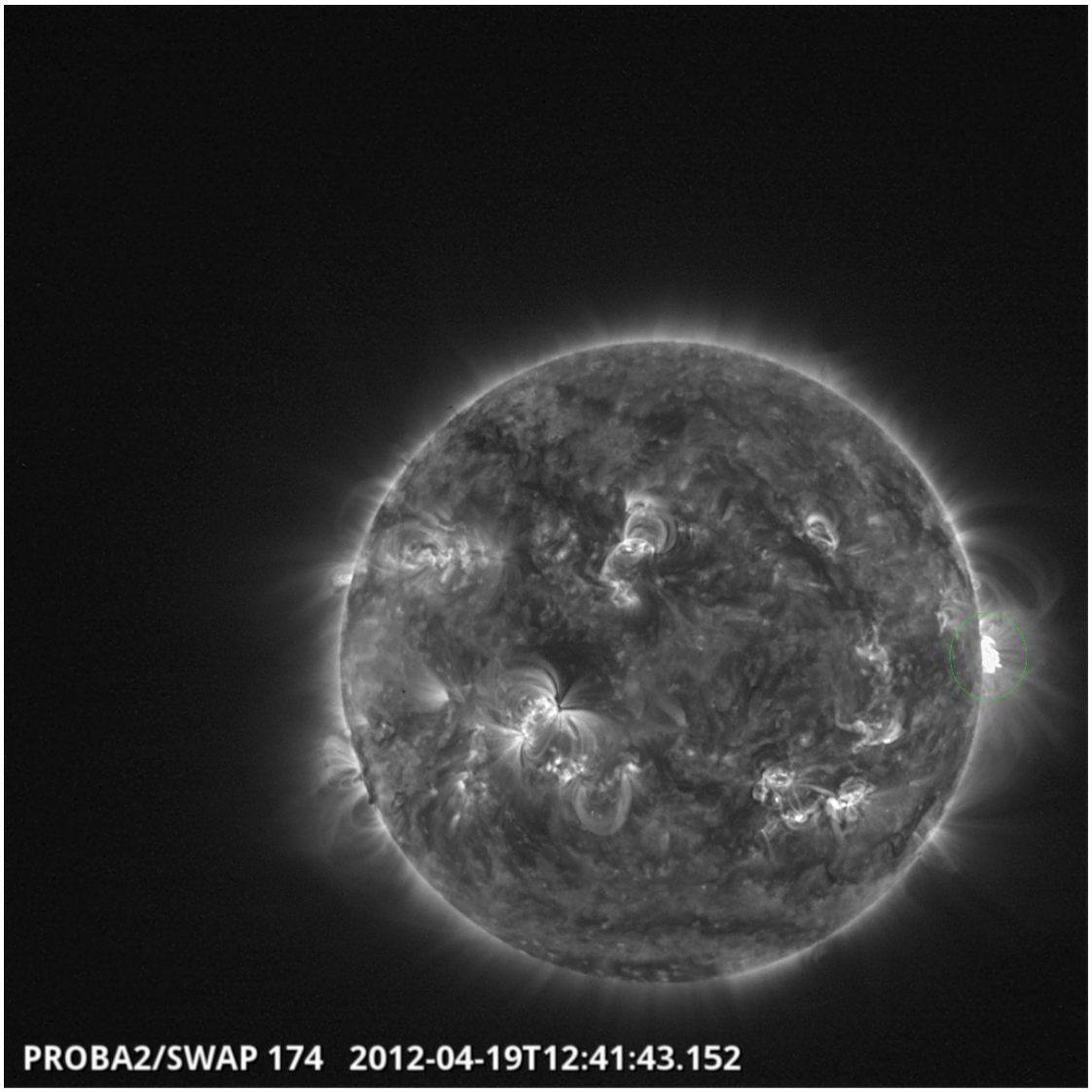
M1.7 Flare - East limb, 16/04 @ 17:49 - LYRA curves

Other events were recorded by SWAP (and/or LYRA) and some of them are shown below:

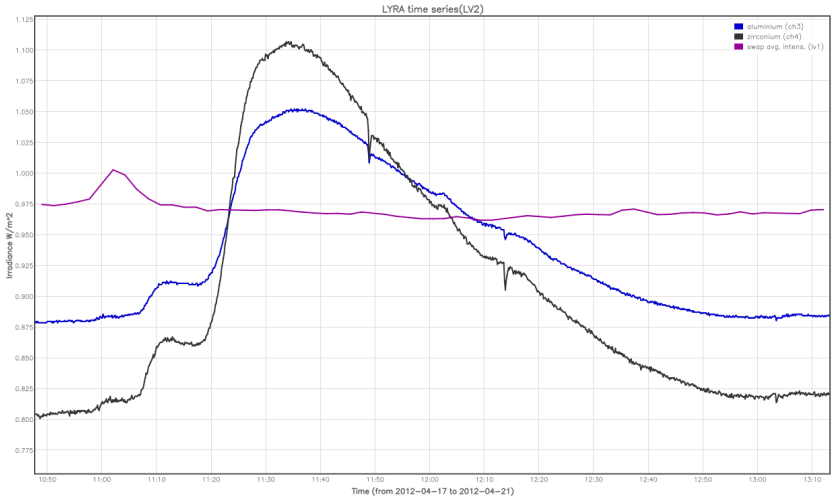


C8.7 Flare - SW quadrant - AR11463, 18/04 @ 12:39 - SWAP image - off-pointed

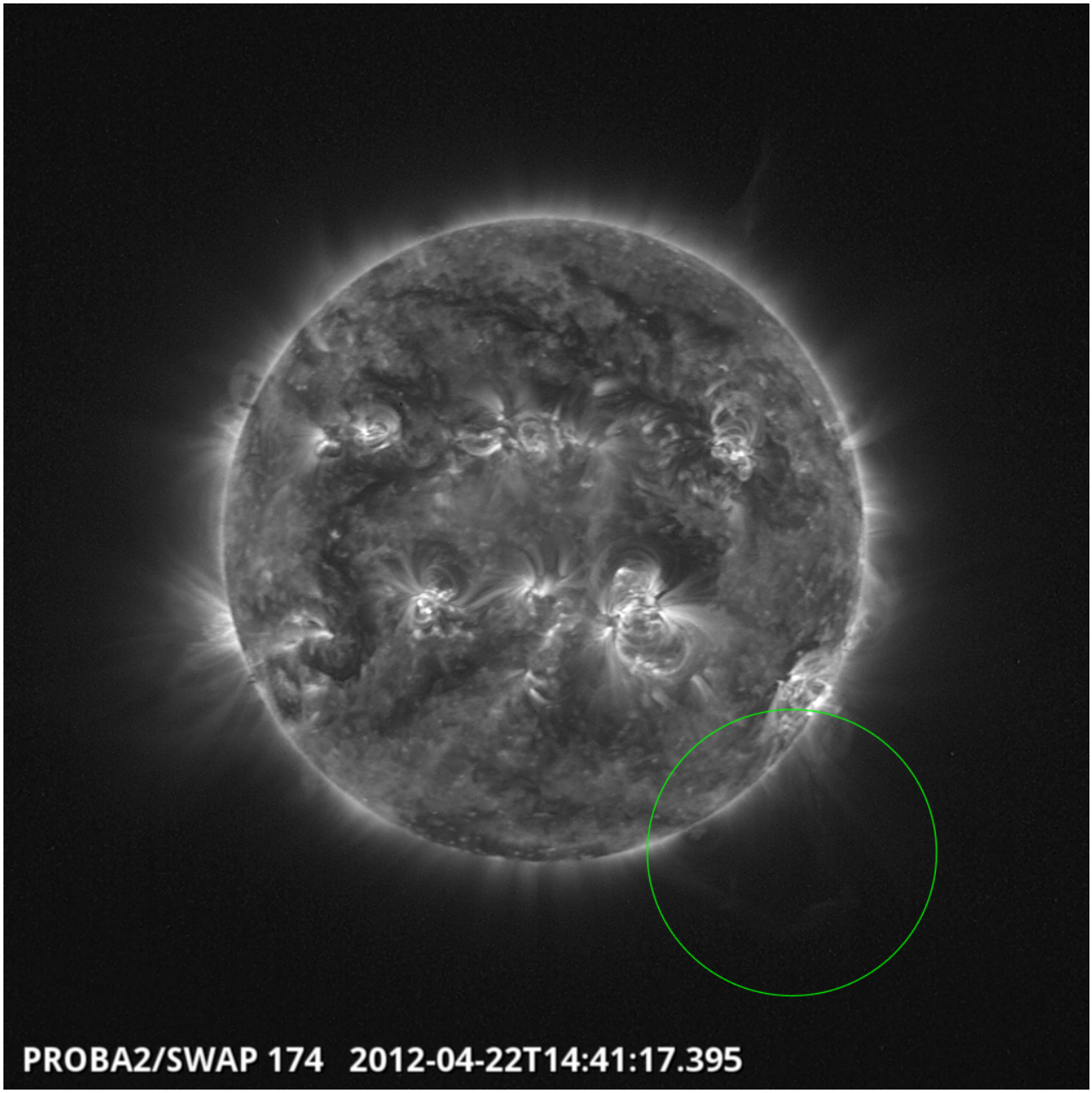
For this event, no LYRA data were available, due to a LYRA calibration being performed.



C7.0 Flare - West limb - AR11455, 19/04 @ 12:41 - SWAP image - off-pointed



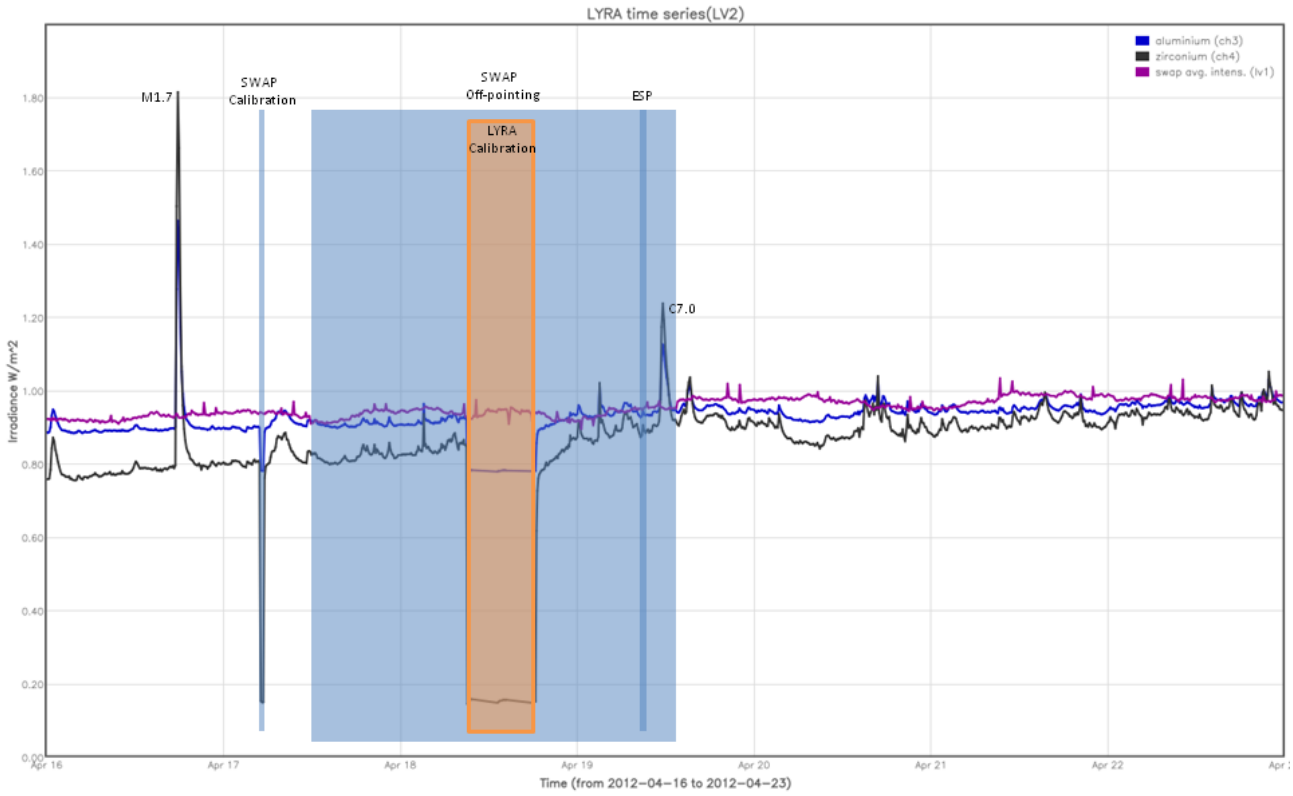
C7.0 Flare - West limb - AR11455, 19/04 @ 12:32 - LYRA curves



Filament Eruption - SW limb, 22/04 @ 14:41 - SWAP image

A SWAP video extract can be found here: http://proba2.oma.be/swap/data/mpg/movies/campaign_movies/2012_04_22_Filament%20Eruption/

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:
- SWAP Calibration on Tue.
- off-pointing campaign starting on Tue 11:45 till Thu 13:30.
- an ESP campaign on Thursday 9:06.

The orange shaded periods correspond to, from left to right:
- LYRA Calibration on Wed.

The red shaded period corresponds:
- None.

Scientific campaigns

The following LYRA and SWAP specific scientific campaigns have been performed this week:
- SWAP East off-pointing campaign from Tue 17th 11:45 to Thu 19th 13:30 to hunt for East limb

eruptions/flares.
- 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 # 16.
- The mixed SDO/SWAP video (available here) was sent to the following web-site: http://www.thesuntoday.org/. It will be published there soon.

2. LYRA instrument status

Calibration

Calibration occurred on Wednesday.

IOS & operations

Monday 16 Apr	Tuesday 17 Apr	Wednesday 18 Apr	Thursday 19 Apr	Friday 20 Apr	Saturday 21 Apr	Sunday 22 Apr
Nominal acquisition + daily U3 LYIOS00236	Nominal acquisition + daily U3 LYIOS00236	Nominal acquisition + daily U3 + calibration LYIOS00237	Nominal acquisition + daily U3 LYIOS00237	Nominal acquisition + daily U3 LYIOS00237	Nominal acquisition + daily U3 LYIOS00237	Nominal acquisition + daily U3 LYIOS00237

Except for the daily U3 campaign, no special operations campaigns were performed.

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 46.8 to 45.9 degrees Celsius under nominal circumstances. During the calibration, temperature went down to 44.7.

To be explored
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3. SWAP instrument status

Calibration

Calibration occurred on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 14 to 61.

The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 16 Apr	Tuesday 17 Apr	Wednesday 18 Apr	Thursday 19 Apr	Friday 20 Apr	Saturday 21 Apr	Sunday 22 Apr
Nominal acquisition IOS00384 516 images	Nominal acquisition + calibration + off-point E IOS00384 -> 386 620 images	Nominal acquisition + off-point E IOS00386 -> 387 595 images	Nominal acquisition + ESP + off-point E IOS00387 -> 388 599 images	Nominal acquisition IOS00388 662 images	Nominal acquisition IOS00388 603 images	Nominal acquisition IOS00388 523 images

Two consecutive 24hr East off-pointing campaigns were performed, starting on Tuesday 17th, 11:45 until Thursday 19th, 13:30. The purpose was to follow-up on the M1.7 flare which occurred on the East limb on Monday 16th, and hope for a new strong eruption from that active region.

The weekly ESP campaign was performed on Thursday, while off-pointing.

SWAP detector temperature

The SWAP Cold Finger Temperature fluctuated between -1.0 and -2.0 degrees Celsius, under nominal operations.

To be explored

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4. PROBA2 Science Center Status

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

The following changes were made to the P2SC:
- None

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 7602 to 7660) was nominal, except for:
- 7623 to 7626 (HK data only; April 18th).

The corresponding HK data were received on April 19th.

Data coverage HK

All HK data files (LYRA_AD) have been received, except for:
- None.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for:
- None.

Total number of images between 2012 Apr 16 0UT and 2012 Apr 23 0UT: 4224
Highest cadence in this period: 30 seconds
Average cadence in this period: 143.17 seconds
Number of image gaps larger than 300 seconds: 7
Largest data gap: 34.33 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except for:
- None.

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
DSLP	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?)