P2SC-ROB-WR-114-20120528 Weekly report #114	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon May 28 to Sun Jun 03, 2012 06 June 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

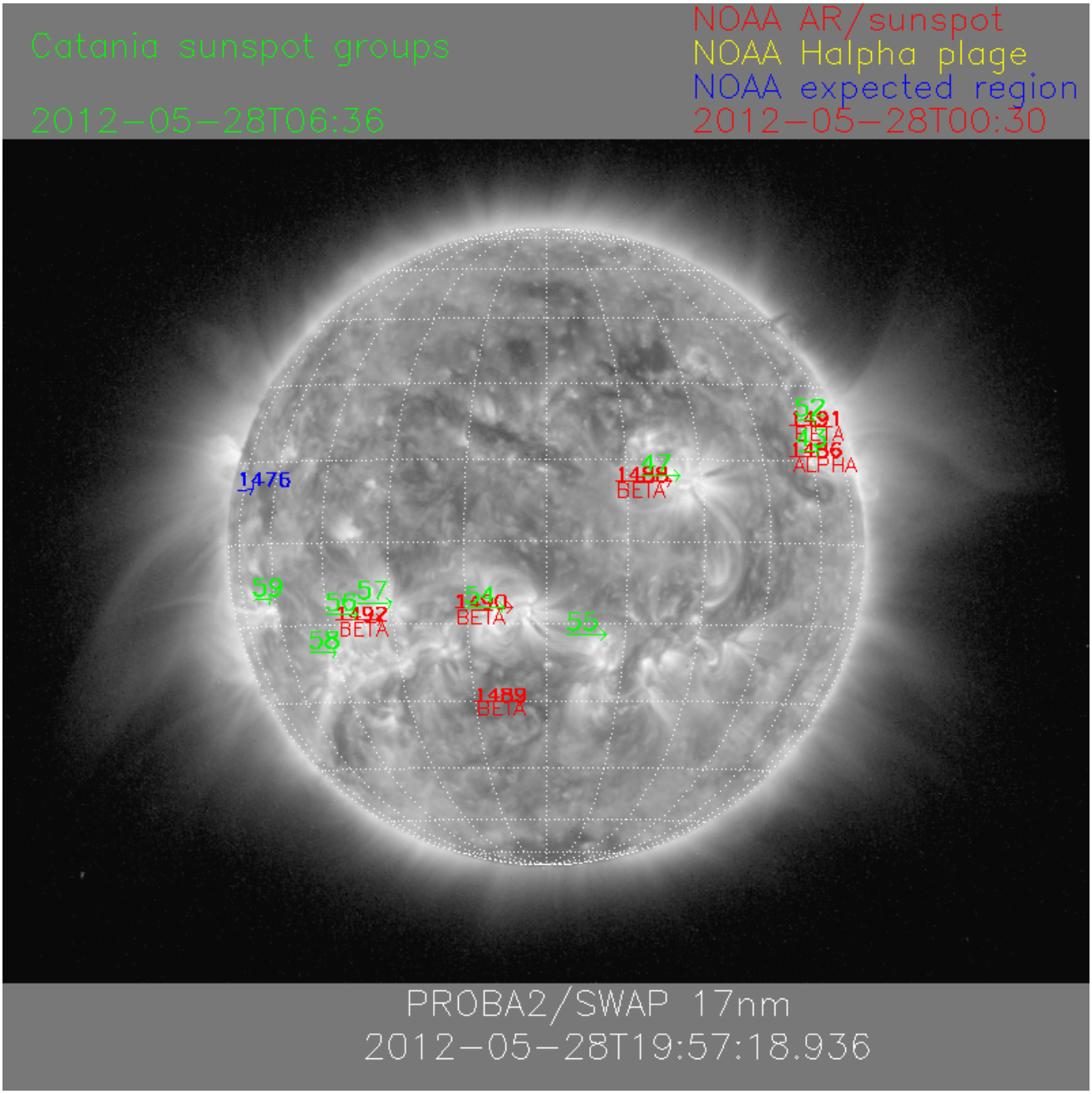
Overview

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

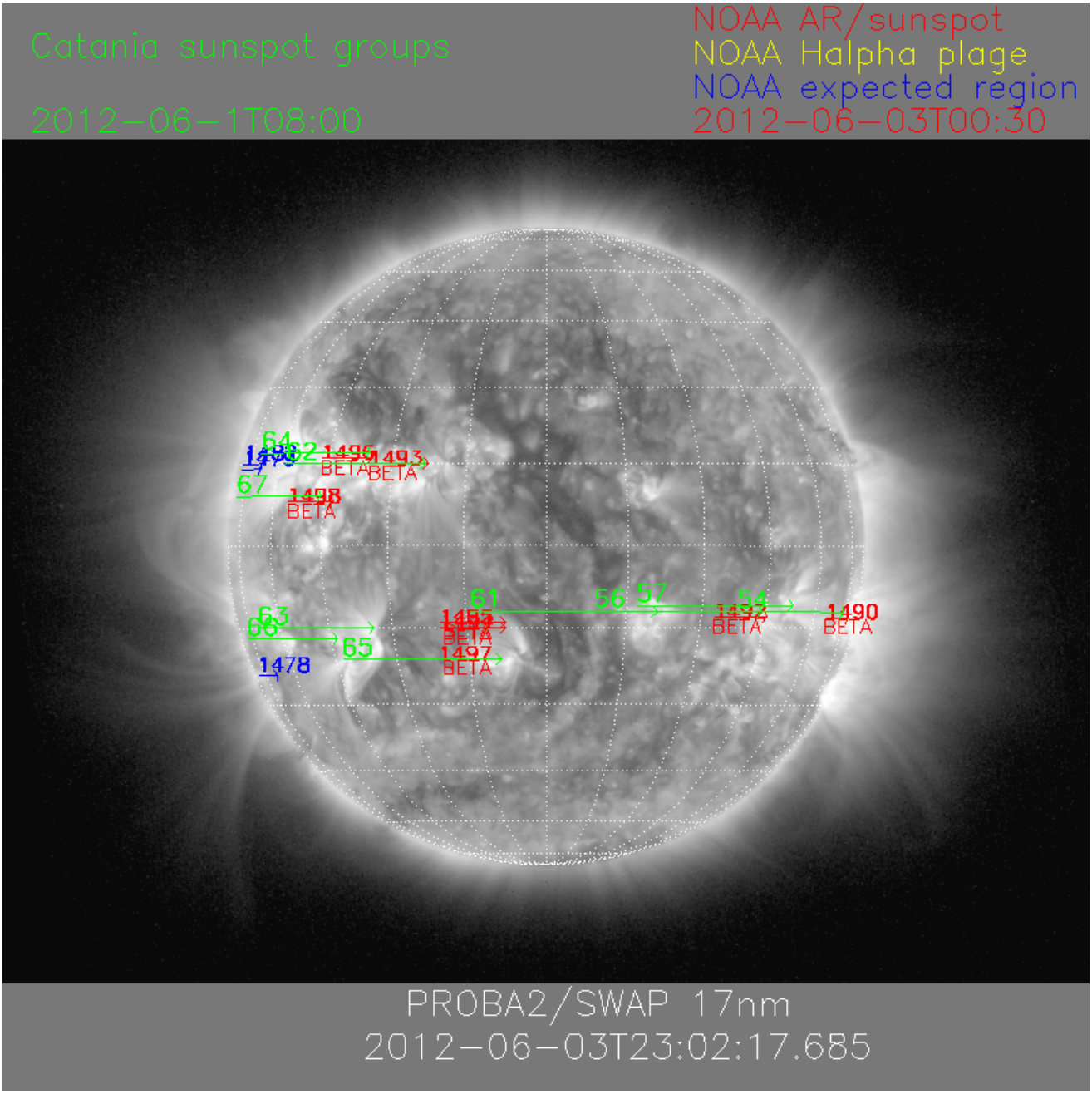
	Monday 28 May	Tuesday 29 May	Wednesday 30 May	Thursday 31 May	Friday 01 Jun	Saturday 02 Jun	Sunday 03 Jun
Activity	very low	very low	low	low	low	low	moderate
Flares	-	-	-	-	-	-	M3.3@17:48

[1] See appendix. All timings are given in UT.

The SWAP images of May 28 and Jun 03 are shown below, with annotated active regions.

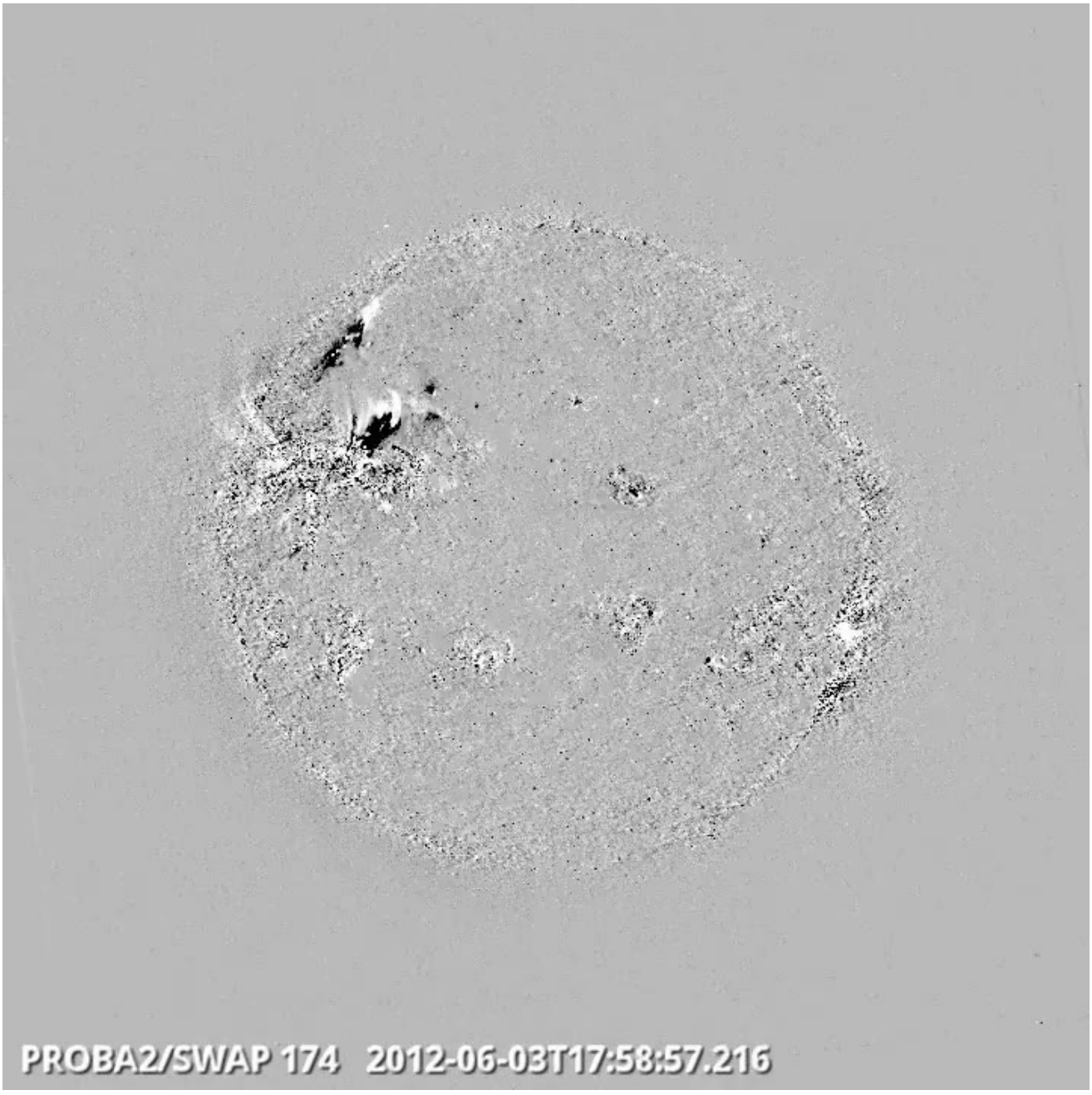


http://sidc.be/html/CmapPage.html

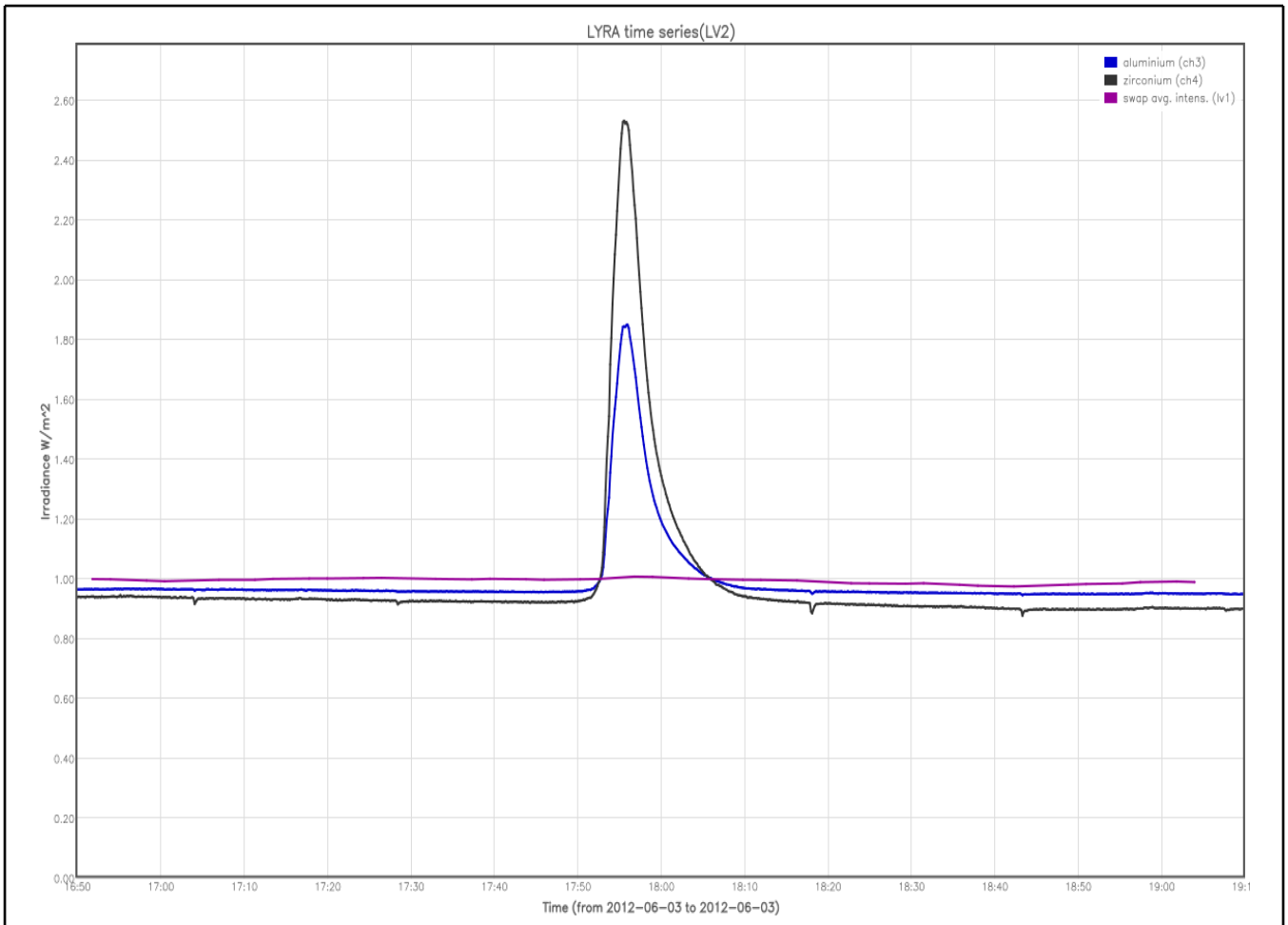

Catania sunspot groups
2012-06-1T08:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2012-06-03T00:30
64
67
BETA
BETA
BETA
61
56
57
54
1490
BETA
BETA
63
66
65
1478
1497
BETA
PROBA2/SWAP 17nm
2012-06-03T23:02:17.685

This week, the Sun’s activity was increasing from very low to moderate.

On Sunday at 17:48 UT, an M3.3 flare started in AR 11496. The corresponding SWAP image and LYRA curves are provided below:

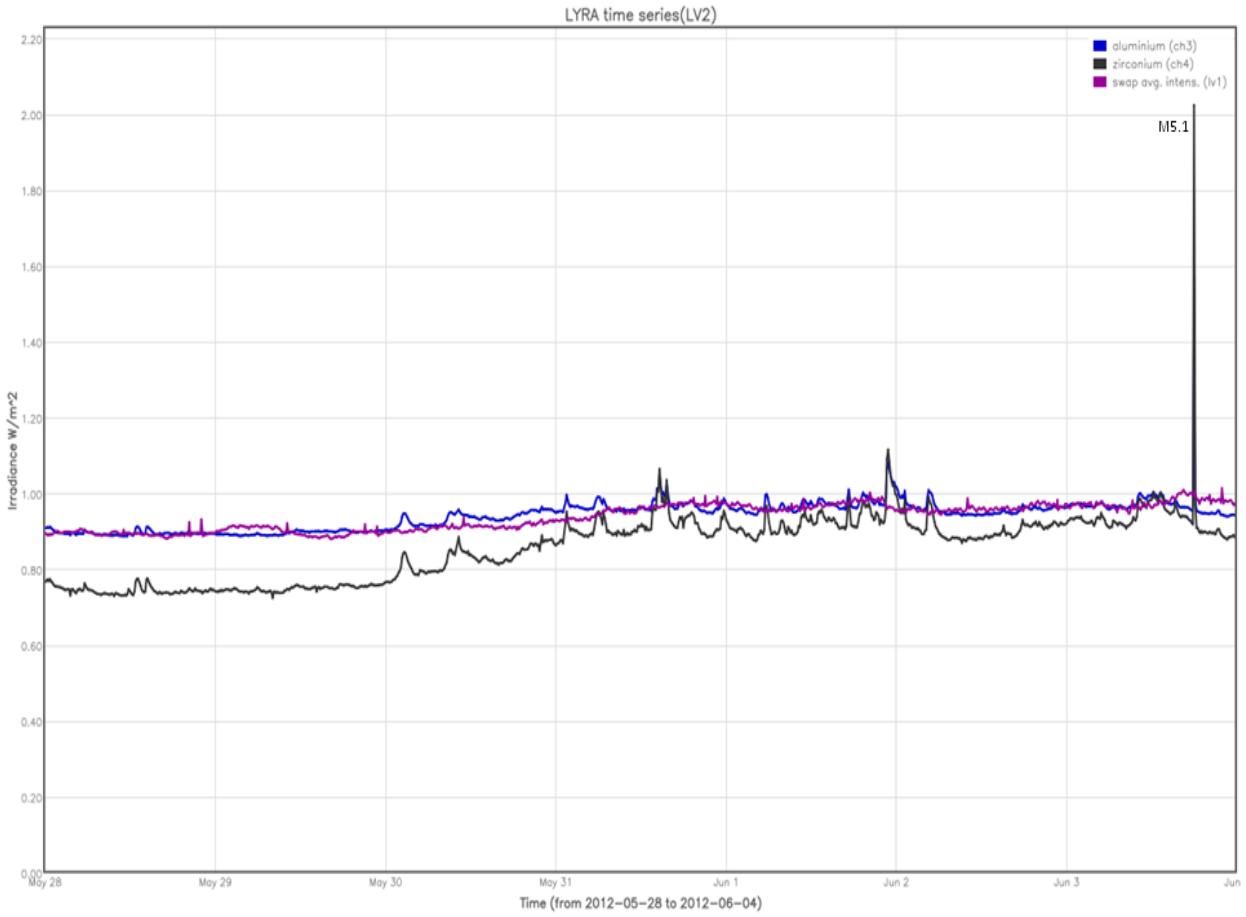


M3.3 flare as seen in the SWAP difference movie, 03/06 @ 17:58



M3.3 flare as recorded by LYRA, 03/06 @ 17:58

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:
- None

The orange shaded period corresponds to:
- None

The red shaded period corresponds to:
- None.

One M-type flare occurred on Sunday, 17:48 UT.

Scientific campaigns

The following LYRA and SWAP specific scientific campaigns have been performed this week:
- Preparation for the Venus transit for next week

Outreach, papers, presentations, etc.

- None

2. LYRA instrument status

Calibration

No calibration of LYRA this week.

IOS & operations

Monday 28 May	Tuesday 29 May	Wednesday 30 May	Thursday 31 May	Friday 01 Jun	Saturday 02 Jun	Sunday 03 Jun
Nominal acquisition + daily U3 LYIOS00245	Nominal acquisition + daily U3 LYIOS00245	Nominal acquisition + daily U3 LYIOS00245 -> 246	Nominal acquisition + daily U3 LYIOS00246	Nominal acquisition + daily U3 LYIOS00246	Nominal acquisition + daily U3 LYIOS00246	Nominal acquisition + daily U3 LYIOS00246

On Wednesday 30th of May, the team discovered that despite the daily U3 open and close commanding, U3 had remained open for 20 days. It had nevertheless been nominally acquiring data during the daily campaigns.

With the help of REDU operators, the U3 open cover problem was addressed by switching off LYRA completely. U3 was closed as a consequence. Subsequent test of U3 (open/close) showed that the 'open' command had not been executed.
Next day, again supported by REDU, the LYRA asic was reloaded (3x).
Subsequent tests indicated that the U3 open/close commanding resumed nominally.

Degradation of U3, due to this episode, will be analysed.

During the week-end, a special LYRA test campaign was implemented on-board to be executed on the subsequent Monday morning. The aim of this test was to check the campaign before its effective use during the Venus transit in front of the Sun from Tuesday evening until Wednesday morning.

LYRA detector temperature

LYRA detector 2 temperature fluctuated around 46.5 (while U3 was open, but inactive). Temperature dropped to 45.8 degrees Celsius once U3 was closed.

To be explored
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3. SWAP instrument status

Calibration

No calibration of SWAP this week.

MCPM errors
The number of MCPM recoverable errors increased from 777 to 948.

The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 28 May	Tuesday 29 May	Wednesday 30 May	Thursday 31 May	Friday 01 Jun	Saturday 02 Jun	Sunday 03 Jun
Nominal acquisition IOS00393 664 images	Nominal acquisition IOS00393 663 images	Nominal acquisition IOS00393 663 images	Nominal acquisition IOS00393 564 images	Nominal acquisition IOS00394 621 images	Nominal acquisition IOS00394 521 images	Nominal acquisition IOS00394 497 images

The following SWAP campaign was performed this week:
- None

During the week-end, a special SWAP test campaign was implemented on-board to be executed on the subsequent Monday morning. The aim of this test was to check the campaign before its effective use during the Venus transit in front of the Sun from Tuesday evening until Wednesday morning.

SWAP detector temperature
The SWAP Cold Finger Temperature fluctuated between -0.90 and -1.68 degrees Celsius, under nominal operations.

To be explored
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4. PROBA2 Science Center Status

The main operator is Koen Stegen.

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 7972 to 8032) was nominal, except for:
- none

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

All SWAP Science data files (BINSWAP) have been processed successfully, except for:
- 7973, 7991

Total number of images between 2012 May 28 0UT and 2012 Jun 04 0UT: 4268
Highest cadence in this period: 130 seconds
Average cadence in this period: 141.67 seconds
Number of image gaps larger than 300 seconds: 0

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?)