P2SC-ROB-WR-118-20120625 Weekly report #118	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 25 to Sun Jul 01, 2012 04 June 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

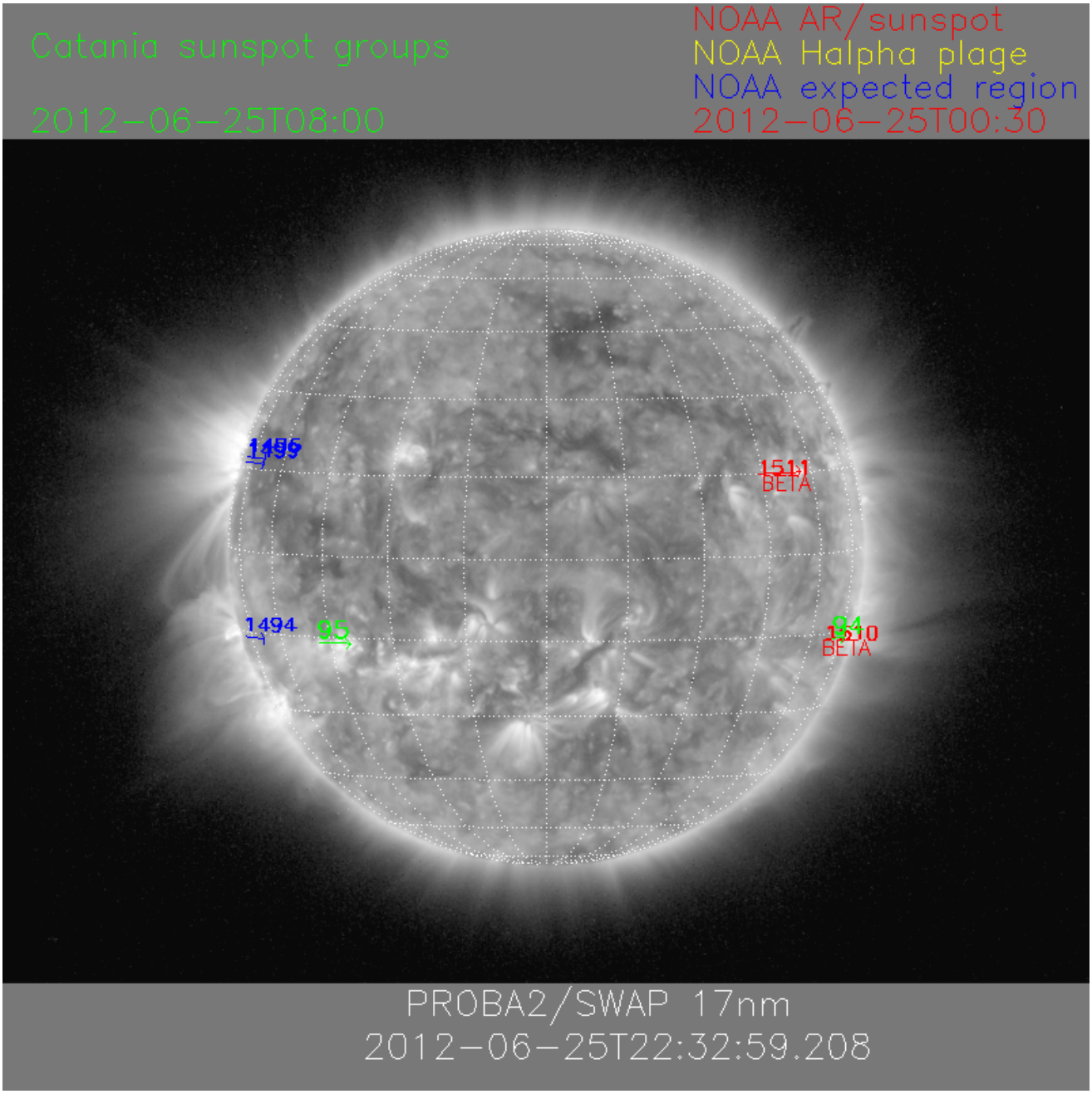
Overview

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

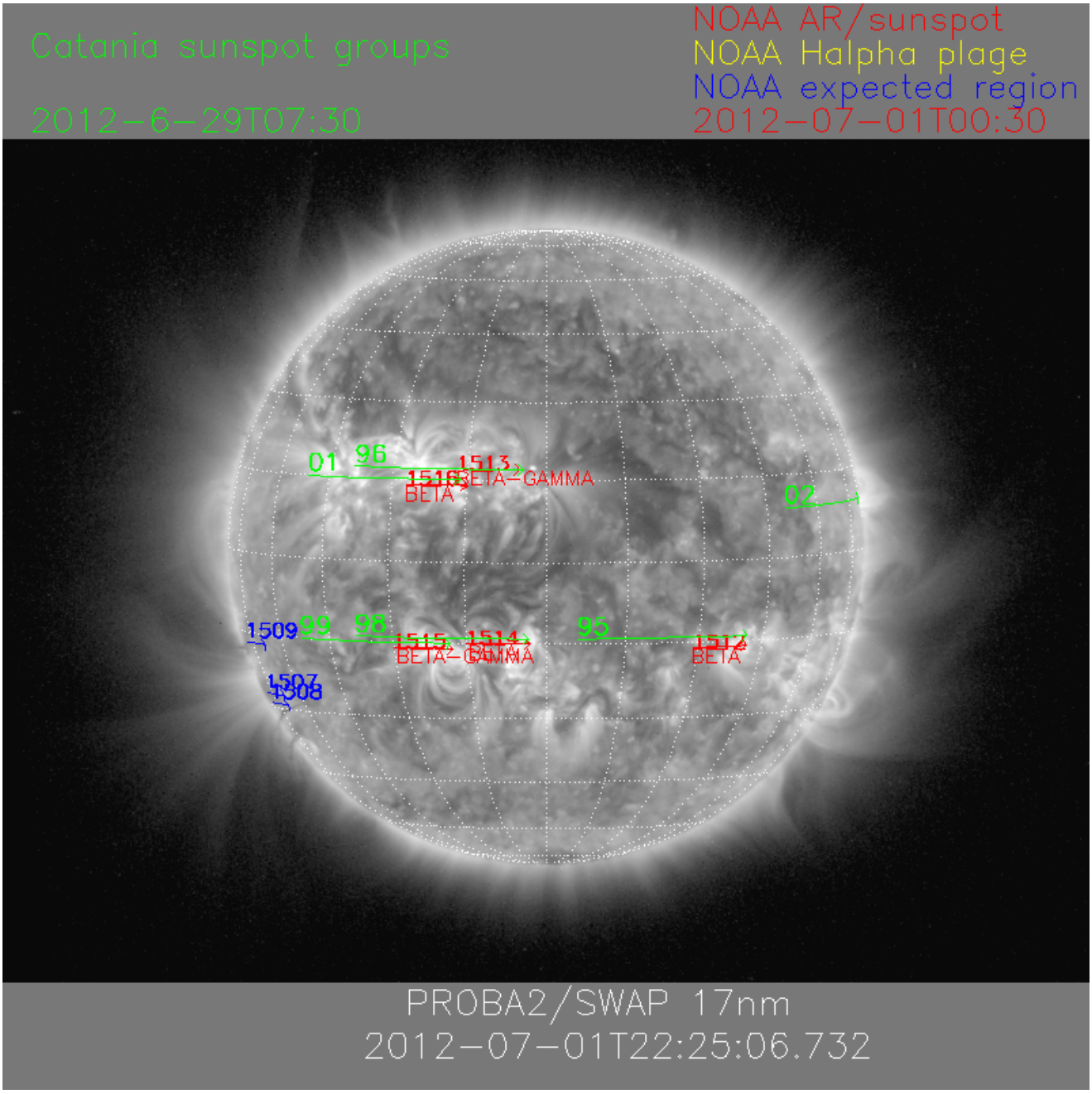
	Monday 25 Jun	Tuesday 26 Jun	Wednesday 27 Jun	Thursday 28 Jun	Friday 29 Jun	Saturday 30 Jun	Sunday 01 Jul
Activity	low	low	low	moderate	moderate	moderate	moderate
Flares	-	-	-	M2.4@16:07	M2.2@09:13	M1.0@12:48 M1.6@18:26	M2.8@19:11

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

The SWAP images of Jun 25 and Jul 01 are shown below, with annotated active regions.

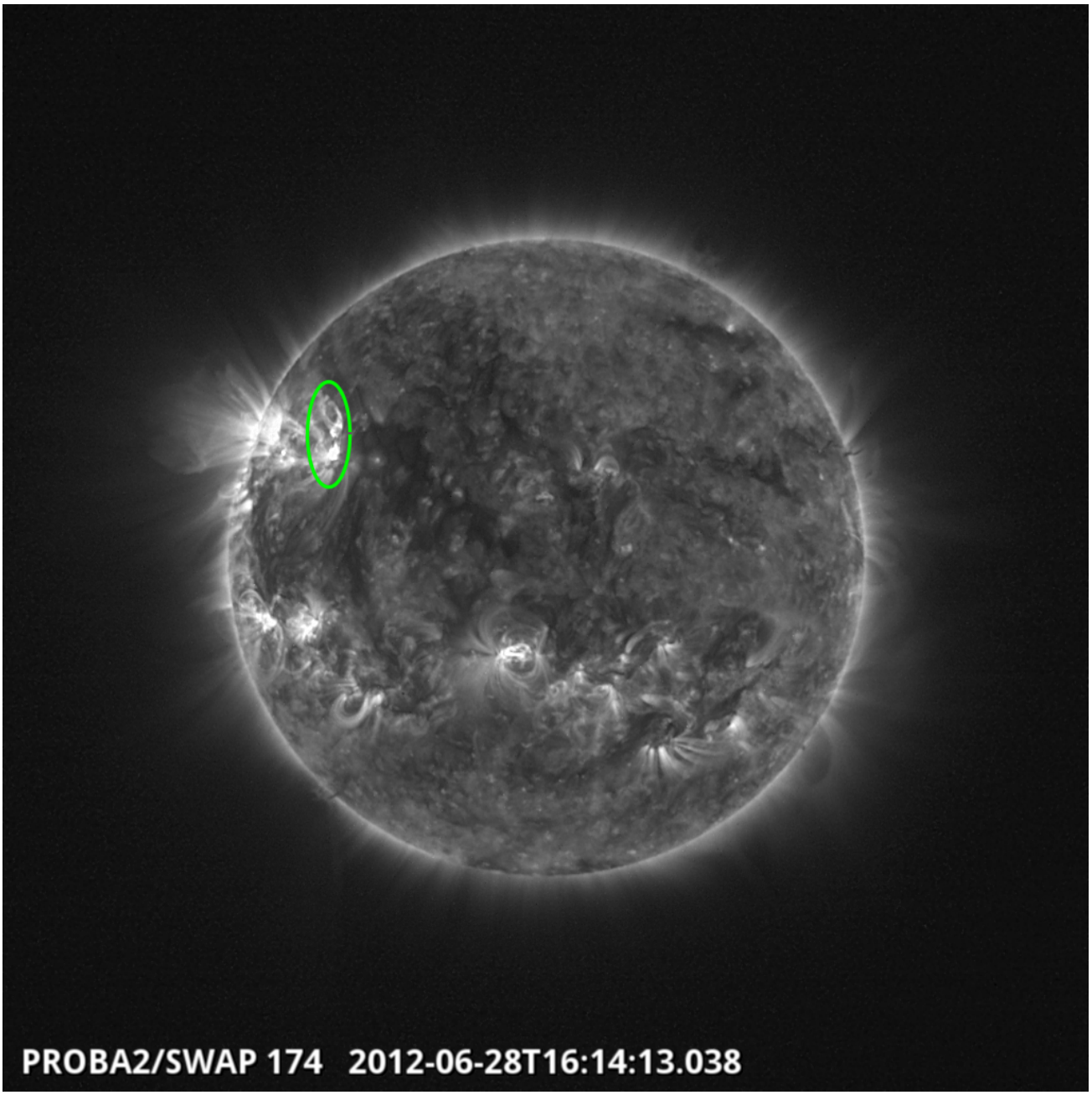


http://sidc.be/html/CmapPage.html

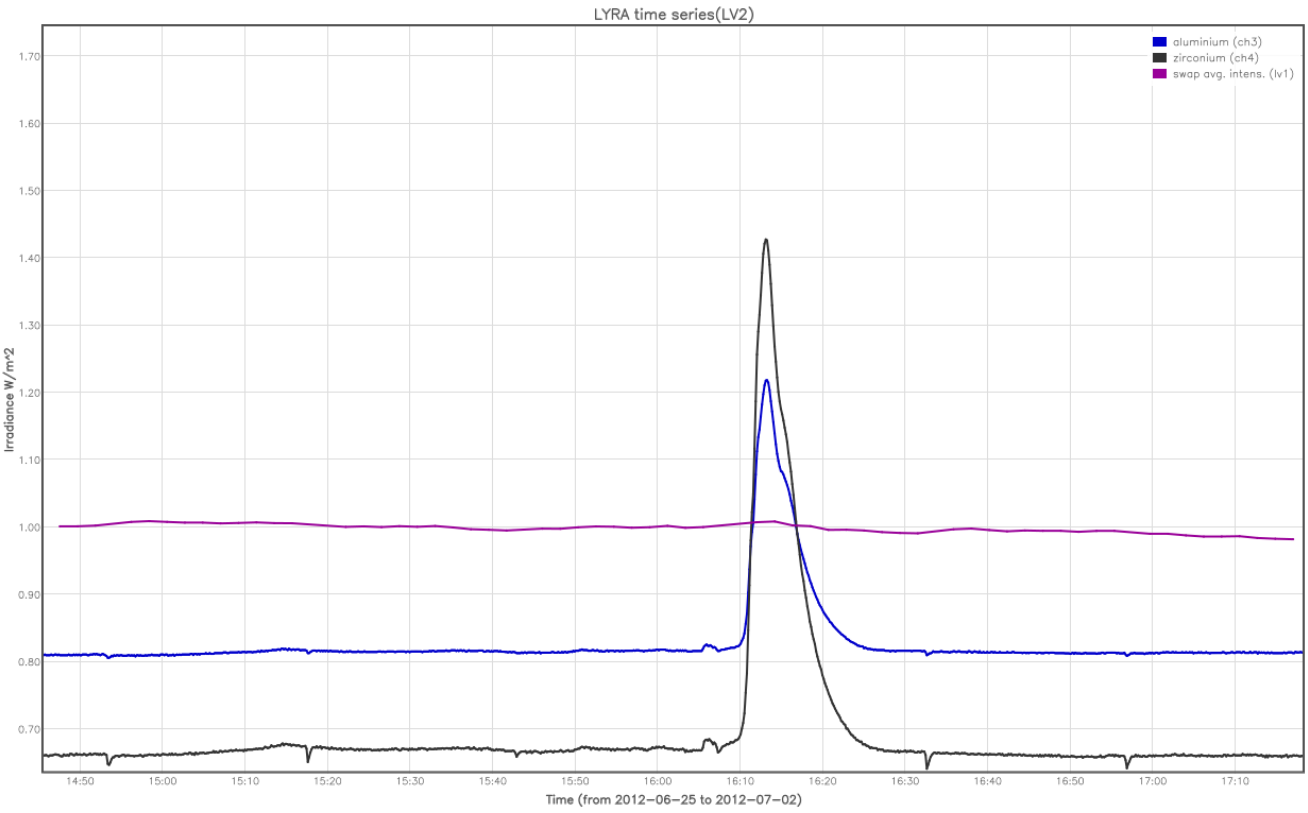

Catania sunspot groups
2012-6-29T07:30
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2012-07-01T00:30
01
96
1513
BETA-GAMMA
1516
BETA
02
1509
99
98
1515
1514
BETA-GAMMA
95
1512
BETA
1507
1508
PROBA2/SWAP 17nm
2012-07-01T22:25:06.732

Solar Activity
This week, the Sun's activity level went from *low* early in the week up to *moderate* from Thu on until the end of the week.

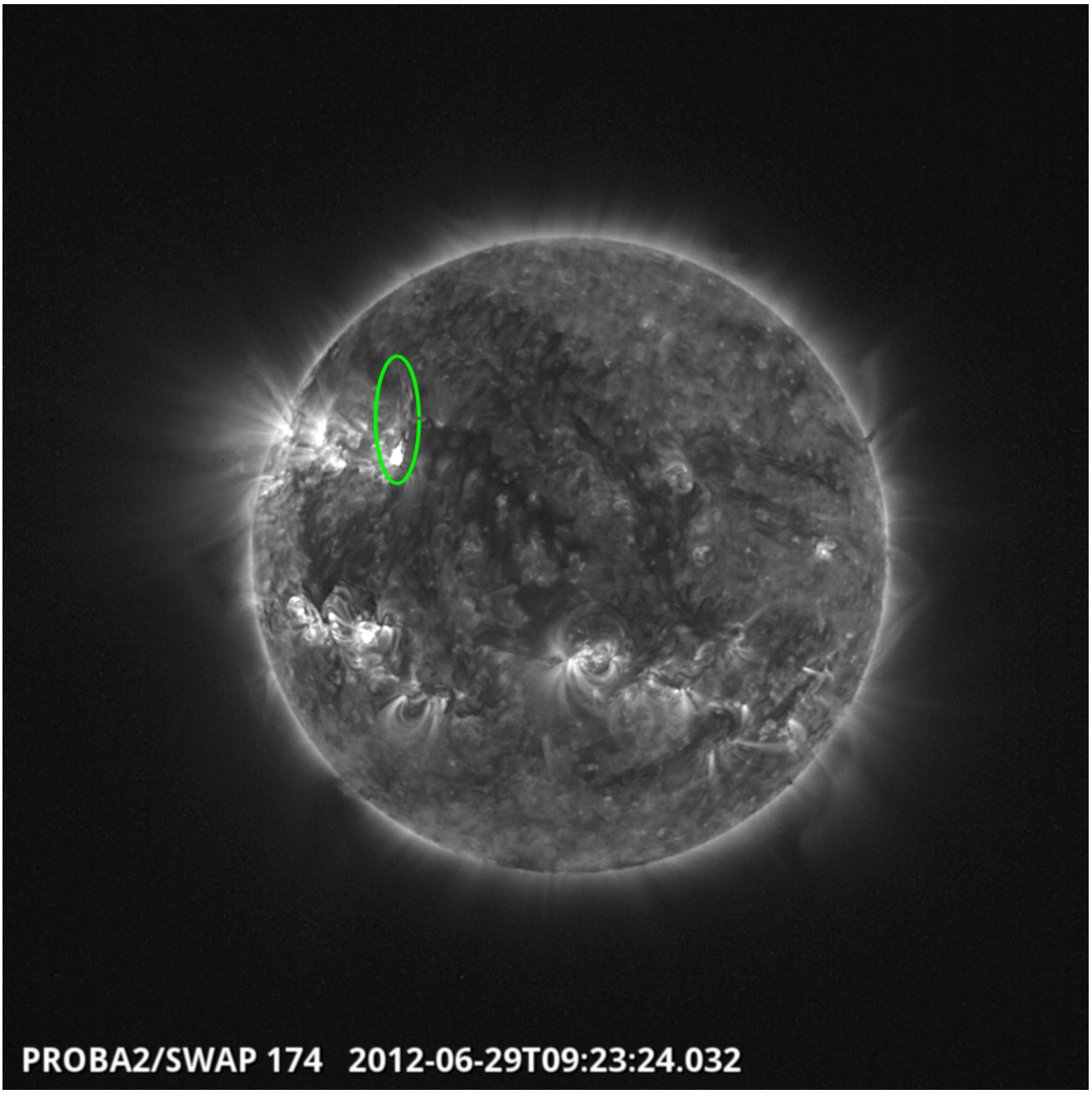
5 M-level flares occurred during the last 4 days of the week - SWAP pictures and LYRA curves below:



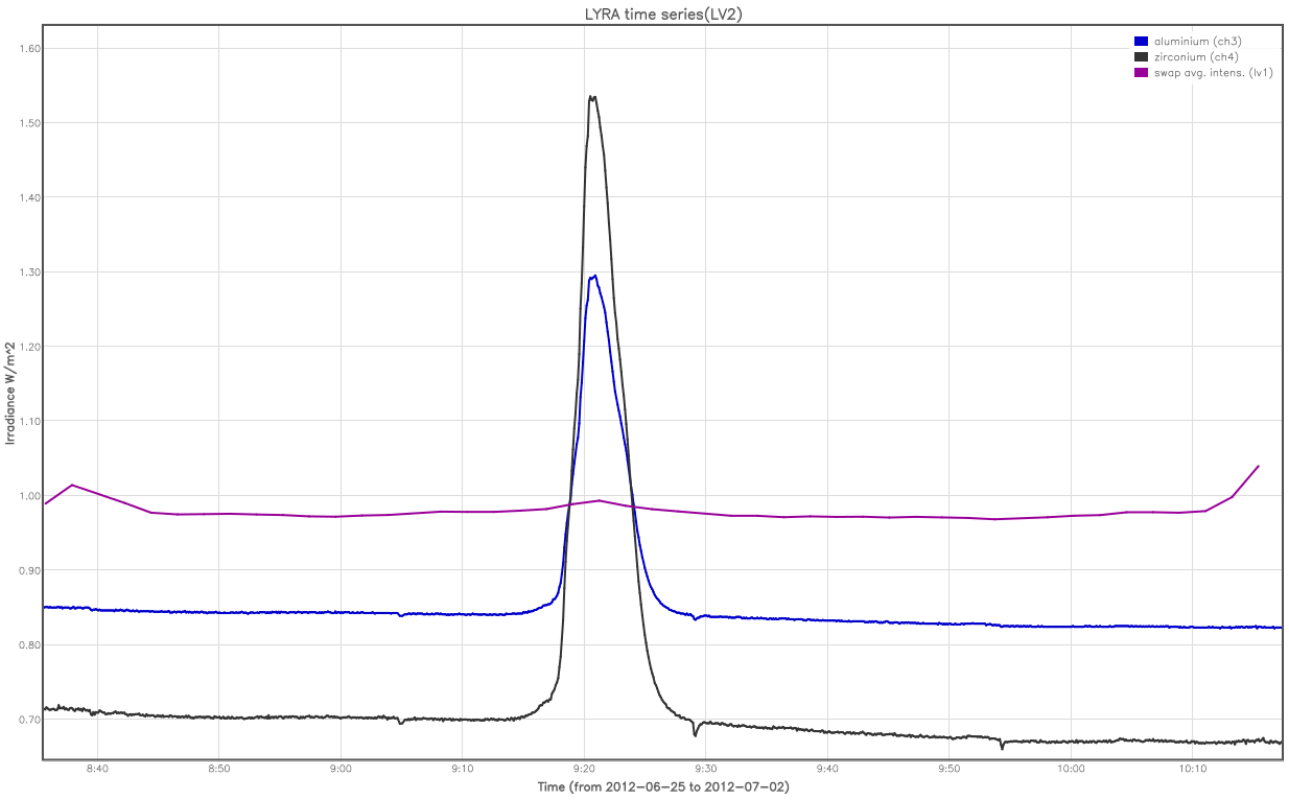
SWAP Image - M2.4 flare on Thursday 28/06



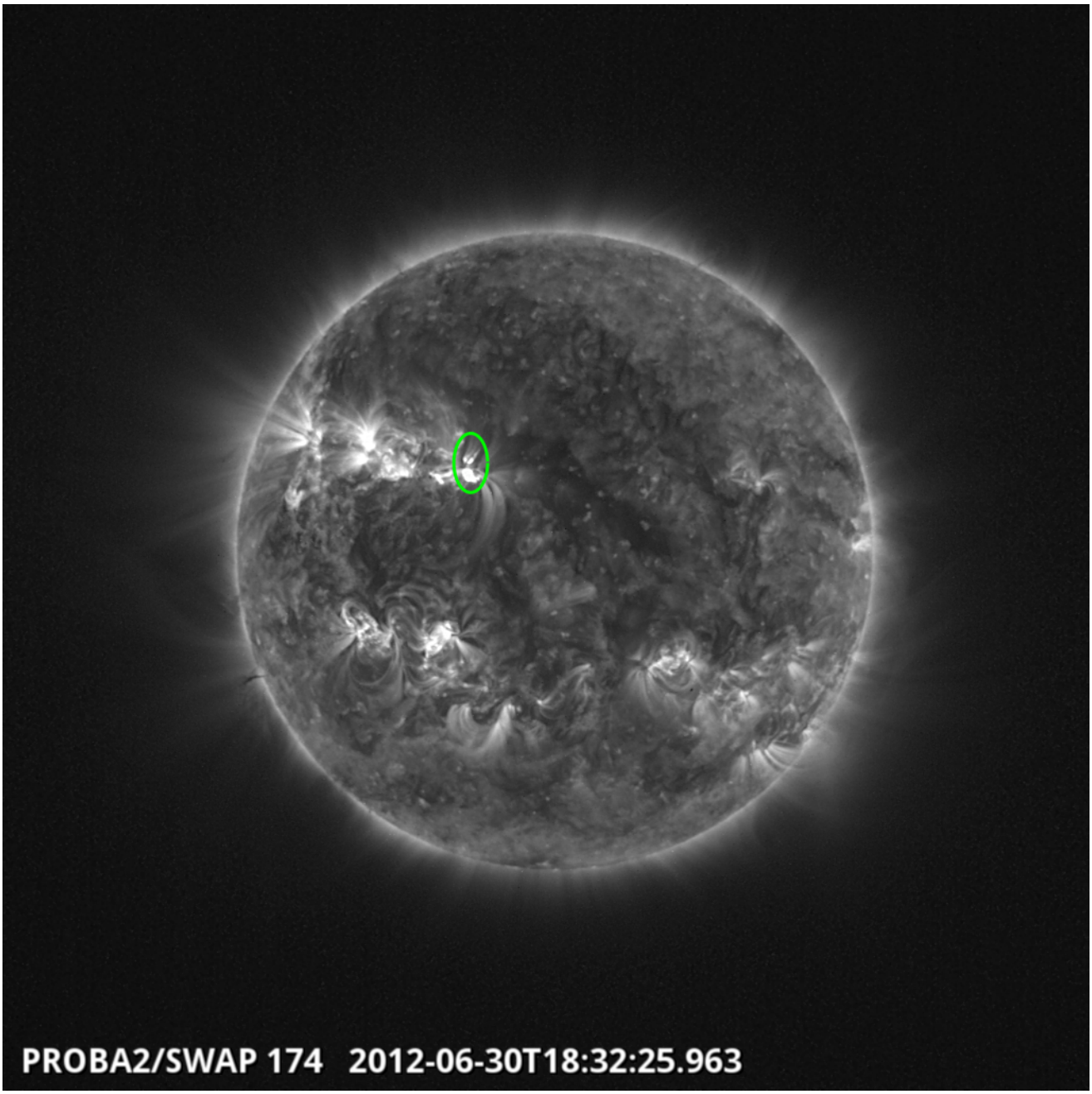
LYRA Curves - M2.4 flare on Thursday 28/06



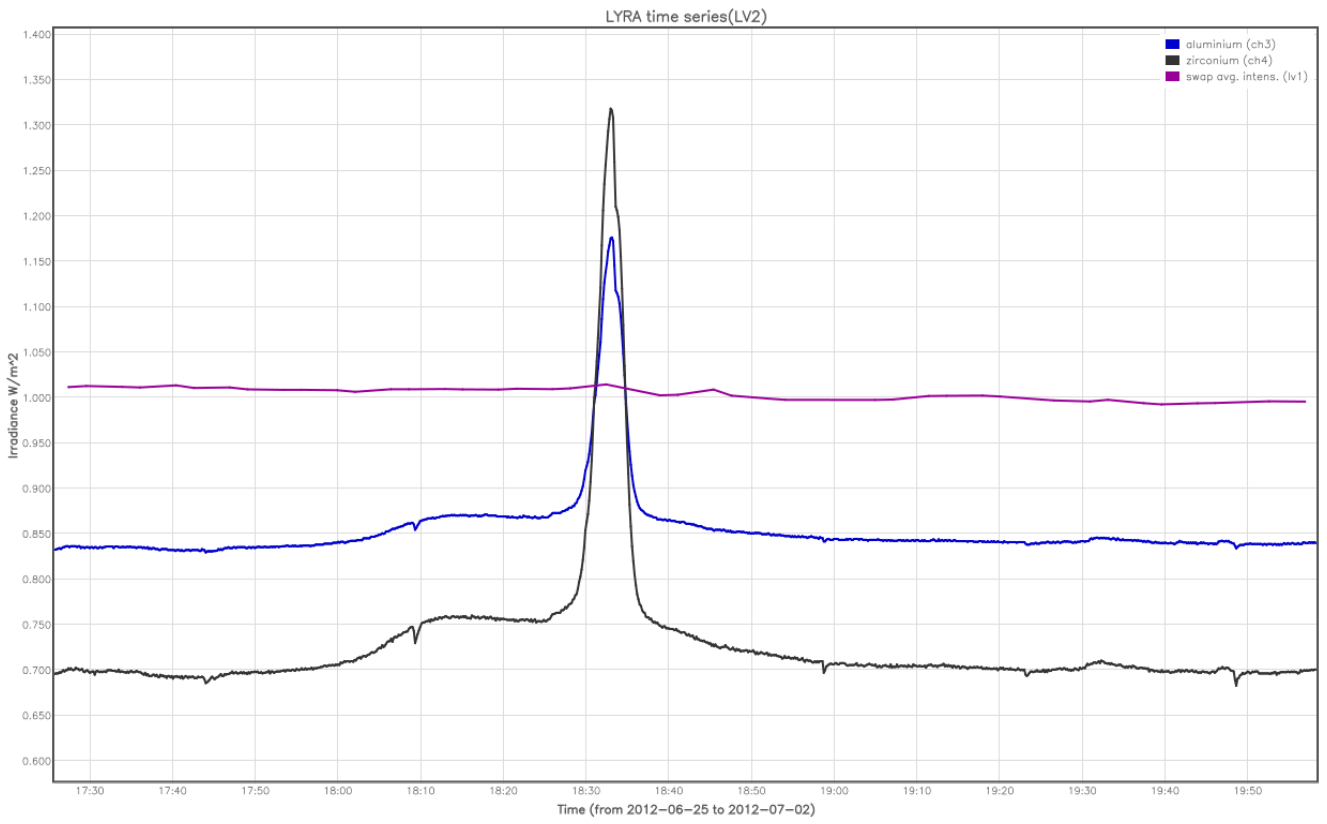
SWAP Image - M2.2 flare on Friday 29/06



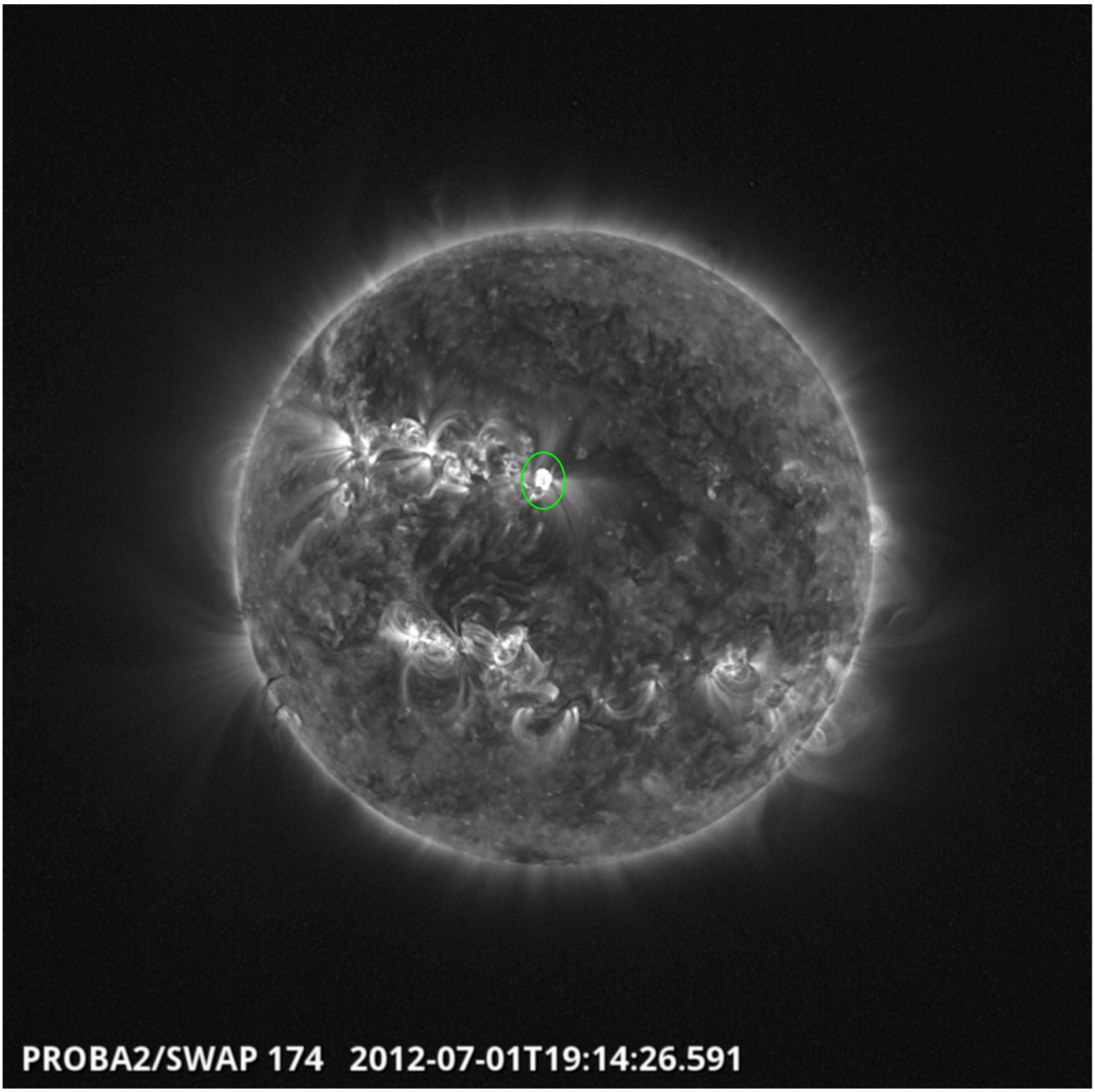
LYRA Curves - M2.2 flare on Friday 29/06



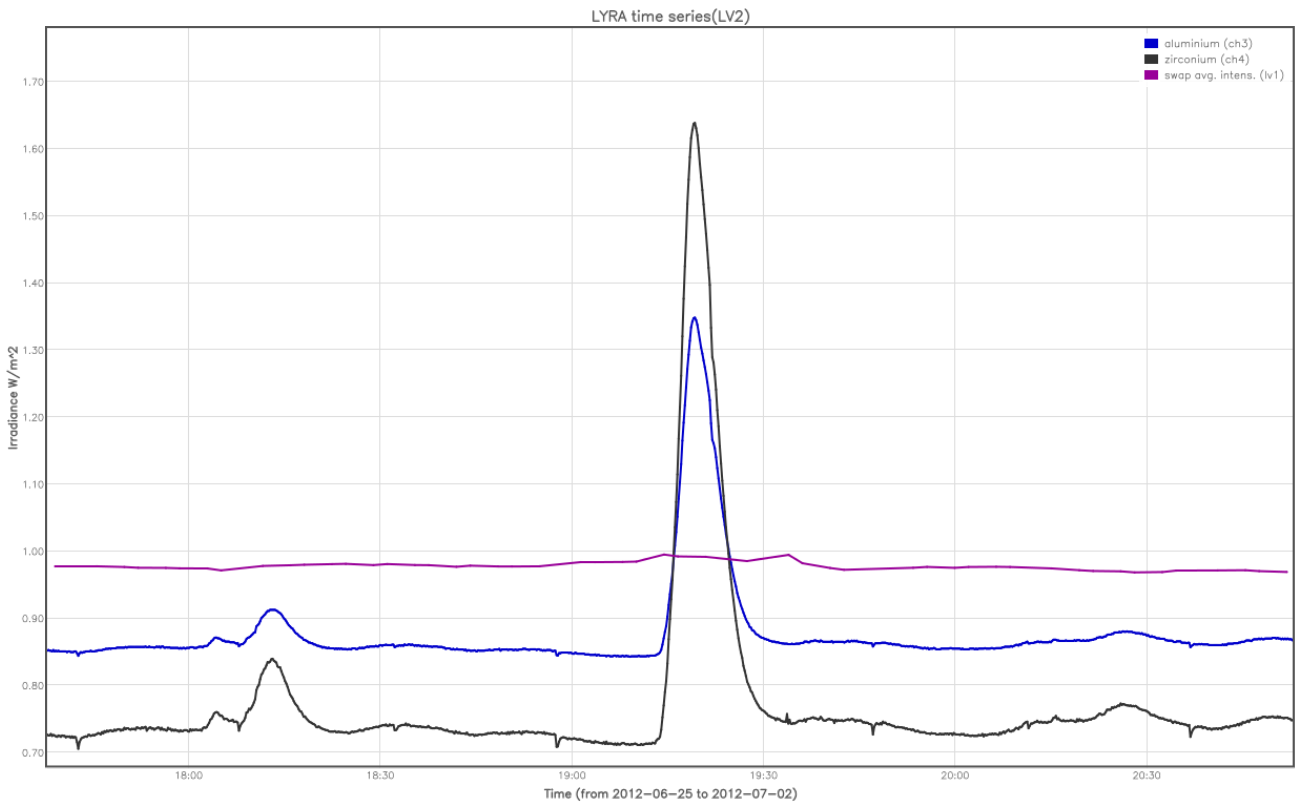
SWAP Image - M1.6 flare on Saturday 30/06



LYRA Curves - M1.6 flare on Saturday 30/06

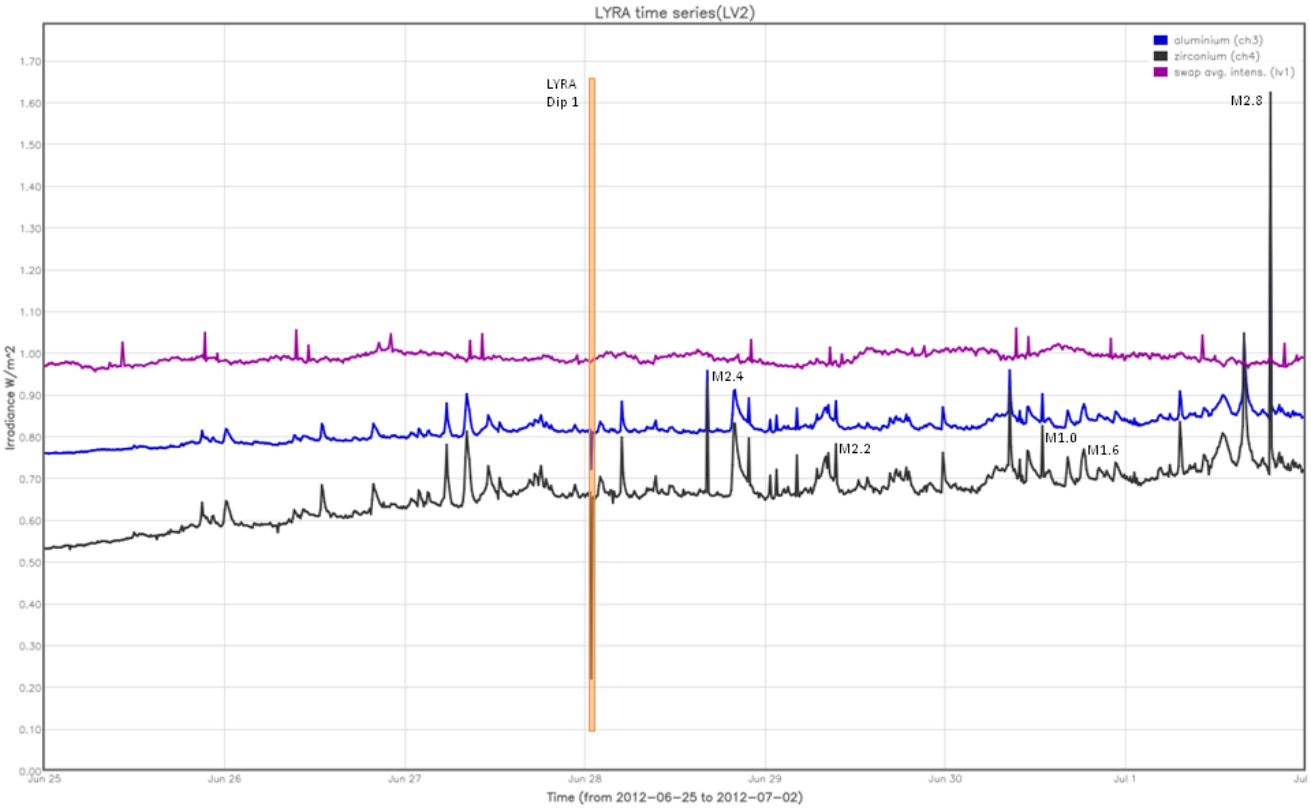


SWAP Image - M2.8 flare on Sunday 01/07



LYRA Curves - M2.8 flare on Sunday 01/07

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 data acquisition campaigns for.
- None

The orange shaded periods correspond to, from left to right, LYRA data acquisition campaigns for:
- Unexpected and previously undetected LYRA dip, which occurred when a LAR was executed on 28/06, during which the Sun moved out of the LYRA field of view. 2 other such dips were identified (1 bigger, longer duration one on 26/06 at 17:57, and 1 very small on 28/06 at 09:57) - the latter are not shown on the figure above.

The red shaded period corresponds to:
- none

This week, a leap second was introduced on June 30th. The introduction went as follows:
- 23:59:59
- 23:59:60
- 00:00:00

Scientific campaigns

The following LYRA and SWAP specific scientific campaigns have been performed this week:
- Daily LYRA Unit 3 campaign

Outreach, papers, presentations, etc.

On June 27-29, the ESA Mission Extension Operations Review took place at ESTEC. PROBA2 took part in this review with a proposal for extension up to, and including 2016. Three presentations were given:
- Etienne Tilmans presented the PROBA2 Operations Report including the status of spacecraft, payload and ground station.
- Anik De Groof presented the status of the instrument operations and the science outcome
- Joe Zender presented the mission management overview, including operations planning & commanding, data processing & distribution, staffing and funding.

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 25 Jun	Tuesday 26 Jun	Wednesday 27 Jun	Thursday 28 Jun	Friday 29 Jun	Saturday 30 Jun	Sunday 01 Jul
Nominal acquisition + daily U3 LYIOS00252	Nominal acquisition + daily U3 LYIOS00252	Nominal acquisition + daily U3 LYIOS00252	Nominal acquisition + daily U3 LYIOS00252	Nominal acquisition + daily U3 LYIOS00252->253	Nominal acquisition + daily U3 LYIOS00253	Nominal acquisition + daily U3 LYIOS00253

The following LYRA campaign was performed this week:
- Daily Unit 3 campaign (7/7)

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 45.3 and 46.1 during nominal operations.

To be explored
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3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 1381 to 1583.

The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 25 Jun	Tuesday 26 Jun	Wednesday 27 Jun	Thursday 28 Jun	Friday 29 Jun	Saturday 30 Jun	Sunday 01 Jul
Nominal acquisition IOS00402 587 images	Nominal acquisition IOS00402 671 images	Nominal acquisition IOS00402 682 images	Nominal acquisition IOS00402 556 images	Nominal acquisition IOS00402 603 images	Nominal acquisition IOS00402 548 images	Nominal acquisition IOS00402 514 images

The following specific SWAP campaign was performed this week:
- None

The weekly ESP campaign was not performed.

SWAP detector temperature

The SWAP Cold Finger Temperature fluctuated between -1.06 and -1.84 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 8235 to 8284) 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:
- BINSWAP_8265 - Corrupted first packet

Total number of images between 2012 Jun 25 0UT and 2012 Jul 02 0UT: 4096
Highest cadence in this period: 130 seconds
Average cadence in this period: 147.62 seconds
Number of image gaps larger than 300 seconds: 0

No ESP campaign this week.

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?)