


P2SC-ROB-WR-254 - 20150202 Weekly report #254	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Feb 02 to Sun Feb 08, 2015 11 Feb 2015 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

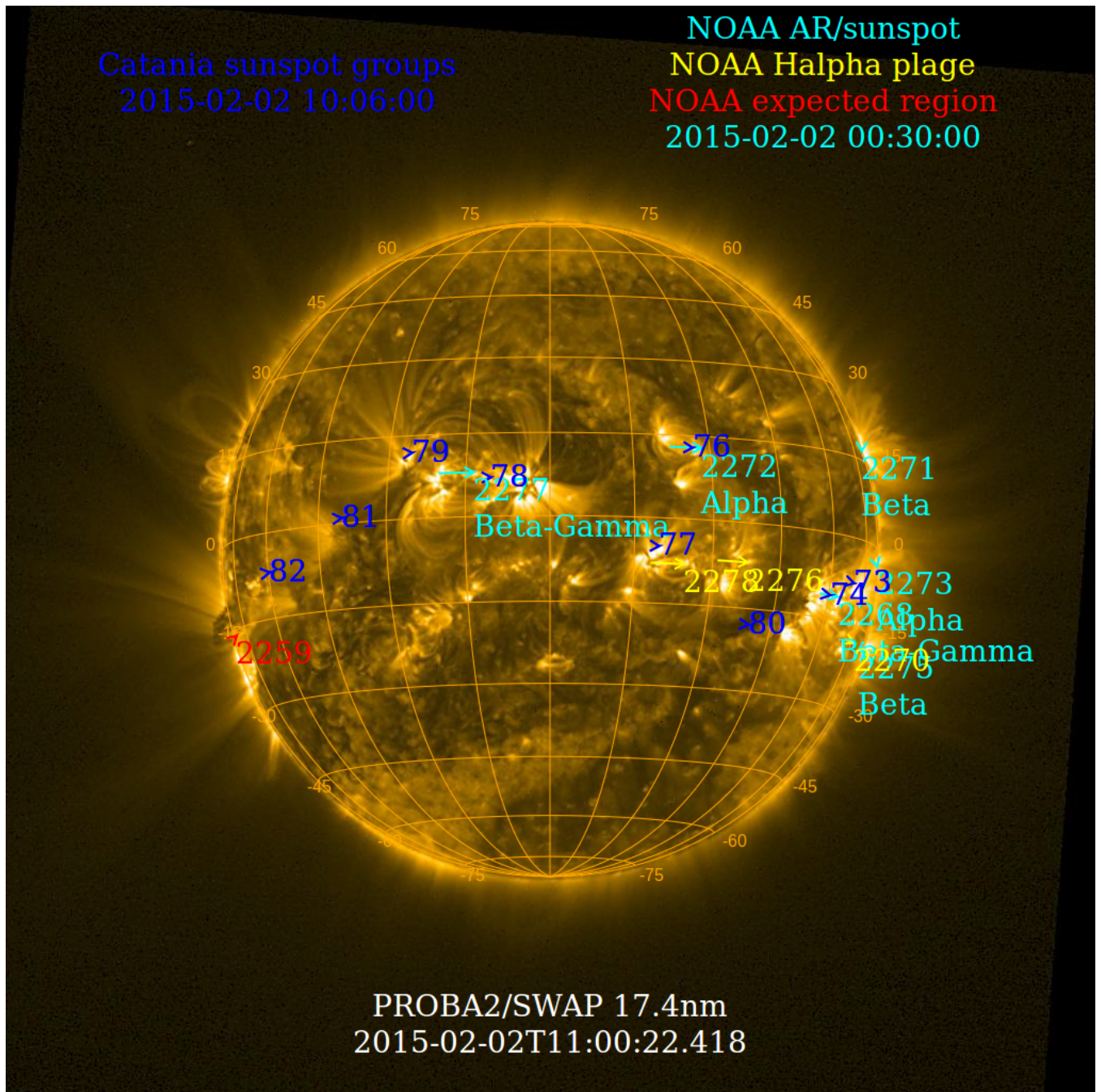
The level of solar activity¹ fluctuated between **low** and **moderate** this week.

Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 02 Feb	Tuesday 03 Feb	Wednesday 04 Feb	Thursday 05 Feb	Friday 06 Feb	Saturday 07 Feb	Sunday 08 Feb
Activity	low	low	moderate	low	low	low	low
Flares	-	-	M1.2@02:15	-	-	-	-

¹ See appendix. All timings are given in UT.

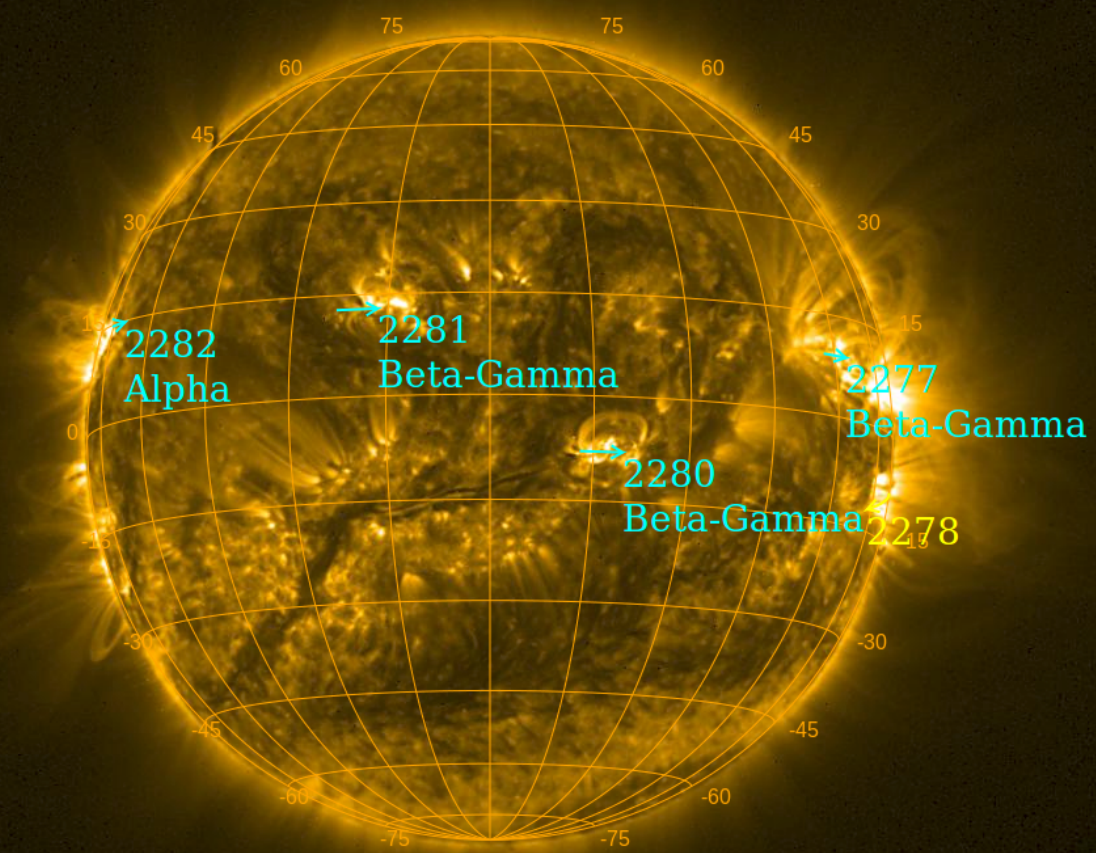
The SWAP images of Feb 02 and Feb 08 are shown below, with annotated active regions.



<http://sidc.be/soteria/soteria.php>

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-02-08 00:30:00



PROBA2/SWAP 17.4nm
2015-02-08T11:00:17.587

Solar Activity

Solar flare activity fluctuated between low and moderate during the week.

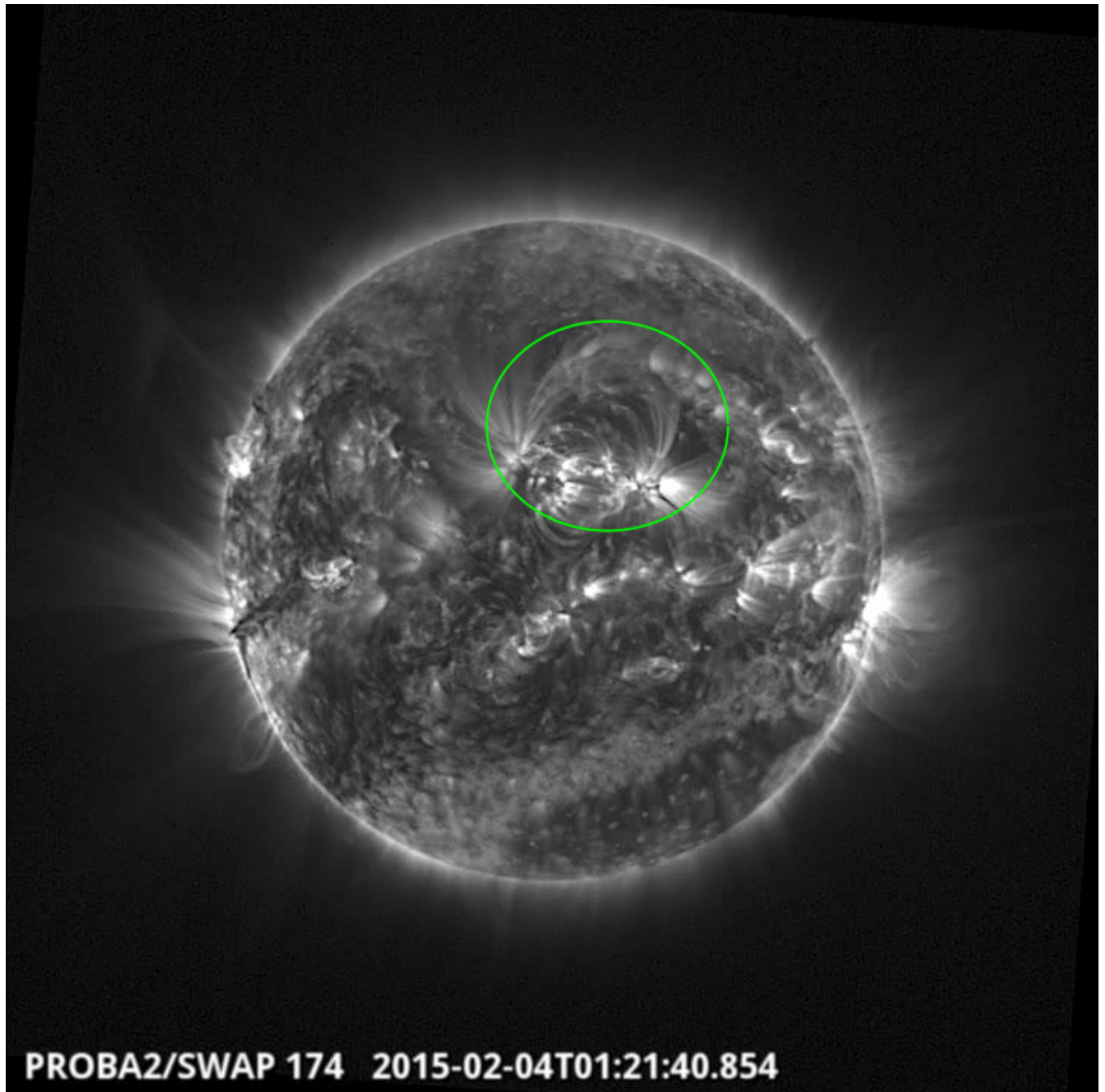
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

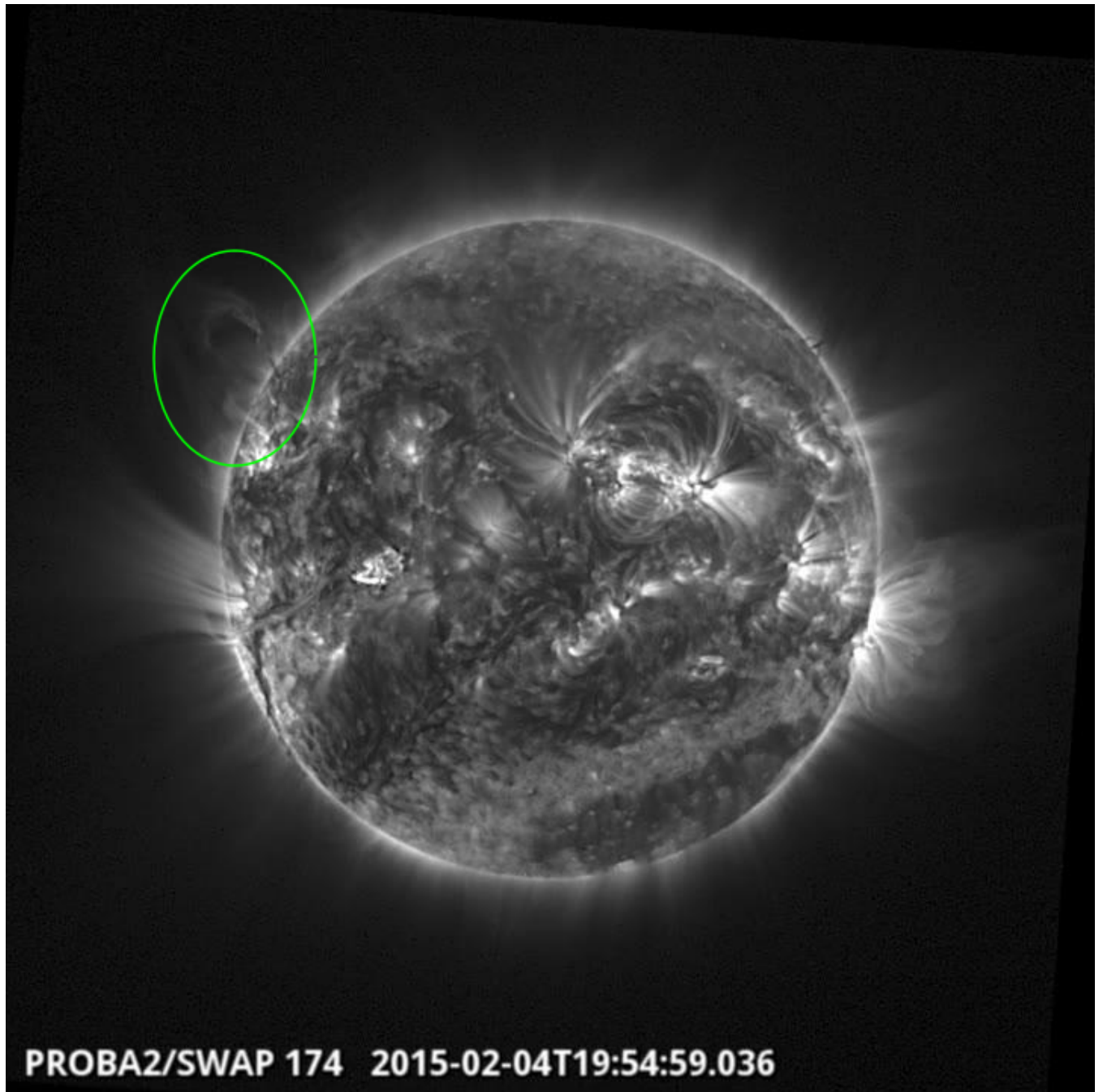
A weekly overview movie can be found [here](#) (SWAP week 254).

Details about some of this week's events, can be found further below.

Wednesday Feb 04

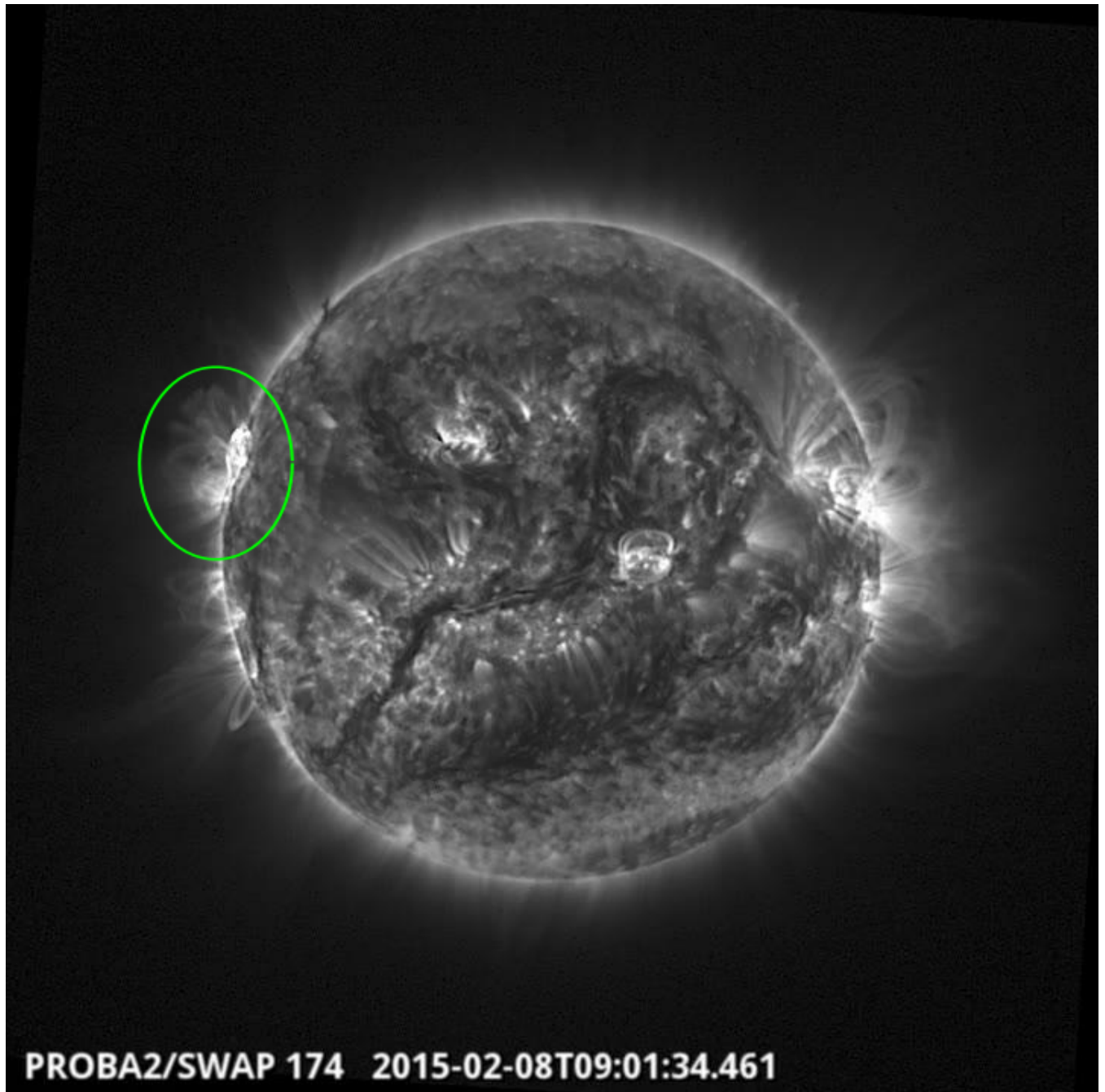


M-flare on the Sun's centre @ 01:21 - SWAP image
Find a movie of the event [here](#) (SWAP movie)



Filament eruption on the north east limb @ 19:54 - SWAP image
Find a movie of the event [here](#) (SWAP movie)

Sunday Feb 08

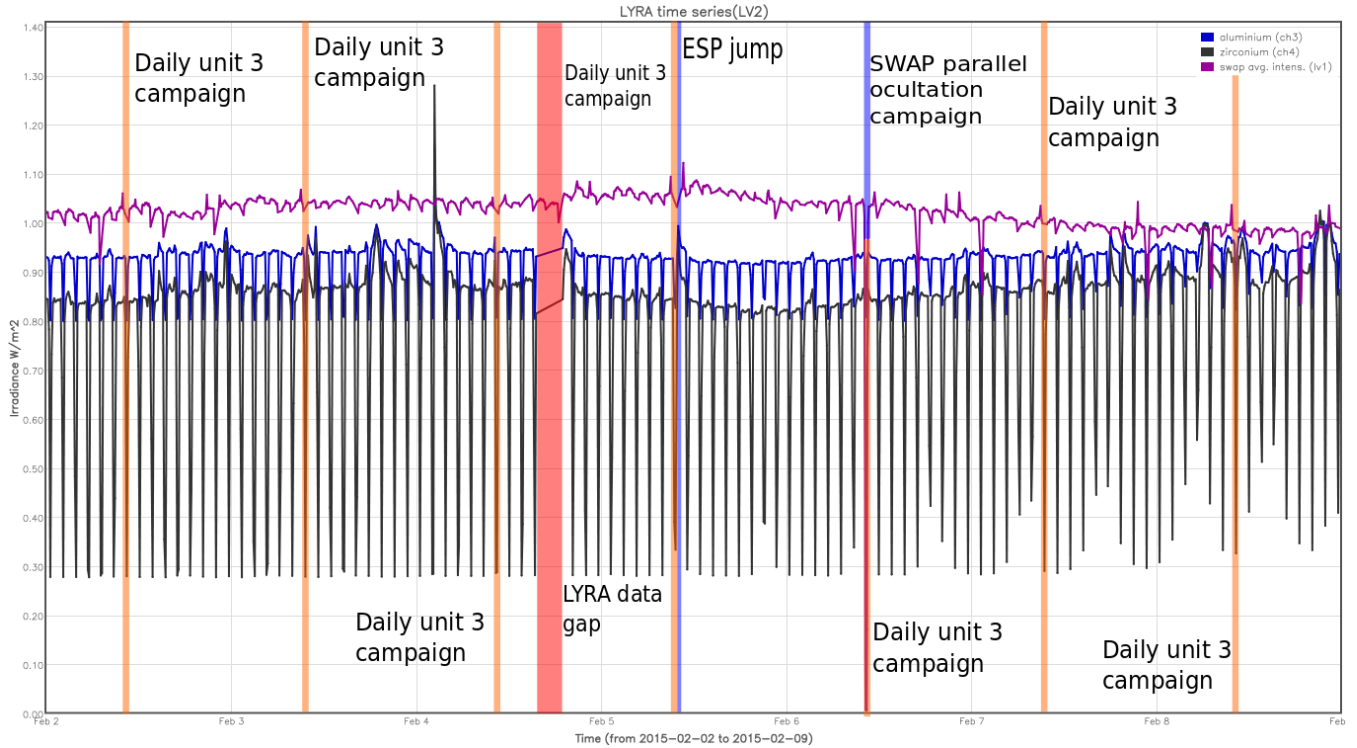


Failed eruption on the east limb @ 21:15 - SWAP image
Find a movie of the event [here](#) (SWAP movie)

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 (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



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

- The ESP jump
- SWAP parallel occultation campaign with LYRA

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

- Daily unit 3 campaign, seven times.

The red shaded period corresponds to:

- LYRA data gap due to a LED turning on. The data was received but not processed by the pipeline.

Outreach, papers, presentations, etc.

Please consult <http://proba2.oma.be/science/publications> for a list of interesting articles using SWAP & LYRA data, as well as a link to the complete article list.

The science section of this weekly report is also published in the weekly STCE newsletter (<http://www.stce.be/newsletter/newsletter.php>).

- BenMoussa. A *et al.* 2015: "Degradation assessment of LYRA after 5 years on orbit - Technology Demonstration -", *EXAS*, [ADS Link](#)
- Kumar, P *et al.* 2014: "Multiwavelength observation of a large-scale flux rope eruption above a kinked small filament", *A&A*, [ADS Link](#)
- Filippov. B 2014: "A filament eruption with an apparent reshuffle of endpoints", *MNRAS*, [ADS Link](#)
- Morgan. H *et al.* 2014: "Multi-Scale Gaussian Normalization for Solar Image Processing", *Sol Phys*, [ADS Link](#)

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 02 Feb	Tuesday 03 Feb	Wednesday 04 Feb	Thursday 05 Feb	Friday 06 Feb	Saturday 07 Feb	Sunday 08 Feb
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
LYIOS00448	LYIOS00448	LYIOS00448 -> LYIOS00449	LYIOS00449	LYIOS00450	LYIOS00450	LYIOS00450

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Unit 3 dark current measurement were taken until 2015/02/06-10:43

LYRA detector temperature

LYRA detector 2 temperature globally varied between 53 and 55.8 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

No calibration this week

MCPM errors

The number of MCPM recoverable errors increased from 26106 to 26291.

The number of MCPM unrecoverable errors remained at 4253 to 4421.

IOS & operations

Monday 02 Feb	Tuesday 03 Feb	Wednesday 04 Feb	Thursday 05 Feb	Friday 06 Feb	Saturday 07 Feb	Sunday 08 Feb
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00564 577 images	IOS00564 559 images	IOS00564 624 images	IOS00564 567 images	IOS00565 620 images	IOS00565 518 images	IOS00565 510 images

Special operations for SWAP, this week:

- ESP jump
- SWAP and LYRA parallel occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 3.1 and 4.2 °C.

4. PROBA2 Science Center Status

The main operator is Robbe Vansintjan.

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 16470 to 16531) was nominal, except for:

- BINSWAP_16482.

Data coverage HK

All HK data files (LYRA_AD) have been received, except:

- None.

Data coverage SWAP

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

- BINSWAP_16482

An MCPM blockedge prevented the download of SWAP data during this pass.

Total number of images between 2015 Feb 02 0UT and 2015 Feb 09 0UT: 4055

Highest cadence in this period: 29 seconds

Average cadence in this period: 149.16 seconds

Number of image gaps larger than 300 seconds: 104

Largest data gap: 33.83 minutes

Data coverage LYRA

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

- None

6. APPENDIX: Frequently used acronyms

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
ESP	Experimental Solar Panel
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System
HK	Housekeeping
IOS	Instrument Operations Sheet
LED	Light Emitting Diode
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
OBSW	On board Software
PI	Principal Investigator
P2SC	PROBA2 Science Center
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SEU	Single Event Upset
SoFAST	Solar Feature Automated Search Tool
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
VFC	Voltage to Frequency Converter

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)