P2SC-ROB-WR-327 - 20160627 Weekly report #239	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 27 to Sun Jul 03, 2016 06 Jul 2016 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

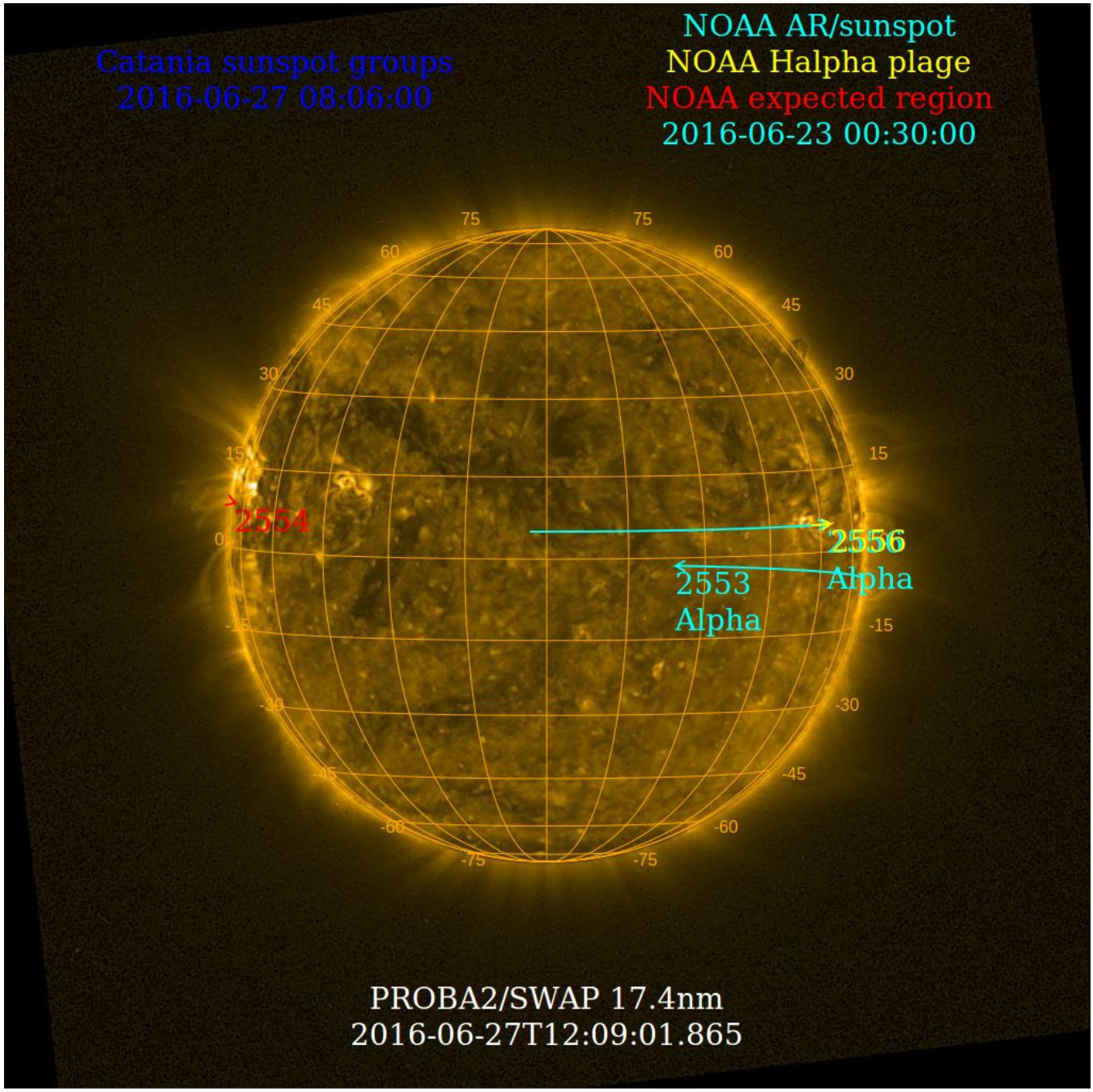
The level of solar activity[1] fluctuated remained **very low** this week.

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

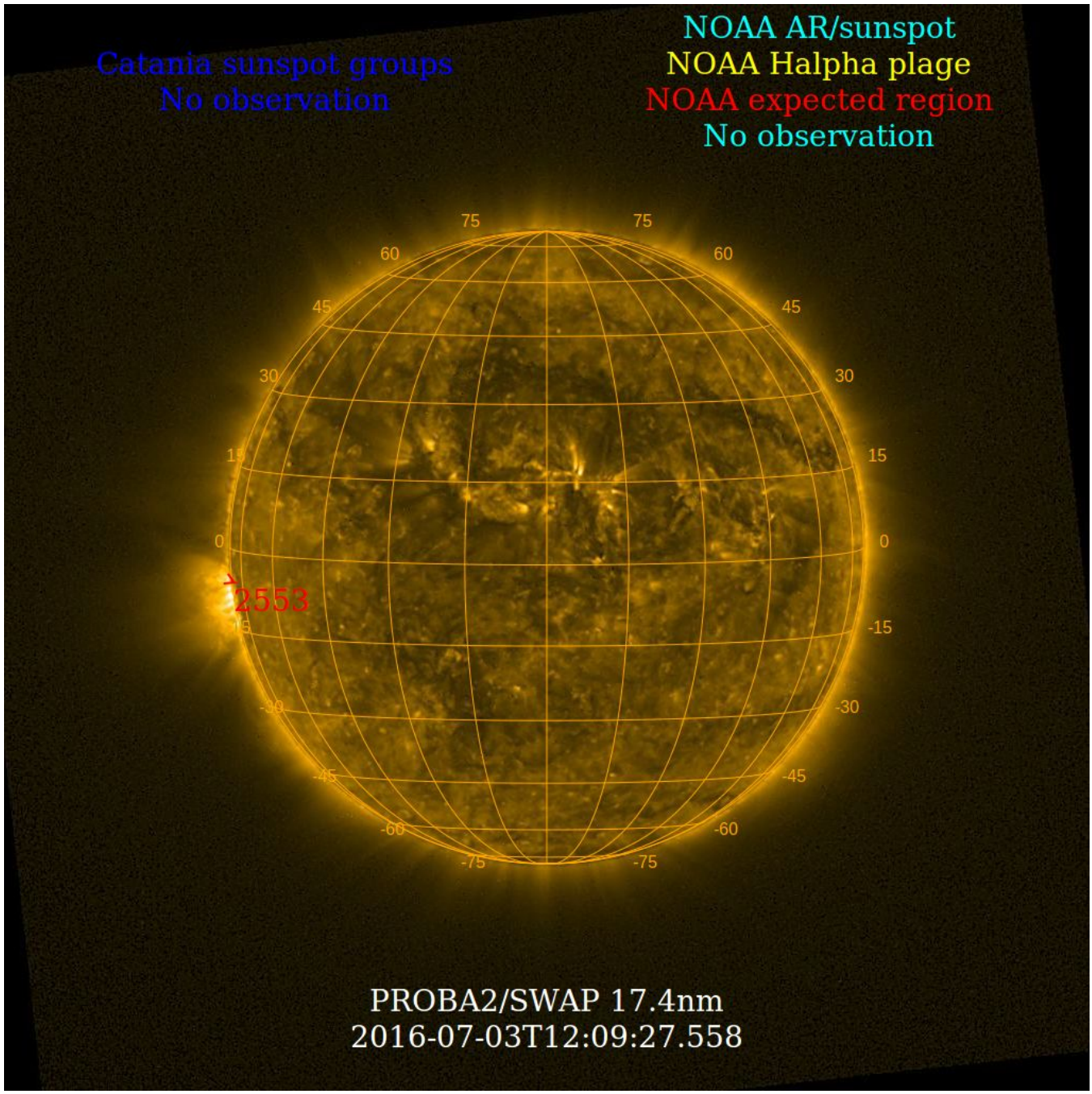
	Monday 27 Jun	Tuesday 28 Jun	Wednesday 29 Jun	Thursday 30 Jun	Friday 01 Jul	Saturday 02 Jul	Sunday 03 Jul
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jun 27 and Jul 03 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
No observation
75
60
45
30
15
0
-15
-30
-45
-60
-75
2553
PROBA2/SWAP 17.4nm
2016-07-03T12:09:27.558

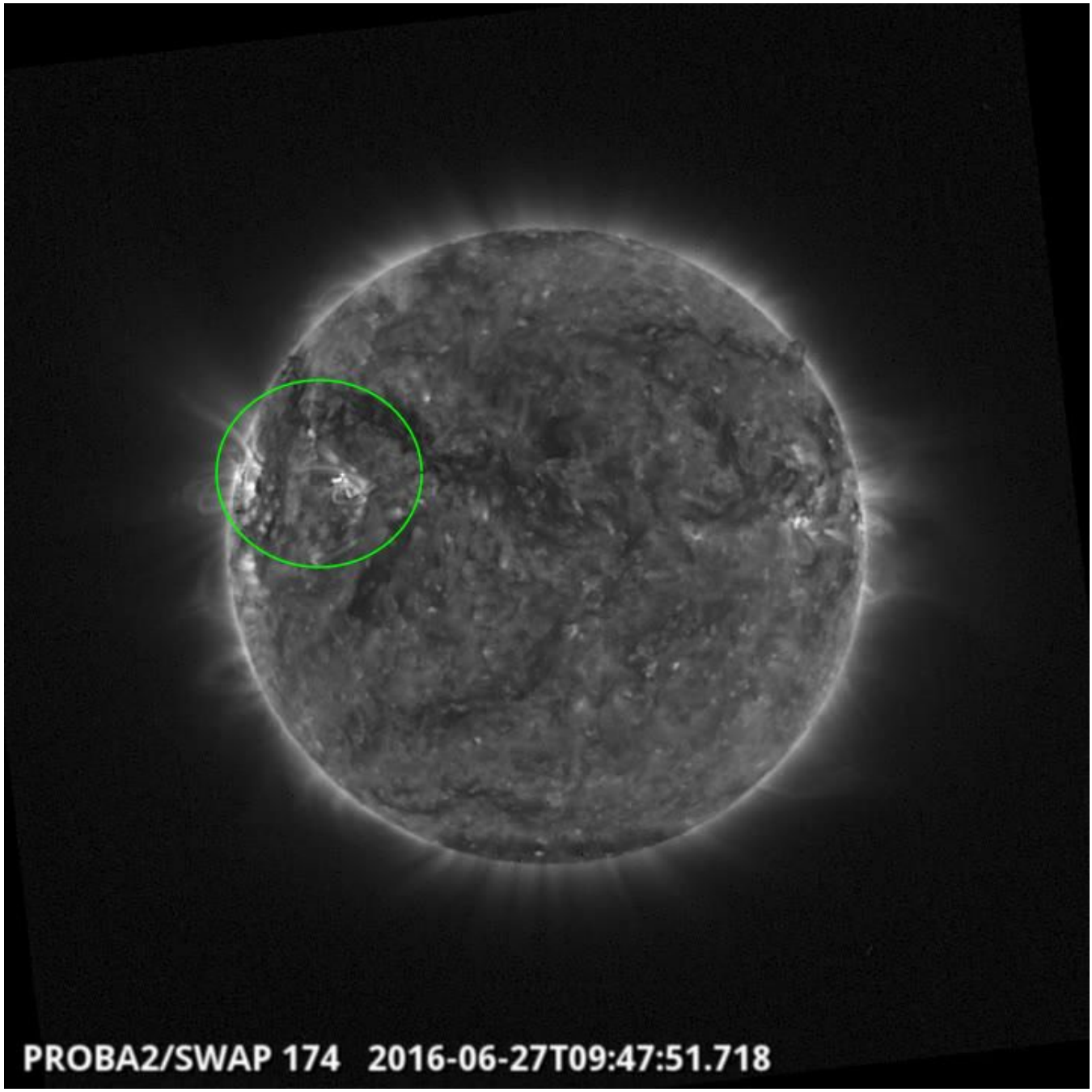
Solar Activity

Solar flare activity fluctuated remained very low 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 327).

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

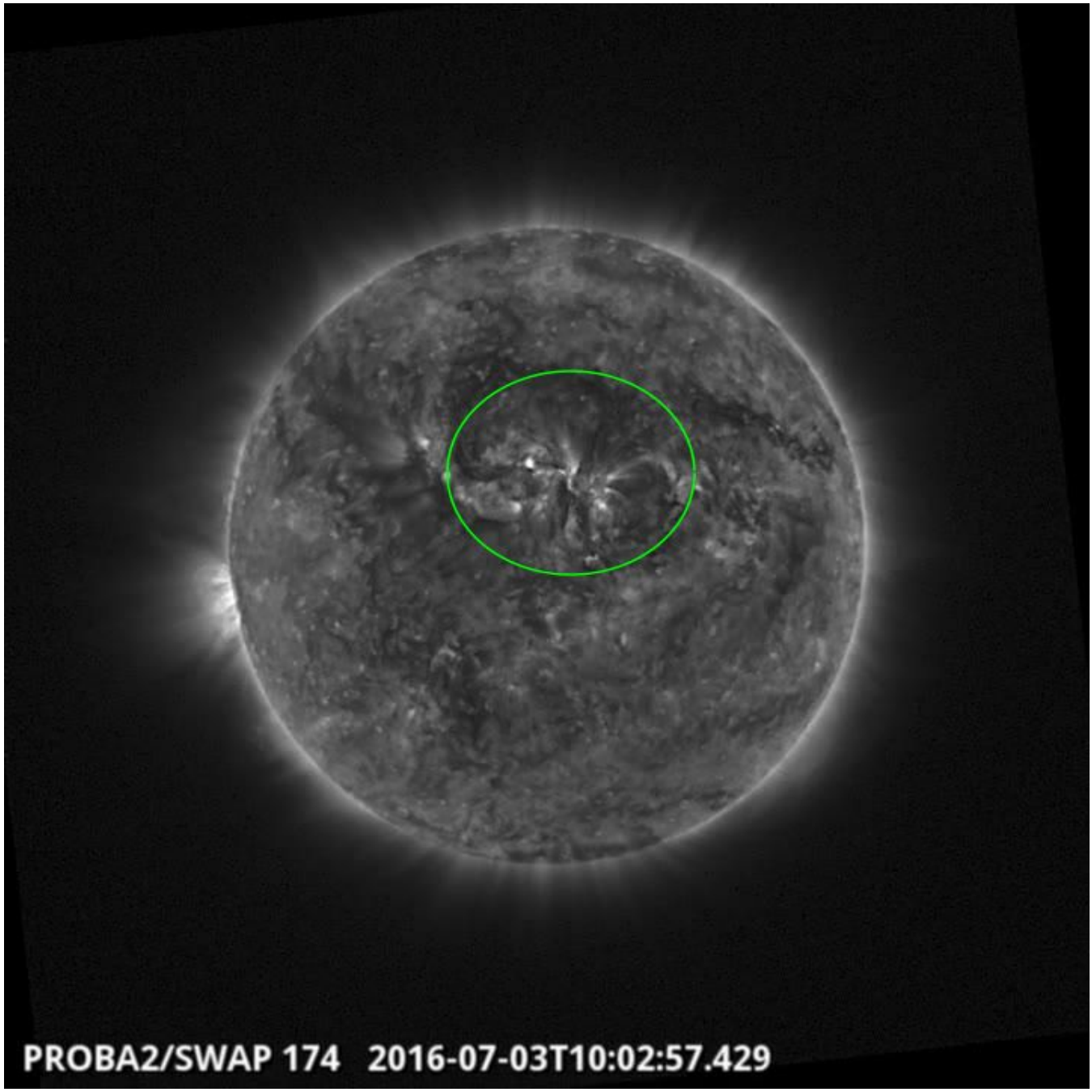
Monday Jun 27



An eruption was observed by SWAP on the north east quadrant of the Sun on 2016-Jun-27 at 09:47 UT

Find a movie of the events here (SWAP movie)

Sunday Jul 03

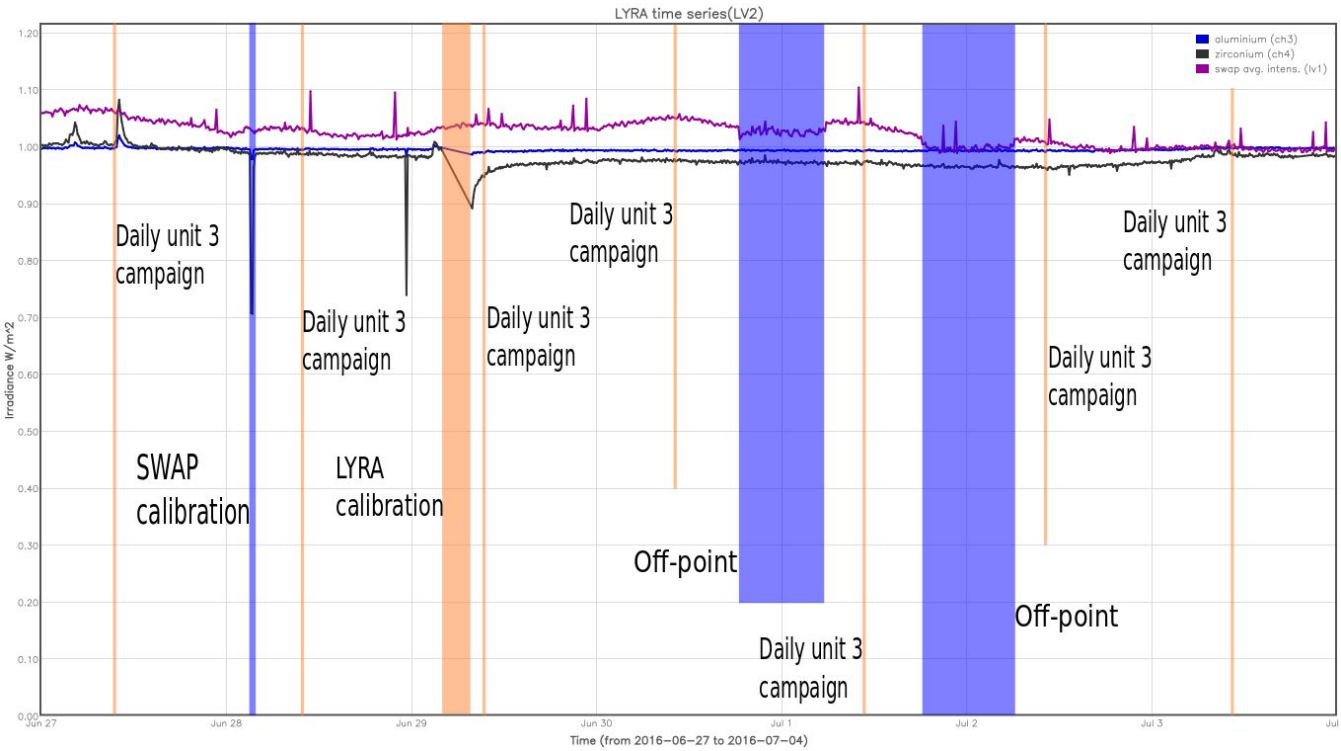


An eruption was observed by SWAP on the centre of the Sun on 2016-Jul-03 at 10:02 UT

Find a movie of the events 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:

- SWAP calibration, 2016-06-28
- Off-point, 2016-06-30 -> 2016-07-01
- Off-point, 2016-07-01 -> 2016-07-02

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

- Daily unit 3 campaign, 2016-06-27
- Daily unit 3 campaign, 2016-06-28
- LYRA calibration, 2016-06-29
- Daily unit 3 campaign, 2016-06-29
- Daily unit 3 campaign, 2016-06-30
- Daily unit 3 campaign, 2016-07-01
- Daily unit 3 campaign, 2016-07-02
- Daily unit 3 campaign, 2016-07-03

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).

The 13th PROBA2 Science Working Team meeting was held at ROB on June 28, 2016 from 15:00 to 18:00. The meeting was hosted locally and via webex.
The P2SC gave the following presentations on the mission status:

- LYRA Status - Marie Dominique
- SWAP Status - Elke D'Huys
- Mission Extension at ESA Science Directorate - Joe Zender

The Guest speakers gave the following presentations

- Tracking CME-driven shocks using radio instruments - Vratislav Krupar
- The discovery of a current sheet in Earth's ionosphere - Thanassis Katsiyannis
- Application of CACTus on SDO - SWAP images and dynamics of coronal funnels - Dipankar Banerjee and Vaibhav Pant
- Examining the Mass of Filaments and Eruptions using PROBA-2/SWAP - Jack Carlyle
- Soft X-ray quasi-periodic pulsations observed during the impulsive and decay phases of solar flares - Laura Hayes
- The Solar Ultraviolet Imager on GOES-R: Science and Space Weather - Dan Seaton

Guest Investigator Program

- V. Krupar visited the P2SC on the PROBA2 GI program from 2016 Jun 23 to 2016 Jul 01. He worked on "Radio signatures of the shock waves and their association with coronal structures seen by the SWAP and coronagraph observations."
- J. Mason has been visiting the P2SC on the GI program, he will be working on SWAP data looking at "Coronal Dimming Diagnostics In EUV Irradiance Measurements".

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 27 Jun	Tuesday 28 Jun	Wednesday 29 Jun	Thursday 30 Jun	Friday 01 Jul	Saturday 02 Jul	Sunday 03 Jul
Nominal acquisition + daily U3 LYIOS00567	Nominal acquisition + daily U3 + calibration LYIOS00568	Nominal acquisition + daily U3 LYIOS00568	Nominal acquisition + daily U3 LYIOS00568	Nominal acquisition + daily U3 LYIOS00568	Nominal acquisition + daily U3 LYIOS00568	Nominal acquisition + daily U3 LYIOS00568

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2016-06-28

- Bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.3 and 48.7 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 3594 to 3604.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 27 Jun	Tuesday 28 Jun	Wednesday 29 Jun	Thursday 30 Jun	Friday 01 Jul	Saturday 02 Jul	Sunday 03 Jul
Nominal acquisition IOS00649 683 images	Nominal acquisition + calibration IOS00650 624 images	Nominal acquisition IOS00650 694 images	Nominal acquisition + off-point IOS00651 695 images	Nominal acquisition + off-point IOS00651 721 images	Nominal acquisition IOS00651 688 images	Nominal acquisition IOS00651 621 images

Special operations for SWAP, this week:
On 2016-06-28
- Bi-weekly calibration

On 2016-06-30
- Off-point campaign

On 2016-07-01
- Off-point campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.96 and -0.1 °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 21049 to 21112) was nominal, except for:

- None.

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:

- None.

Total number of images between 2016 Jun 27 00:00 UT and 2016 Jul 04 00:00 UT: 4751
Highest cadence in this period: 30 seconds
Average cadence in this period: 127.27 seconds
Number of image gaps larger than 300 seconds: 136
Largest data gap: 9.17 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)