


P2SC-ROB-WR-311 - 20160307 Weekly report #311	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Mar 07 to Sun Mar 13, 2016 16 Mar 2016 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

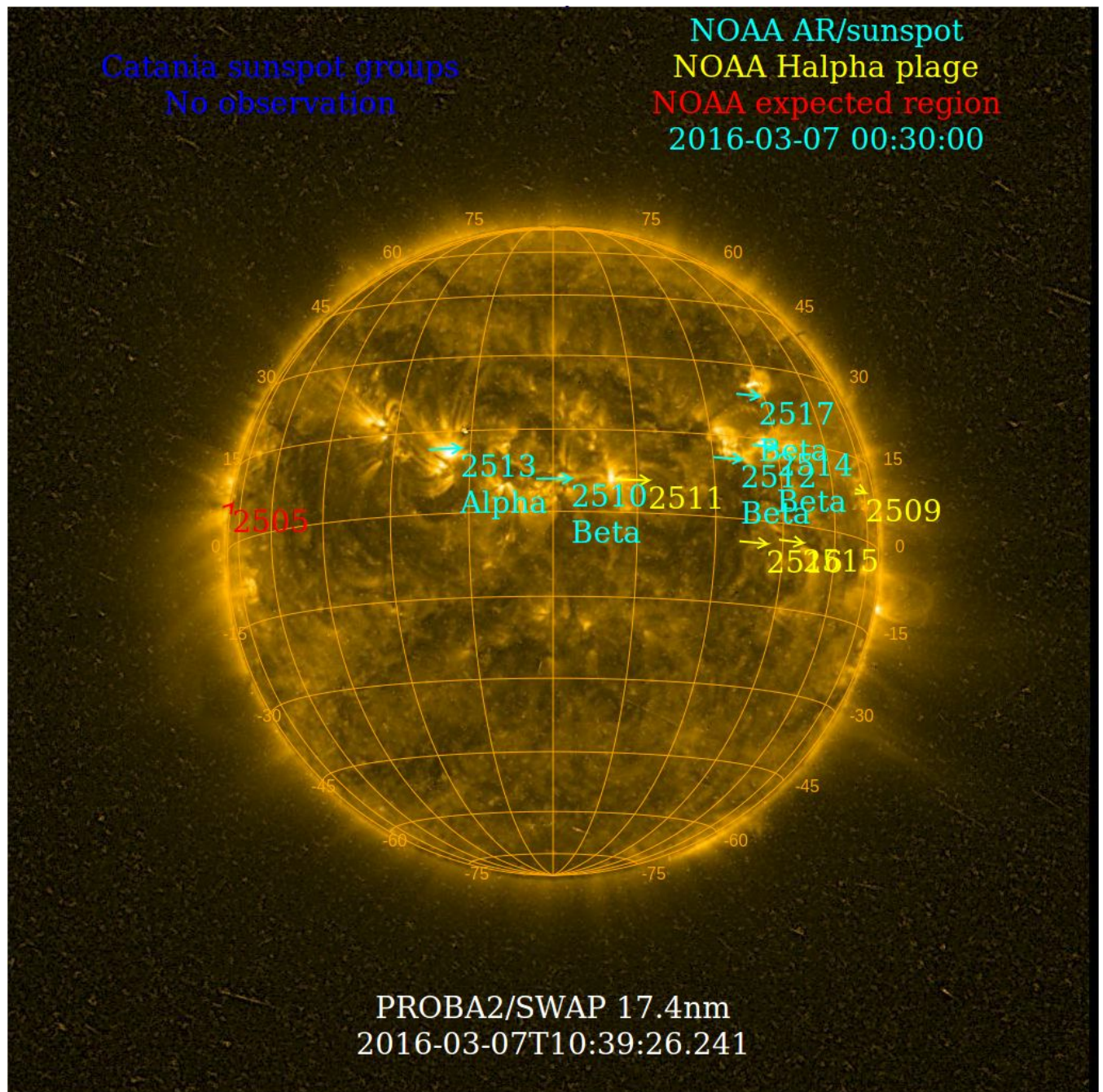
The level of solar activity¹ fluctuated between **very low** and **low** this week.

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

	Monday 07 Mar	Tuesday 08 Mar	Wednesday 09 Mar	Thursday 10 Mar	Friday 11 Mar	Saturday 12 Mar	Sunday 13 Mar
Activity	very low	low	low	very low	very low	low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

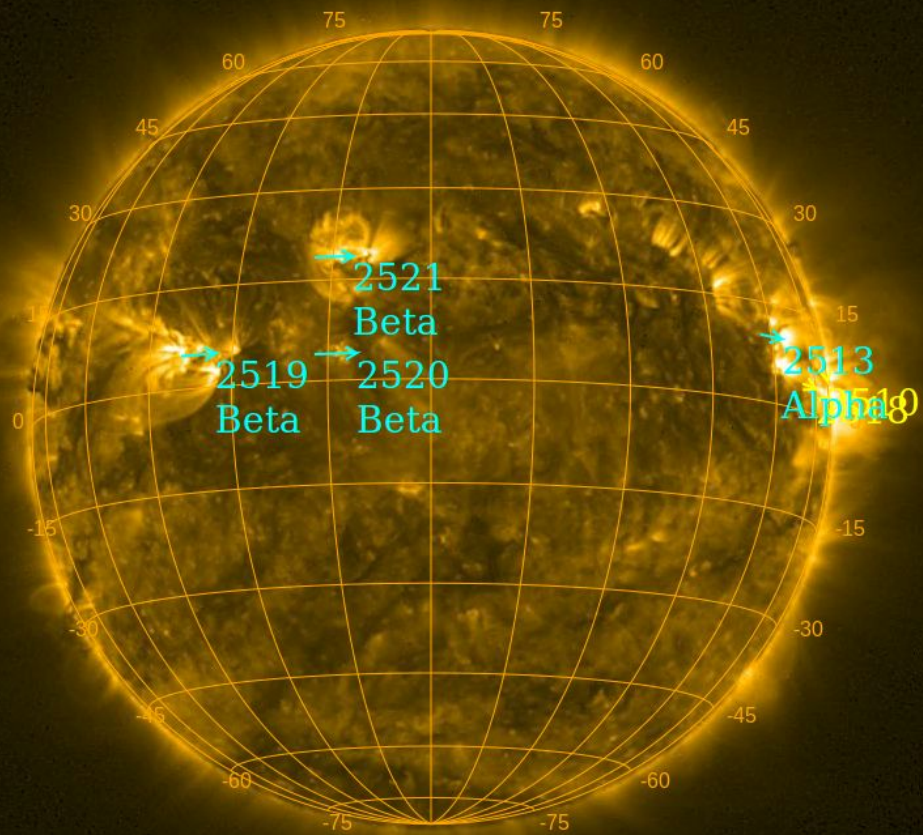
The SWAP images of Mar 07 and Mar 13 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-03-13 00:30:00



PROBA2/SWAP 17.4nm
2016-03-13T10:41:42.554

Solar Activity

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

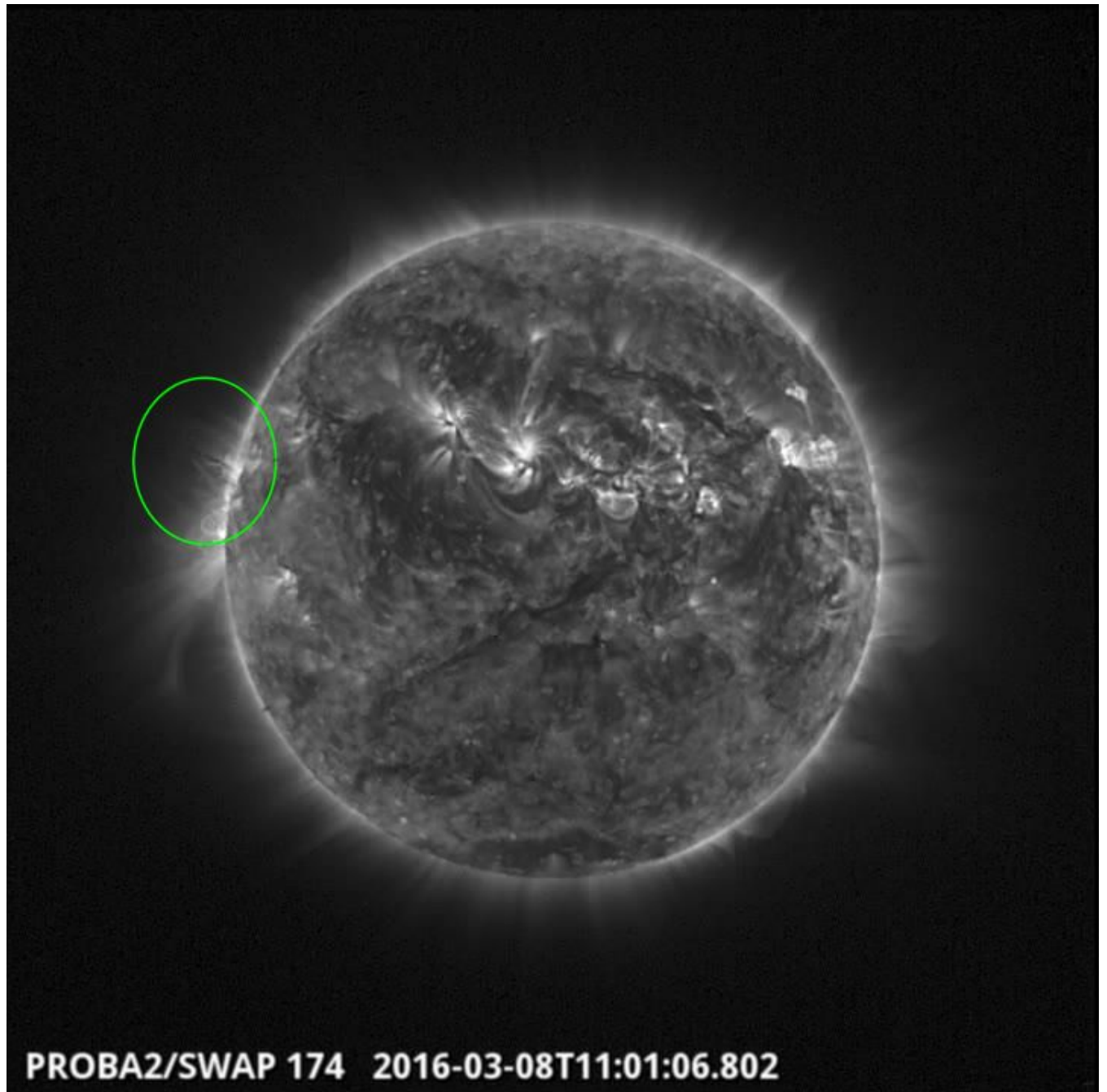
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

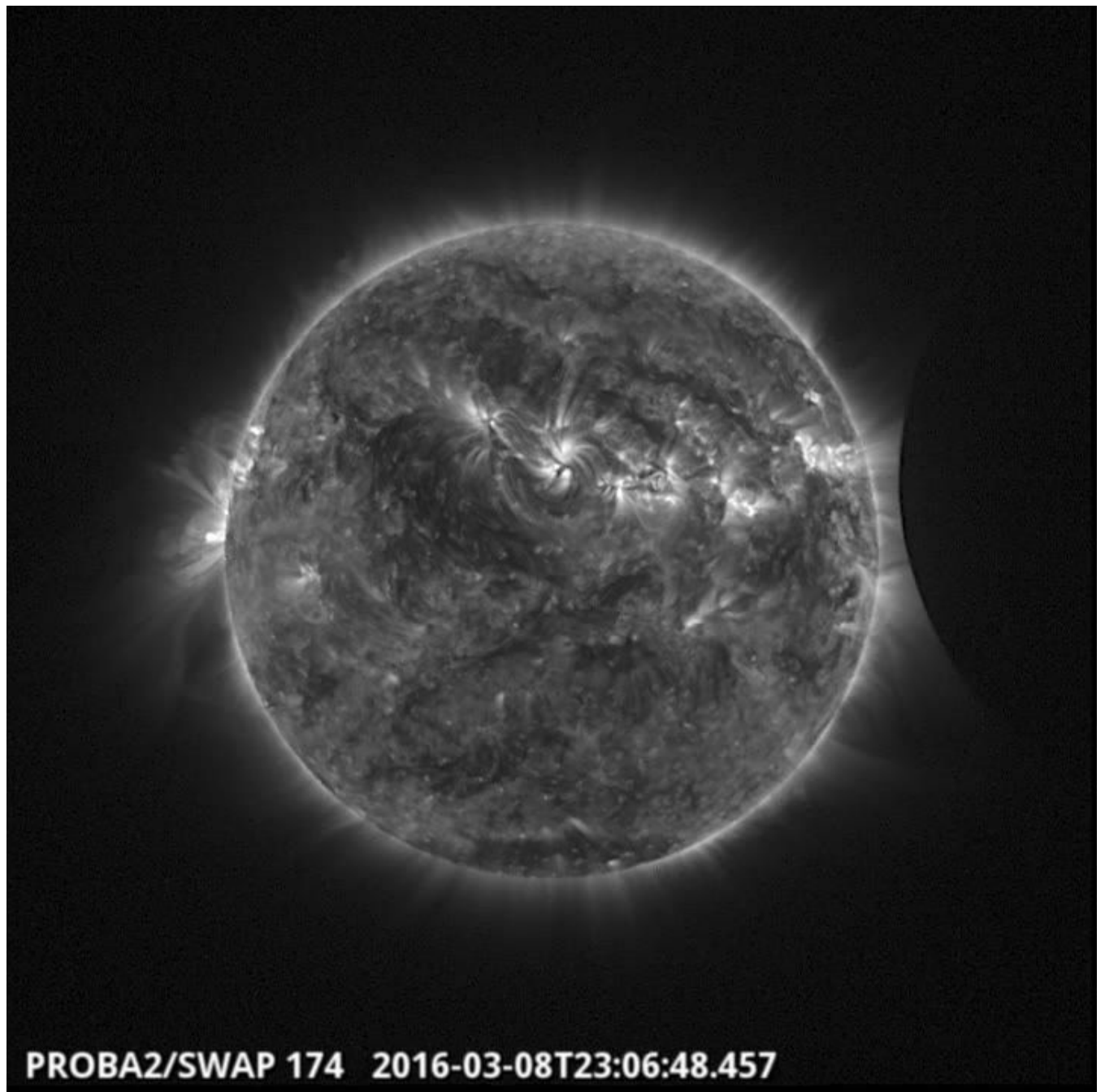
A weekly overview movie can be found [here](#) (SWAP week 311).

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

Tuesday Mar 08



An eruption was observed by SWAP on the east limb at 11:01 UT on 2016-Mar-08
Find a movie of the event [here](#) (SWAP movie)

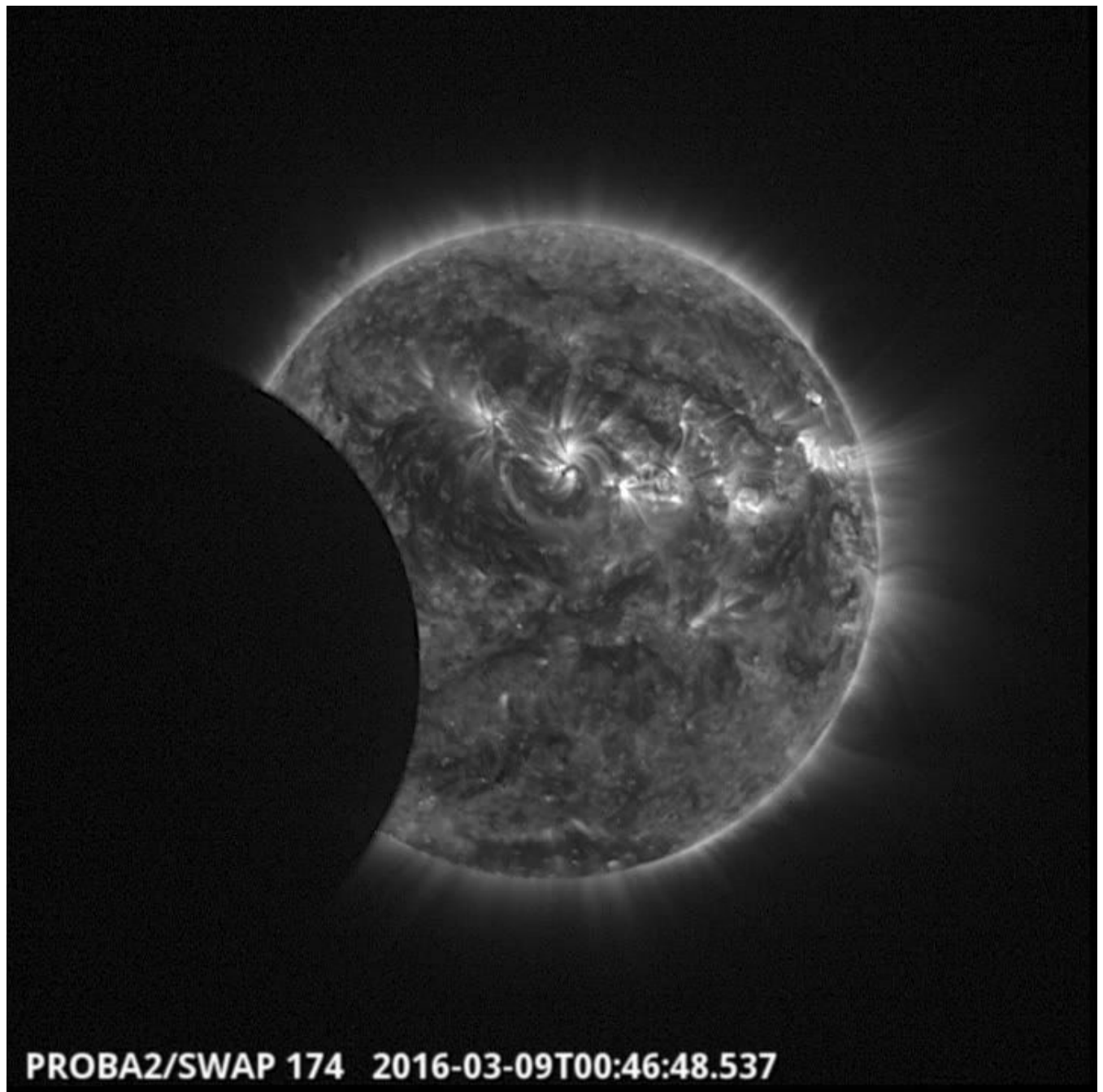


PROBA2/SWAP 174 2016-03-08T23:06:48.457

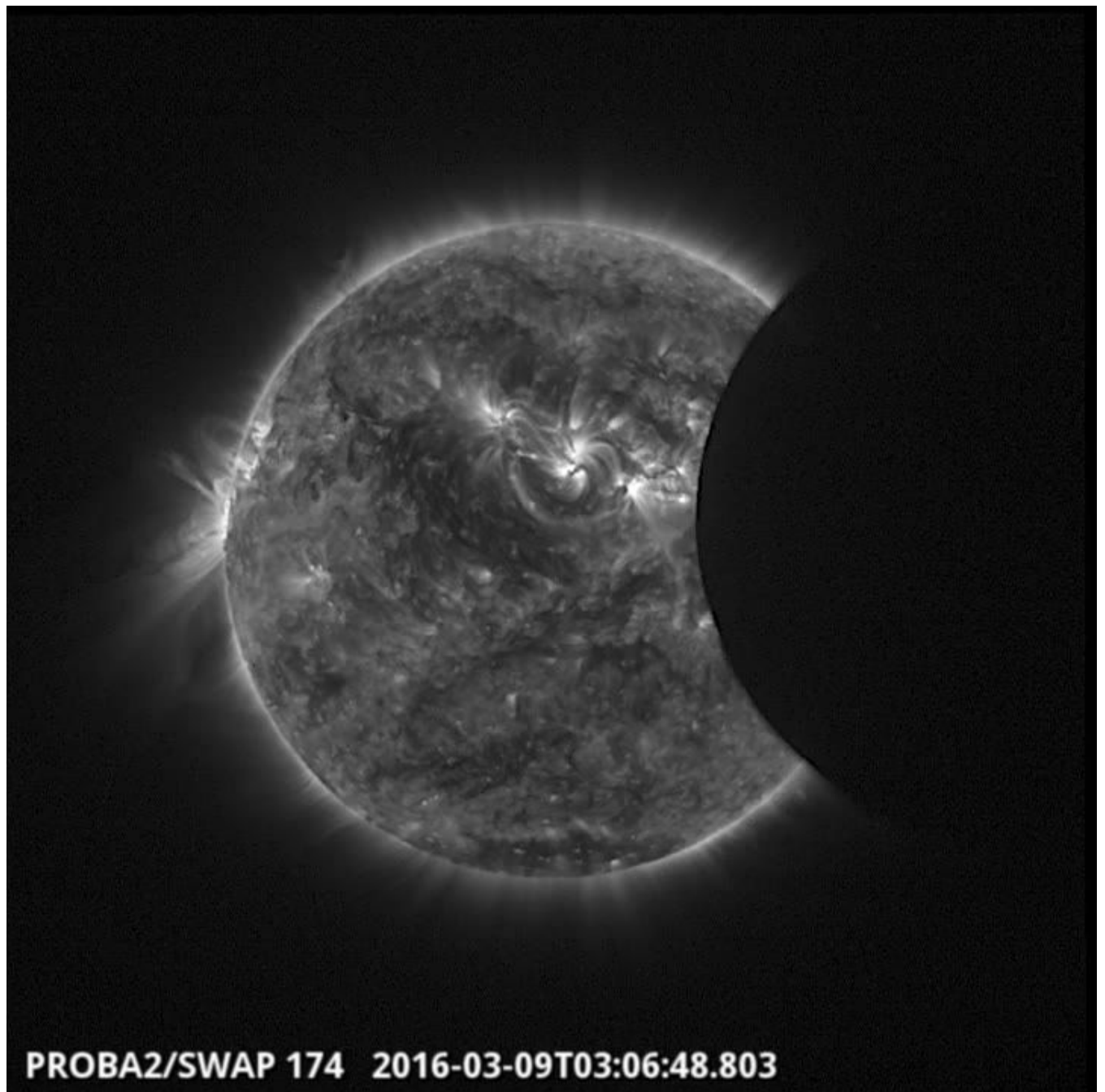
The moon passing inside SWAP's field of view at 23:06 UT on 2016-Mar-08

Find a movie of the event [here](#) (SWAP movie)

Wednesday Mar 09



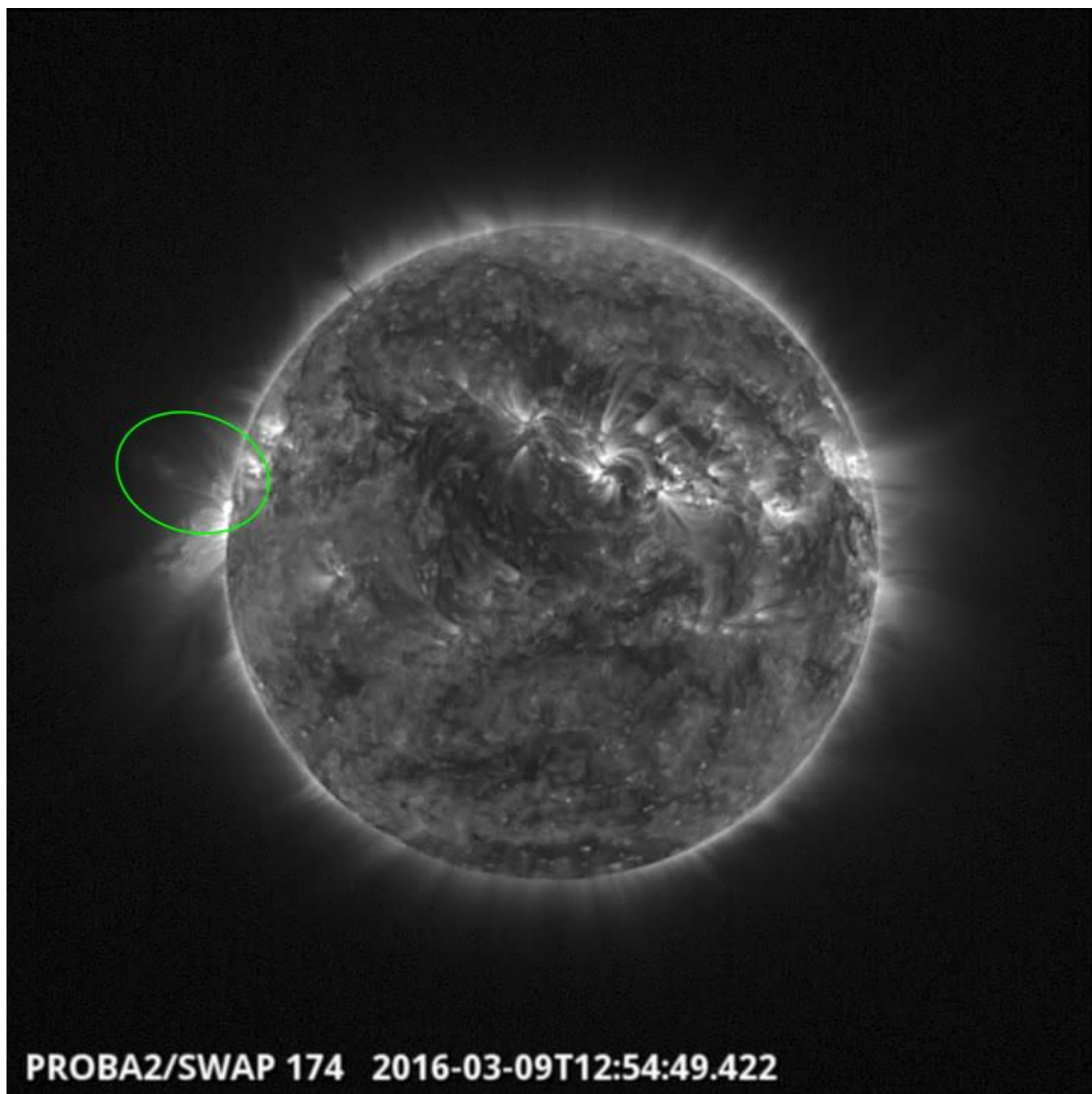
The moon passing inside SWAP's field of view at 00:46 UT on 2016-Mar-09
Find a movie of the event [here](#) (SWAP movie)



PROBA2/SWAP 174 2016-03-09T03:06:48.803

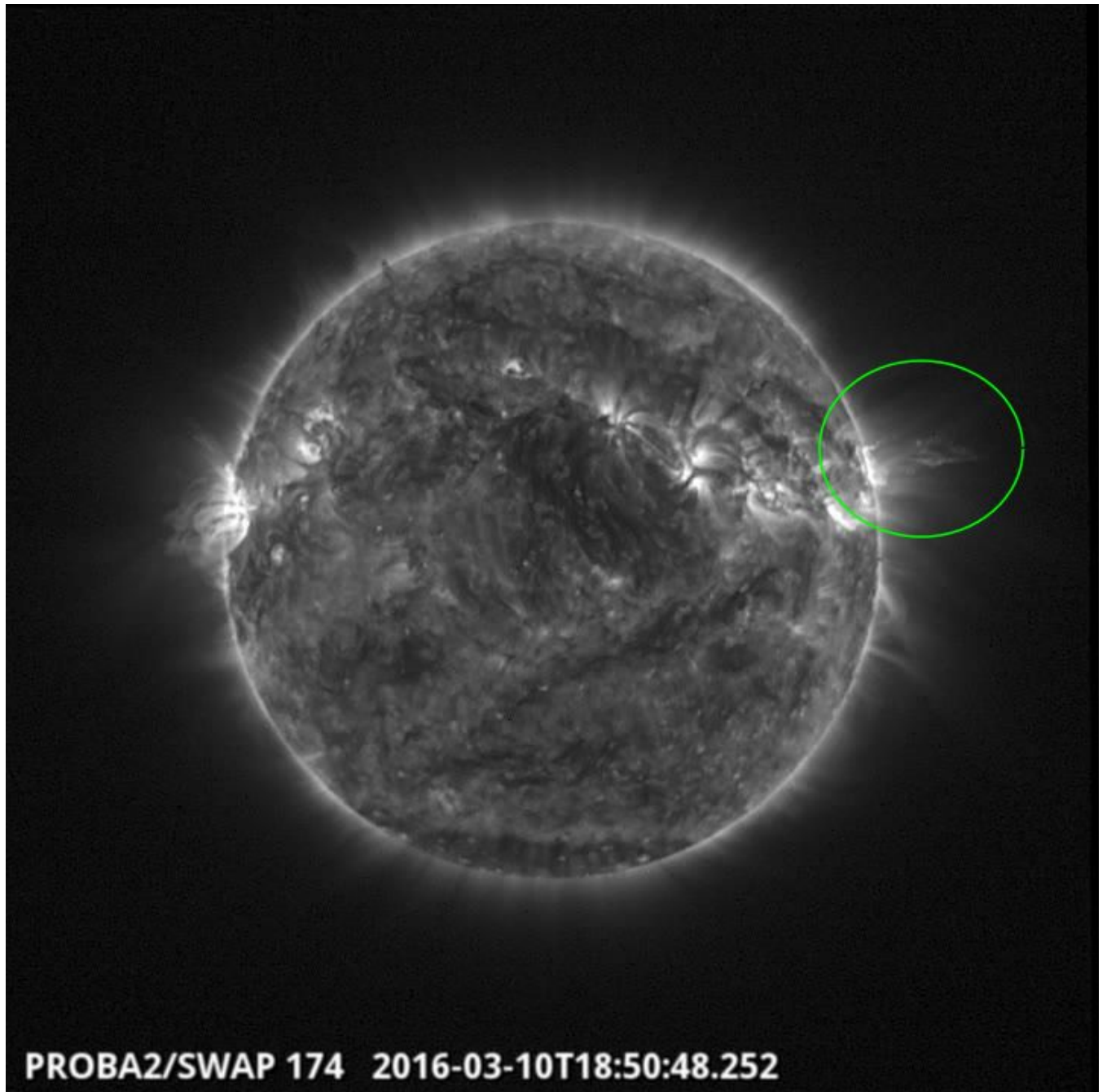
The moon passing inside SWAP's field of view at 03:06 UT on 2016-Mar-09

Find a movie of the event [here](#) (SWAP movie)



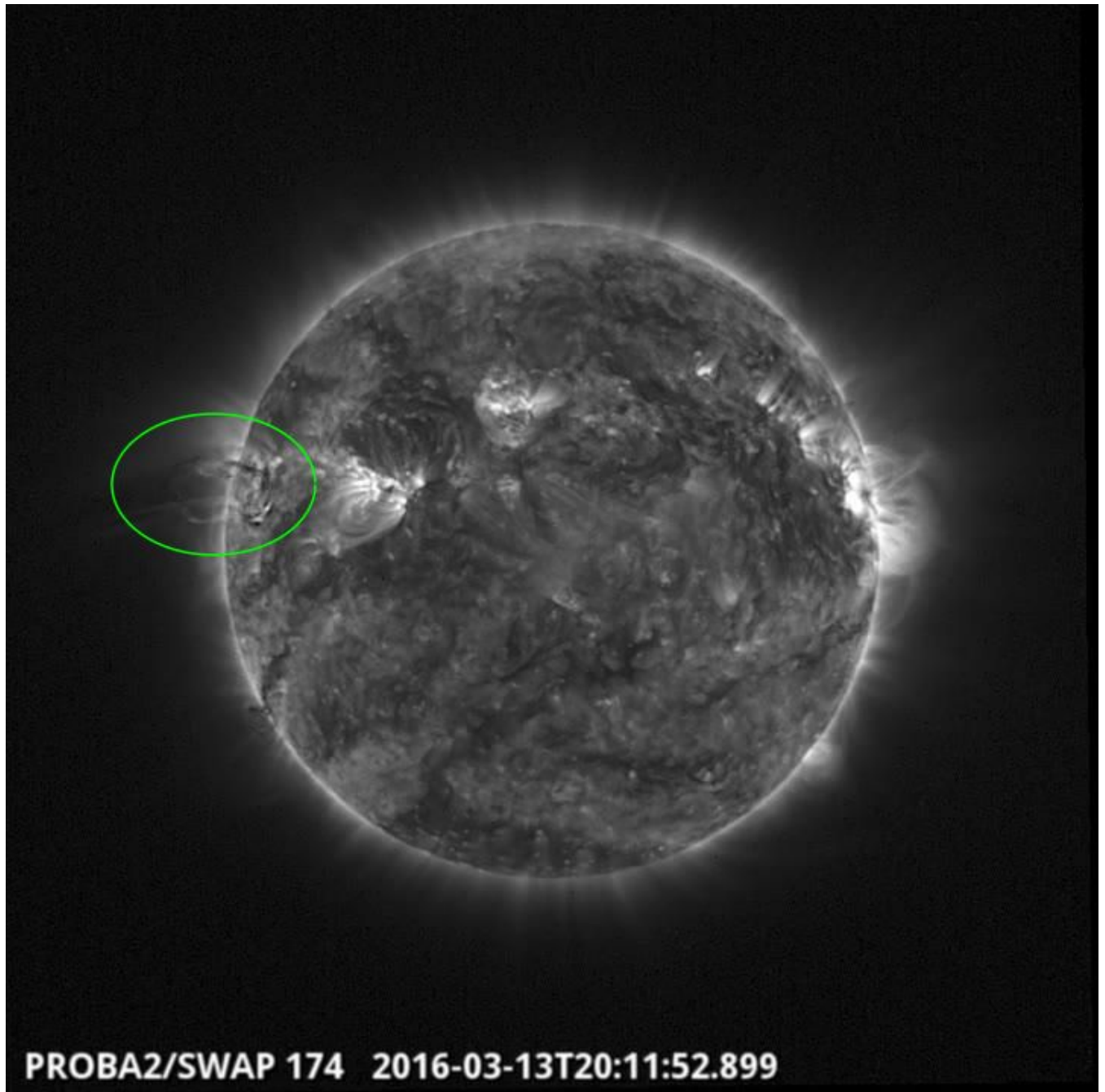
An eruption was observed by SWAP on the east limb at 12:54 UT on 2016-Mar-09
Find a movie of the event [here](#) (SWAP movie)

Thursday Mar 10



An eruption was observed by SWAP on the west limb at 18:50 UT on 2016-Mar-10
Find a movie of the event [here](#) (SWAP movie)

Sunday Mar 13

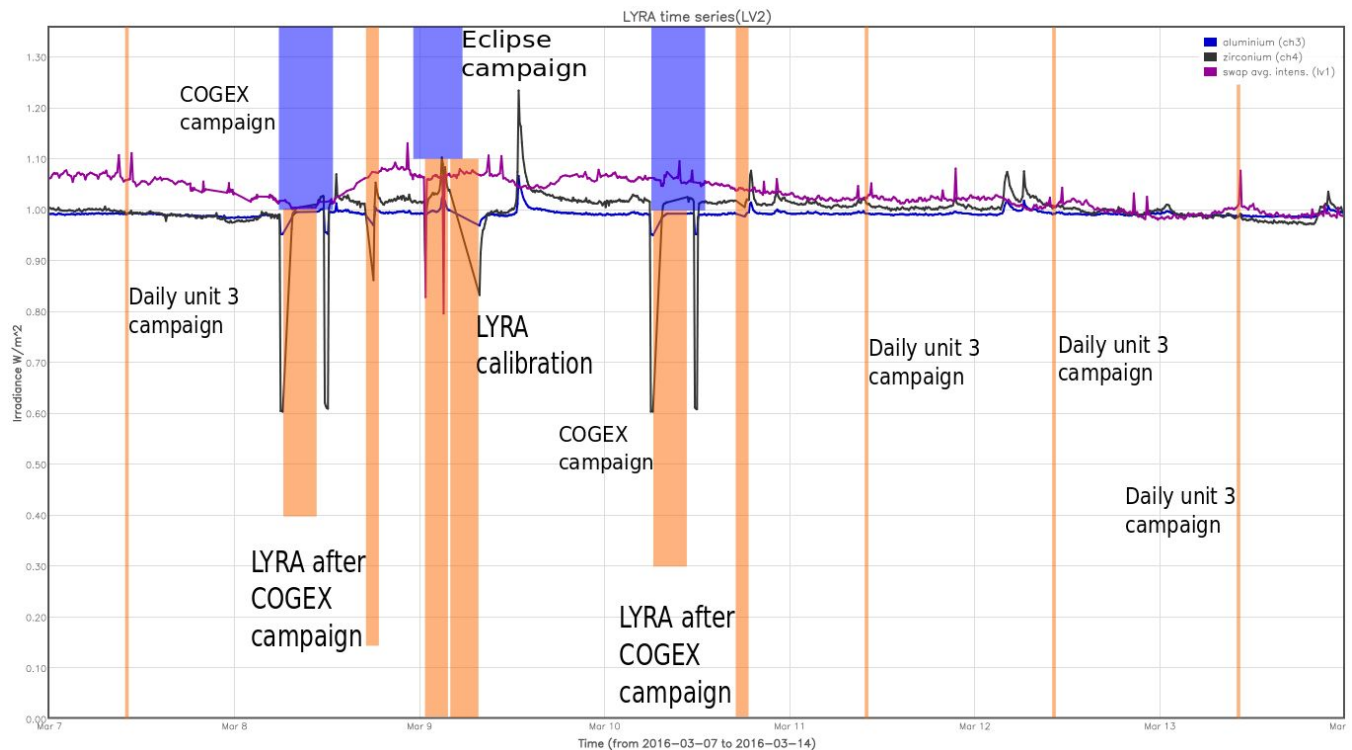


A confined eruption was observed by SWAP on the east limb at 20:11 UT on 2016-Mar-13
Find a movie of the event [here](#) (SWAP movie)

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:

- SWAP COGEX campaign, 2016-Mar-08
- SWAP eclipse campaign, 2016-Mar-09
- SWAP COGEX campaign, 2016-Mar-10

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

- Daily unit 3 campaign, 2016-Mar-07
- LYRA COGEX campaign, 2016-Mar-08
- LYRA After COGEX calibration campaign, 2016-Mar-08
- LYRA eclipse campaign, 2016-Mar-09
- LYRA bi-weekly calibration campaign, 2016-Mar-09
- LYRA COGEX campaign, 2016-Mar-10
- LYRA after COGEX calibration campaign, 2016-Mar-10
- Daily unit 3 campaign, 2016-Mar-11
- Daily unit 3 campaign, 2016-Mar-12
- Daily unit 3 campaign, 2016-Mar-13

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>).

- R. Vansintjan gave a department seminar at ROB titled: *“An event study of a contained eruption.”*
- J. De Patou gave an STCE seminar at ROB titled: *“3D electron density distributions in the solar corona during solar minima: assessment for more realistic solar wind modelling”*

Guest Investigator Program

- L. Feng & J. Plowman are currently visiting ROB from 2016-Feb-15 until 2016-Mar-15 on the PROBA2 GI program, working with SWAP data for doing research on “Morphology and Evolution of Three-dimensional CMEs and Coronal Waves. / Searching for EIT waves in coordinated SWAP and white-light observations”
- J. de Patoul is currently visiting ROB from 22-Feb-2016 until 15-Mar-2016 on the PROBA2 GI program, working with SWAP data for doing research on the “Morphology of evolution of plume and inter-plume regions.”

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 07 Mar	Tuesday 08 Mar	Wednesday 09 Mar	Thursday 10 Mar	Friday 11 Mar	Saturday 12 Mar	Sunday 13 Mar
Nominal acquisition + daily U3	Nominal acquisition + COGEX	Nominal acquisition + eclipse + calibration	Nominal acquisition + COGEX	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00530	LYIOS00531	LYIOS00531	LYIOS00531	LYIOS00532	LYIOS00532	LYIOS00532

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2016-Mar-08

- calibration before COGEX campaign
- LYRA to IDLE for the COGEX campaign
- calibration after COGEX campaign

On 2016-Mar-09

- Eclipse campaign
- Bi-weekly calibration campaign

On 2016-Mar-10

- calibration before COGEX campaign
- LYRA to IDLE for the COGEX campaign
- calibration after COGEX campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.8 and 51.9 °C.

3. SWAP instrument status

Calibration

Calibration was done with the COGEX campaigns

MCPM errors

The number of MCPM recoverable errors increased from 1977 to 2227.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 07 Mar	Tuesday 08 Mar	Wednesday 09 Mar	Thursday 10 Mar	Friday 11 Mar	Saturday 12 Mar	Sunday 13 Mar
Nominal acquisition	Nominal acquisition + COGEX campaign	Nominal acquisition + eclipse campaign	Nominal acquisition + COGEX campaign	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00633 -> IOS00634 610 images	IOS00634 692 images	IOS00634 730 images	IOS00634 732 images	IOS00635 669 images	IOS00637 581 images	IOS00637 698 images

Special operations for SWAP, this week:

On 2016-03-08

- Calibration before COGEX experiment
- High cadence imaging before COGEX experiment
- IDLE mode for COGEX experiment
- Calibration after COGEX experiment
- High cadence imaging after COGEX experiment

On 2016-03-09

- High cadence imaging for the eclipse

On 2016-03-10

- Calibration before COGEX experiment
- High cadence imaging before COGEX experiment
- IDLE mode for COGEX experiment
- Calibration after COGEX experiment
- High cadence imaging after COGEX experiment

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.3 and 4.3 °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 20037 to 20101) 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 Mar 07 00:00 UT and 2016 Mar 14 00:00 UT: 4760

Highest cadence in this period: 17 seconds

Average cadence in this period: 127.01 seconds

Number of image gaps larger than 300 seconds: 213

Largest data gap: 164.00 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)