


P2SC-ROB-WR-265 - 20150420 Weekly report #265	P2SC Weekly report	
Period covered: Date:	Mon Apr 20 to Sun Apr 26, 2015 29 Apr 2015	Royal Observatory of Belgium - PROBA2 Science Center
Written by: Approved by:	Robbe Vansintjan Matthew West	
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, dseaton@sidc.be	http://proba2.sidc.be ++ 32 (0) 2 3730559
cc:	ROB DIR, ronald@oma.be ESA Redu, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Juha-Pekka.Luntama@esa.int	

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 20 Apr	Tuesday 21 Apr	Wednesday 22 Apr	Thursday 23 Apr	Friday 24 Apr	Saturday 25 Apr	Sunday 26 Apr
Activity	low	moderate	moderate	moderate	low	low	low
Flares	-	M1.2@22:01 M1.8@21:45 M2.1@17:00 M4.0@15:45 M2.2@11:57 M2.2@10:40 M1.0@07:21	M1.1@08:44	M1.1@10:07	-	-	-

¹ See appendix. All timings are given in UT.

Catania sunspot groups
2015-04-16 06:48:00

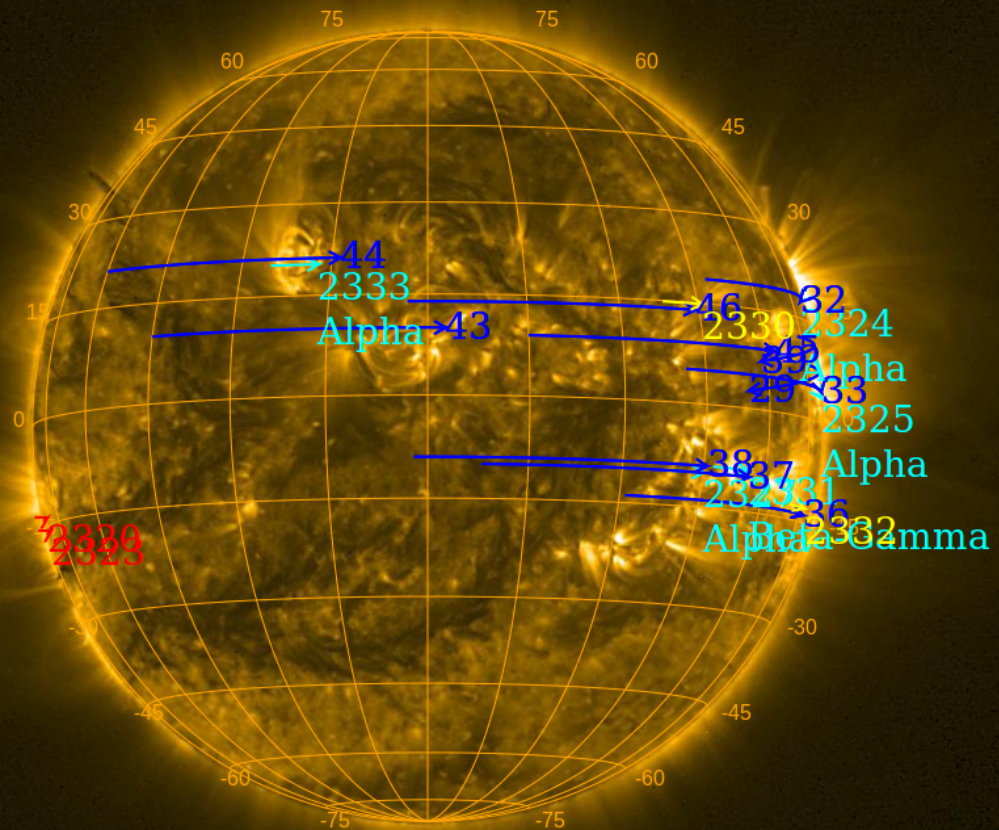
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-04-20 00:30:00

PROBA2/SWAP 17.4nm
2015-04-20T13:49:19.116

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

Catania sunspot groups
2015-04-23 07:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-04-26 00:30:00



PROBA2/SWAP 17.4nm
2015-04-26T13:53:07.715

Solar Activity

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

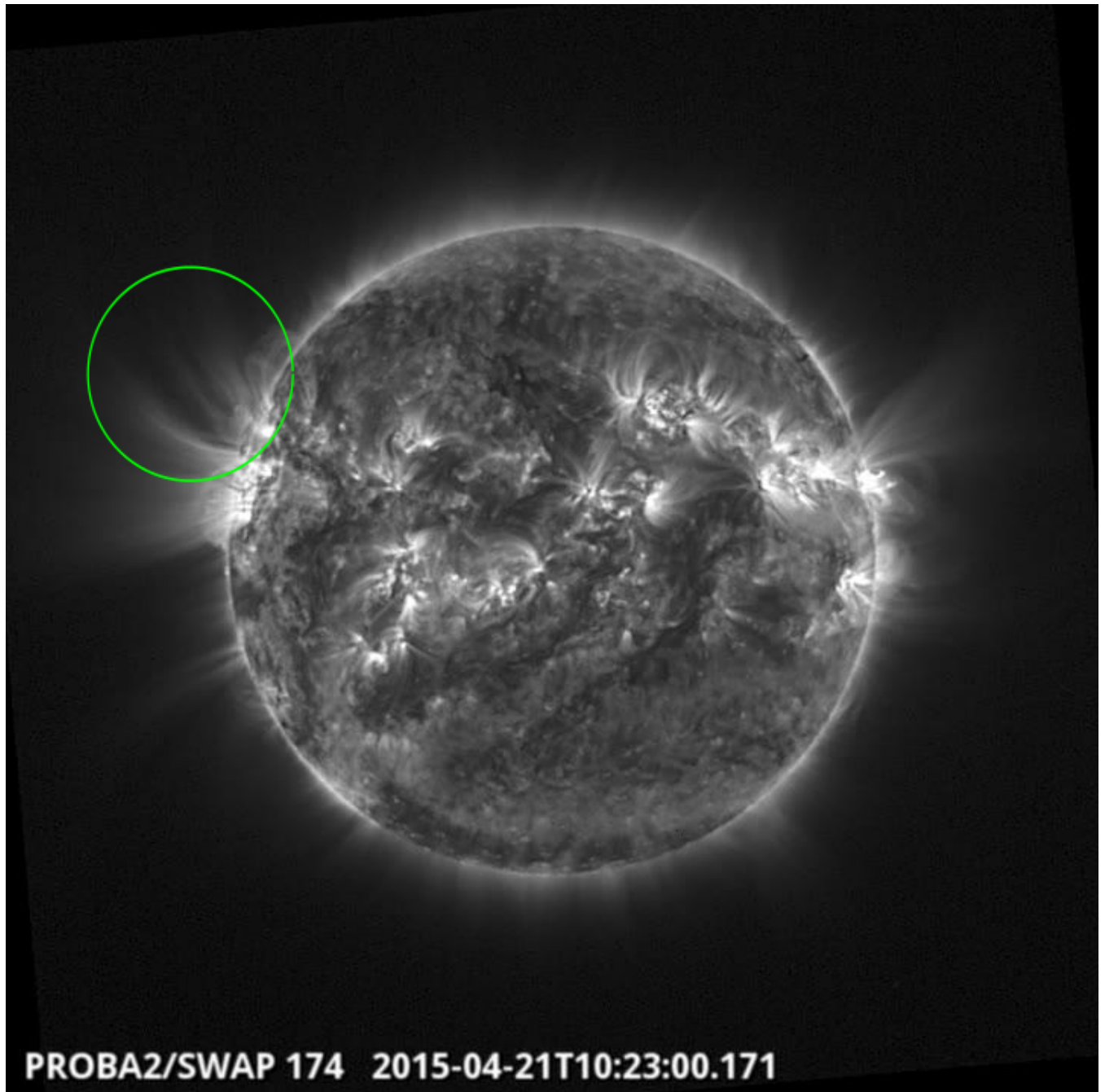
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

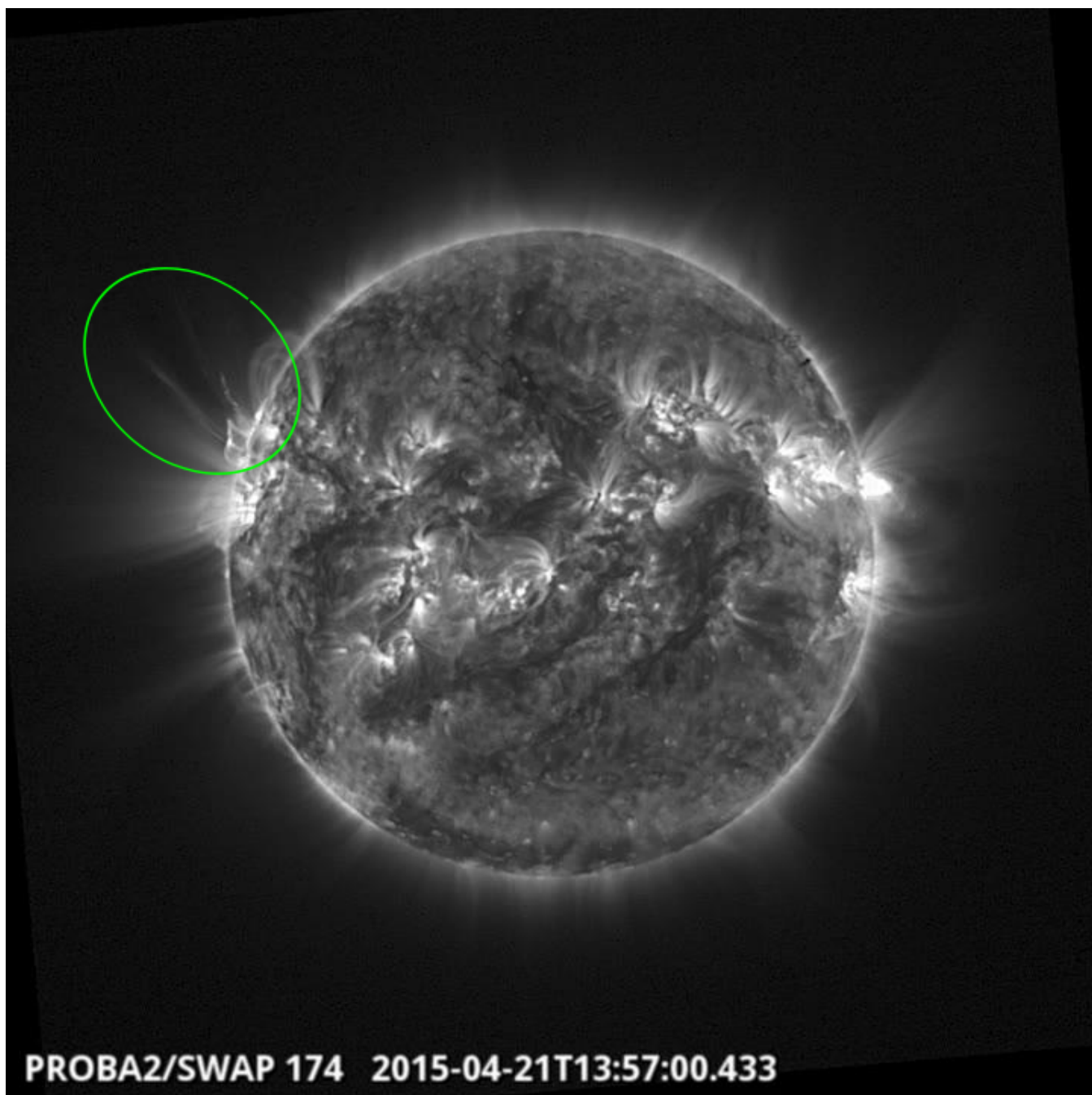
A weekly overview movie can be found [here](#) (SWAP week 265).

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

Tuesday Apr 21

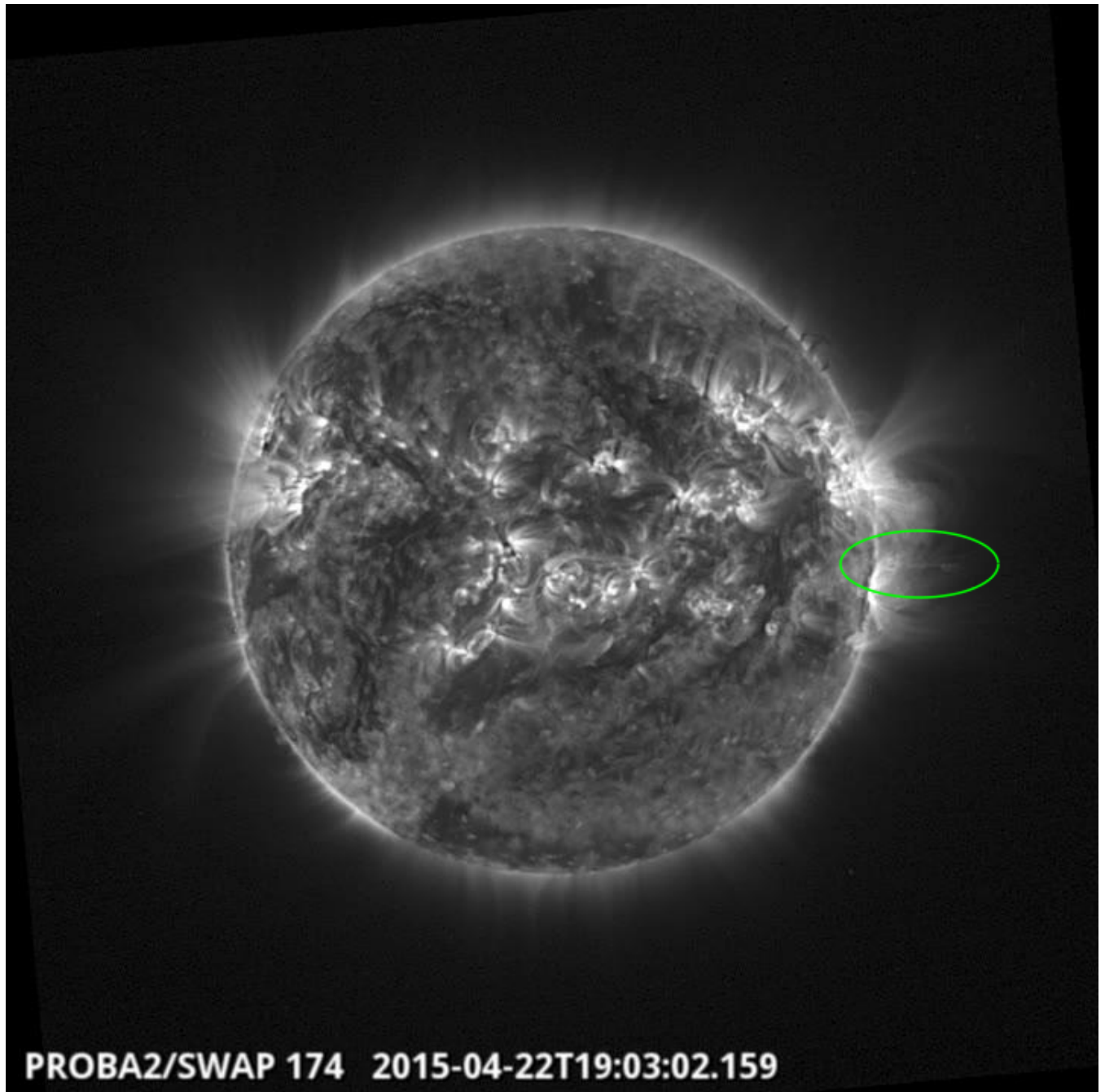


SWAP Image of the eruption on the north-east limb at 10:23UT
Find a movie of the event [here](#) (SWAP movie)



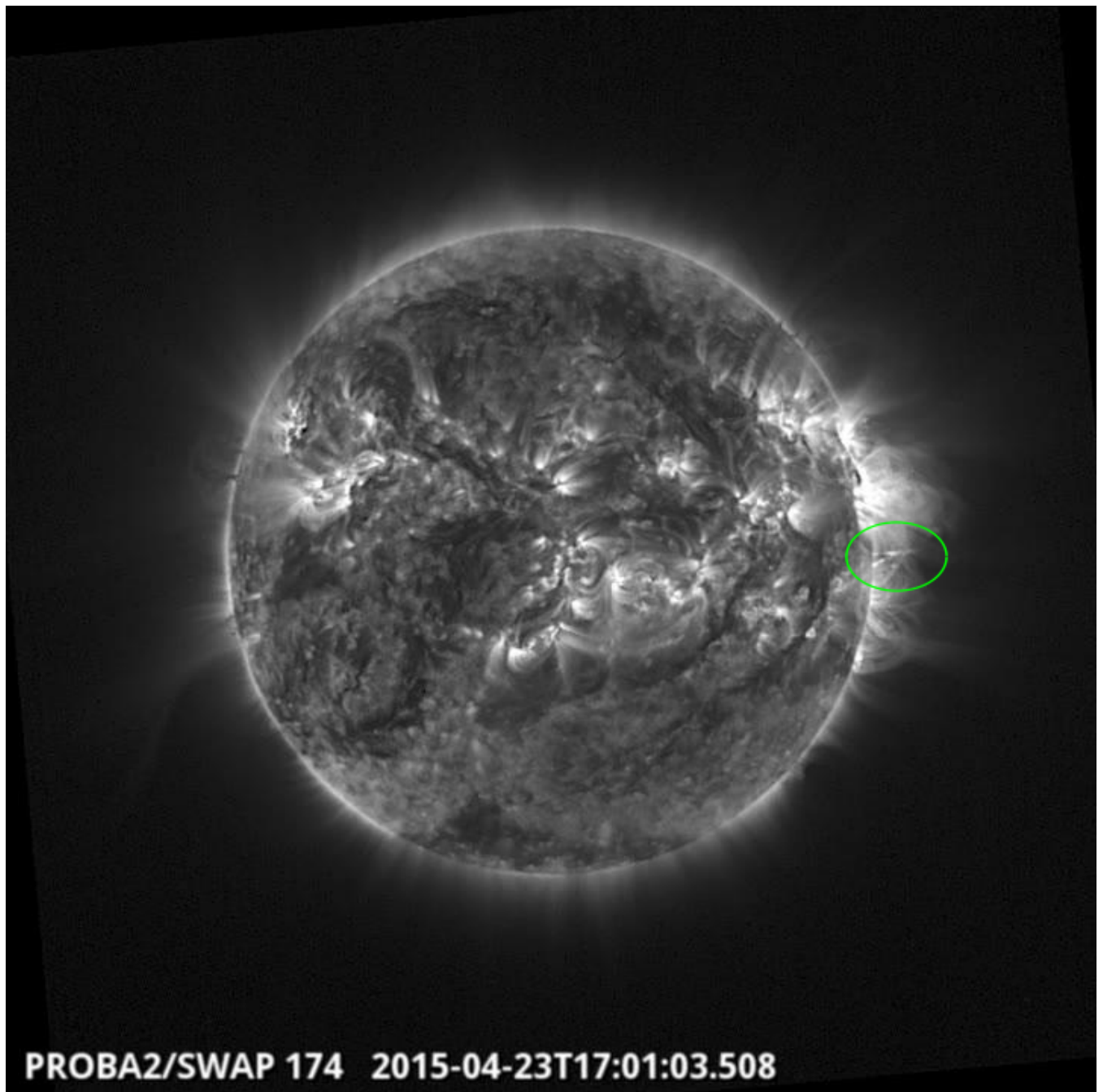
SWAP image of the eruption on the north-east limb at 13:57UT
Find a movie of the event [here](#) (SWAP movie)

Wednesday Apr 22



SWAP image of a jet observed on the west limb at 19:03UT
Find a movie of the event [here](#) (SWAP movie)

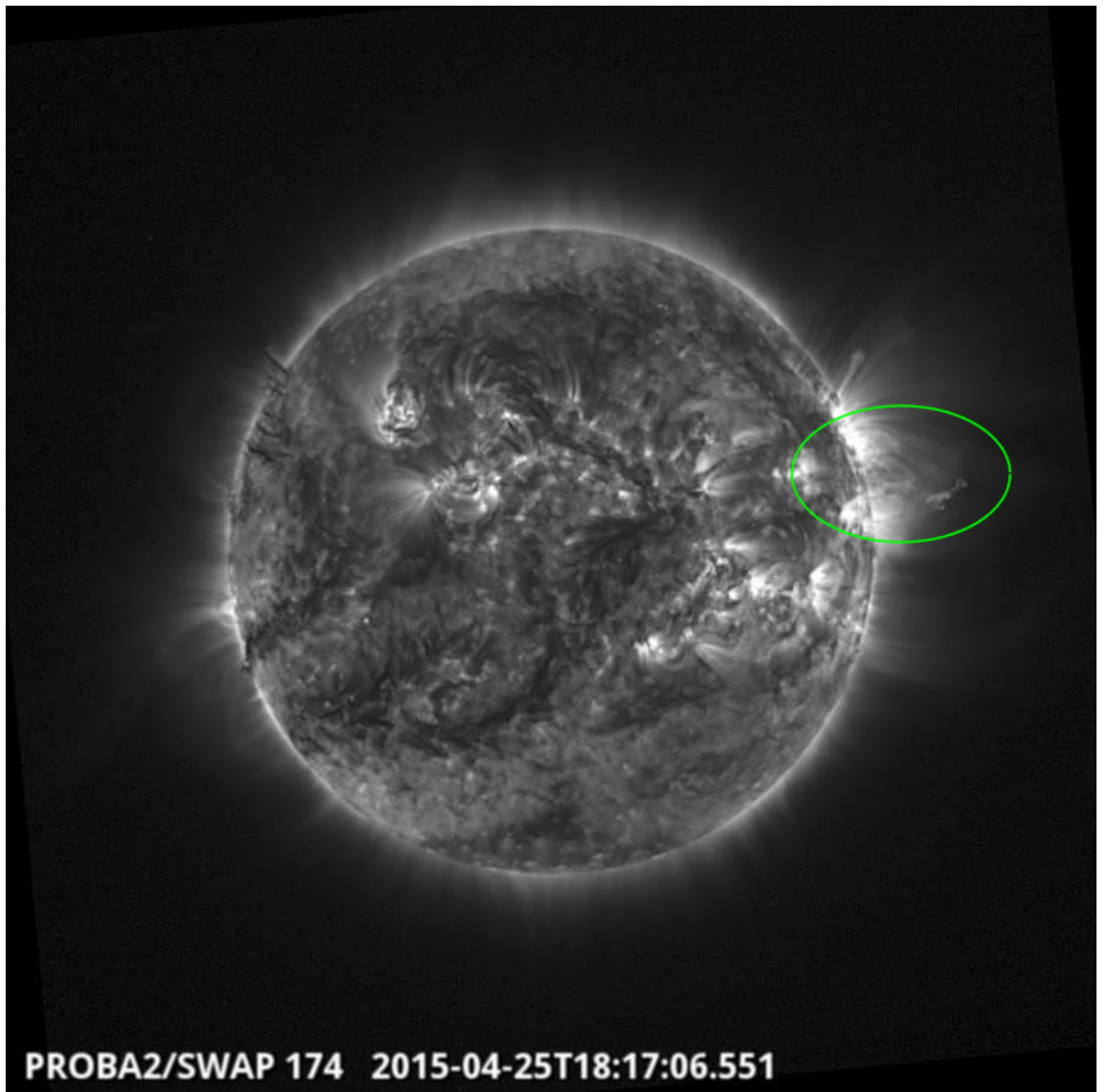
Thursday Apr 23



SWAP image of a jet on the west limb at 17:01UT

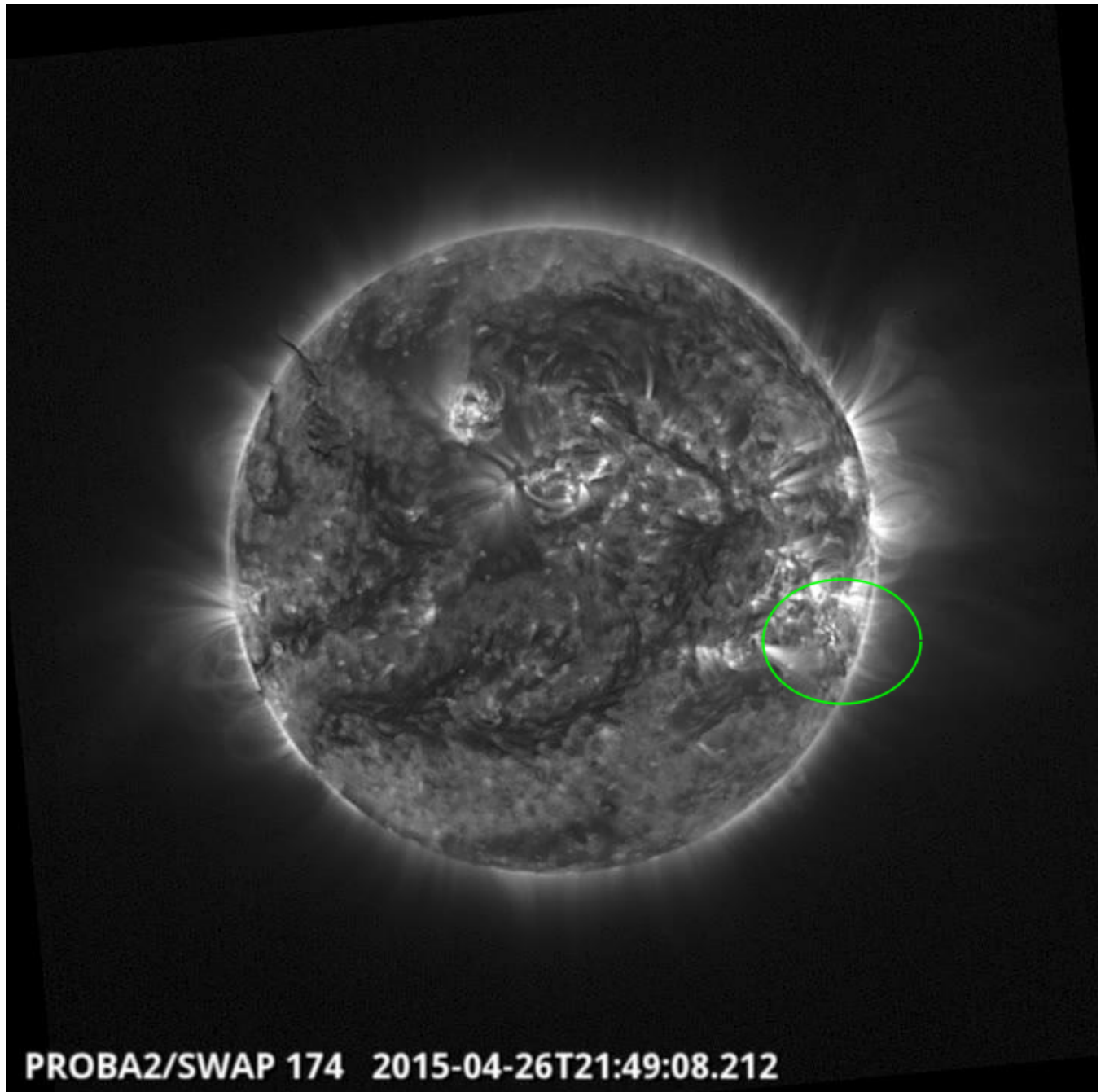
Find a movie of the event [here](#) (SWAP movie)

Saturday Apr 25



SWAP image of a failed eruption observed on the west limb at 18:17 UT
Find a movie of the event [here](#) (SWAP movie)

Sunday Apr 26

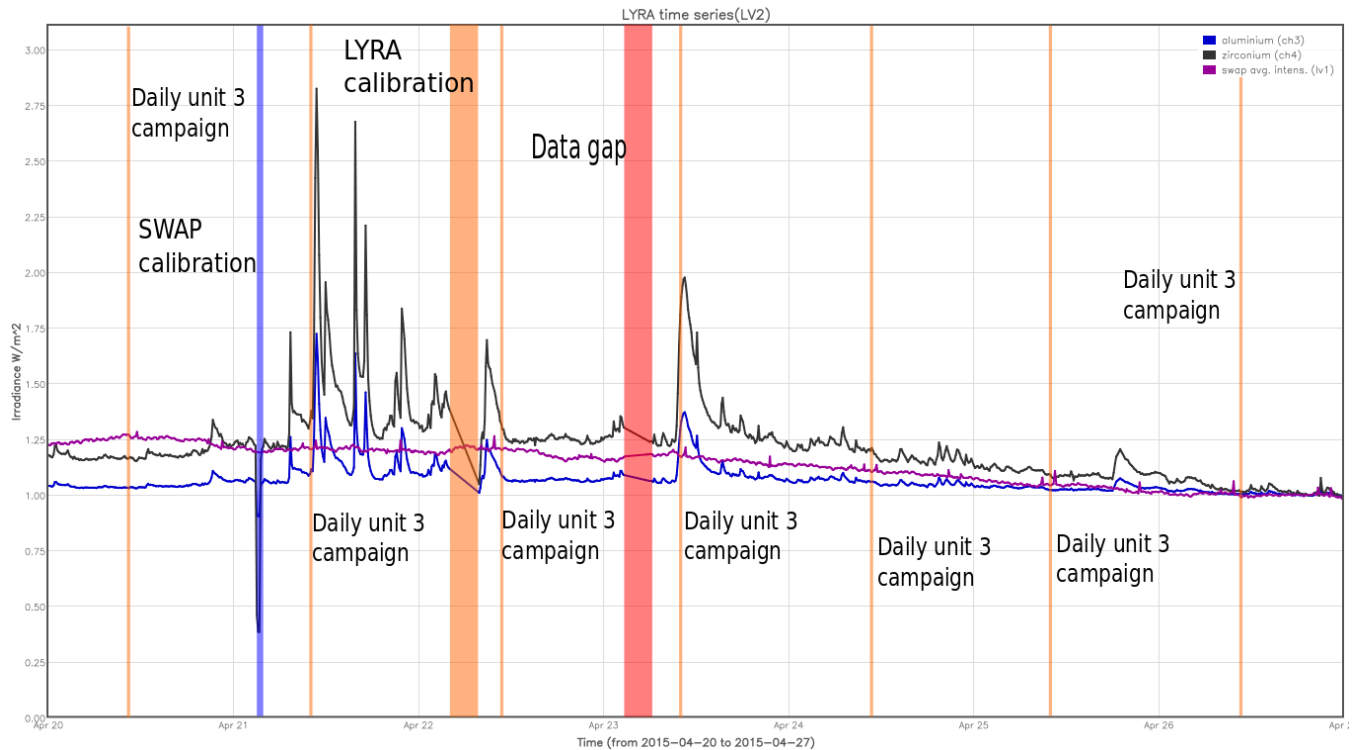


SWAP image of an eruption observed on the west limb at 21:49 UT.
Find a movie of the event [here](#) (SWAP movie)

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 calibration, 2015-04-21

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

- Daily unit 3 campaign, 2015-04-20
- Daily unit 3 campaign, 2015-04-21
- LYRA calibration, 2015-04-22
- Daily unit 3 campaign, 2015-04-22
- Daily unit 3 campaign, 2015-04-23
- Daily unit 3 campaign, 2015-04-24
- Daily unit 3 campaign, 2015-04-25
- Daily unit 3 campaign, 2015-04-26

The red shaded period corresponds to:

- Data gap, 2015-04-23

The data gap on 2015-04-23 was caused by an issue with TX1 antenna onboard PROBA2. This affected the data from passes 17187 and 17188. Pass 17187 failed. Pass 17188 had a corrupted 'lump' in the BINLYRA file causing the data pipeline to fail. Updates to the software are planned and the data will become available at a later date.

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 presentation on “PROBA2 and the p2sc” to high school children for the ASGARD contest at ROB.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 20 Apr	Tuesday 21 Apr	Wednesday 22 Apr	Thursday 23 Apr	Friday 24 Apr	Saturday 25 Apr	Sunday 26 Apr
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00463	LYIOS00463	LYIOS00464	LYIOS00464	LYIOS00464	LYIOS00464	LYIOS00464

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- LYRA bi-weekly calibration.

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.6 and 48.7 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors remained at 2655.

The number of MCPM unrecoverable errors increased from 6101 to 6269.

IOS & operations

Monday 20 Apr	Tuesday 21 Apr	Wednesday 22 Apr	Thursday 23 Apr	Friday 24 Apr	Saturday 25 Apr	Sunday 26 Apr
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00572 547 images	IOS00573 726 images	IOS00573 672 images	IOS00573 463 images	IOS00573 561 images	IOS00573 480 images	IOS00573 603 images

Special operations for SWAP, this week:

- bi-weekly calibration

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.96 and -0.32 °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 17158 to 17222) was nominal, except for:

- 17187.

Data coverage HK

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

- 17187 was received but with less content.

Data coverage SWAP

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

- 17187.

Total number of images between 2015 Apr 20 00:00 UT and 2015 Apr 27 00:00 UT: 4092

Highest cadence in this period: 30 seconds

Average cadence in this period: 147.80 seconds

Number of image gaps larger than 300 seconds: 11

Largest data gap: 158.00 minutes

Data coverage LYRA

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

- 17187

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)