P2SC-ROB-WR-212 - 20140407 Weekly report #212	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon April 14 to Sun April 20, 2014 23 April 2014 Robbe Vansintjan & Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

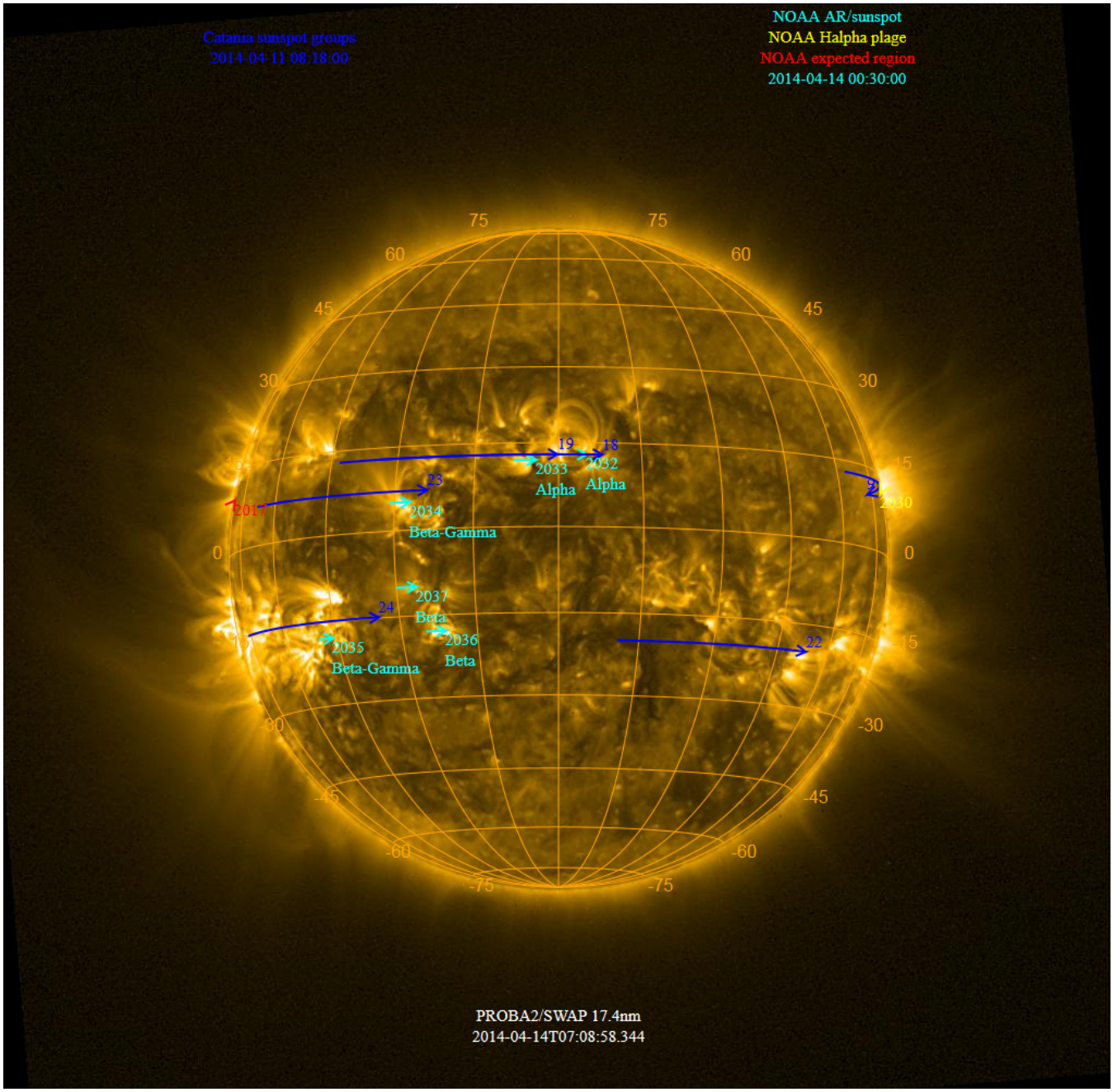
The level of solar activity[1] fluctuated between **low** and **moderate** this week.

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

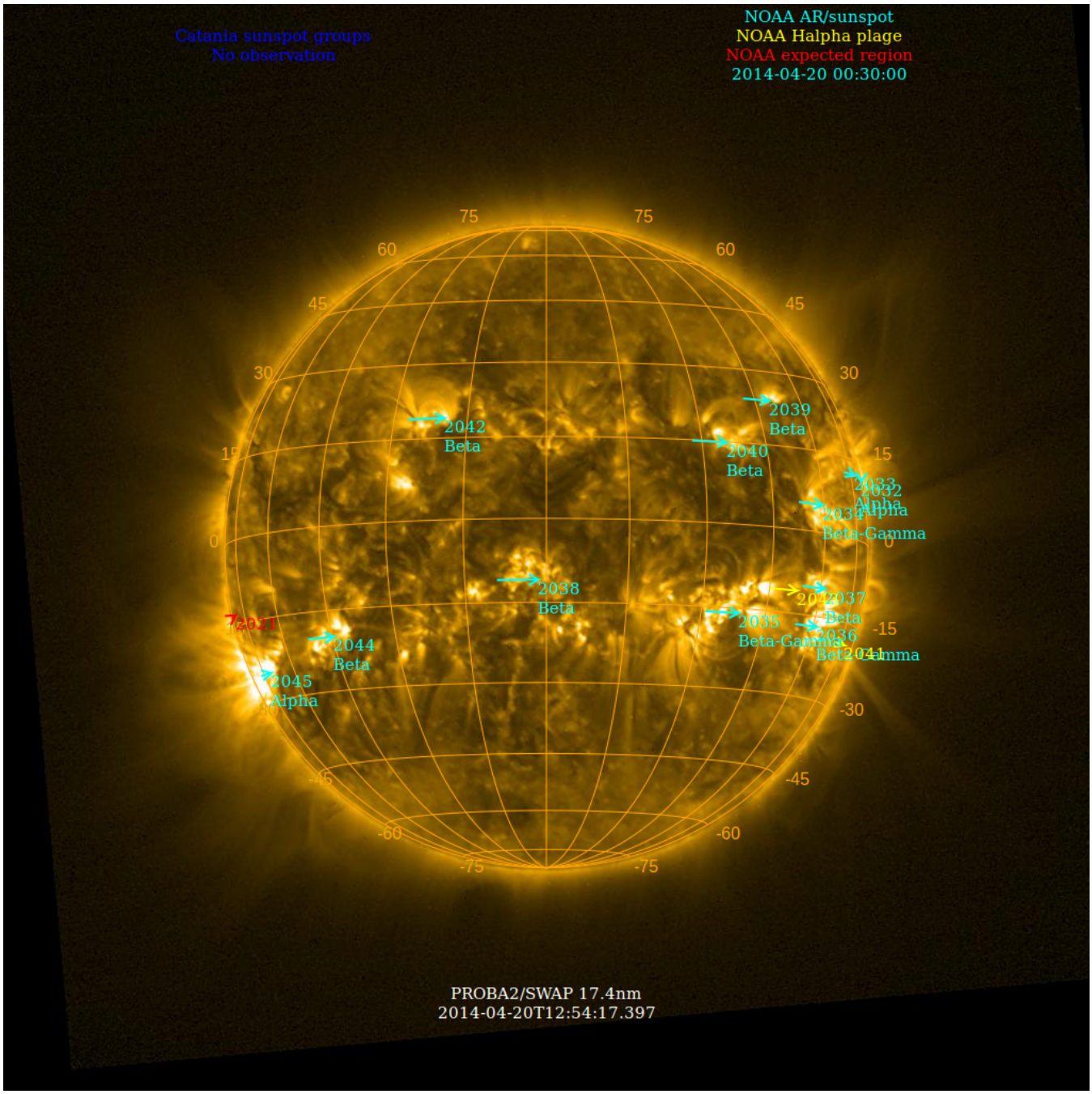
	Monday 14 Apr	Tuesday 15 Apr	Wednesday 16 Apr	Thursday 17 Apr	Friday 18 Apr	Saturday 19 Apr	Sunday 20 Apr
Activity	low	low	moderate	low	moderate	low	low
Flares	-	-	**M1.0@19:59**	-	**M7.3@13:3**	-	-

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

The SWAP images of April 14 and April 20 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
2014-04-20 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2042
Beta
2039
Beta
2040
Beta
2033
Alpha
2032
Alpha
2034
Beta-Gamma
2038
Beta
2037
Beta
2035
Beta-Gamma
2036
Beta-Gamma
2021
2044
Beta
2045
Alpha
PROBA2/SWAP 17.4nm
2014-04-20T12:54:17.397

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 212).

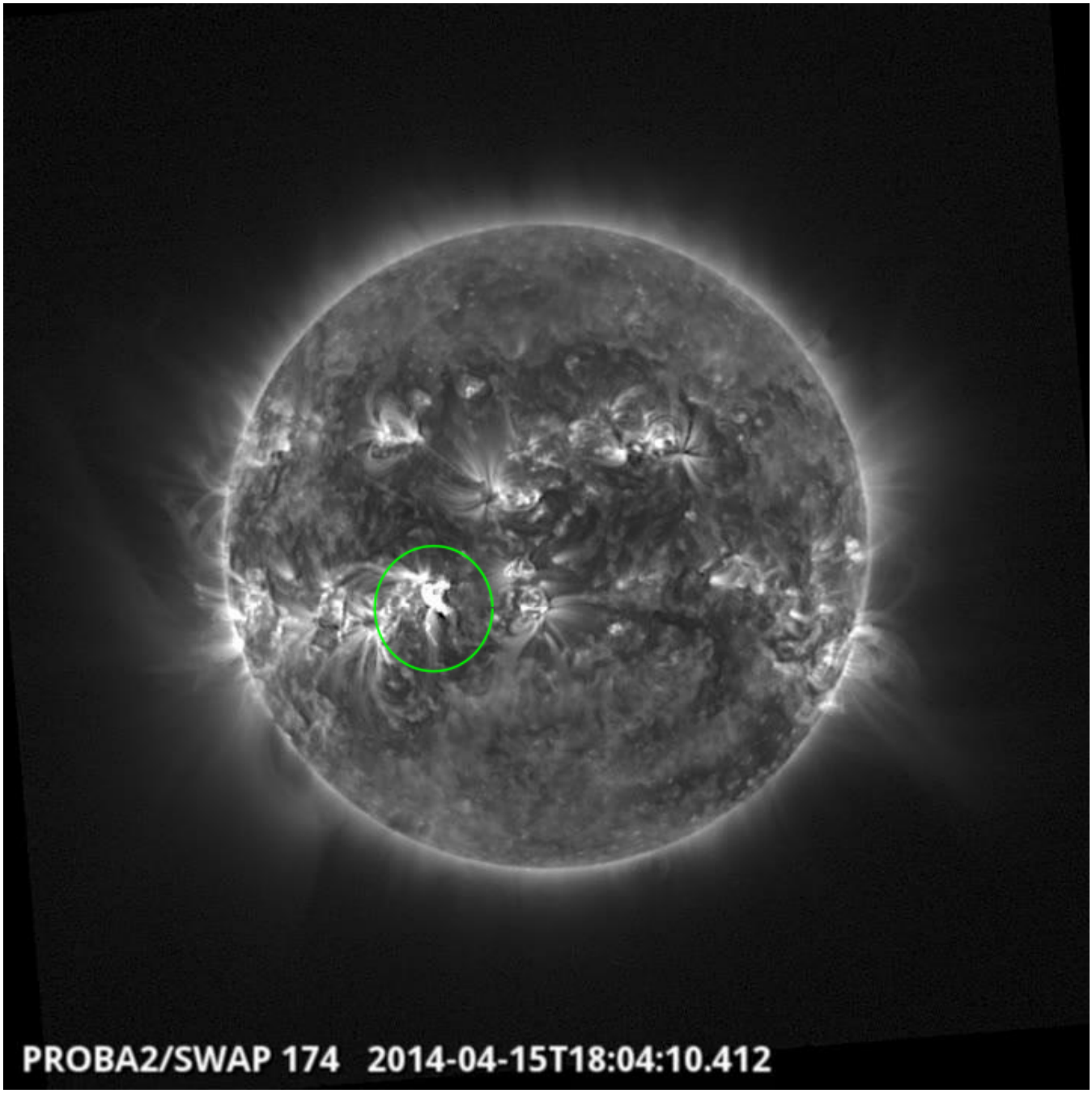
Details about some of this week's events can be found further below.

Monday Apr 14

Eruption resulting in an overlaying arch on the East limb @ 08:00 - SWAP difference image

Find a movie of the events **here** (SWAP difference movie)

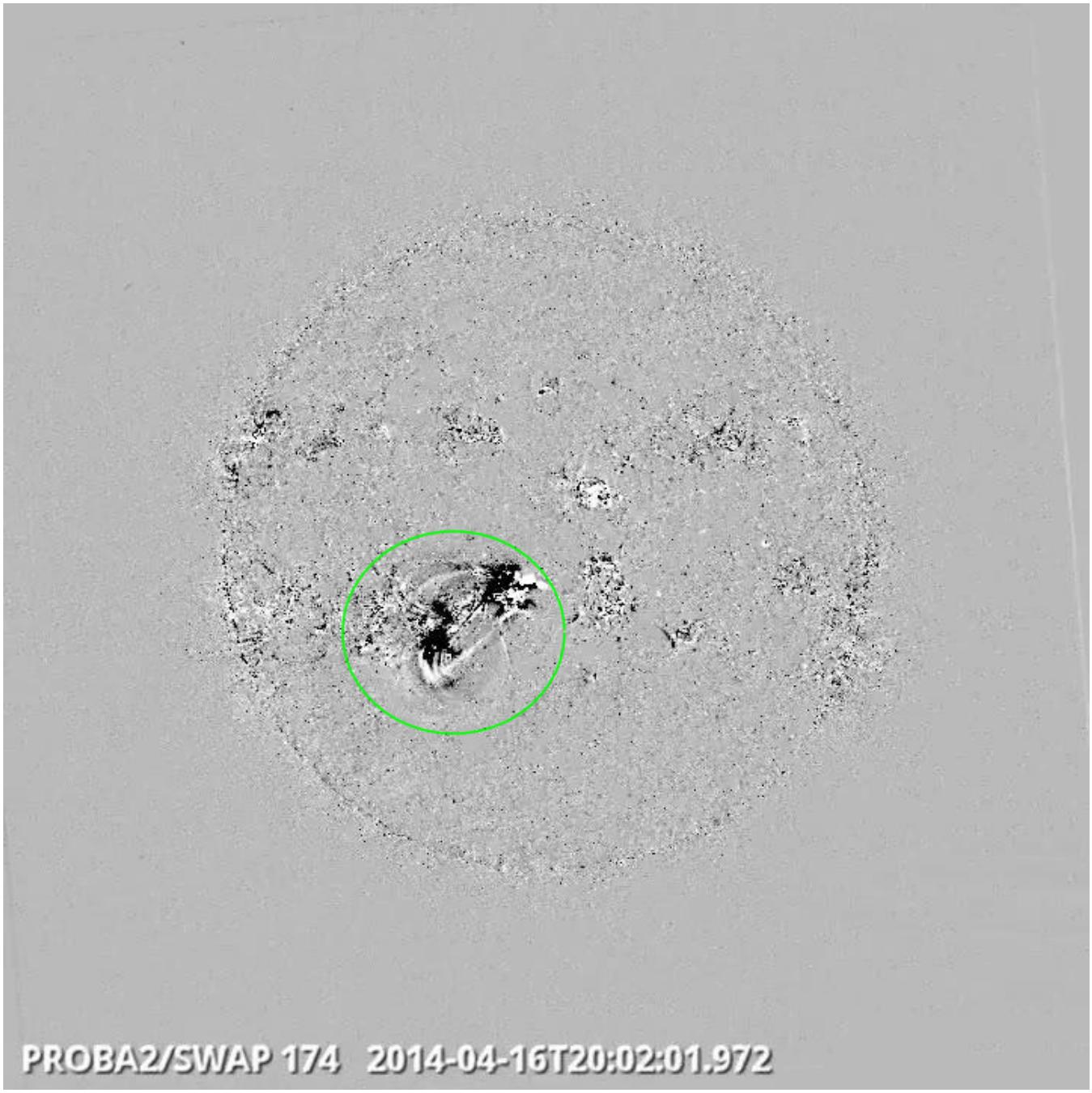
Tuesday Apr 15



Eruption in the south east quad @ 18:04 - SWAP image

Find a movie of the events **here** (SWAP movie)

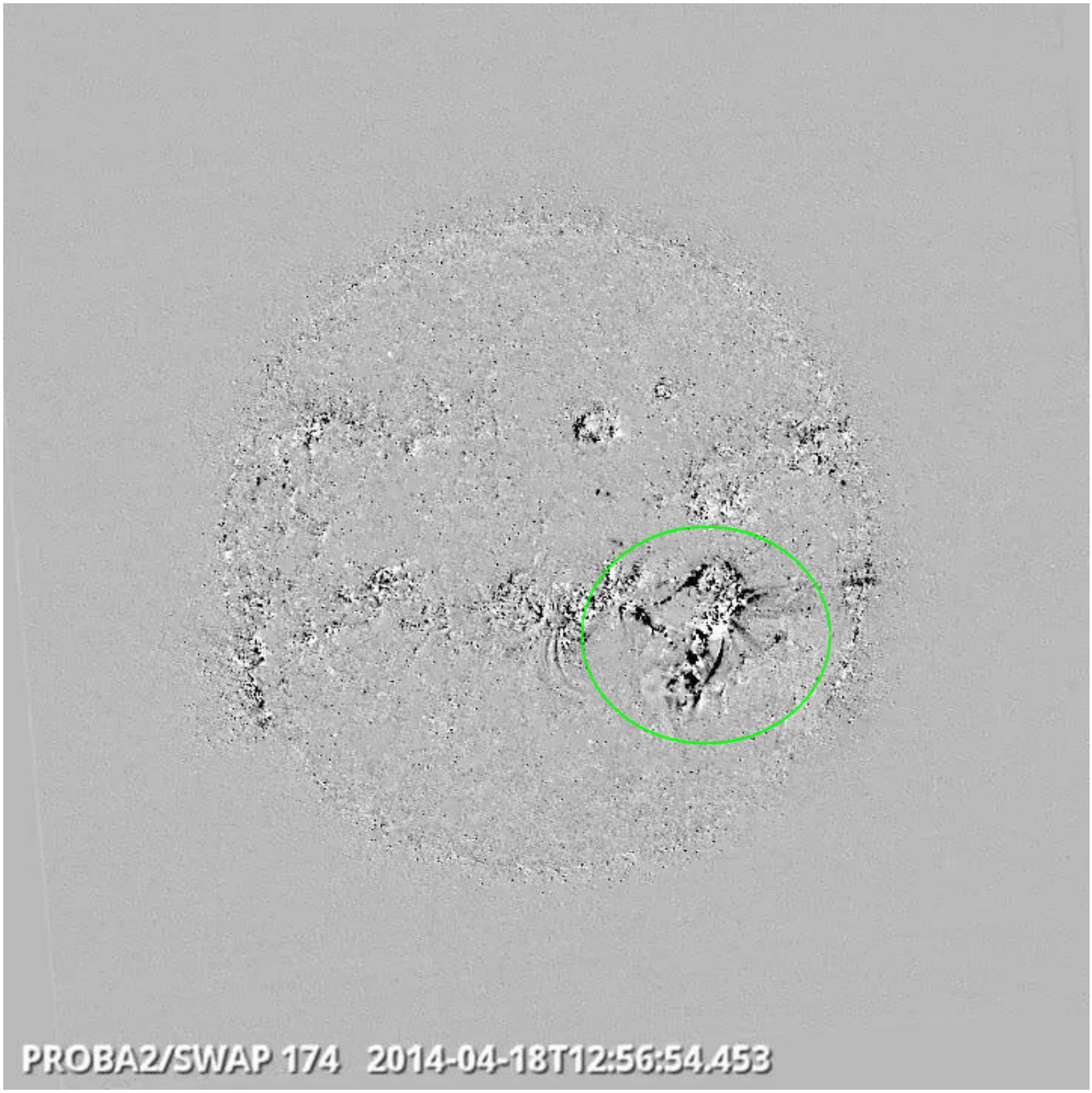
Wednesday Apr 16



Eruption in the south east quad @ 20:02 - SWAP difference image

Find a movie of the events **here** (SWAP diffrence movie)

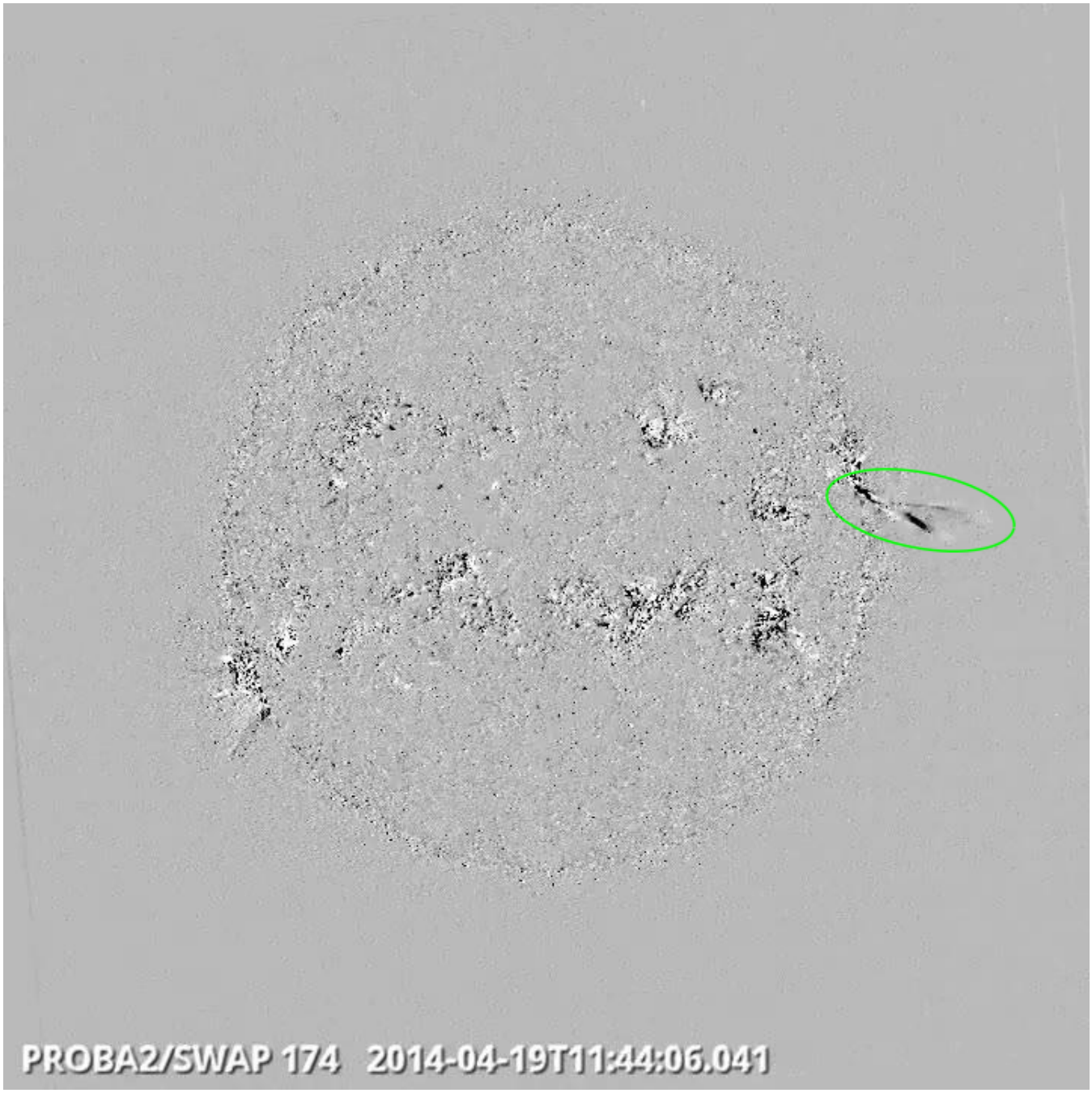
Friday Apr 18



Eruption in the south west quad @ 12:56 - SWAP difference image

Find a movie of the events **here** (SWAP diffrence movie)

Saturday Apr 19



Jet on the west limb @ 11:44 - SWAP difference image

Find a movie of the events **here** (SWAP diffrence movie)

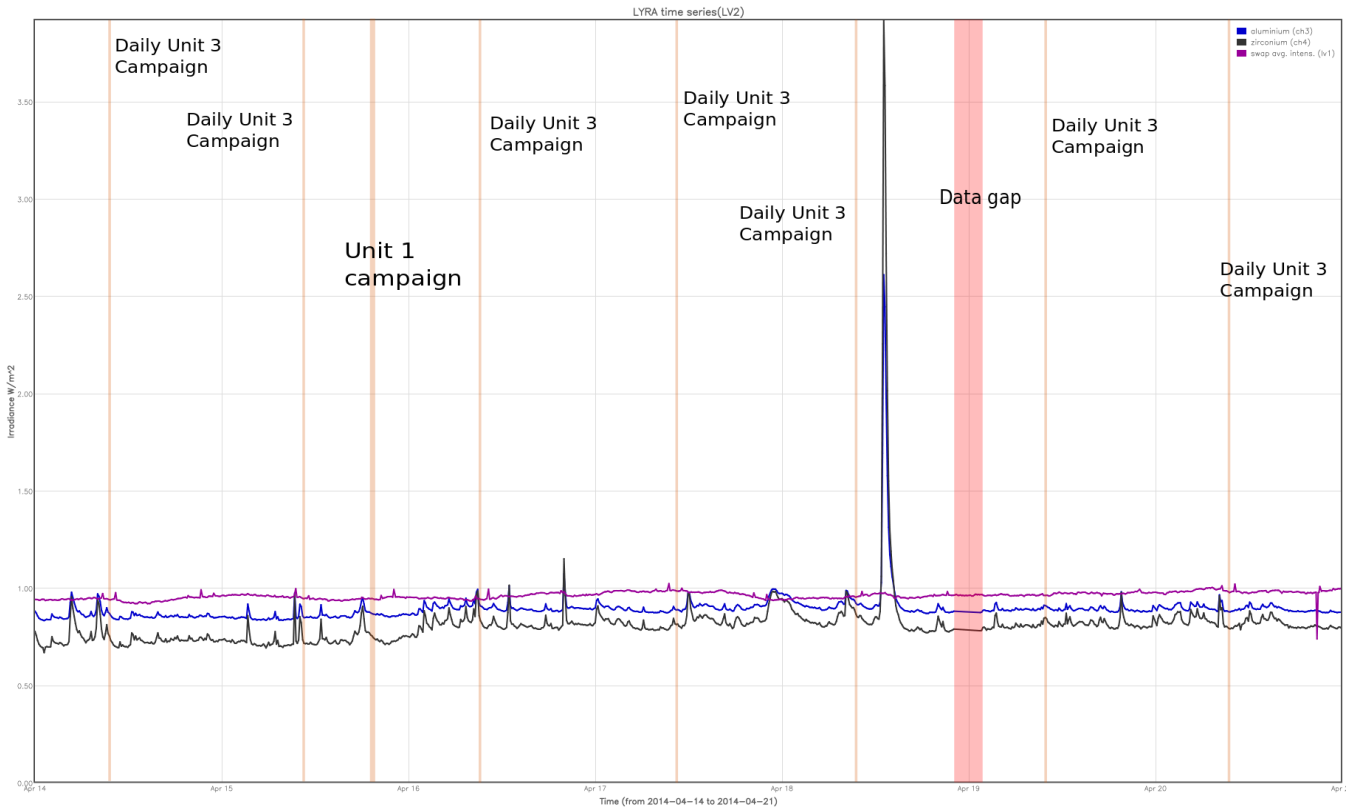
Sunday Apr 20

Eruption on the west limb @ 08:25 - SWAP difference image

Find a movie of the events **here** (SWAP diffrence movie)

An overview of the weekly LYRA & SWAP data is provided below:
The following curves are visible:

- black: Zirconium Channel LYRA Unit 2
- blue: Aluminum Channel of LYRA Unit 2
- purple: SWAVINT (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



The (LYRA related) orange shaded periods correspond to, from left to right (see section 2):

- Daily LYRA unit 3 campaign (7 consecutive days)
- Monthly LYRA unit 1 campaign (on Tuesday 15/04)

The red shaded periods correspond to, from left to right

- A data gap in the LYRA data due to a corrupted file that failed to process.

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).

- Daniel Ryan gave a talk at the International school of Brussels on Sunspots, space weather and Proba2

Guest Investigator Program

- Guest Investigator Chloe Guennou completed her stay on Thursday 17th of April.

Other Visitors

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 14 Apr	Tuesday 15 Apr	Wednesday 16 Apr	Thursday 17 Apr	Friday 18 Apr	Saturday 19 Apr	Sunday 20 Apr
Nominal acquisition + daily U3 LYIOS00391	Nominal acquisition + daily U3 + monthly U1 LYIOS00392	Nominal acquisition + daily U3 LYIOS00392	Nominal acquisition + daily U3 LYIOS00392	Nominal acquisition + daily U3 LYIOS00392	Nominal acquisition + daily U3 LYIOS00393	Nominal acquisition + daily U3 LYIOS00393

The following science campaigns were performed by LYRA:

- daily U3 observation campaign (7 consecutive days)
- monthly U1 observation campaign on Tuesday April 15th

LYRA detector temperature

LYRA detector 2 temperature globally increased from 47.5 °C to 49.4 °C, taking into account the daily U3 activation temperature peaks.

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 17835 to 18021.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 14 Apr	Tuesday 15 Apr	Wednesday 16 Apr	Thursday 17 Apr	Friday 18 Apr	Saturday 19 Apr	Sunday 20 Apr
Nominal acquisition IOS00517 655 images	Nominal acquisition IOS00517 663 images	Nominal acquisition IOS00517 618 images	Nominal acquisition IOS00517 663 images	Nominal acquisition IOS00517 663 images	Nominal acquisition IOS00518 636 images	Nominal acquisition IOS00518 474 images

Special SWAP operations this week:

- None.

SWAP detector temperature

The SWAP Cold Finger Temperature varied between -1.19 °C and -0.5 °C.

4. PROBA2 Science Center Status

The main operator is Erik Pylyser (supported by 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 13894 to 13954) was nominal, except passes 13951 and 13952

Data coverage HK

All HK data files (LYRA_AD) have been received.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except passes 13951 and 13952

Swap image downloading blocked during the pass 13950 at 13:57:51z The unblocking procedure was executed during the pass 13953

Total number of images between 2014 Apr 14 0UT and 2014 Apr 21 0UT: 4372
Highest cadence in this period: 130 seconds
Average cadence in this period: 138.33 seconds
Number of image gaps larger than 300 seconds: 0

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received.

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
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)