P2SC-ROB-WR-237 - 20141006 Weekly report #237	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Oct 06 to Sun Oct 12, 2014 15 Oct 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

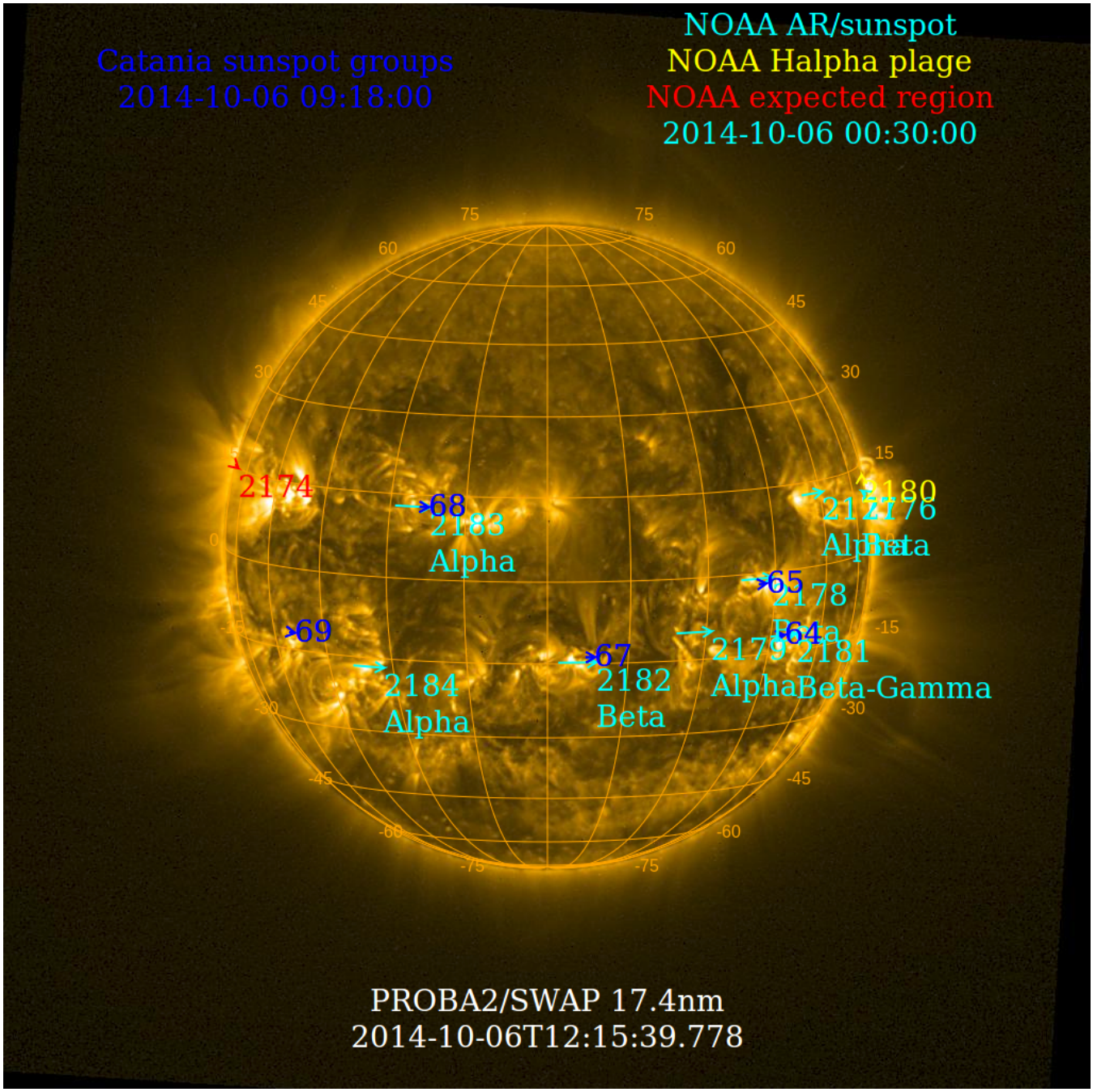
The level of solar activity[1] fluctuated between very **low** and **moderate** this week.

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

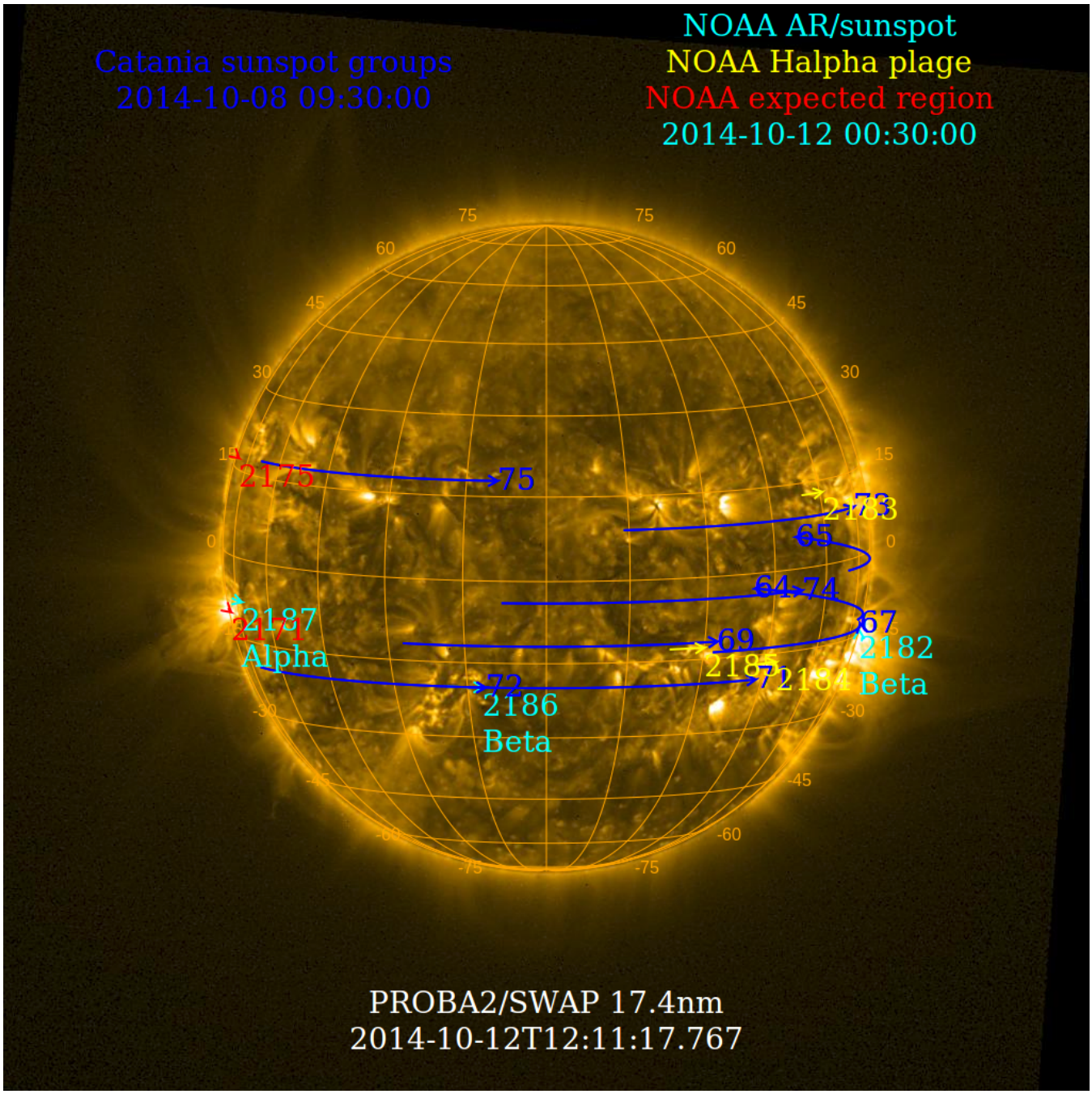
	Monday 06 Oct	Tuesday 07 Oct	Wednesday 08 Oct	Thursday 09 Oct	Friday 10 Oct	Saturday 11 Oct	Sunday 12 Oct
Activity	low	low	low	moderate	low	very low	low
Flares	-	-	-	**M1.2@06:59** **M1.4@01:58** **M1.3@01:43**	-	-	-

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

The SWAP images of Oct 06 and Oct 12 are shown below, with annotated active regions.



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

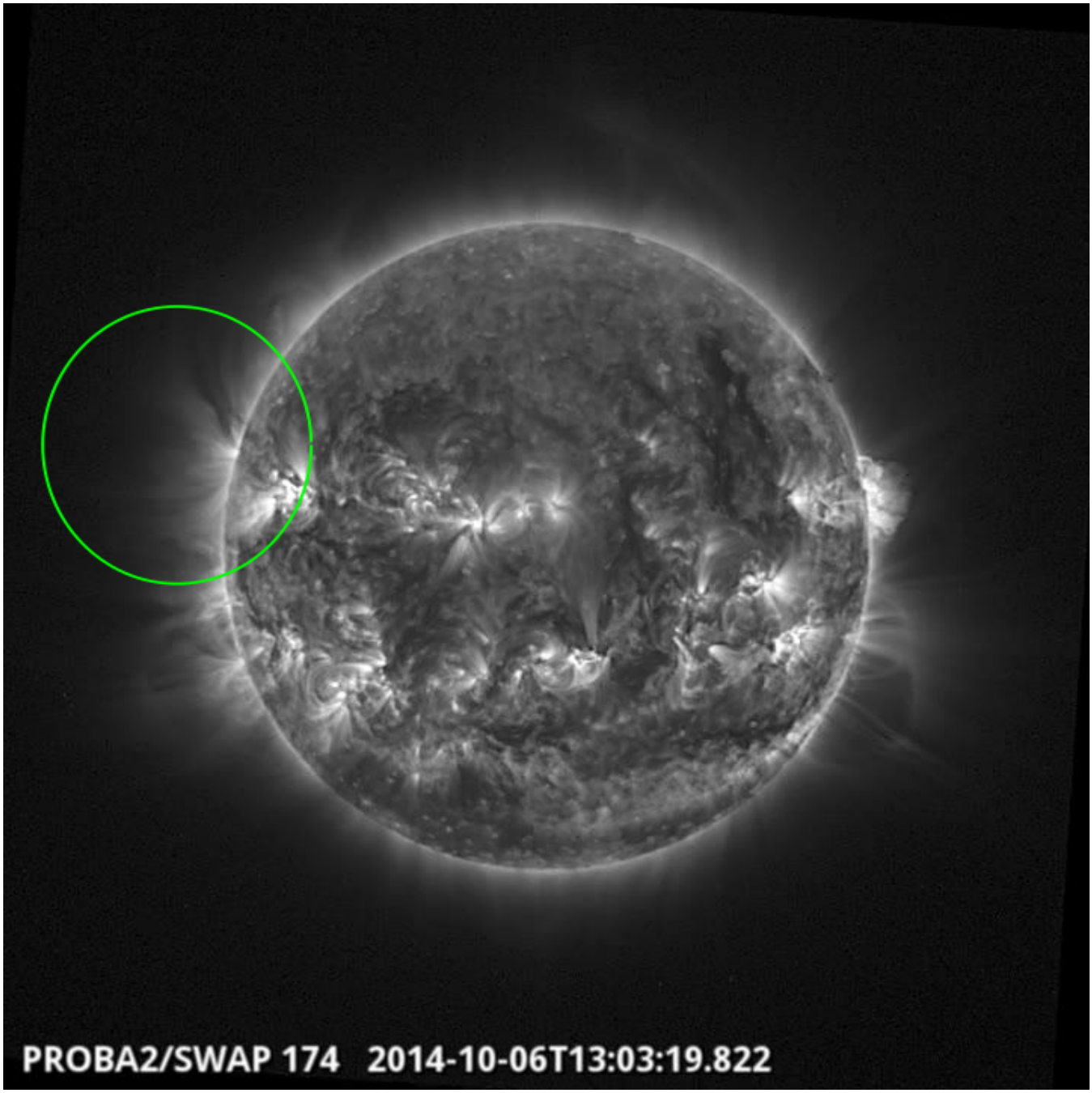

Catania sunspot groups
2014-10-08 09:30:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-10-12 00:30:00
2175
75
2183
65
64
74
67
2187
2171
Alpha
69
2182
2185
72
2184
Beta
2186
Beta
PROBA2/SWAP 17.4nm
2014-10-12T12:11:17.767

Solar Activity
Solar flare activity fluctuated between very 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 237).

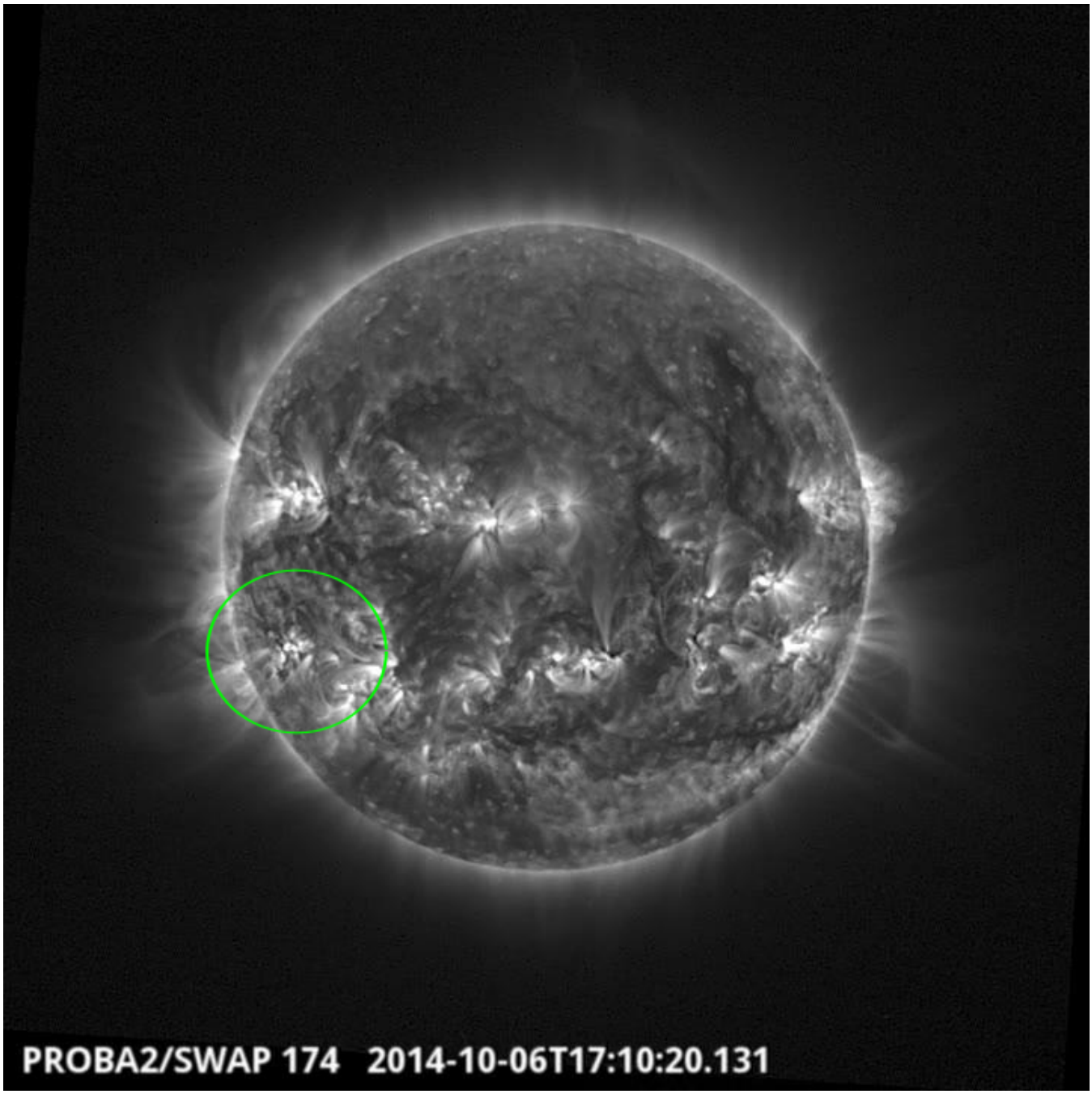
Details about some of this week's events, can be found further below.

Monday Oct 06



Eruption in the east limb @ 13:03 - SWAP image

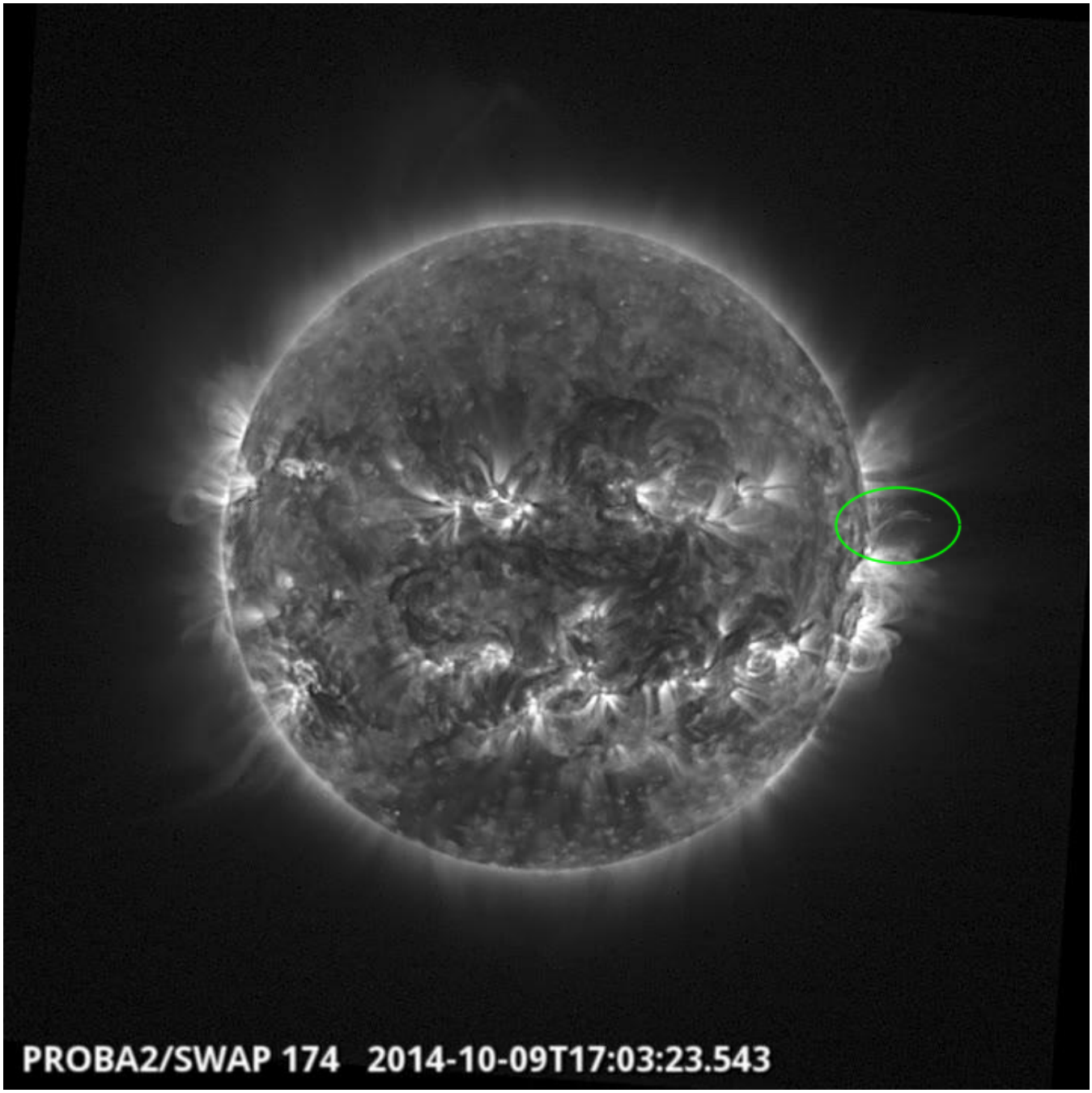
Find a movie of the events **here** (SWAP movie)



Eruption on the southeast quadrant @ 17:10 - SWAP image

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

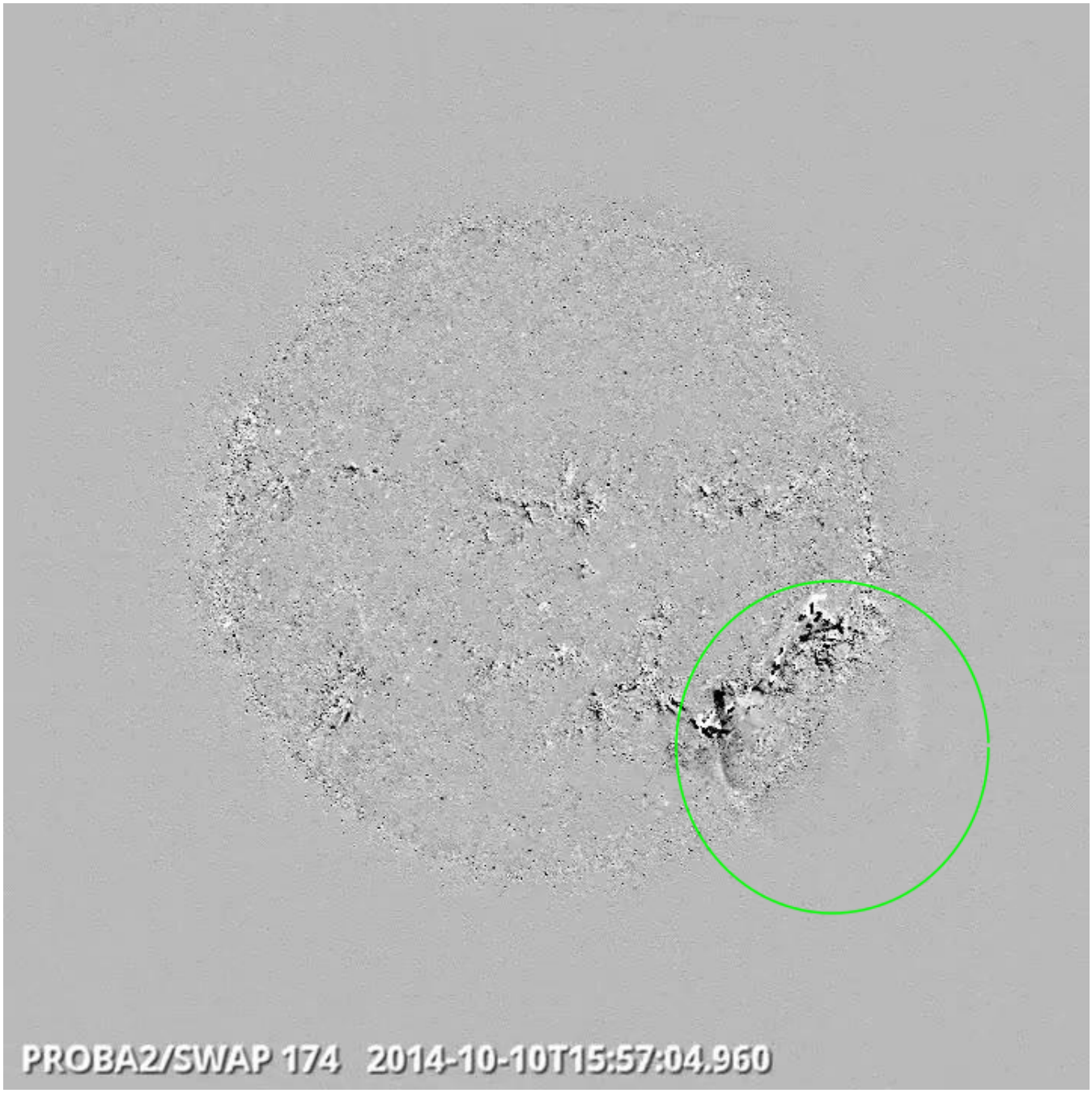
Thursday Oct 09



Eruption on the west limb @ 17:03 - SWAP image

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

Friday Oct 10



Eruption on the south west quad @ 15:57 - SWAP difference image

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

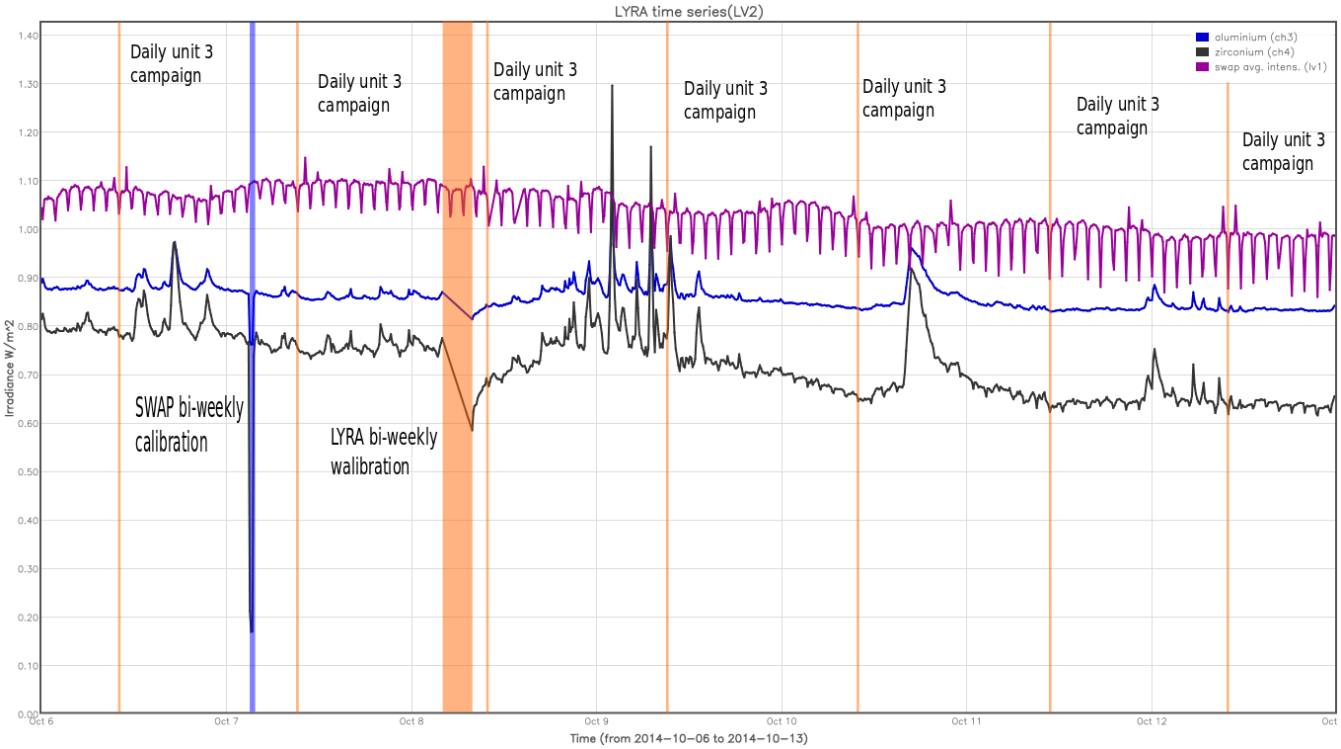
Sunday Oct 11

Eruption on the west limb @ 14:32 - SWAP difference image

Find a movie of the event **here** (SWAP difference 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:

- bi-weekly calibration

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

- daily unit 3 campaigns, two times
- bi-weekly calibration
- daily unit 3 campaigns, five times

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).

- D'Huys, Elke: Gave a presentation on PROBA2 at the Open Door days of the Royal Observatory of Belgium on the 12th of October. Title: "The PROBA2 satellite"
- Katrien Bonte, Laurel Rachmeler, Marie Dominique, David Berghmans: Manned an info booth on the open door days of the Royal Observatory of Belgium on the 11th and the 12th of October. They gave background information to visitors, answered questions, and provided free PROBA2 bookmarks and posters to visitors.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 06 Oct	Tuesday 07 Oct	Wednesday 08 Oct	Thursday 09 Oct	Friday 10 Oct	Saturday 11 Oct	Sunday 12 Oct
Nominal acquisition + daily U3 LYIOS00421	Nominal acquisition + daily U3 LYIOS00422	Nominal acquisition + daily U3 calibration LYIOS00422	Nominal acquisition + daily U3 LYIOS00422	Nominal acquisition + daily U3 LYIOS00422	Nominal acquisition + daily U3 LYIOS00422	Nominal acquisition + daily U3 LYIOS00422

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48 and 50.5 °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 increased from 22425 to 22600.
The number of MCPM unrecoverable errors remained at 1657.

IOS & operations

Monday 06 Oct	Tuesday 07 Oct	Wednesday 08 Oct	Thursday 09 Oct	Friday 10 Oct	Saturday 11 Oct	Sunday 12 Oct
Nominal acquisition IOS00538 561 images	Nominal acquisition + calibration IOS00539 586 images	Nominal acquisition IOS00539 598 images	Nominal acquisition IOS00539 665 images	Nominal acquisition IOS00539 608 images	Nominal acquisition IOS00539 527 images	Nominal acquisition IOS00539 605 images

Special operations for SWAP this week:

- bi-weekly calibration

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.8 and 1.6 °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 15421 to 15483) 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 2014 Oct 06 0UT and 2014 Oct 13 0UT: 4153
Highest cadence in this period: 30 seconds
Average cadence in this period: 145.61 seconds
Number of image gaps larger than 300 seconds: 20
Largest data gap: 6.50 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
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)