


P2SC-ROB-WR-367 - 20170403 Weekly report #367	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Apr 03 to Sun Apr 09, 2017 10 Apr 2017 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

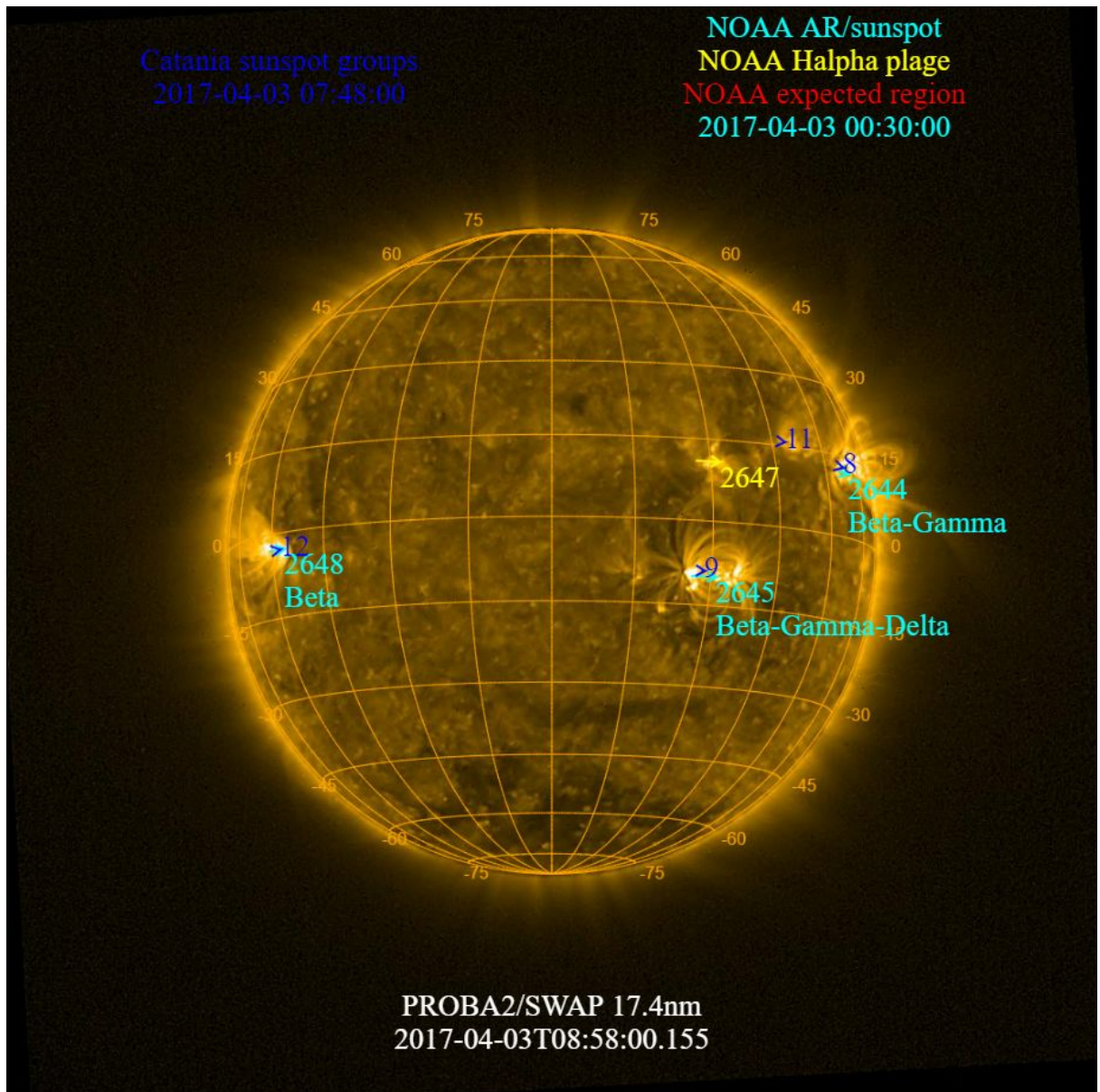
The level of solar activity¹ fluctuated between **very low** and **moderate** this week.

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

	Monday 03 Apr	Tuesday 04 Apr	Wednesday 05 Apr	Thursday 06 Apr	Friday 07 Apr	Saturday 08 Apr	Sunday 09 Apr
Activity	moderate	low	low	low	low	low	very low
Flares	M1.2@01:05 M5.8@14:29	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

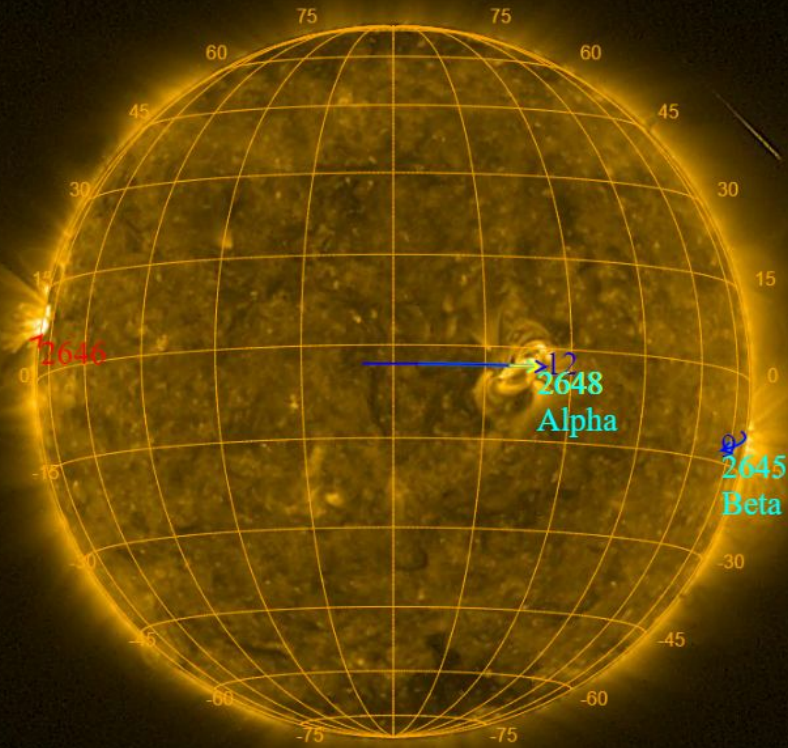
The SWAP images of Apr 03 to Apr 09 are shown below, with annotated active regions.



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

Catania sunspot groups
2017-04-07 07:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-04-08 00:30:00



PROBA2/SWAP 17.4nm
2017-04-09T08:55:29.195

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>

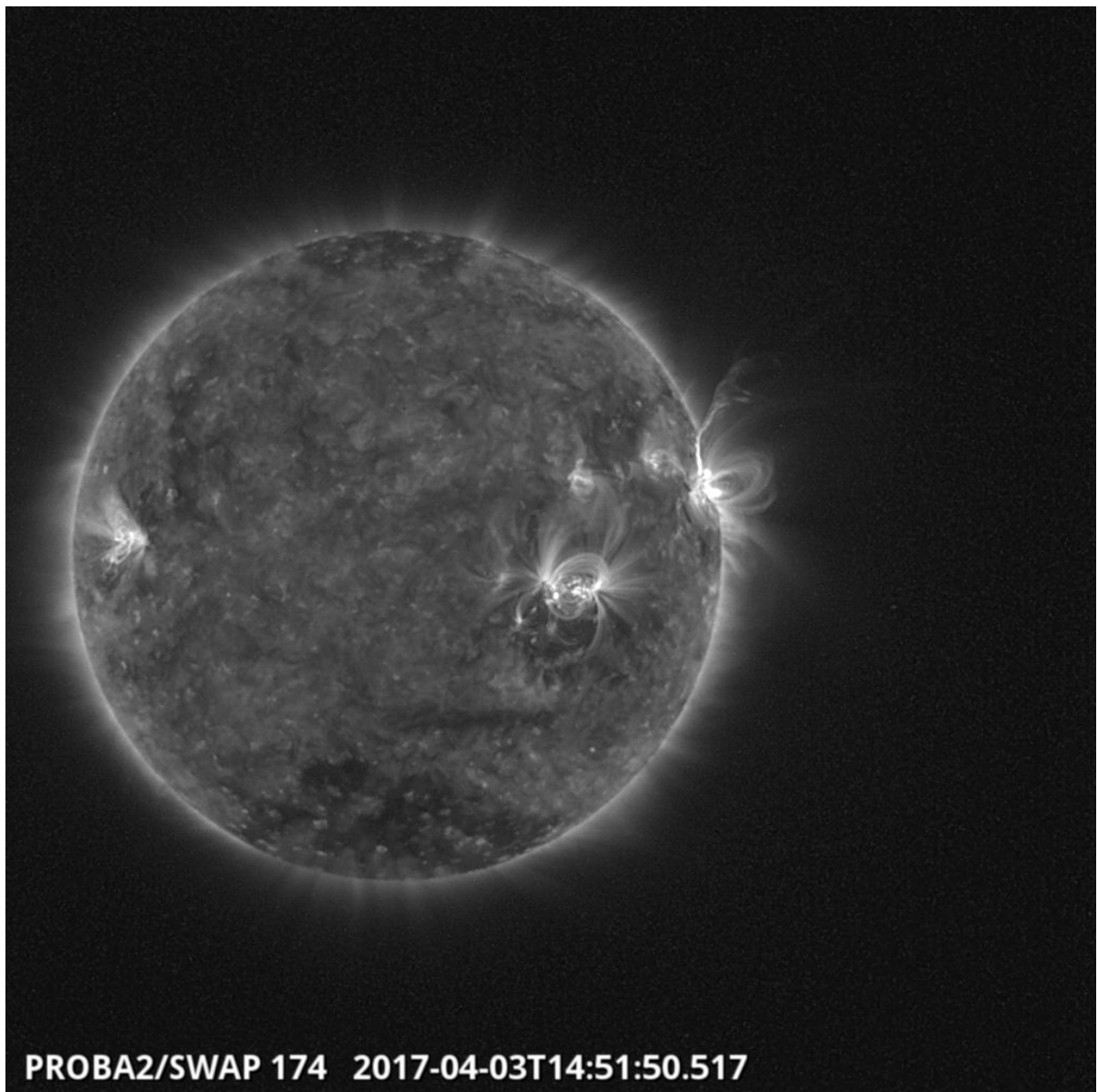
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 367).

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

If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

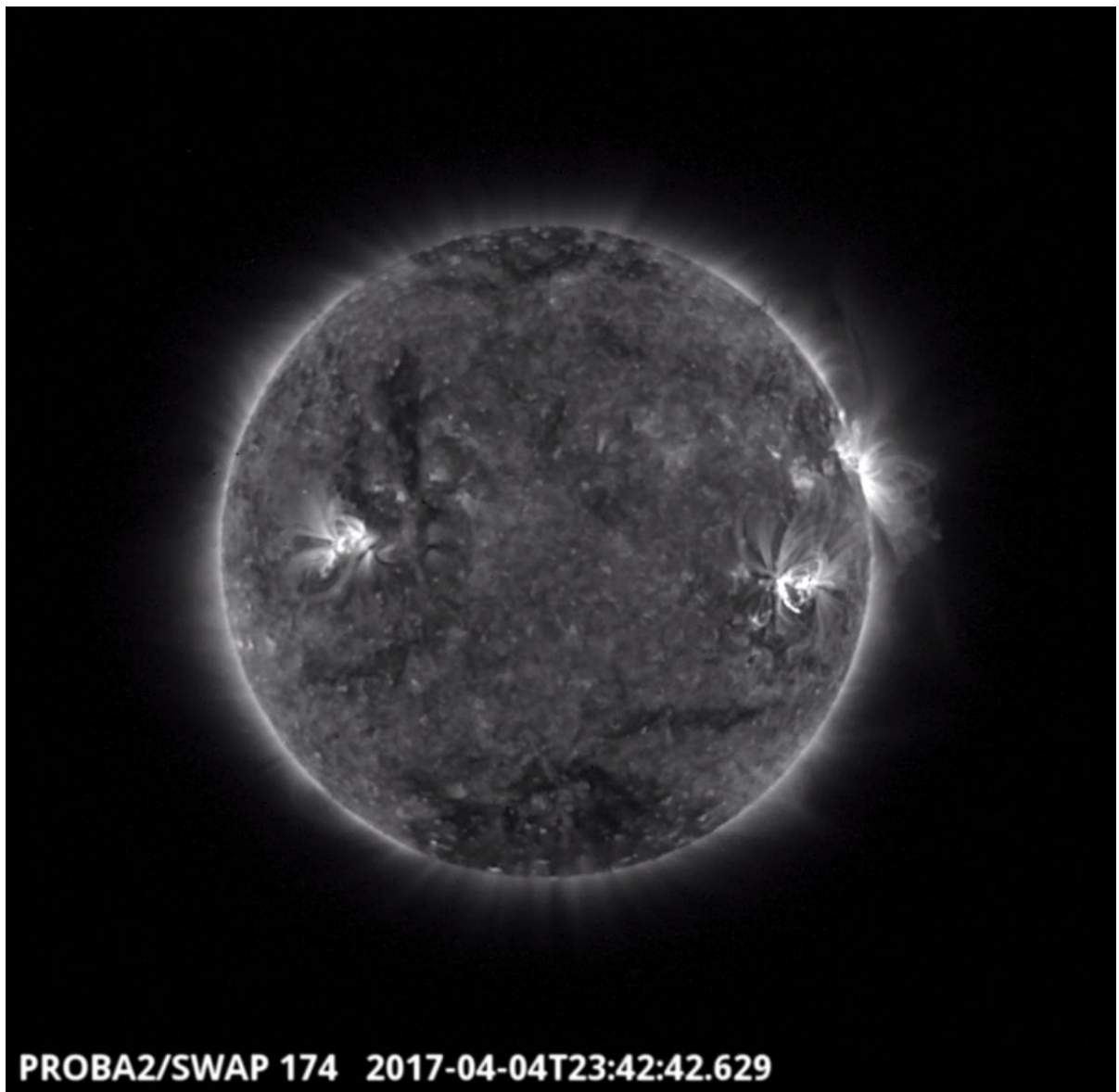
Monday Apr 03



SWAP observed the largest flare of the year so far (M5.8) and a corresponding eruption near the west limb of the Sun on 2017-Apr-03, shown here at 14:51 UT, while SWAP was off-pointed to the solar west.

Find a movie of the event [here](#) (SWAP movie of off-pointed images between 13:00 and 18:00 UT)

Tuesday Apr 04



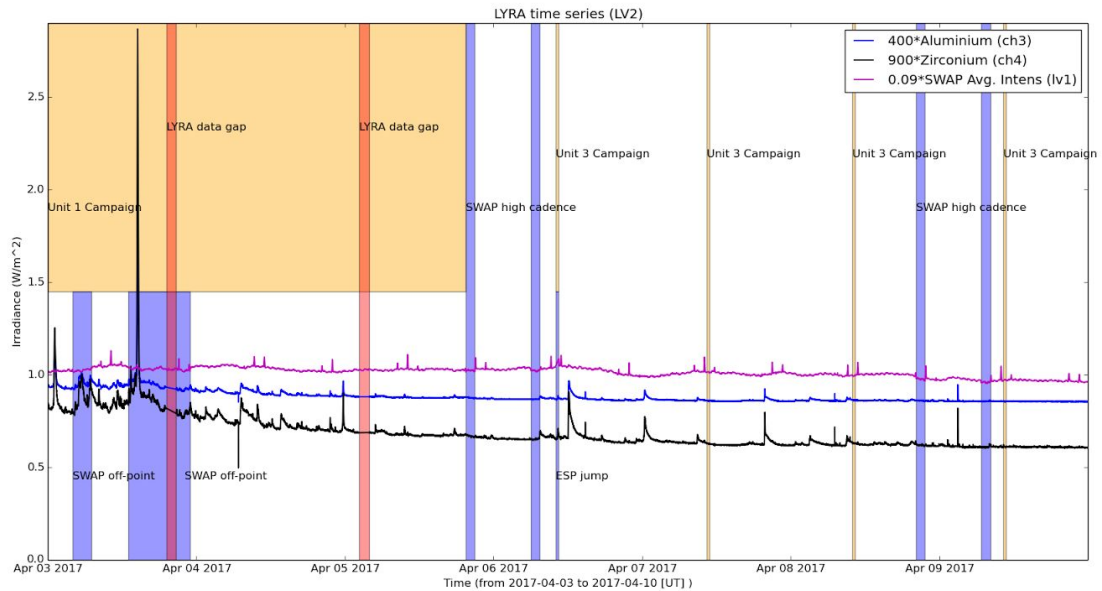
SWAP continued to observe multiple flares from NOAA AR2644 as it rotated towards the west limb, but the largest flare (C4.9) of the day was produced by NOAA AR2645, also in the western hemisphere, shown here at 23:42 UT.

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:

- Off-point to the west for Vial campaign, 2017-Apr-03
- Off-point to the west for Vial campaign, 2017-Apr-03
- High cadence SWAP campaigns for Guest Investigators Farid Goryaev and Vladimir Slemzin, 2017-Apr-05
- High cadence SWAP campaigns for Guest Investigators Farid Goryaev and Vladimir Slemzin, 2017-Apr-06
- ESP jump, 2017-Apr-06
- High cadence SWAP campaigns for Guest Investigators Farid Goryaev and Vladimir Slemzin, 2017-Apr-08
- High cadence SWAP campaigns for Guest Investigators Farid Goryaev and Vladimir Slemzin, 2017-Apr-09

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

- Unit 1 campaign for Vial campaign, 2017-Apr-03 to 2017-Apr-05
- Daily unit 3 campaign, 2017-Apr-06
- Daily unit 3 campaign, 2017-Apr-07
- Daily unit 3 campaign, 2017-Apr-08
- Daily unit 3 campaign, 2017-Apr-09

The red shaded period corresponds to:

- LYRA data Gap, 2017-Apr-03
- LYRA data Gap, 2017-Apr-05

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>).

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

None.

IOS & operations

Monday 03 Apr	Tuesday 04 Apr	Wednesday 05 Apr	Thursday 06 Apr	Friday 07 Apr	Saturday 08 Apr	Sunday 09 Apr
Nominal acquisition + U1	Nominal acquisition + U1	Nominal acquisition + U1	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00610	LYIOS00610 LYIOS00611	LYIOS00611	LYIOS00611	LYIOS00611	LYIOS00611	LYIOS00611

The following science campaigns were performed by LYRA:

From 2017-Apr-03 to 2017-Apr-05:

- U1 campaign for Vial

From 2017-Apr-06 to 2017-Apr-09:

- Daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 49.13 and 52.14 °C.

3. SWAP instrument status

Calibration

None

MCPM errors

The number of MCPM recoverable errors increased from 8189 to 8360.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 03 Apr	Tuesday 04 Apr	Wednesday 05 Apr	Thursday 06 Apr	Friday 07 Apr	Saturday 08 Apr	Sunday 09 Apr
Nominal acquisition + off-point	Nominal acquisition	Nominal acquisition + GI Campaign	Nominal acquisition + GI Campaign + ESP jump	Nominal acquisition	Nominal acquisition + GI Campaign	Nominal acquisition + GI Campaign
IOS00696 IOS00697 623 images	IOS00697 701 images	IOS00698 617 images	IOS00698 777 images	IOS00698 701 images	IOS00699 705 images	IOS00699 639 images

Special operations for SWAP, this week:

On 2017-Apr-03:

- 2 Off-points to the west, cadence=110

On 2017-Apr-05:

- High cadence campaign for Guest Investigators Farid Goryaev and Vladimir Slemzin (GI Campaign), cadence=30

On 2017-Apr-06:

- High cadence campaign for Guest Investigators Farid Goryaev and Vladimir Slemzin (GI Campaign), cadence=30
- ESP jump

On 2017-Apr-08:

- High cadence campaign for Guest Investigators Farid Goryaev and Vladimir Slemzin (GI Campaign), cadence=30

On 2017-Apr-09:

- High cadence campaign for Guest Investigators Farid Goryaev and Vladimir Slemzin (GI Campaign), cadence=30

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.73 and 0.55 °C.

4. PROBA2 Science Center Status

The main operator is Jennifer O'Hara.

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 23644 to 23710) 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.
- 13 images missing from the pass 23645 due to a very bad signal during the pass.

Total number of images between 2017 Apr 03 00:00 UT and 2017 Apr 10 00:00 UT: 4803

Highest cadence in this period: 0 seconds

Average cadence in this period: 125.88 seconds

Number of image gaps larger than 300 seconds: 191

Largest data gap: 33.67 minutes

Data coverage LYRA

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

- None
- 23652 slightly corrupted during downlink and resulted in a data gap on 2017-Apr-03 from 19:10 to 20:40 UT approximately.
- 23664 slightly corrupted as the signal was very bad during the dump of the store 5 and resulted in a data gap on 2017-Apr-05 between 02:15 and 03:55 UT.

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
DAC	Data Acquisition Controller
DBR	Deployment, backup & recovery
DDA	Decommutated data archive
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)