P2SC-ROB-WR-219- 20140602 Weekly report #219	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 02 to Sun Jun 08, 2014 11 Jun 2014 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

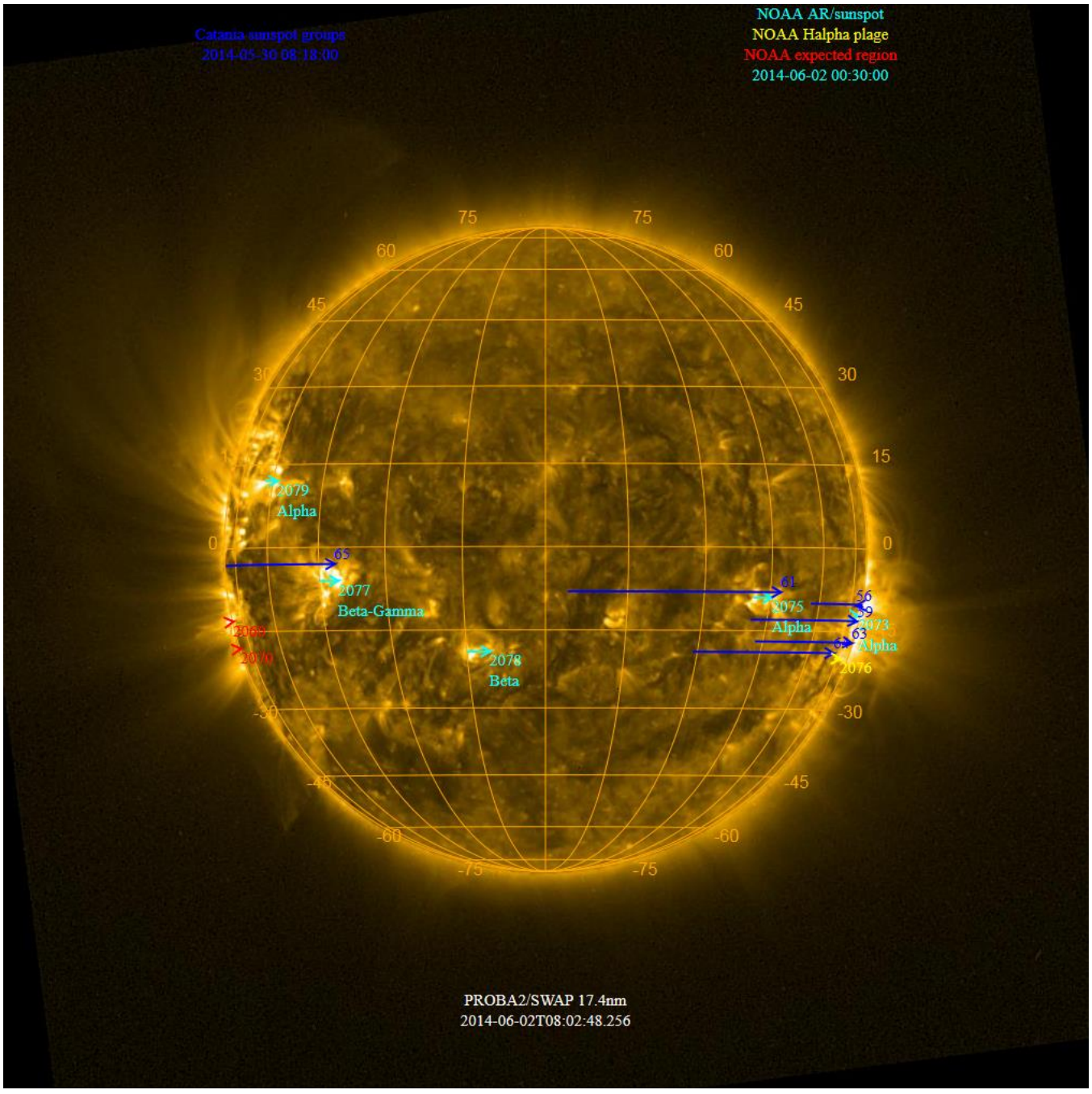
This week, the level of solar activity[1] fluctuated between very low and moderate this week. One M1.3-flare was recorded on Tuesday and an M1.4 on Friday.

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

	Monday 02 Jun	Tuesday 03 Jun	Wednesday 04 Jun	Thursday 05 Jun	Friday 06 Jun	Saturday 07 Jun	Sunday 08 Jun
Activity	very low	moderate	low	very low	moderate	low	low
Flares	-	**M1.3@03:58**	-	-	**M1.4@19:26**	-	-

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

The SWAP images of June 02 and June 08 are shown below, with annotated active regions.



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

Solar Activity

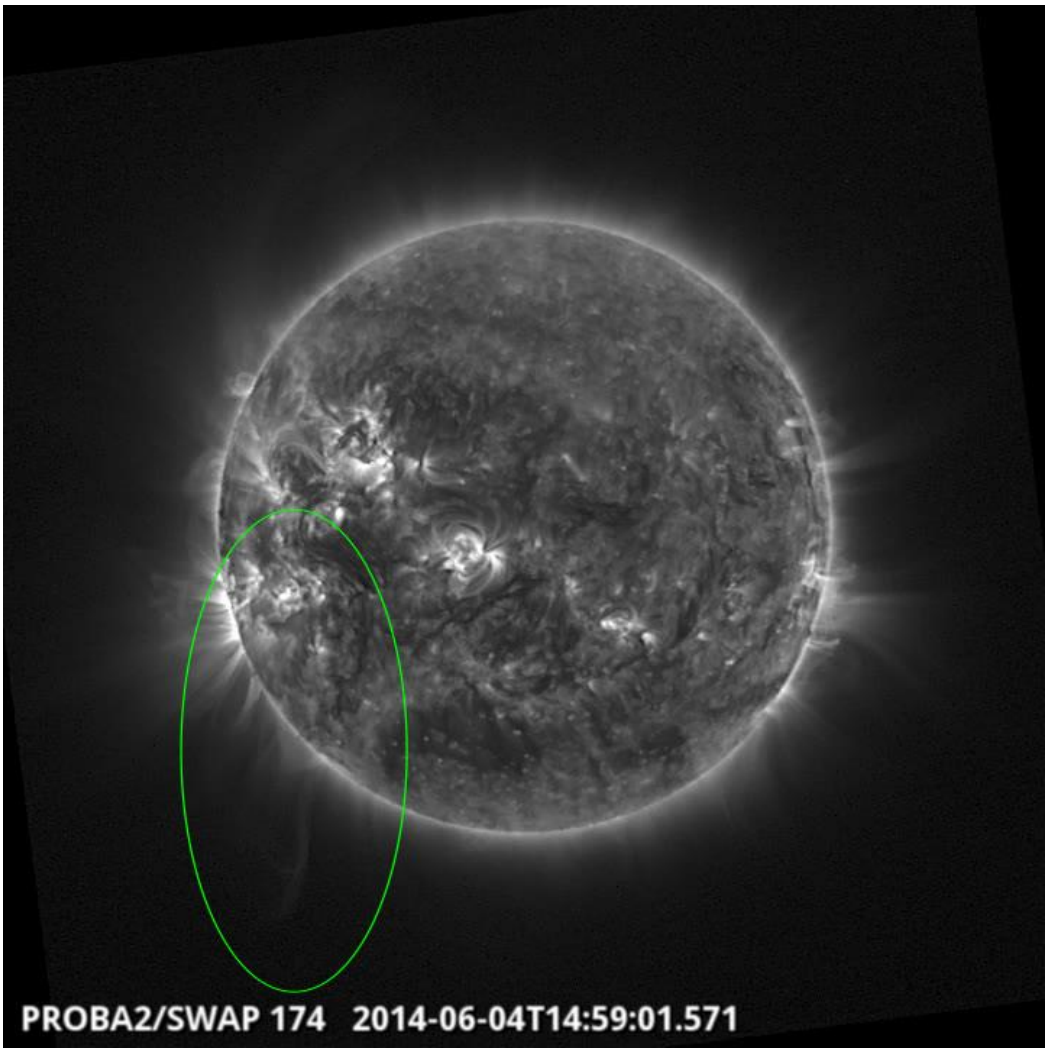
Solar flare activity fluctuated between **very low** and **moderate** this week. An M1.3-flare was recorded on Tuesday, and an M1.4 on Friday. On Wednesday, a big prominence erupted in the south-east quadrant (see below).

In order to view the activity of this week in more detail, we suggest going 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 219).

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

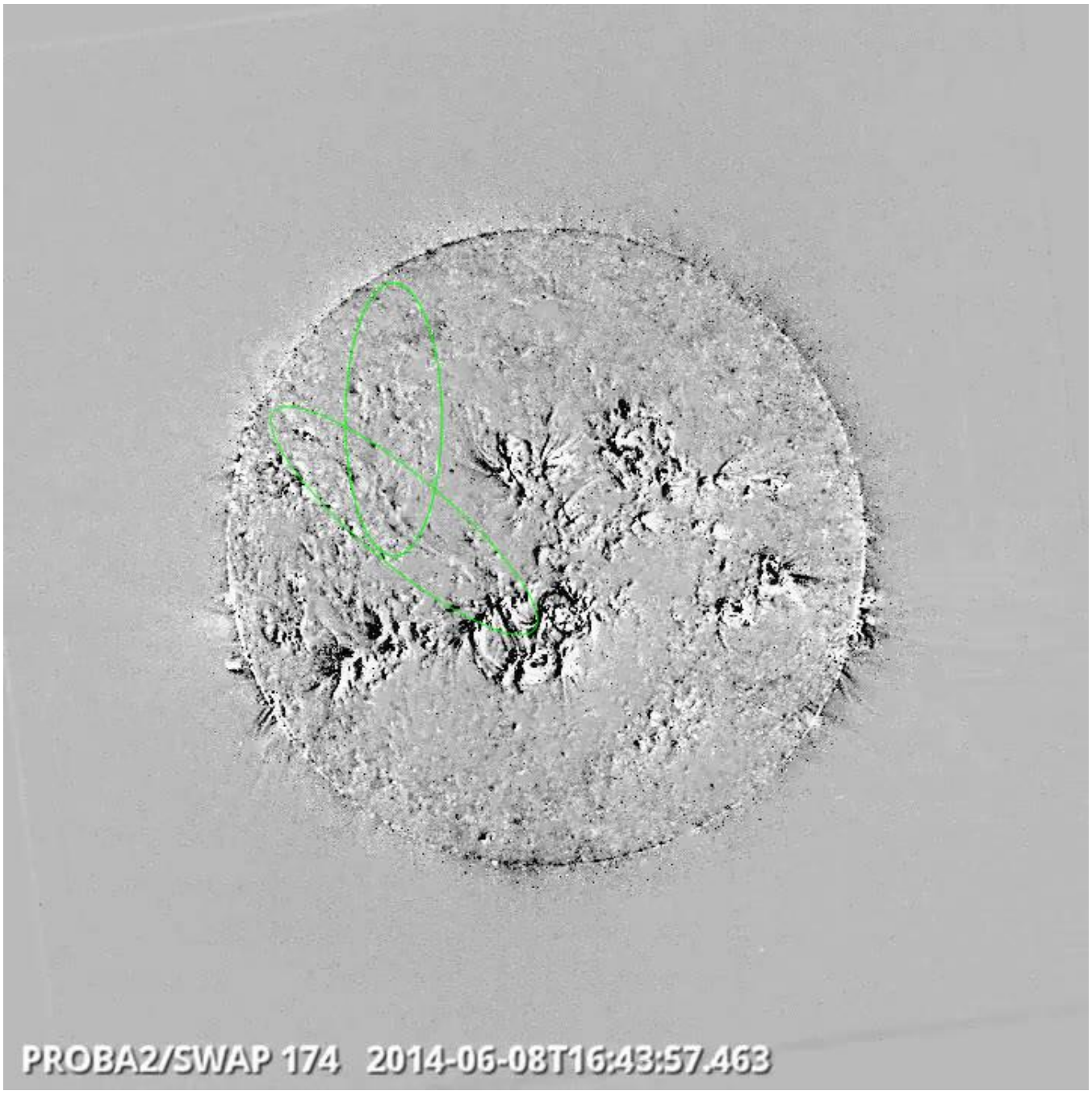
Wednesday Jun 04



Big Prominence Eruption @ 14:46 - SWAP image

The daily SWAP movie shows the eruption quite clearly as well as the follow-on, quite impressive expanding flare ribbons, continuing well into the morning of June 5th.

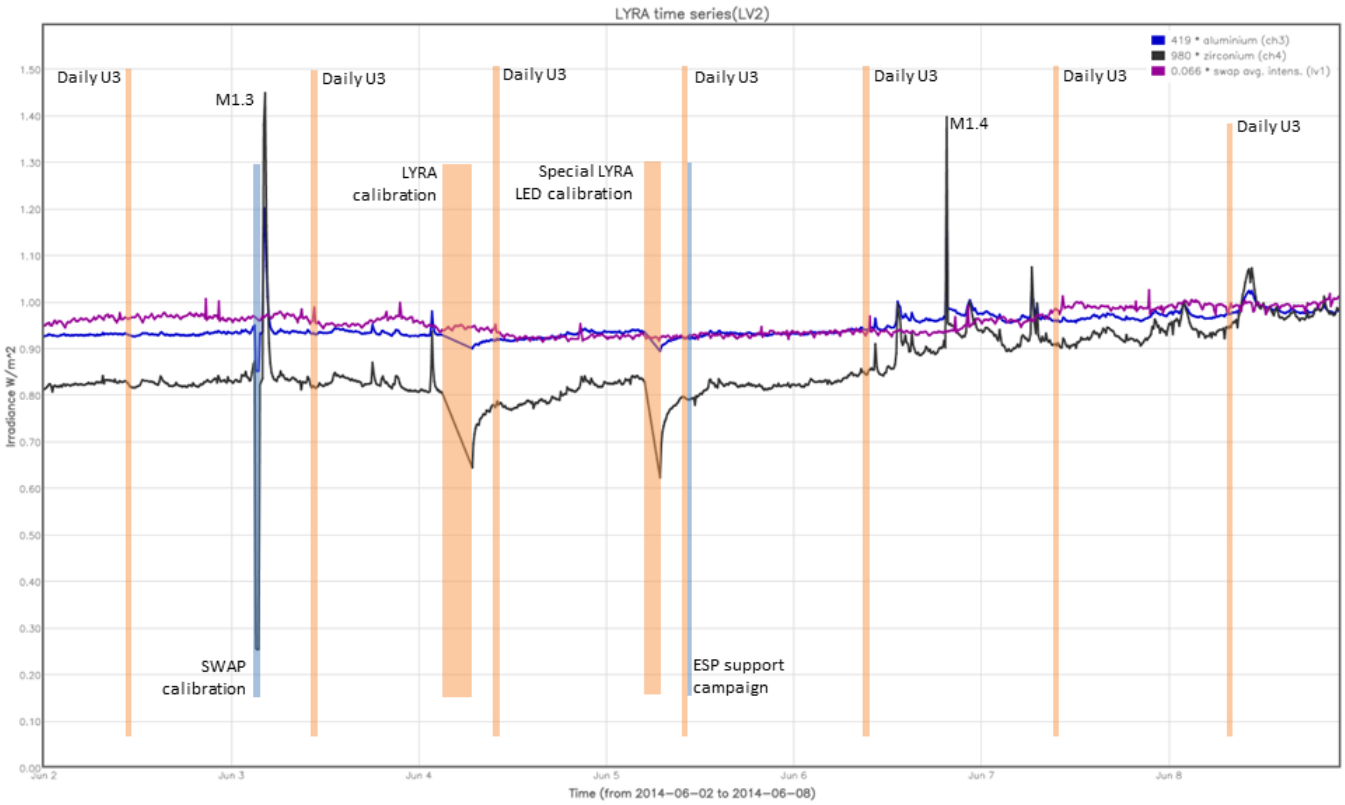
Sunday Jun 08



Double (?) Prominence Eruption in North East Quadrant @ 16:43 - SWAP difference image
A movie of this event.

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 also section 2):

- Daily LYRA unit 3 campaign (7 consecutive days)
- bi-weekly LYRA calibration campaign on Wednesday
- Special LYRA LED calibration campaign on Thursday

The (SWAP related) blue shaded periods correspond to, from left to right (see also section 3)

- bi-weekly SWAP calibration campaign on Tuesday.
- monthly ESP campaign on Thursday

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).

SWAP & LYRA data is being provided to the VENUS EXPRESS mission, in support of their upcoming operations to aerobrake the orbiter into Venus' atmosphere (see also Space Weather Euro News Volume 18 Issue 4, http://ssa-be-vm-fe-09p.ssa.esa.int/SWEN/vol18issue04.html#5, point 5).

Gael Cessateur presented his work with LYRA data, on Thu June 5th: "Solar UV irradiance and planetary atmospheres".

Guest Investigator Program

- None

Other Visitors

- Gael Cessateur, a former LYRA Guest Investigator, is currently at ROB (staying from 02/06/2014 until 13/06/2014).

2. LYRA instrument status

Calibration

Bi-weekly LYRA calibration on Tuesday.

IOS & operations

Monday 02 Jun	Tuesday 03 Jun	Wednesday 04 Jun	Thursday 05 Jun	Friday 06 Jun	Saturday 07 Jun	Sunday 08 Jun
Nominal acquisition + daily U3 LYIOS00399	Nominal acquisition + daily U3 LYIOS00400	Nominal acquisition + daily U3 + calibration LYIOS00400	Nominal acquisition + daily U3 + special calibration (LED) LYIOS00401	Nominal acquisition + daily U3 LYIOS00401	Nominal acquisition + daily U3 LYIOS00401	Nominal acquisition + daily U3 LYIOS00401

The following science campaigns were performed by LYRA:

- daily U3 observation campaign (7 consecutive days)

LYRA detector temperature

During normal operations, the LYRA detector 2 temperature varied between 47.9 °C and 47.1 °C, taking into account the small daily U3 activation temperature peaks. During the bi-weekly calibration campaign, temperature dropped to 45.7 °C.

3. SWAP instrument status

Calibration

SWAP calibration on Wednesday.

MCPM errors

The number of MCPM **recoverable** errors increased from 19177 to 19304.
The number of MCPM **unrecoverable** errors continued to increase regularly, from 1630 to 1657 (on 2014-06-03 at 02:57:15). From then on, the number remained constant, indicating that the faulty memory bit has been overwritten.

IOS & operations

Monday 02 Jun	Tuesday 03 Jun	Wednesday 04 Jun	Thursday 05 Jun	Friday 06 Jun	Saturday 07 Jun	Sunday 08 Jun
Nominal acquisition IOS00523 514 images	Nominal acquisition + calibration IOS00523 655 images	Nominal acquisition IOS00523 633 images	Nominal acquisition IOS00523 513 images	Nominal acquisition IOS00523 533 images	Nominal acquisition IOS00523 536 images	Nominal acquisition IOS00523 573 images

Special SWAP operations this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature varied between -0.08 °C and -1.01 °C.

4. PROBA2 Science Center Status

The main operator is Erik Pylyser

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 14329 and 14386) was nominal, except for:
- pass 14331 (see below), due to a network problem at Svalbard on June 02, around noon.

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 BINSWAP_14331.

Total number of images between 2014 Jun 02 0UT and 2014 Jun 09 0UT: 3957
Highest cadence in this period: 0 seconds
Average cadence in this period: 152.84 seconds
Number of image gaps larger than 300 seconds: 33
Largest data gap: 34.33 minutes

The large gap in the SWAP data is due to the ESP support campaign on Thursday.

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except BINLYRA_14331.

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)