P2SC-ROB-WR-190- 20131111 Weekly report #190	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Nov 11 to Sun Nov 17, 2013 20 Nov 2013 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

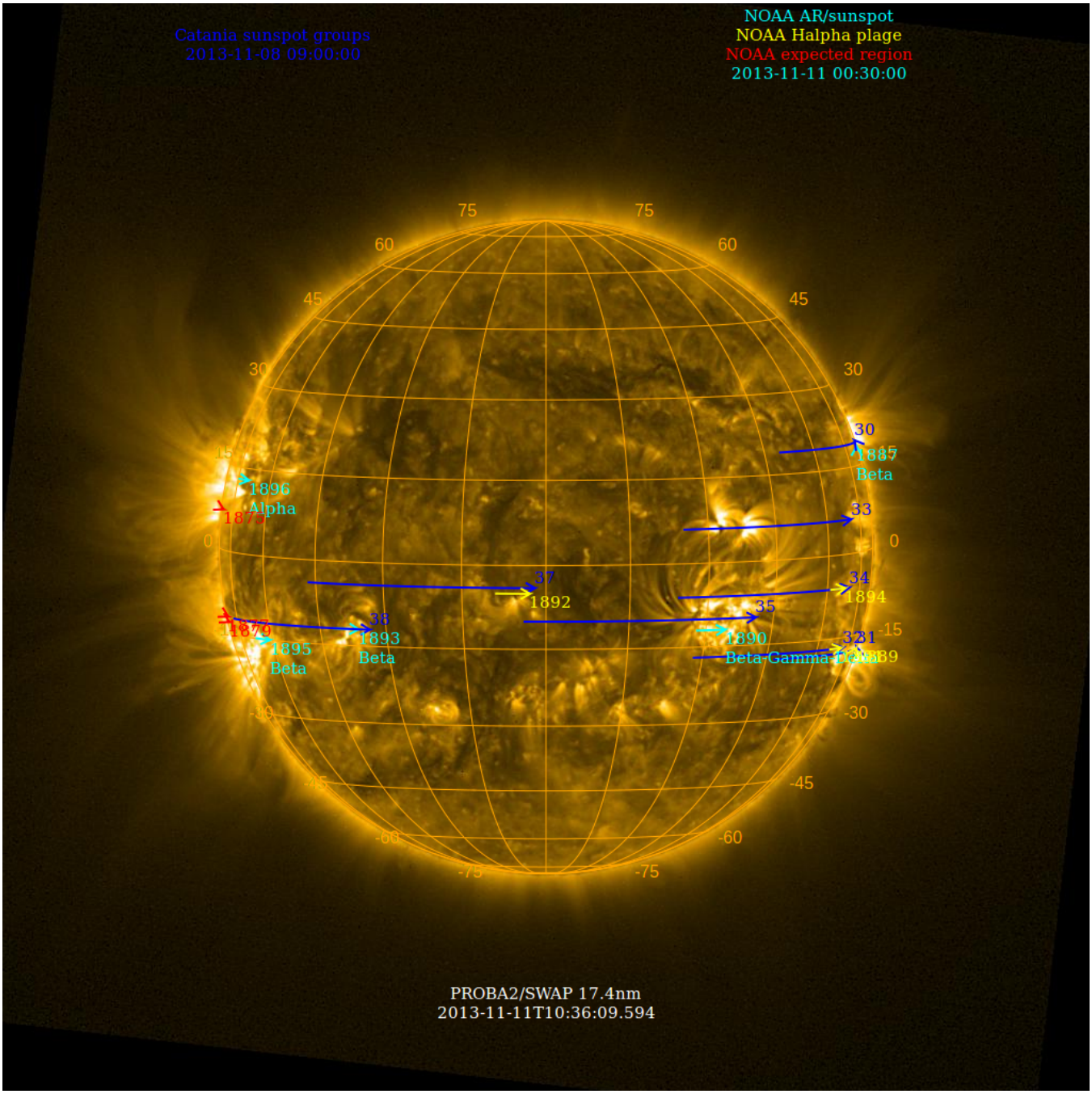
The level of solar activity[1] fluctuated between **low** and **moderate** this week.

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

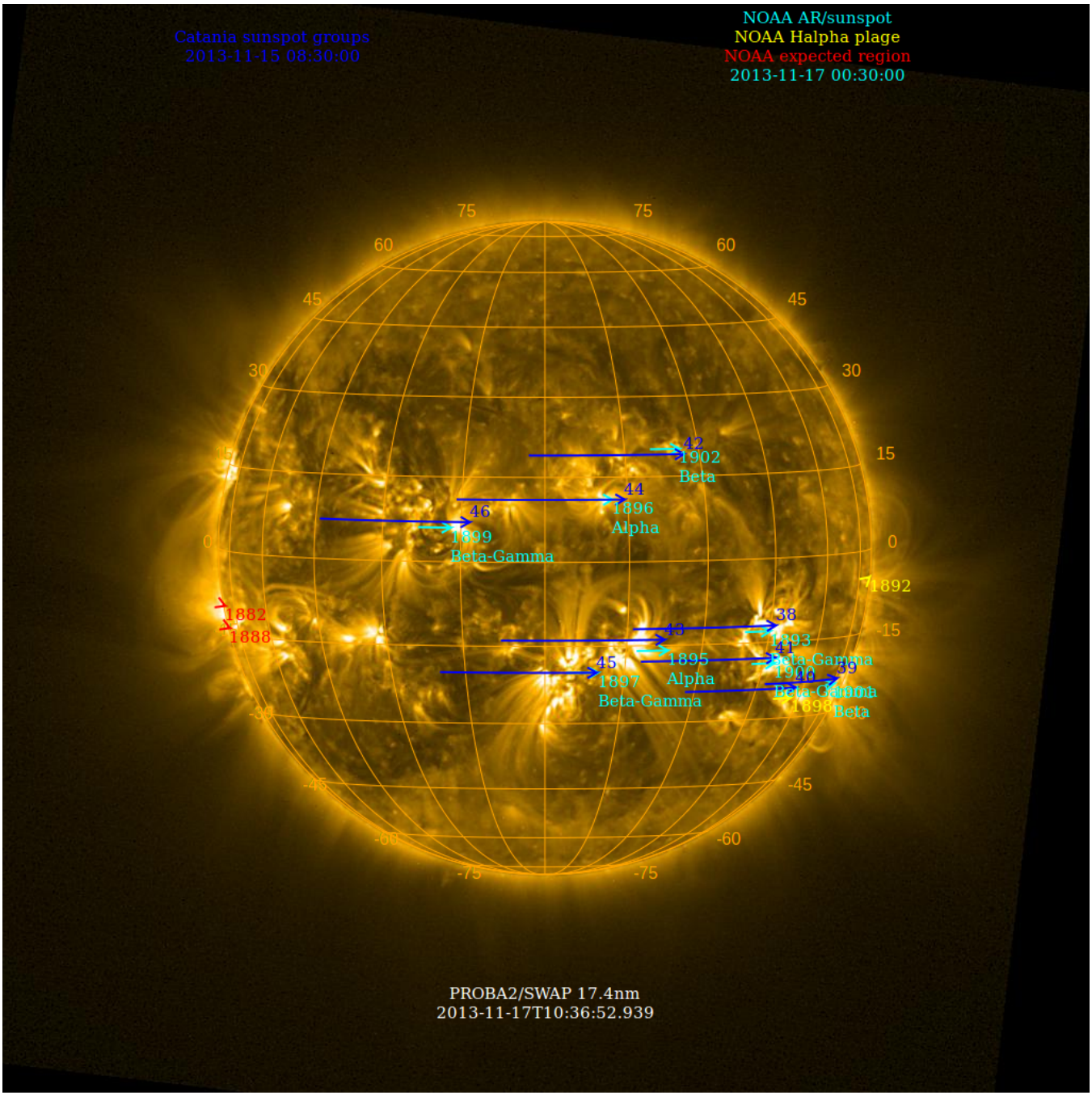
	Monday 11 Nov	Tuesday 12 Nov	Wednesday 13 Nov	Thursday 14 Nov	Friday 15 Nov	Saturday 16 Nov	Sunday 17 Nov
Activity	moderate	low	moderate	low	moderate	moderate	moderate
Flares	**M2.4@11:18**	**-**	**M1.4@15:20**	**-**	**M1.0@02:29**	**M1.6@07:49** **M1.2@04:53**	**M1.0@05:10**

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

The SWAP images of Nov 11 and Nov 17 are shown below, with annotated active regions.



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

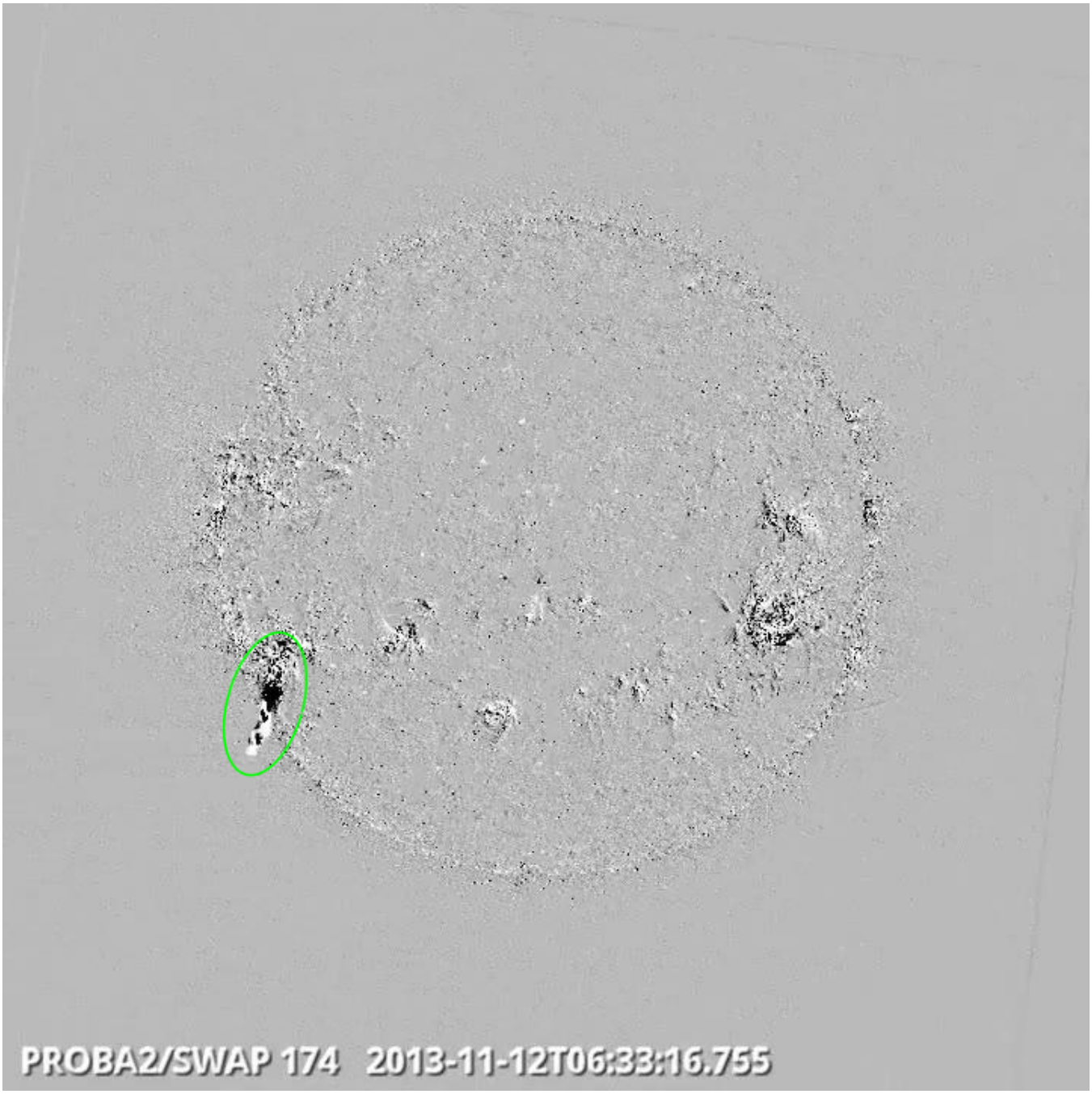

Catania sunspot groups
2013-11-15 08:30:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-11-17 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
42
1902
Beta
44
1896
Alpha
46
1899
Beta-Gamma
1892
1882
1888
38
43
1893
41
Beta-Gamma
1895
45
1900
39
Alpha
1897
Beta-Gamma
1898
Beta
PROBA2/SWAP 17.4nm
2013-11-17T10:36:52.939

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 190).

Details about some of this week's events, can be found further below.
The active region NOAA 1890 was particularly active on Wednesday Nov 13.

Tuesday Nov 12:



Failed eruption on southeast quad @ 06:33 - SWAP difference image
Find a movie of the event **here** (SWAP difference movie)

Thursday Nov 14:

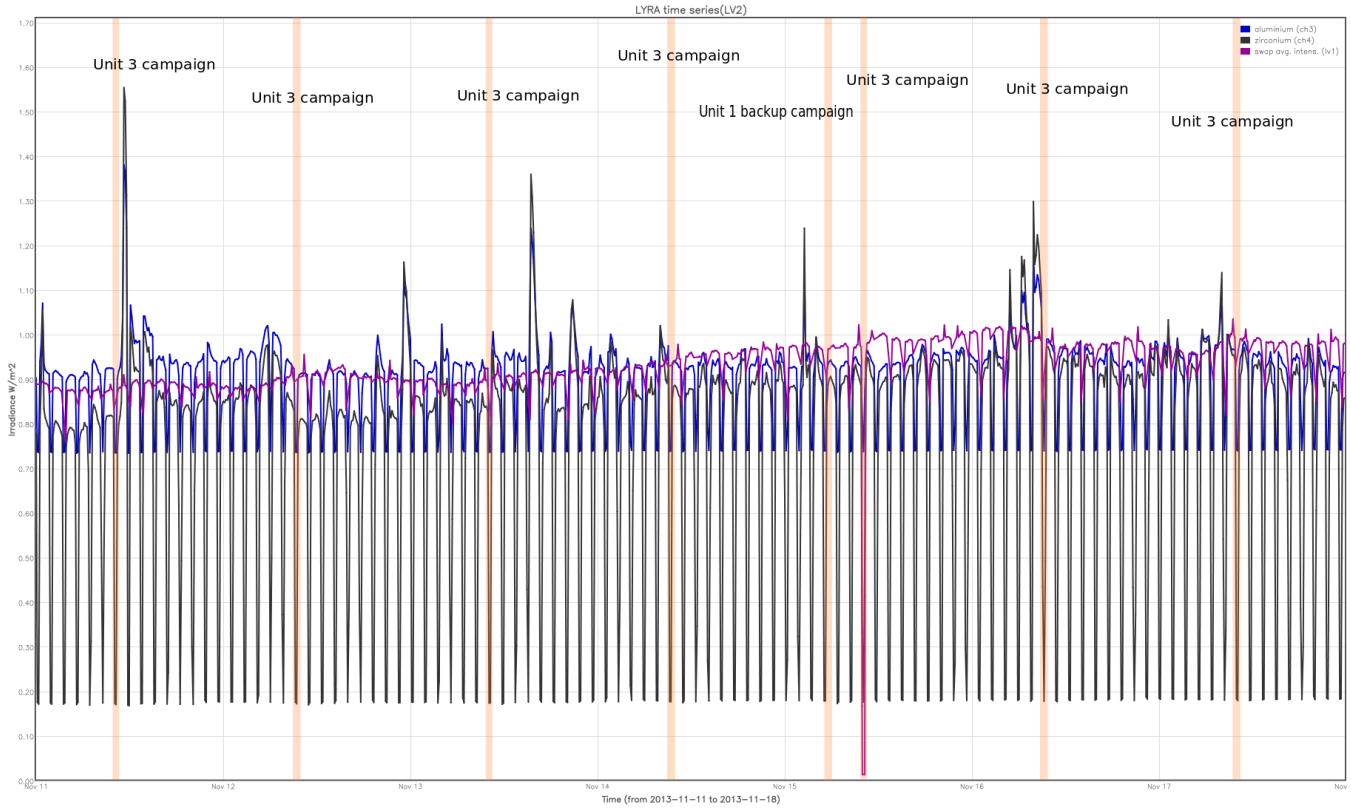
Flow on northeast Limb @ 16:24 - SWAP difference image
Find a movie of the event **here** (SWAP difference movie)

Sunday Nov17:

Eruption on southeast limb @ 13:45 - 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 orange shaded periods correspond to, from left to right:

- Daily unit 3 campaign, 4 times
- Unit 1 backup campaign
- Daily unit 3 campaign, 3 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).

L.A. Rachmeler presented the poster "From a double streamer to a pseudostreamer" At the Hinode7 meeting in Takayama Japan.

Guest Investigator Program

- Vida Zigma currently visiting on the GI program. Working with MD. Use a model with LYRA data to determine the ionisation increase in the ionosphere during flares.

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 11 Nov	Tuesday 12 Nov	Wednesday 13 Nov	Thursday 14 Nov	Friday 15 Nov	Saturday 16 Nov	Sunday 17 Nov
Nominal acquisition + daily U3 LYIOS00350	Nominal acquisition + daily U3 LYIOS00350	Nominal acquisition + daily U3 LYIOS00350	Nominal acquisition + daily U3 LYIOS00350	Nominal acquisition + daily U3 + U1 backup camapign LYIOS00352	Nominal acquisition + daily U3 LYIOS00352	Nominal acquisition + daily U3 LYIOS00352

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Unit 1 backup campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 42.5 and 45.9 °C, taking into account the daily U3 activation periods.

To be explored

- None

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 13809 to 14030.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 11 Nov	Tuesday 12 Nov	Wednesday 13 Nov	Thursday 14 Nov	Friday 15 Nov	Saturday 16 Nov	Sunday 17 Nov
Nominal acquisition IOS00481 578 images	Nominal acquisition IOS00481 590 images	Nominal acquisition IOS00483 574 images	Nominal acquisition IOS00483 585 images	Nominal acquisition IOS00484 618 images	Nominal acquisition IOS00484 579 images	Nominal acquisition IOS00484 545 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -2.7 and -0.8 °C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Koen Stegen.

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 12570 to 12627) 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 2013 Nov 11 0UT and 2013 Nov 18 0UT: 4094
Highest cadence in this period: 29 seconds
Average cadence in this period: 147.74 seconds
Number of image gaps larger than 300 seconds: 102
Largest data gap: 32.07 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)