


P2SC-ROB-WR-136-20121029 Weekly report #136	<b>P2SC Weekly report</b>	
Period covered: Date: Written by: Approved by:	Mon Oct 29 to Sun Nov 04, 2012 07 Nov 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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## 1. Science

### Solar & Space weather events

#### Overview

The level of solar activity<sup>1</sup> this week and associated M- and X-flares:

	Monday 29 Oct	Tuesday 30 Oct	Wednesday 31 Oct	Thursday 01 Nov	Friday 02 Nov	Saturday 03 Nov	Sunday 04 Nov
Activity	very low	very low	low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

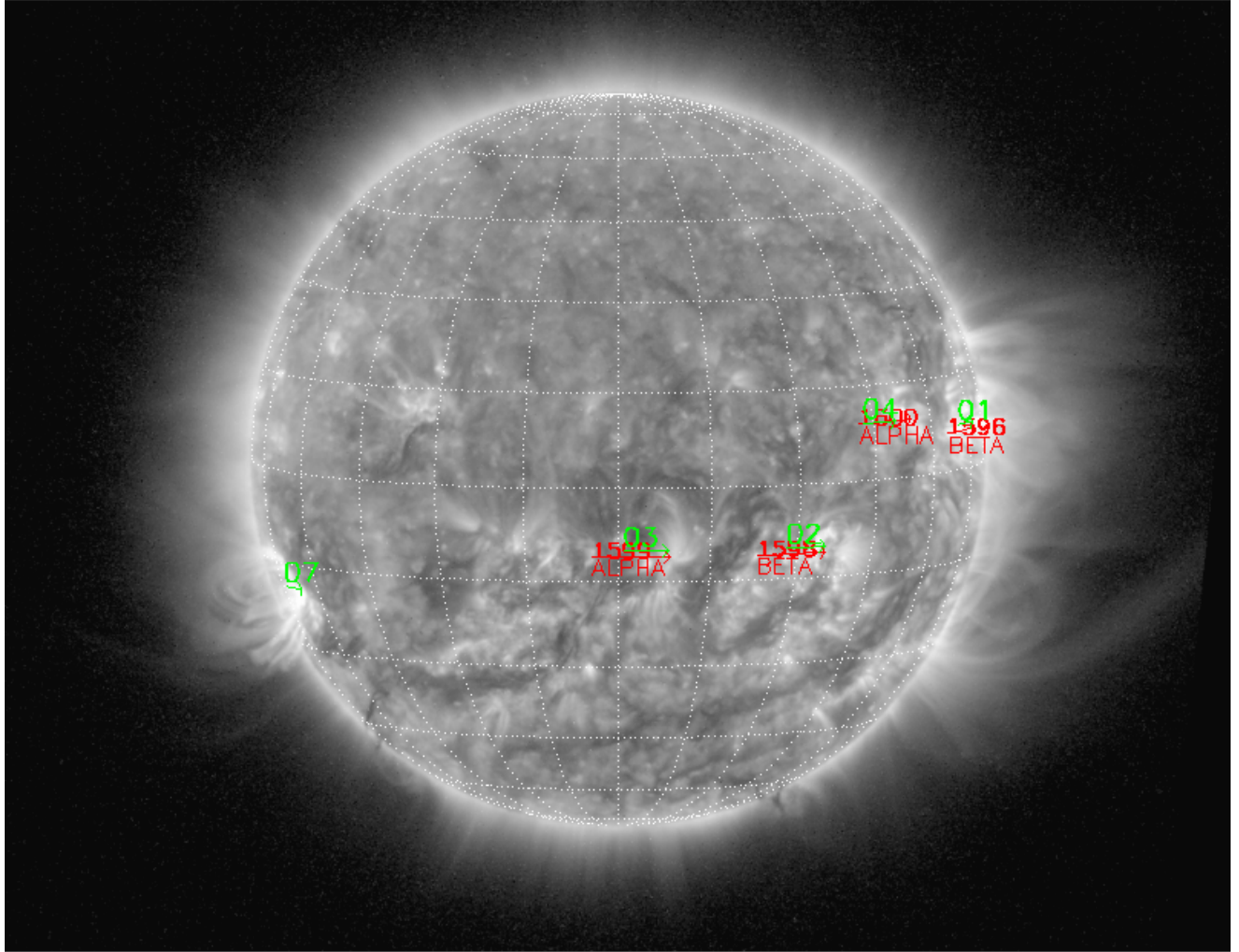
The SWAP images of Oct 29 and Nov 04 are shown below, with annotated active regions.

<sup>1</sup> See appendix. All timings are given in UT.

Catania sunspot groups

2012-10-29T10:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2012-10-29T00:30

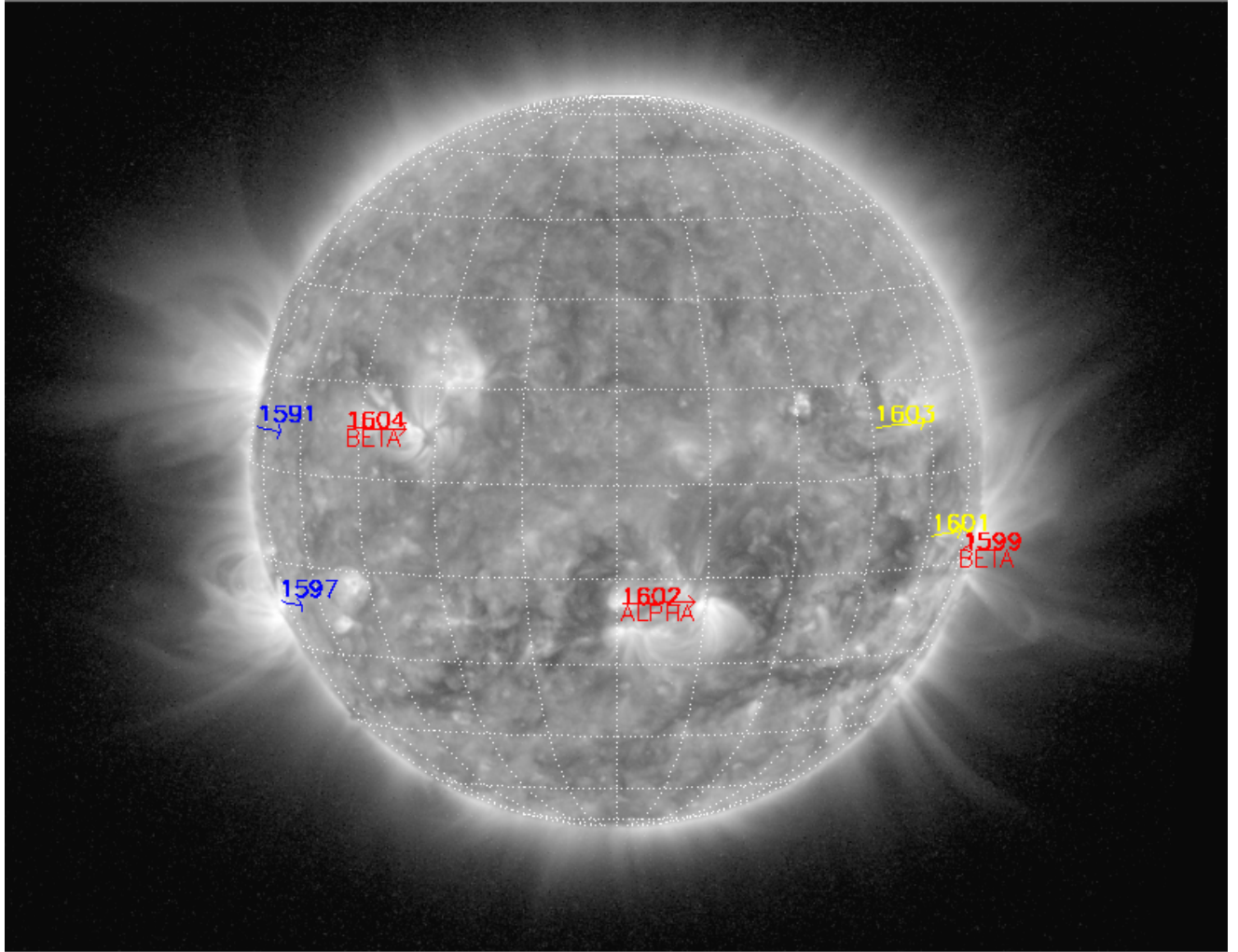


PROBA2/SWAP 17nm  
2012-10-29T22:46:28.905

<http://sidc.be/html/CmapPage.html>

No recent Catania data available

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2012-11-04T00:30



PROBA2/SWAP 17nm  
2012-11-04T22:35:34.788

## Solar Activity

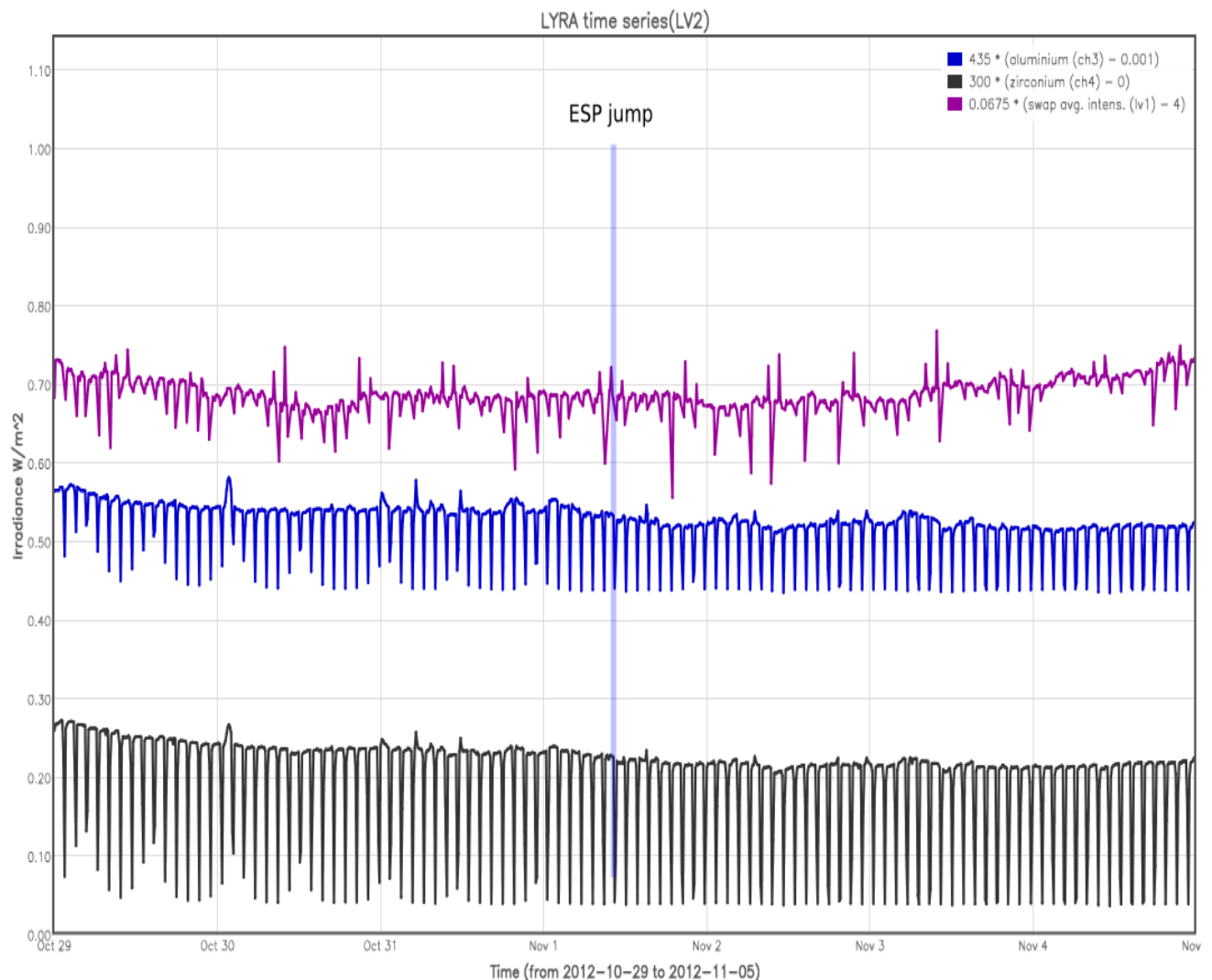
This week, the Sun's activity level was very low. The largest flare was a mere C1.2 on Wednesday, originating from NOAA active region 1596.

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.

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 (solar intensity derived from 'integrated' SWAP images)



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

- ESP experiment on Thursday

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

- None

The red shaded period corresponds to:

- None

### **Outreach, papers, presentations, etc.**

Please also 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 document is adapted/published (weekly) in the STCE Newsletter (<http://www.stce.be/newsletter/newsletter.php>).

### **Guest Investigator Programme**

Currently there are no guest investigators at P2SC.

## 2. LYRA instrument status

### Calibration

No calibration, this week.

### IOS & operations

Monday 29 Oct	Tuesday 30 Oct	Wednesday 31 Oct	Thursday 01 Nov	Friday 02 Nov	Saturday 03 Nov	Sunday 04 Nov
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition+ daily U3	Nominal acquisition+ daily U3
LYIOS00279	LYIOS00279	LYIOS00279	LYIOS00280	LYIOS00280	LYIOS00280	LYIOS00280

- Except for the daily U3 campaign, no particular science campaigns this week.

### LYRA detector temperature

LYRA detector 2 temperature fluctuated between 49.6 and 51.4 degrees, including the daily U3 activation periods. The latter result in a temperature increase of about 0.4 degrees.

### To be explored

/

### 3. SWAP instrument status

<p><b>Calibration</b></p> <p>No calibration, this week.</p>																											
<p><b>MCPM errors</b></p> <p>The number of MCPM recoverable errors increased from 4489 to 4772.</p> <p>The number of MCPM unrecoverable errors remained constant at 1127.</p>																											
<p><b>IOS &amp; operations</b></p> <table border="1"> <thead> <tr> <th>Monday 29 Oct</th> <th>Tuesday 30 Oct</th> <th>Wednesday 31 Oct</th> <th>Thursday 01 Nov</th> <th>Friday 02 Nov</th> <th>Saturday 03 Nov</th> <th>Sunday 04 Nov</th> </tr> </thead> <tbody> <tr> <td>Nominal acquisition</td> <td>Nominal acquisition</td> <td>Nominal acquisition</td> <td>Nominal acquisition + ESP</td> <td>Nominal acquisition</td> <td>Nominal acquisition</td> <td>Nominal acquisition</td> </tr> <tr> <td>IOS00420 462 images</td> <td>IOS00421 611 images</td> <td>IOS00421 597 images</td> <td>IOS00421 590 images</td> <td>IOS00421 617 images</td> <td>IOS00422 601 images</td> <td>IOS00422 582 images</td> </tr> </tbody> </table> <p>Special operations for SWAP, this week:</p> <ul style="list-style-type: none"> <li>- Occultation jumps</li> <li>- ESP campaign</li> </ul>							Monday 29 Oct	Tuesday 30 Oct	Wednesday 31 Oct	Thursday 01 Nov	Friday 02 Nov	Saturday 03 Nov	Sunday 04 Nov	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition + ESP	Nominal acquisition	Nominal acquisition	Nominal acquisition	IOS00420 462 images	IOS00421 611 images	IOS00421 597 images	IOS00421 590 images	IOS00421 617 images	IOS00422 601 images	IOS00422 582 images
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<p><b>SWAP detector temperature</b></p> <p>The SWAP Cold Finger Temperature, under nominal operations, increased generally, fluctuating between 1.83 and 3.11 degrees Celsius.</p> <p>LAR delays were missed on the following occasions:</p> <ul style="list-style-type: none"> <li>- None</li> </ul> <p>causing each time a temporary increase of temperature of an estimated 0.6-0.7 degrees.</p>																											
<p><b>To be explored</b></p> <p>/</p>																											

### 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 9331 to 9390) was nominal, except for:

- None

### Data coverage HK

All HK data files (LYRA\_AD) have been received, except for:

- None

### Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for:

- None

Total number of images between 2012 Oct 29 0UT and 2012 Nov 05 0UT: 4060

Highest cadence in this period: 110 seconds

Average cadence in this period: 148.98 seconds

Number of image gaps larger than 300 seconds: 102

Largest data gap: 33.67 minutes

The large gap is due to the ESP experiment on Thursday.

The number of (smaller) gaps is due to the implementation of the SWAP occultation jumps.

### Data coverage LYRA

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

- 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
EIT	Extreme ultraviolet Imaging Telescope
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System
HAS	High Accuracy Star tracker
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
OBET	On board Elapsed Time
OBSW	On board Software
PE	Proximity Electronics
PI	Principal Investigator
P2SC	PROBA2 Science Center
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SEU	Single Event Upset
SOHO	Solar and Heliospheric Observatory
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

## **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)
- (+ extreme?)