


P2SC-ROB-WR-149- 20130128 Weekly report #149	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jan 28 to Sun Feb 03, 2013 06 Feb 2013 Erik Pylyser & Matthew J. West David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

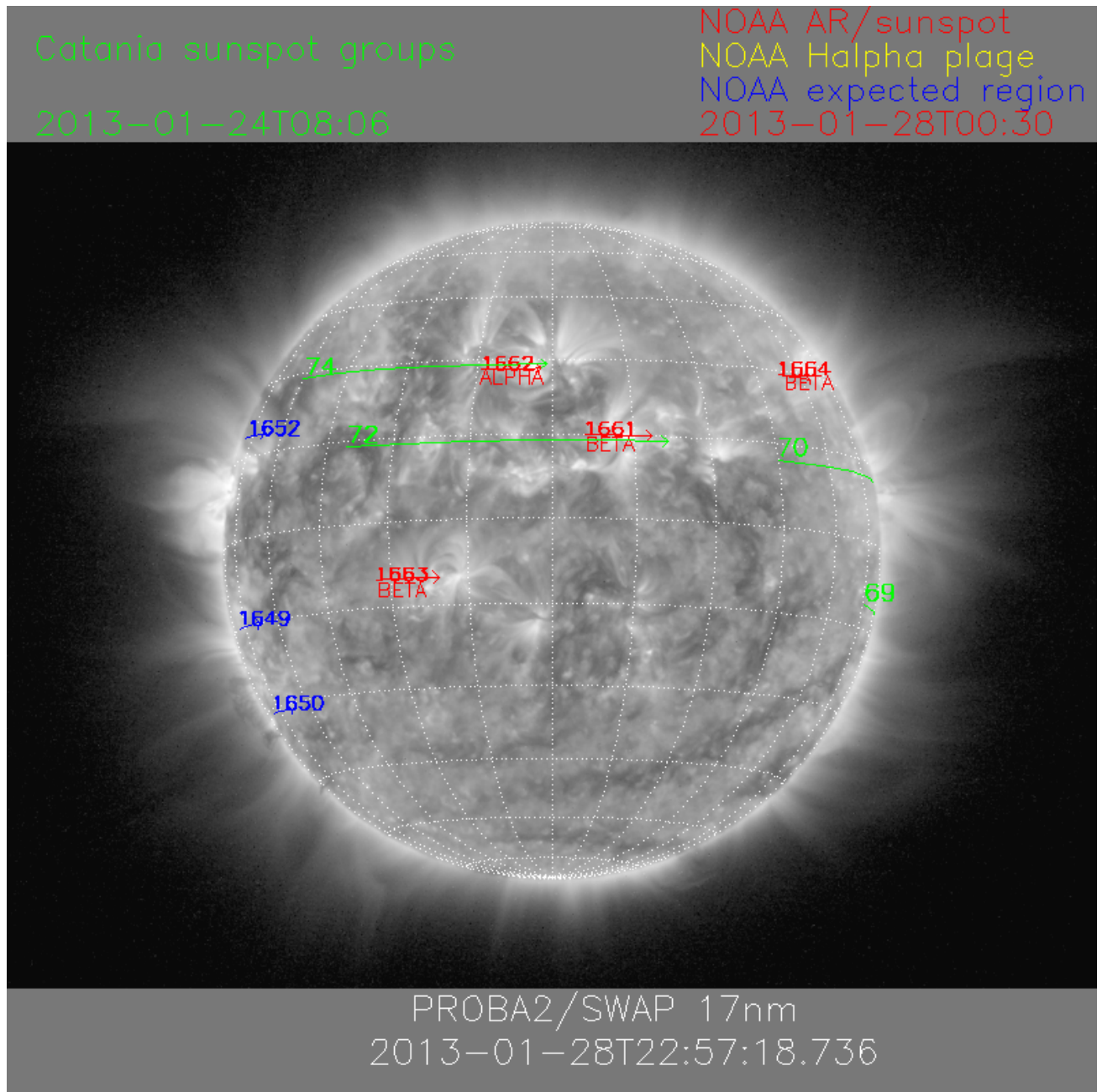
Solar & Space weather events

The level of solar activity¹ this week. Only M- and X-flares are mentioned, the most energetic one(s) are presented in **bold**:

	Monday 28 Jan	Tuesday 29 Jan	Wednesday 30 Jan	Thursday 31 Jan	Friday 01 Feb	Saturday 02 Feb	Sunday 03 Feb
Activity	low	very low	very low	low	very low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

The SWAP images of January 28 and February 03 are shown below, with annotated active regions.

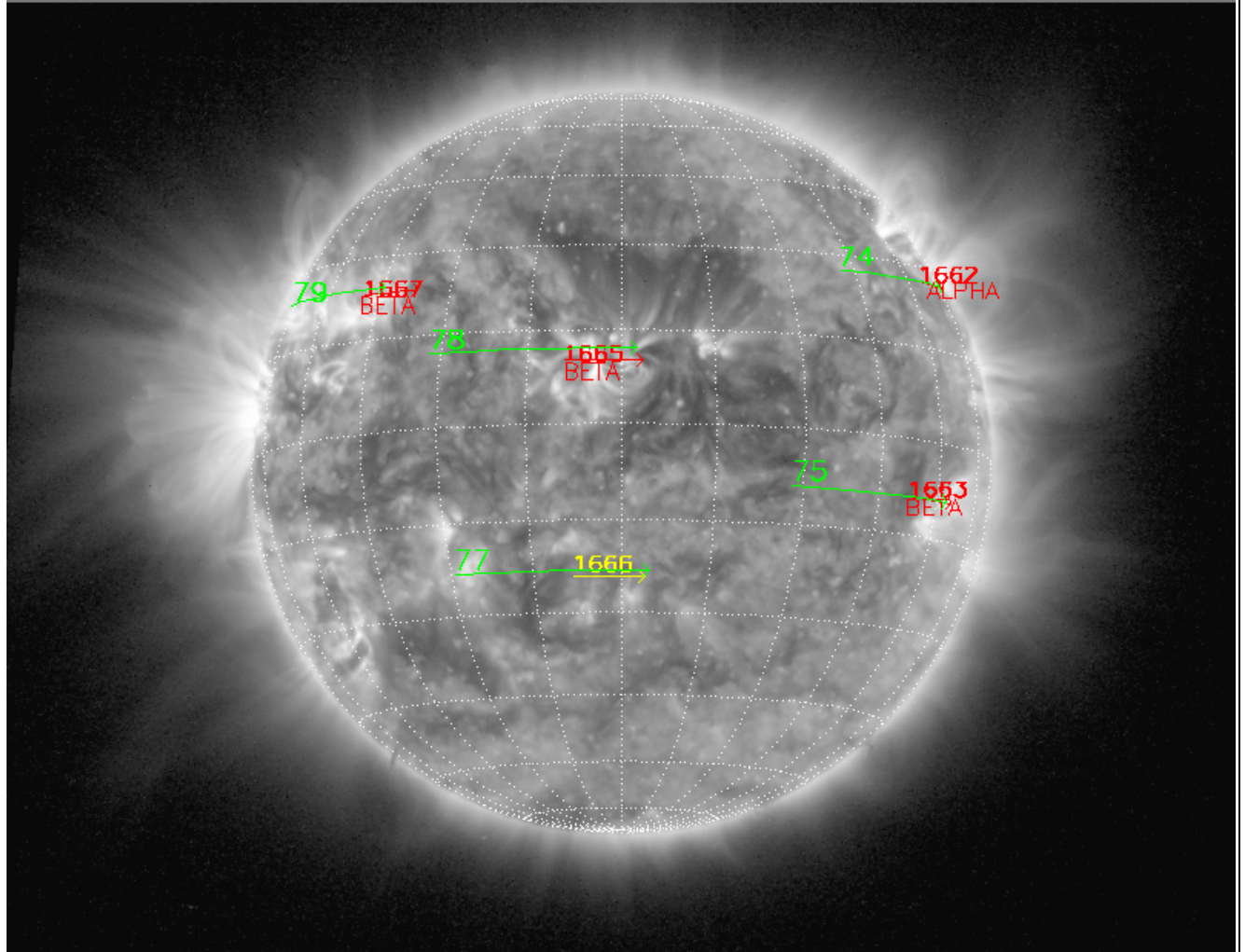


<http://sidc.be/html/CmapPage.html>

Catania sunspot groups

2013-02-1T08:36

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-02-03T00:30



PROBA2/SWAP 17nm
2013-02-03T22:48:17.794

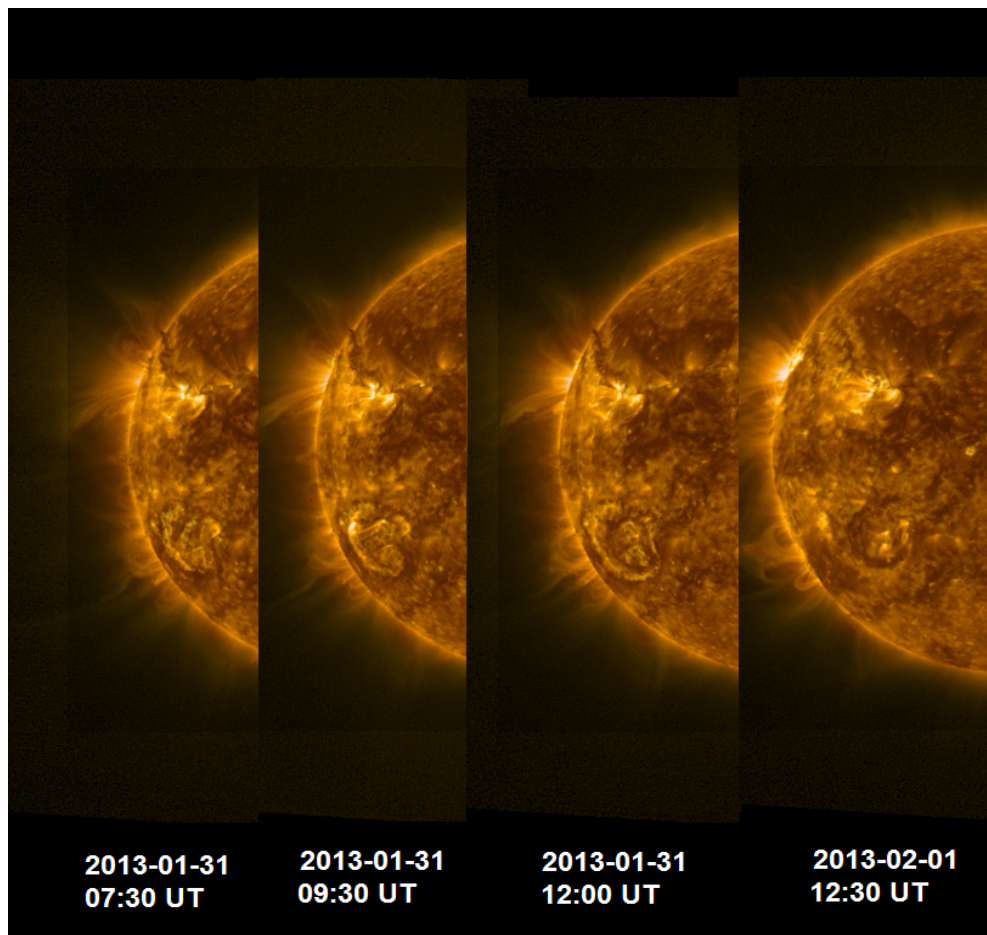
Solar Activity

It was a very calm week on the Sun. With 15 B class flares and 5 C class flares. with NOAA ARs 1660, 1663 and 1665 being most active.

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](#) (SWAP174/AIA304 combination; HelioViewer.org). Details about some of the events in this movie can be found further below.

1. Eruption in AR1650 on Thursday 31st Jan, creating interesting EIT wave/dimming.

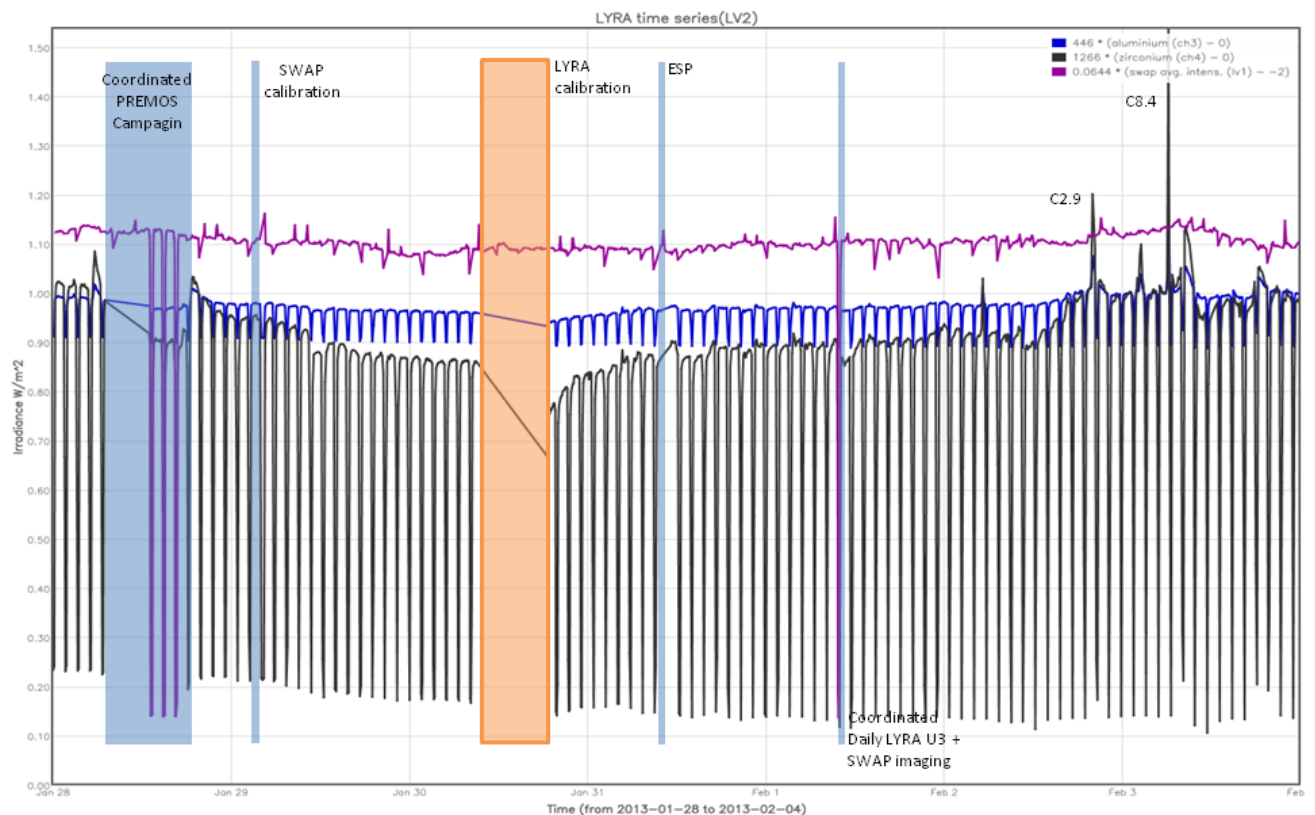


SWAP SDO Prominence image.

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:

- Coordinated imaging campaign with LYRA U1 & U3/PREMOS occultation campaign on Monday.
- SWAP calibration on Tuesday
- ESP experiment on Thursday
- Coordinated imaging campaign with LYRA daily U3 campaign on Friday.

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

- LYRA calibration on Wednesday

The red shaded period corresponds to:

- None

Outreach, papers, presentations, etc.

- PROBA 2 guest investigator, Muzhou Lu (Williams University, USA), gave a short presentation on Friday. He talked about the work he has been performing at ROB over the past few weeks. Muzhou has been working on "Observations and Modeling of Solar Coronal Structures Using High-Resolution Eclipse and SWAP Images."

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.

Guest Investigator Program

Guest Investigator Muzhou Lu arrived at P2SC on January 03, 2013. He stayed until February 2nd, 2013. The topic of his program was 'Observations and Modeling of Solar Coronal Structures Using High-Resolution Eclipse Images and Space-based telescopes with Wide FOV'.

2. LYRA instrument status

Calibration

LYRA calibration on Wednesday.

IOS & operations

Monday 28 Jan	Tuesday 29 Jan	Wednesday 30 Jan	Thursday 31 Jan	Friday 01 Feb	Saturday 02 Feb	Sunday 03 Feb
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00303	LYIOS00303	LYIOS00304	LYIOS00304	LYIOS00304	LYIOS00304	LYIOS00305

The following science campaigns were performed by LYRA:

- Coordinated measurement campaign with LYRA U1 & U3/PREMOS occultation campaign (including SWAP) on Monday.
- the daily U3 campaign.

LYRA detector temperature

LYRA detector 2 temperature globally increased between 47.0 and 52.5 degrees C, including the data during the U3 activation periods. The latter result in a temperature increase of about 0.4 degrees C. During calibration, temperature decreased to 48.8 degrees C.

To be explored

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3. SWAP instrument status

Calibration

SWAP Calibration on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 6192 to 6489

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 28 Jan	Tuesday 29 Jan	Wednesday 30 Jan	Thursday 31 Jan	Friday 01 feb	Saturday 02 Feb	Sunday 03 Feb
Nominal acquisition + special occultation campaign w PREMOS & SWAP	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + ESP	Nominal acquisition + SWAP/LYRA coord. camp.	Nominal acquisition	Nominal acquisition
IOS00447 606 images	IOS00447 540 images	IOS00448 535 images	IOS00448 469 images	IOS00448 588 images	IOS00448 604 images	IOS00448 519 images

Special operations for SWAP, this week:

- Coordinated measurement campaign with LYRA U1 & U3/PREMOS occultation campaign (including SWAP) on Monday.
- Occultation jumps
- ESP jump
- Coordinated imaging campaign with LYRA daily U3 campaign on Friday.

SWAP detector temperature

The SWAP Cold Finger Temperature, under nominal operations, increased overall, fluctuating between 0.4 and 3.6 degrees Celsius.

To be explored

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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 10099 to 10156) 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 2013 Jan 28 0UT and 2013 Feb 03 0UT: 4042

Highest cadence in this period: 29 seconds

Average cadence in this period: 149.46 seconds

Number of image gaps larger than 300 seconds: 101

Largest data gap: 56.80 mins

The large gap is due to the ESP jump in combination with an occultation jump 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
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

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?)