

THE SIDC

A EUROPEAN PREDICTION CENTER

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Royal Observatory of Belgium





THE SOLAR INFLUENCES DATA ANALYSIS CENTER

The SIDC is a team of about 40 people at the ROYAL OBSERVATORY OF BELGIUM, located in the green outskirts of Brussels.

SIDC RUNS A CHAIN OF SPACE WEATHER ACTIVITIES

Solar Observations in space and on the ground



Automated data analysis for fast event identification

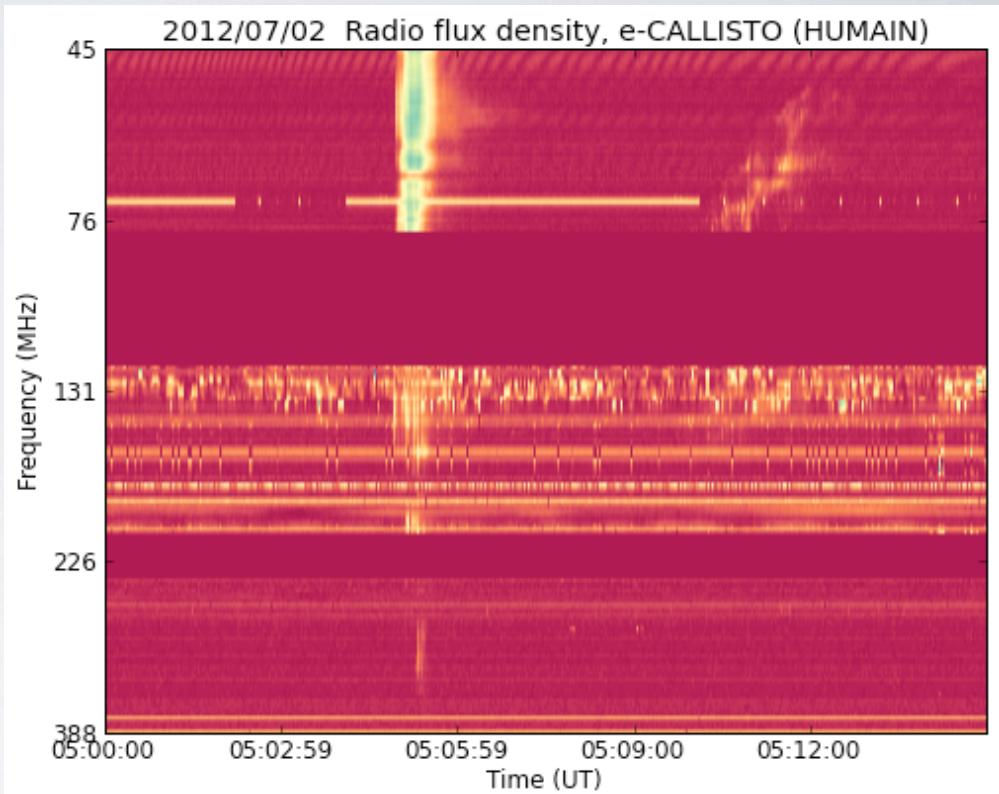
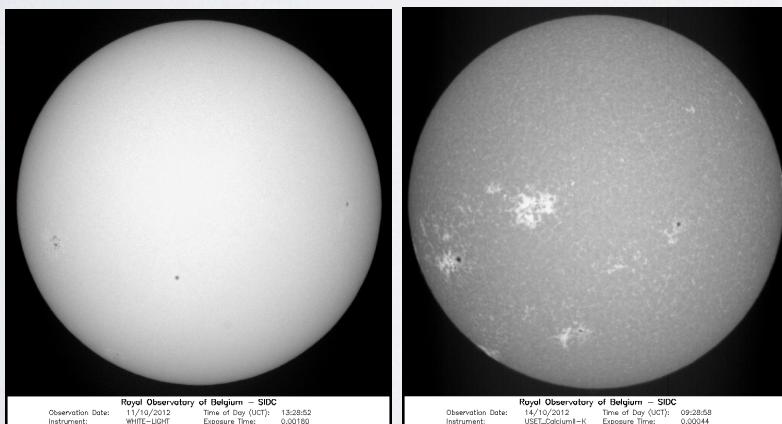


Space weather operations



Dissimmenation of space weather expertise

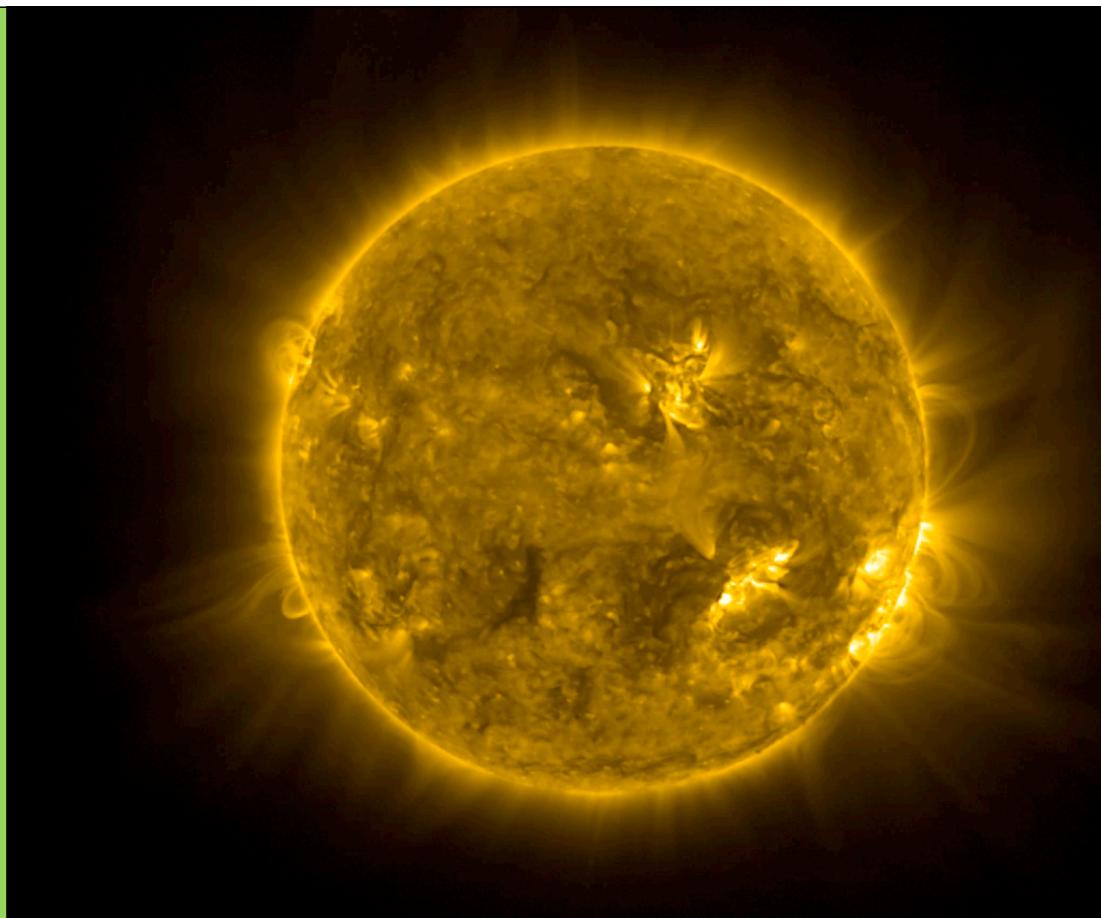
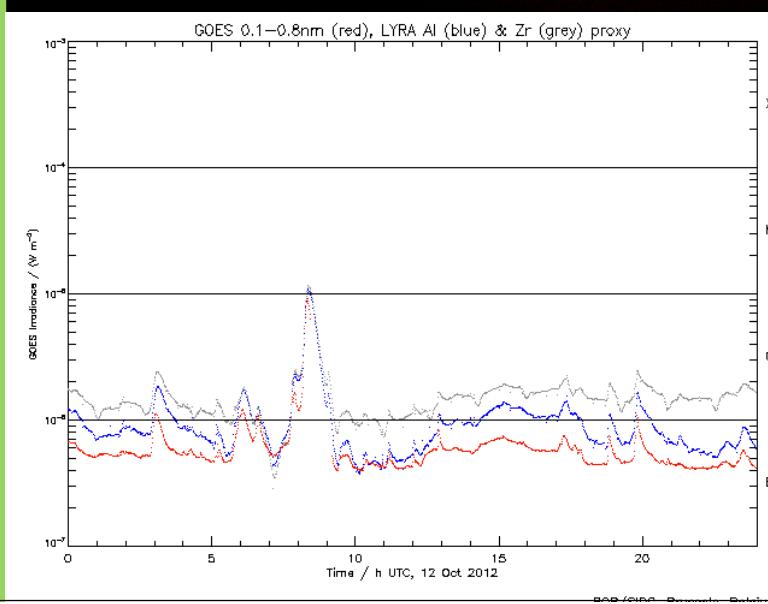
SIDC OBSERVES THE SUN FROM THE GROUND IN THE VISIBLE LIGHT AND RADIO



<http://sidc.be/uset>

<http://sidc.be/humain>

Solar Observations in space



SIDC Operates
the SWAP and
LYRA instruments
onboard PROBA2



<http://sidc.be/proba2>

COMPUTER AIDED CME TRACKING (CACTus)

CACTus 2.50
A software package for 'Computer Aided CME Tracking'

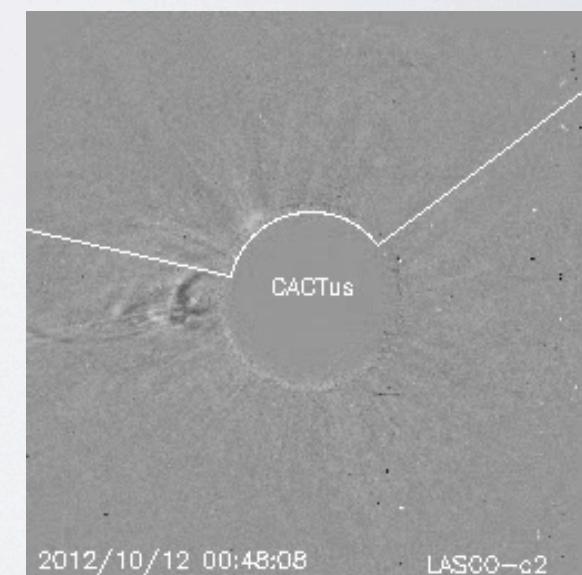
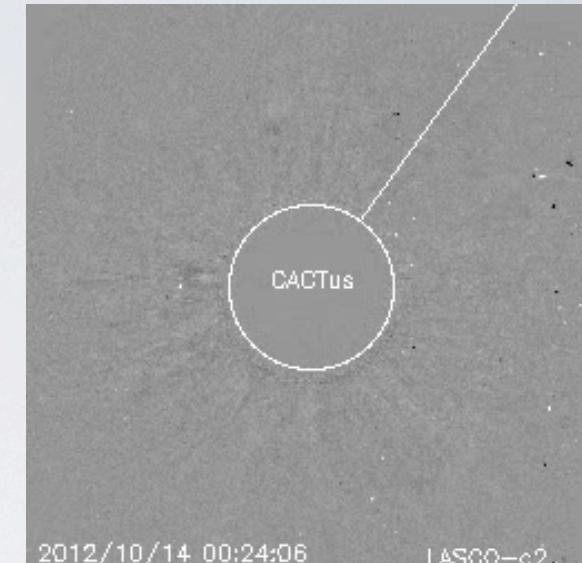
CMEs detected by Cactus

```

:Issued: Sun Oct 14 13:59:31 2012
:Product: CACTus catalogue (http://sidc.be/cactus)
#-----
# Instrument: LASCO | Detector: c2 # Instrument: LASCO | Detector: c3
# Threshold : 0.30 | Factor : 2 | Minimal CME width: 5
#
# first c2: 2012/10/08 00:12:06.390 23457795.fits
# last c2: 2012/10/14 07:36:06.646 23458503.fits
# first c3: 2012/10/08 00:18:06.386 33331992.fits
# last c3: 2012/10/14 12:18:07.261 33332666.fits
#
#-----
# Output: Detected cmemap with the following characteristics:
#
#   CME: CME number
#   Flow: Flow number. Flows are suspicious detections, their color in the detectionmap is dark blue
#   t0: onset time, earliest indication of liftoff
#   dt0: duration of liftoff (hours)
#   pa: principal angle, counterclockwise from North (degrees)
#   da: angular width (degrees),
#   v: median velocity (km/s)
#   dv: variation (1 sigma) of velocity over the width of the CME
#   minv: lowest velocity detected within the CME
#   maxv: highest velocity detected within the CME
#   halo?: II if da>90, III if da>180, IV if da>270, indicating potential halo/partial halo CME
#
#-----
```

# CME	t0	dt0	pa	da	v	dv	minv	maxv	halo?
0032	2012/10/14 02:24	02	099	084	1487	0242	1201	1953	
0031	2012/10/14 01:25	04	144	360	1077	0503	0156	1953	IV
0030	2012/10/12 15:48	01	240	010	0410	0023	0367	0425	
0029	2012/10/12 13:36	01	306	026	0650	0550	0150	1689	
0028	2012/10/12 12:24	02	311	020	0068	0221	0044	0612	
0027	2012/10/12 10:36	01	112	010	0140	0005	0140	0150	
0026	2012/10/12 09:36	01	209	016	0672	0139	0428	0856	
0025	2012/10/12 09:36	02	299	052	0436	0234	0139	1059	
0024	2012/10/12 08:24	01	132	010	0248	0225	0143	0735	
0023	2012/10/12 02:00	10	012	130	0284	0089	0134	0453	II
0022	2012/10/11 19:36	02	074	050	0284	0105	0137	0496	
0021	2012/10/11 19:00	01	316	022	0150	0016	0137	0183	
0020	2012/10/11 16:36	01	058	026	0400	0224	0140	0834	
0019	2012/10/11 05:12	02	309	012	0431	0263	0142	0919	
0018	2012/10/11 05:00	01	050	006	0392	0201	0145	0709	
0017	2012/10/11 03:36	01	117	012	0304	0535	0122	1358	
0016	2012/10/11 00:00	02	311	016	0130	0012	0105	0140	
0015	2012/10/10 06:00	01	324	038	0416	0232	0133	0905	
0014	2012/10/10 03:24	01	172	006	0484	0354	0137	1096	
0013	2012/10/10 03:24	00	093	008	0367	0137	0138	0499	
0012	2012/10/10 03:24	01	205	024	0421	0025	0363	0452	
0011	2012/10/10 03:24	01	171	008	0236	0664	0138	1488	
0010	2012/10/10 02:48	03	317	028	0844	0466	0136	1953	
0009	2012/10/10 01:48	00	096	010	1608	0411	0791	1954	
0008	2012/10/10 00:36	00	087	008	0731	0025	0726	0781	
0007	2012/10/09 13:36	01	093	016	0315	0108	0148	0425	
0006	2012/10/09 08:36	02	344	010	0205	0063	0133	0309	
0005	2012/10/09 08:24	01	056	062	0178	0039	0129	0250	
0004	2012/10/09 07:48	01	036	014	0644	0632	0134	1785	
0003	2012/10/09 07:48	01	011	020	1157	0360	0718	1894	
0002	2012/10/09 00:48	02	159	020	0615	0027	0595	0664	

<http://sidc.be/cactus>

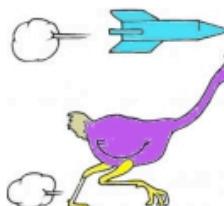


SoFAST Diagnostics

sidc.be/sofast

SSA Radio Science @ STCE beursduivel.be David Bergh...r Citations Appelboom ...m Auctions The Top 5 Fr... Cirtex Blog

SoFAST Diagnostics



SoFAST 1.2.0

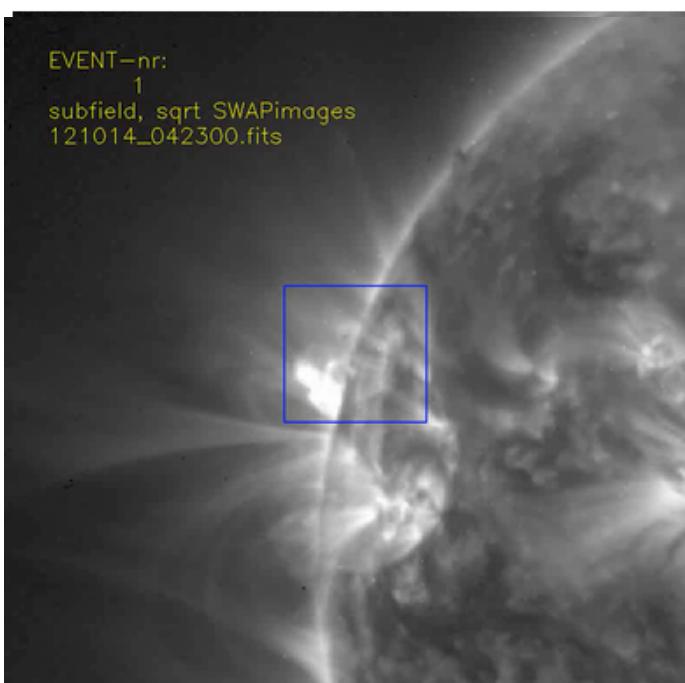
The "Solar Flare Automated Search Tool"

Details and graphs for EUVflare_001

# EUV FLARE	date	start	end	quadrant	size	#images	EUV-significance
001	2012-10-14	04:23	04:49	NE	001	008	007 %

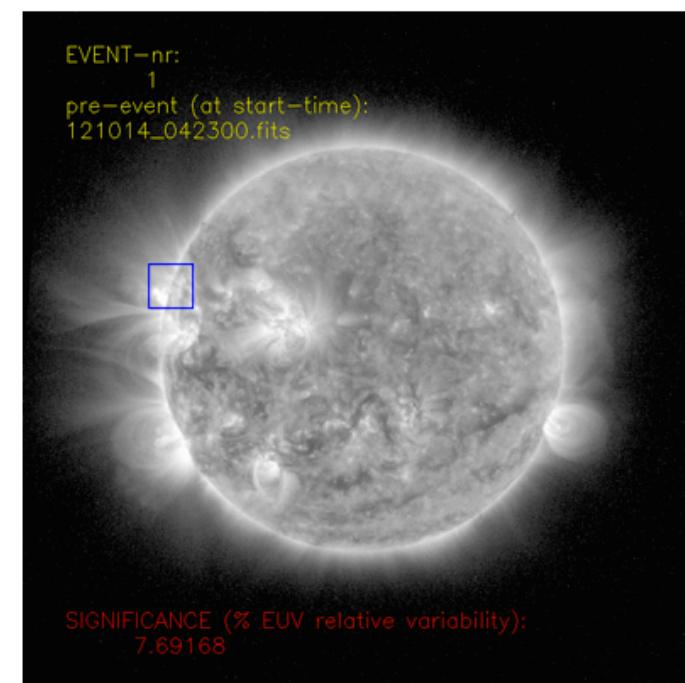
EUV flare Movie :: [Enlarge and/or Download](#) ::

EVENT-nr:
1
subfield, sqrt SWAPimages
121014_042300.fits



Sample Image

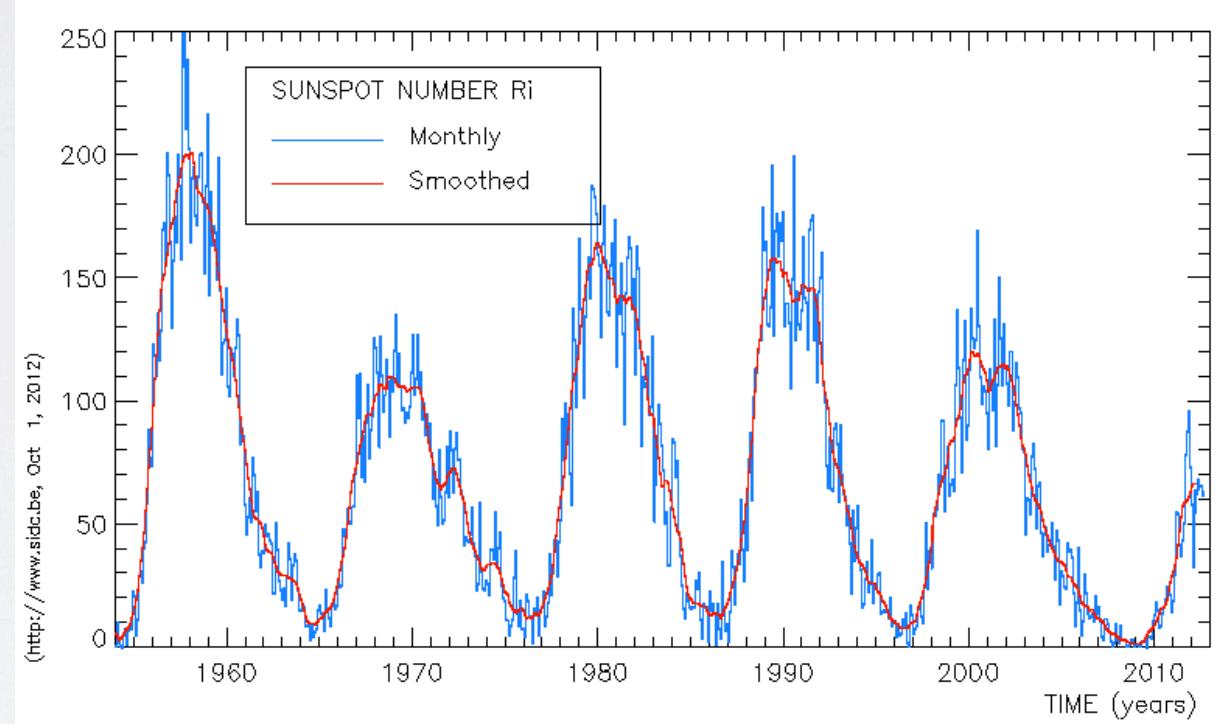
EVENT-nr:
1
pre-event (at start-time):
121014_042300.fits



SIGNIFICANCE (% EUV relative variability):
7.69168



SIDC PRODUCES THE INTERNATIONAL SUNSPOT INDEX



<http://sidc.be/silso>

Space weather operations at SIDC



Issued: 2010 Dec 07 1233 UTC
Product: documentation at <http://www.sidc.be/products/mew>

DAILY BULLETIN ON SOLAR AND GEOMAGNETIC ACTIVITY from the SIDC #
(RWC Belgium) #
#-----#
SIDC URSGRAM 01207
SIDC SOLAR BULLETIN 01207
SIDC FORECAST (valid from 1230UT, 07 Dec 2010 until 09 Dec 2010)
SOLAR FLARES : Quiet conditions (<50% probability of C-class flares)
GEOMAGNETISM : Quiet (A<20 and K<4)
SOLAR PROTONS : Quiet
PREDICTIONS FOR 07 Dec 2010 10CM FLUX: 089 / AP: 002
PREDICTIONS FOR 08 Dec 2010 10CM FLUX: 089 / AP: 004
PREDICTIONS FOR 09 Dec 2010 10CM FLUX: 090 / AP: 006
CONTENT: The large filament on the south-east side of the Sun has erupted yesterday afternoon around 15:35 UT. This was clearly observed in PROBA2/SWAP and SDO/AIA data. Also STEREO/A COR2 images show the event, starting at 18:54 UT. The direction of the associated CME suggest the impact of the CME will be limited. The CME speed as measured by CME-3D is ~550 km/s.
We expect quiet days. A shock in the coming days. There may be a solar wind change. The unsettled period due to a sector boundary in PROBA2/SWAP and SDO/AIA data. Also STEREO/A COR2 images show the event, starting at 18:54 UT. The direction of the associated CME suggest the impact of the CME will be limited. The CME speed as measured by CME-3D is ~550 km/s.

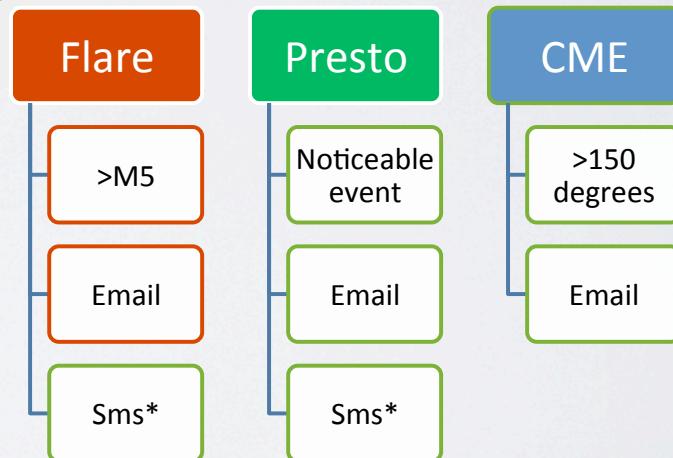
Issued: 2010 Mar 14 1304 UTC
Product: documentation at <http://www.sidc.be/products/presto>

FAST WARNING 'PRESTO' MESSAGE from the SIDC (RWC-Belgium) #
A halo CME starting most probably from NOAA AR 11054 (there is an EIT data gap that prevents more definitive conclusions) have been seen on LASCO-C2 at 01:31 UT, it is a fast one according to CACTUS (1656 km/s). It is expected to arrive to the Earth on March 17-18.

Issued: 2007 Jun 04 0551 UTC
Product: documentation at <http://www.sidc.be/products/flaremail>

Large flare alerts from the SIDC (RWC-Belgium), detected in GOES X-ray data #
X-ray data #
An X1.0 solar X-ray flare occurred on 2007/06/04 with peak time #
UT #
Influences Data analysis Center - RWC Belgium
Observatory of Belgium
32 (0) 2 373 0 224
32 (0) 2 373 0 491
more information, see <http://www.sidc.be>. Please do not reply directly to this message, but send comments and suggestions to 'sidctech@oma.be'. If you are unable to use that address, use 'rvdlinde@spd.aas.org' instead.

- Daily @12:30UT
- Email
- Fixed format – software readable
- Free and Complete information



>1400 registered users

<http://sidc.be/products/>

Organization of European Space Weather week (since 2006)



**November 5 - 9, 2012
Brussels, BELGIUM**

Thematic focus on

- Space Weather in Europe
- Innovations & Challenges in Space Weather Science
- Solar Variability Effects on Climate
- Coupled Space Weather Modelling
- Spacecraft Operations and Space Weather
- Space Weather in the Solar System
- COST ES0803 Final results

www.stce.be/esww9

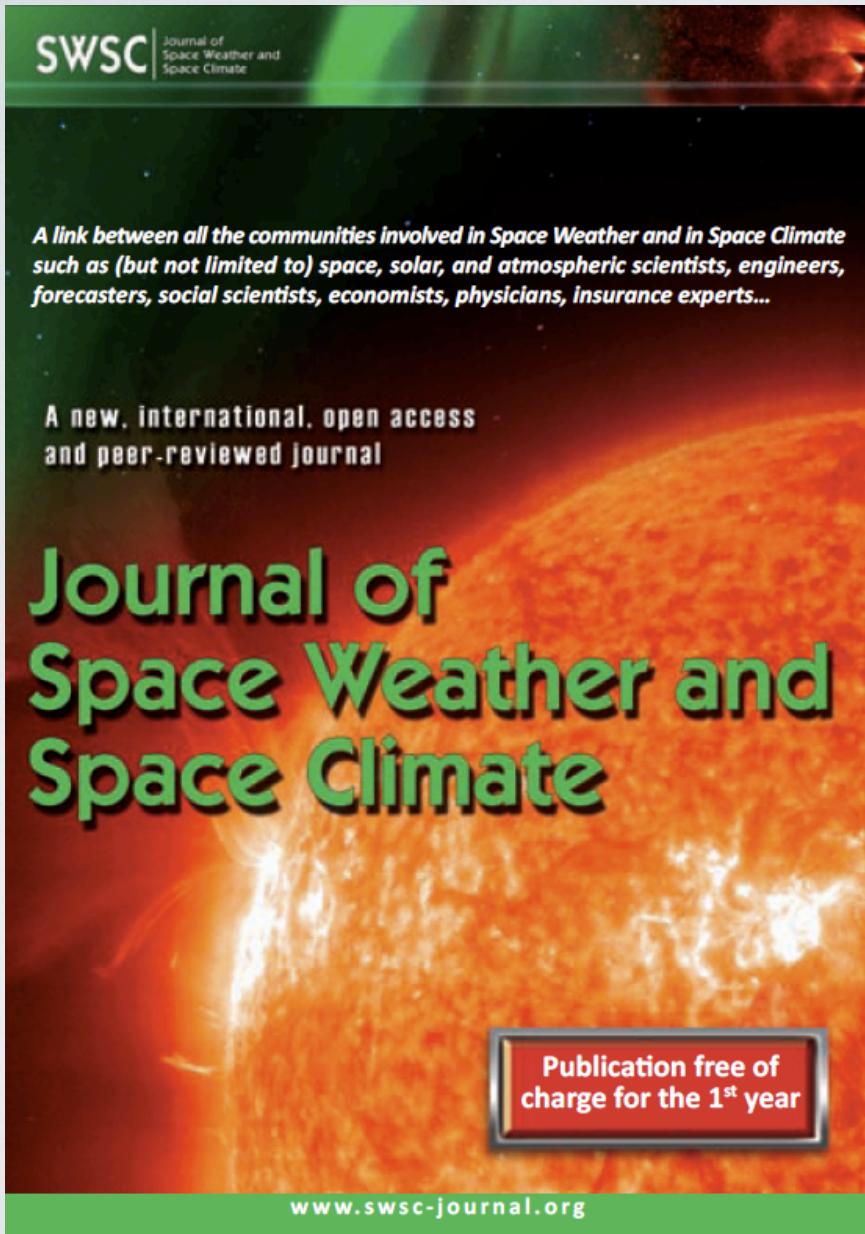
Programme Committee
A. Belehaki (Co-Chair, NOA & COST ES0803), A. Glover (Co-Chair, ESA), M. Hapgood (RAL/STFC & COST ES0803), J.-P. Luntama (ESA, SSA), R. Van der Linden (STCE & COST ES0803), P. Vanlommel (STCE & COST ES0803 & eHEROES), B. Zolesi (INGV), M. Messerotti (INAF & COST ES0803), V. Zigman (UNG & COST ES0803), M. Meier (DLR), N. Crosby (SWWT chair, BIRA-IASB), J. Watermann (ifwConsult & COST ES0803), M. Wik (Neurospace), S Bruinsma (CNES)

Local Organisation
Solar-Terrestrial Centre of Excellence, Belgium



<http://sidc.be/esww9/>

Dissimilation of space weather expertise



SIDC hosts the editorial office



<http://www.swsc-journal.org>

Solar Observations in space and on the ground

Automated data analysis for fast event identification

Space weather operations

Dissimilation of space weather expertise

CONCLUSIONS

The SIDC at the Royal Observatory of Belgium is a research group for Solar Physics and Space Weather. We are enthusiastically looking forward to further collaborate with European partners in the Space Situational Awareness Program of ESA.

<http://sidc.be>

FUNDING & SUPPORT



Royal Observatory of Belgium



Solar Terrestrial Center of Excellence



Belgian Space Policy



European Space Agency



International Space Environment Service