

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

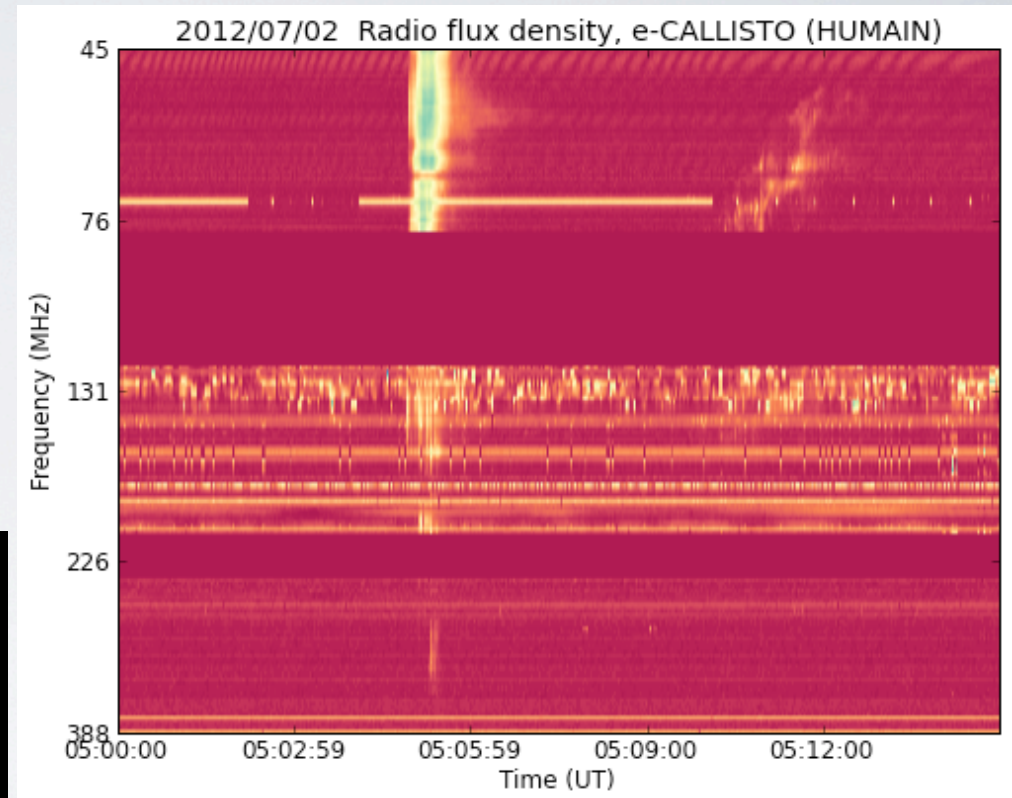
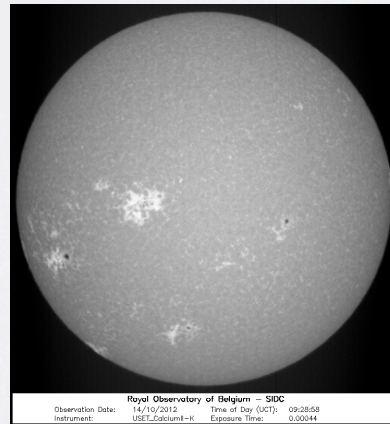
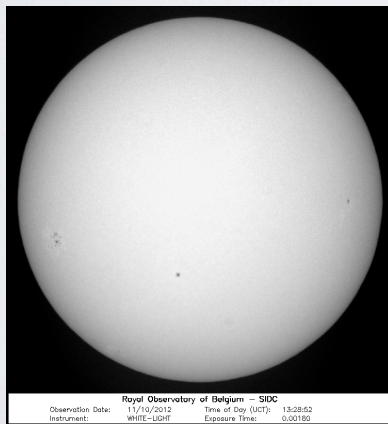


Space weather operations



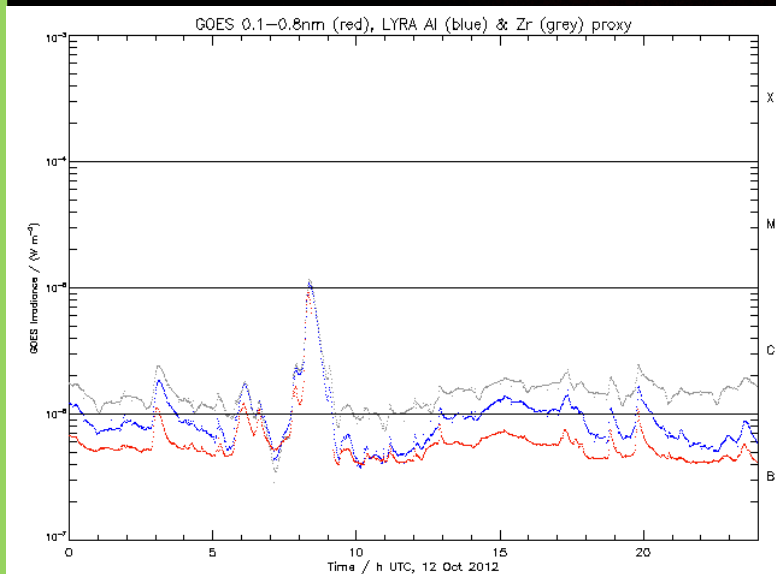
Dissimination of space weather expertise

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



Solar Observations in space

SIDC Operates the SWAP and LYRA instruments onboard PROBA2



<http://sidc.be/proba2>

COMPUTER AIDED CME TRACKING (CACTus)

CACTus Diagnostics

www.sidc.oma.be/cactus/out/latestCMEs.html

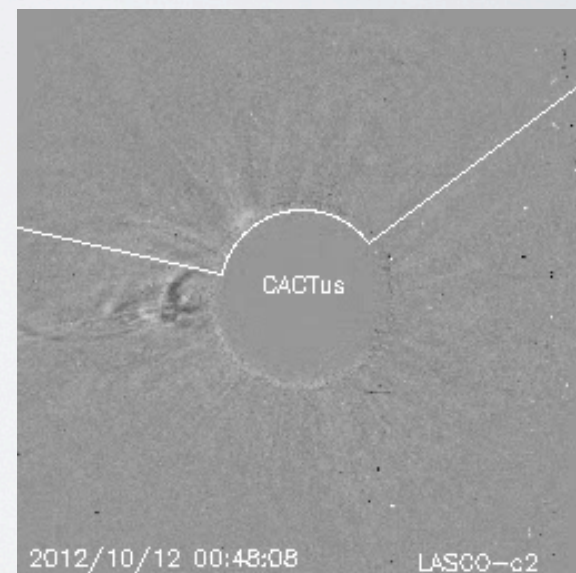
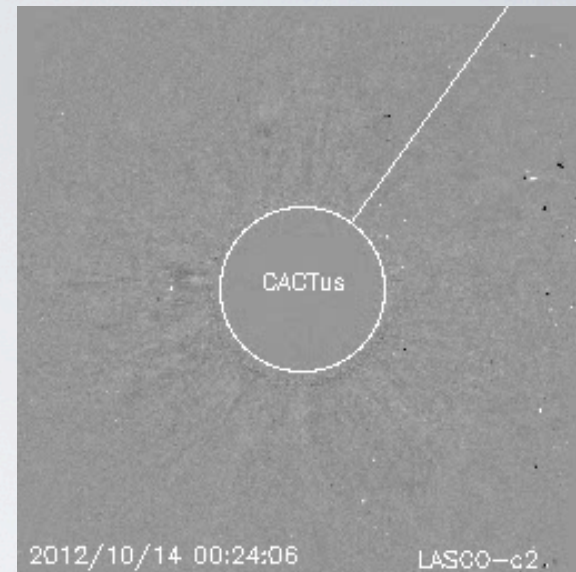
CACTus Diagnostics CACTus CME Details

CACTUS 2.5.0
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.fts
# last c2: 2012/10/14 07:36:06.646 23458503.fts
# first c3: 2012/10/08 00:18:06.386 33331992.fts
# last c3: 2012/10/14 12:18:07.261 33332666.fts
#
-----
# 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 IV
0031 2012/10/14 01:25 04 144 360 1077 0503 0156 1953
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 0668 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
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 00 117 012 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 0646 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
    
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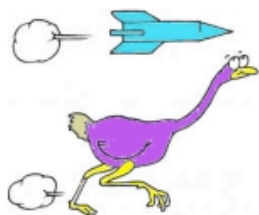


SoFAST Diagnostics

sidc.be/sofast

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

SoFAST Diagnostics



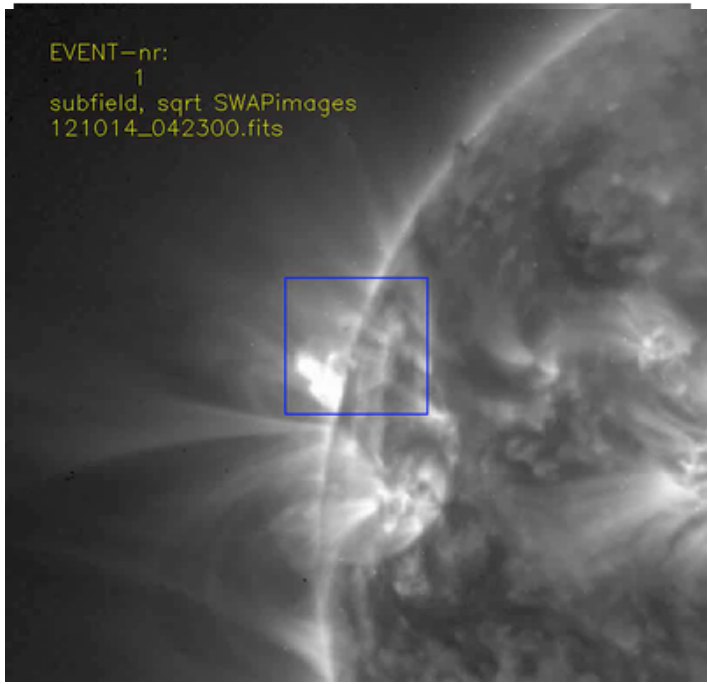
SoFAST 1.2.0

The "Solar Flare Automated Search Tool"

Details and graphs for EUVflare_001

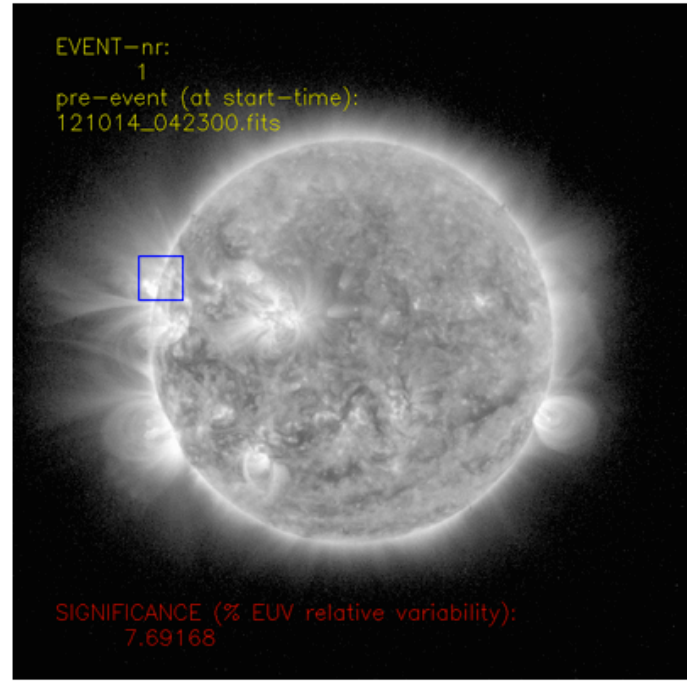
# EUV FLARE	date	start	end	quadrant	size	#images	EUV-significance
001	2012-10-14	04:23	04:49	NE	001	008	007 %

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



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

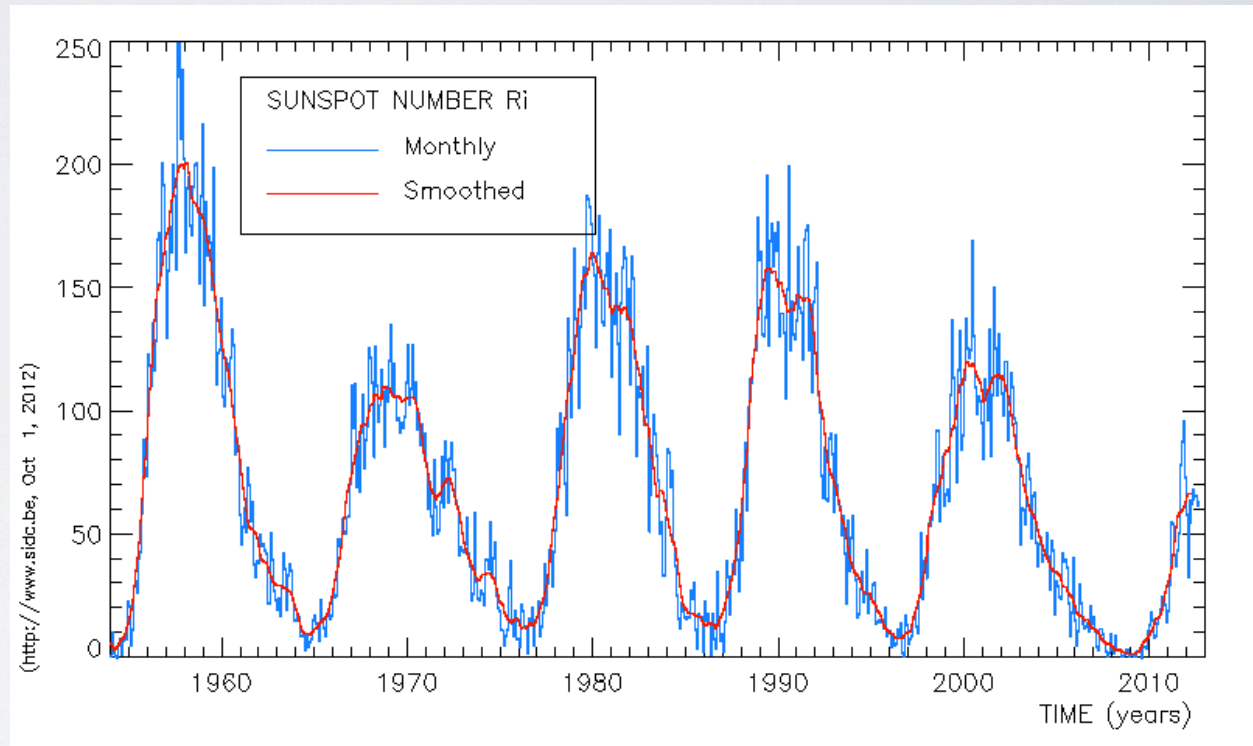
Sample Image



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

SIGNIFICANCE (% EUV relative variability):
7.69168

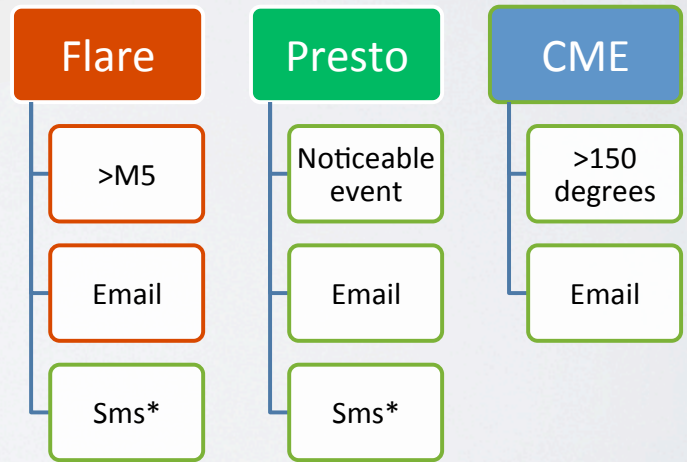
SIDC PRODUCES THE INTERNATIONAL SUNSPOT INDEX



REGIONAL WARNING CENTER BELGIUM



- 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)



9th European Space Weather Week

**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. Belchaki (Co-Chair, NOAA & 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. Zigmán (UNG & COST ES0803), M. Meier (DLR), N. Crosby (SWWT chair, BIRA-IASB), J. Watermann (ifwConsult & COST ES0803), M. Wik (Neurospace), S. Bruinsma (CNES)

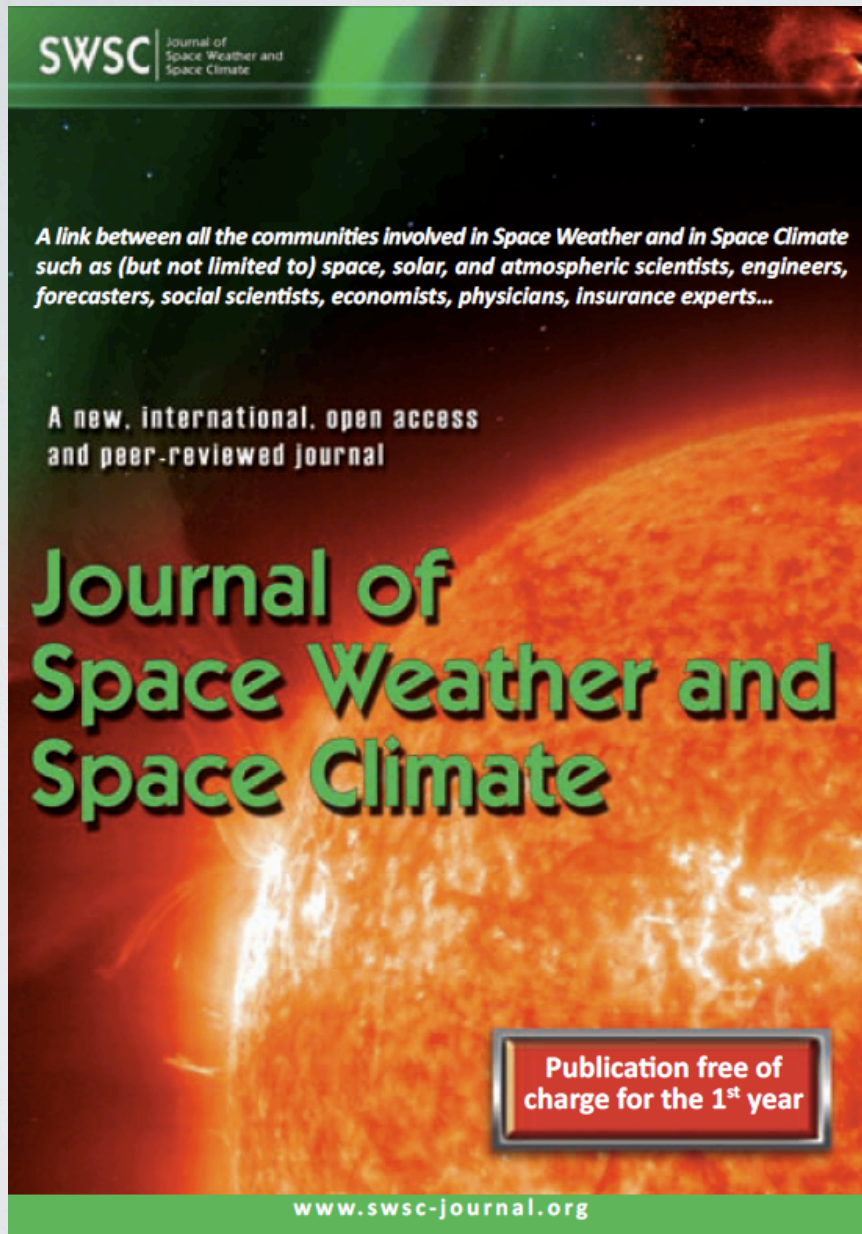
Local Organisation
Solar-Terrestrial Centre of Excellence, Belgium

STCE esa COST ES0803 belspo

SWSC Journal of Space Weather and Space Climate

credit: ESA - P. Cornil

Picture © ESA



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

Dissimination 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