

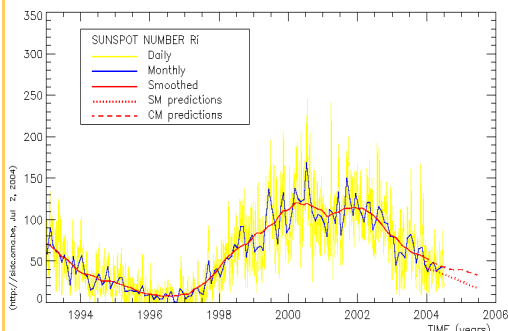


The SIDC project: a comprehensive operational space weather service in Belgium

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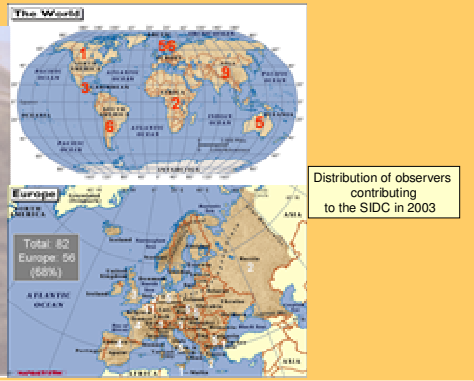
<http://sidc.oma.be>



GENERAL SETTING

SIDC = Research institute
 + WDC Sunspot Index (1981)
 + FAGS Data Analysis Service (1981)
 + ISES RWC BELGIUM (2000)
 + SDA of the ESA Space Weather Applications Pilot Project (2003)

Core products:
 monthly sunspot bulletin + quarterly SIDC news
 + daily URSIGRAMS + related bulletins
 + enhanced and tailored services



Within the ESA Pilot Project for Space Weather Applications: partnership for a further development into a solar activity and space weather monitoring, alerting and forecasting center

Partners for ESA Pilot Project

Belgian Institute for Space Aeronomy
 D. Heynderickx, M. Roth, K. Stegen, M. Kruglanski, J. Dekeyser

Royal Observatory of Belgium (SIDC + GPS)
 R. Van der Linden, D. Berghmans, E. Robbrecht, P. Vanlommel, L. Wauters, F. Clette, P. Cugnon, A. Zhukov, B. Nicula, R. Warnant, E. Pottiaux, S. Lejeune, A. Barre

Royal Meteorological Institute
 H. Nebdi, J.-C. Jodogne, J. Rasson

Our prime tasks: alerting and informing the scientific and technological communities, informing and interacting with the general public.

Third Very large X-ray burst in less than one week !!!

Press release on the X16 flare (09/10) [Netherlands - ESA/ESAC](#)
 Press release on the X17 flare (09/10) [Netherlands - ESA/ESAC](#)

Three major flares from the same output group

Aurora

Our central EPO product: **Solar Highlights**
<http://sidc.oma.be/html/solarhighlights.html>

- A story of the Sun intended for the general public.
- Images / movies / Short texts
- English + French + Dutch
- When special events happen
- Downloadable package

Products currently available in the SIDC project

1. Solar Weather Reports (daily, weekly, monthly)

For professional use

- Solar activity, Geomagnetic activity, Solar protons
- Daily indices: sunspot index, 10 cm flux, Ap index,
- Noticeable events: M or X flares

For general public

- Daily solar weather talk, based on the Daily Solar Weather Report.
- Summaries of solar and geomagnetic activity

4. Real-time alert messages

PRESTO

Fast alerts

- Automated alerts for:
 - Doubles K-index
 - CACTUS
 - GPS-RTK
 - FLARES
- Configurable thresholds

Human-generated description of important space weather events

Email and/or SMS

All-quiet 'alerts'

2. CACTUS: computer Aided CME detection

<http://sidc.oma.be/cactus>

Automatically tracks CMEs in LASCO images

Provides near-real-time output
 Estimates speed & size
 94% success rate (in 5-day test case)

2003/10/28 11:30

CACTUS OUTPUTS

Latest CMEs detected by Cactus

+ e-mail alerts for halo CMEs (da>180)

3. Solar Weather Browser

<http://sidc.oma.be/SWB>

A simple tool for easy visualisation of important Space Weather data.

Current image selection: EIT, GOES12/SXI, MDI magnetogram, GONG magnetogram, GONG white light, USET white light, Catania H α .

Current overlays: rotation grids, NOAA regions, CME detections, McIntosh classifications (from Catania), SolarSoft events

Future additions: H α links, metadata ...

See poster by D. Berghmans at this conference.

5. GPS services (ROB GPS section)

<http://gpsatm.oma.be>

GOAL: near real-time assessment and forecast of the influence of Space Weather and ionospheric conditions on the precision of GPS positioning:

- deviations between Klobuchar model and "real" TEC and estimated error of GPS positioning without DGPS correction: website

- estimated error on DGPS positioning: website
- estimated perturbation of RTK positioning: website + alerts (e-mail, sms)
- MAK model for short-term K-index forecast: website + alerts (e-mail, sms)

See poster by R. Warnant at this conference.

6. Space Weather Yellow Pages

<http://www.oma.be/NEEDLE/swyp>

Centralised data retrieval system ...

... which enables the user to ...

- Level 1: ... FIND files with measurements of physical quantities
- Level 2: ... RETRIEVE files with measurements of physical quantities
- Level 3: ... IDENTIFY and RETRIEVE resources associated with a physical quantity

7. Forecast evaluation: an important activity!

<http://sidc.oma.be/html/SWAPP/qualitycontrol/qualitycontrol.html>

See poster by P. Vanlommel at this conference.