

## SIDC: Solar Influences Data analysis Center



Department of Solar Physics,  
Royal Observatory of Belgium

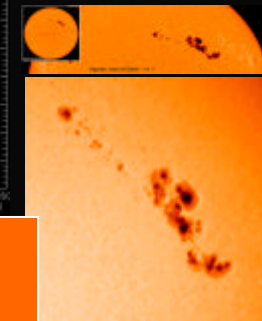
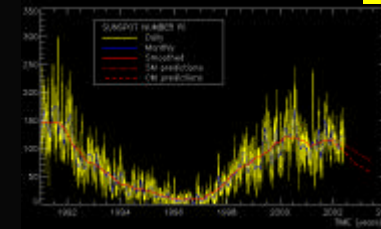
Project Manager: Dr. Ronald Van der Linden

ESTEC, Nov 4, 2003



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## The SIDC before



Sunspot Index Data Center  
since 1981

- Worldwide network (80 stations),
- Oldest index of solar activity: important for long term studies and for public outreach

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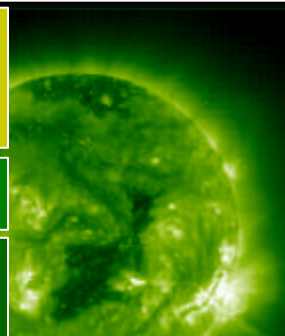
## The SIDC now Solar Influences Data analysis center

Since 1995: partners in the  
EIT/LASCO consortium

Since 2000: 'Regional  
Warning Center' of ISES

All about Space Weather

- Rapid alerts and 'real-time' monitoring
- Short term predictions and middle term analysis
- Post-event and long-term analysis



Future:

- Solar Dynamics Observatory
- Proba II
- STEREO

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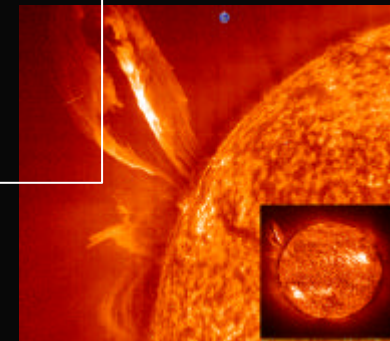


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## The SIDC project

Since 2003

1. partners
2. users
3. products



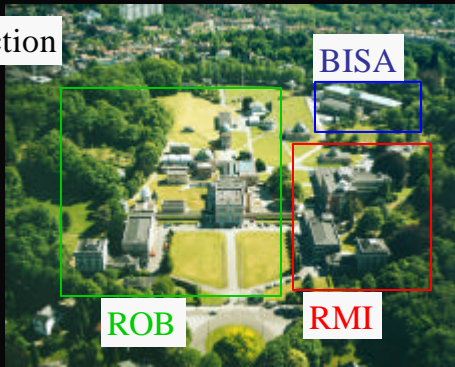
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## 1. Partners

Creaction

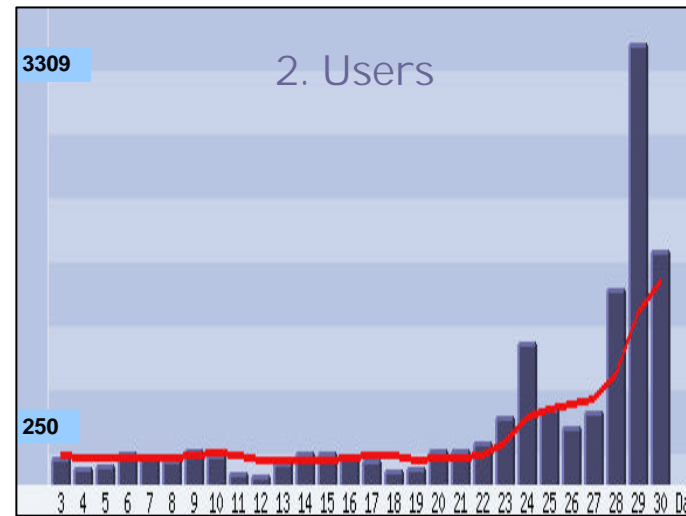


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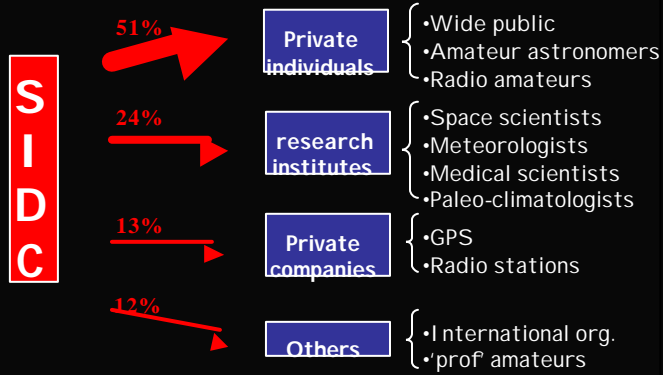


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## 2. Users



## User profile



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## 3. Products

1. Solar Weather Browser
2. Space Weather yellow pages
3. Cactus Aided CME Tracking
4. Real Time Alerts
5. Daily Solar Weather reports
6. Solar Highlights
7. Weekly Bulletin
8. Monthly sunspot Bulletin
9. Annual SIDC CDrom
10. & 11. Differential GPS and Real-Time Kinematic positioning

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## 1. Solar Weather Browser

Real-time Images

Different overlays to combine

Open map ?

## 2. Space Weather Yellow Pages SWYP

Centralised automated 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: ... FORGET about physical quantities, but still RETRIEVE the files

See PC-demonstration !

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## 3. CACTus: Computer Aided CME Tracking

Automatically tracks CME in LASCO images

See PC-demonstration !

- Near real-time alerts
- Speed & magnitude
- 75 % success rate

2003/10/28 11:30

## 4 to 9: Reports & bulletins

Real-time

Daily

Weekly

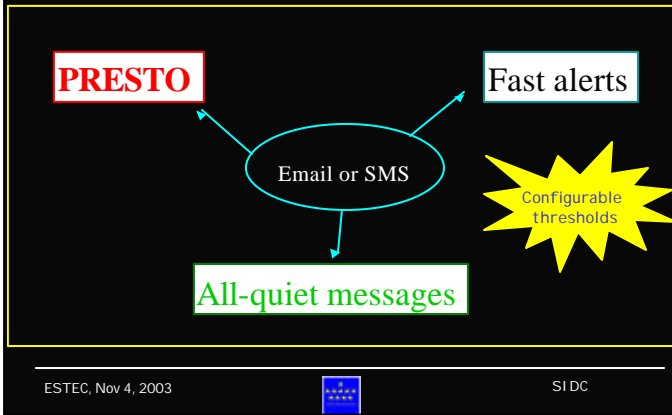
Monthly

Annual

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## 4. Real-time alert messages



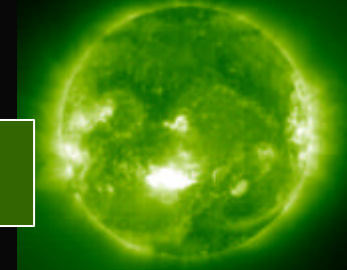
## 5. Daily Solar Weather Report

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 Wide public

Daily Solar weather talk, based on the Daily Solar Weather Report.



## 6. Solar Highlights

- A story of the Sun intended for the general public.
  - Images / movies
  - Short text
  - Links
  - Interaction promoted
  - English (French/Dutch)
  - When special events happen
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- SIDC

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

News release on the X17 flare (2003) [Dutch](#) [English](#)

News release on the X17 flare (2003) [Dutch](#) [English](#)

**Movies**

For the third time this week, major flares erupted from the same sunspot group (Columbia 10, NS14, 2480). This time the flare reached an X-ray level of X17, peaking at 19:49 UT on 2003-10-06. Shortly after a CME (Coronal Mass Ejection) was visible in LASCO C2 at 20:50 UT. It is travelling about in the north with an estimated speed of about 1000 km/s. This is slightly slower than the previous one (1115 km/s) but still fast. It is very fast for a CME. At present the geomagnetic storm which started on 20:35 is still going on. The major solar opportunities for aurora this evening, also in Belgium.

**Aurora**

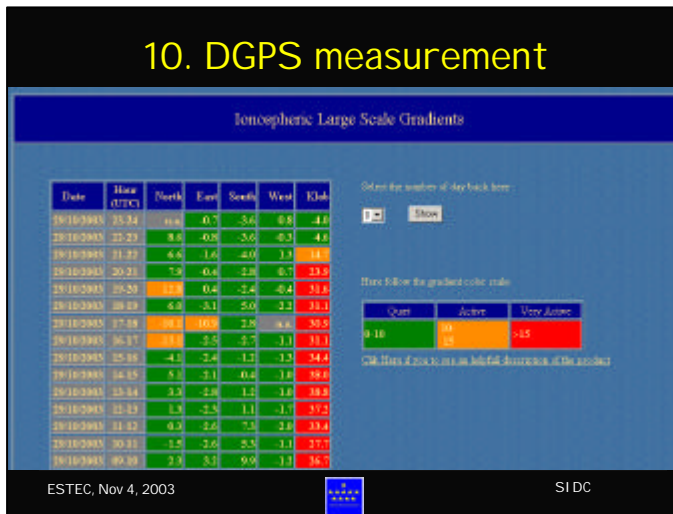
We see an 1800 Å image showing the magnetic field structure. The image is open in the middle of the sunspot group that caused the X17 flare. It has a size which is 14 times the size of the sun and is still growing. You see also

The high energy proton flux has exceeded the threshold of 25, indicating the flare was observed in the north. This graph is made with data measured by the GOES spacecraft.

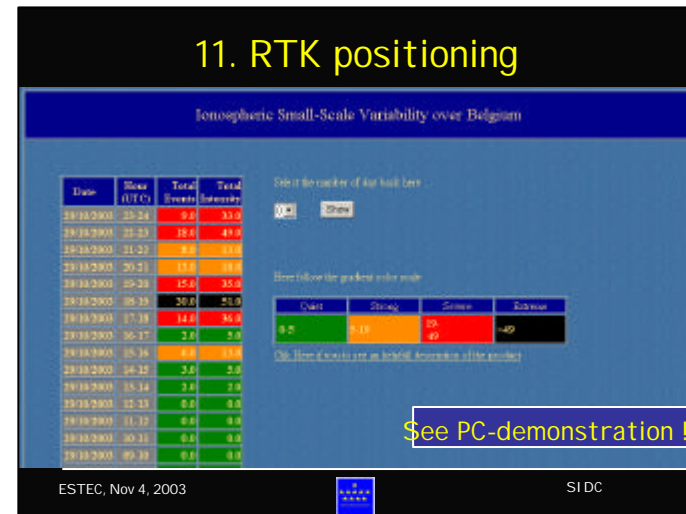
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## 10. DGPS measurement



## 11. RTK positioning



See PC-demonstration !

Thanks for listening  
[www.sidc.oma.be](http://www.sidc.oma.be)

See PC-demonstration !

