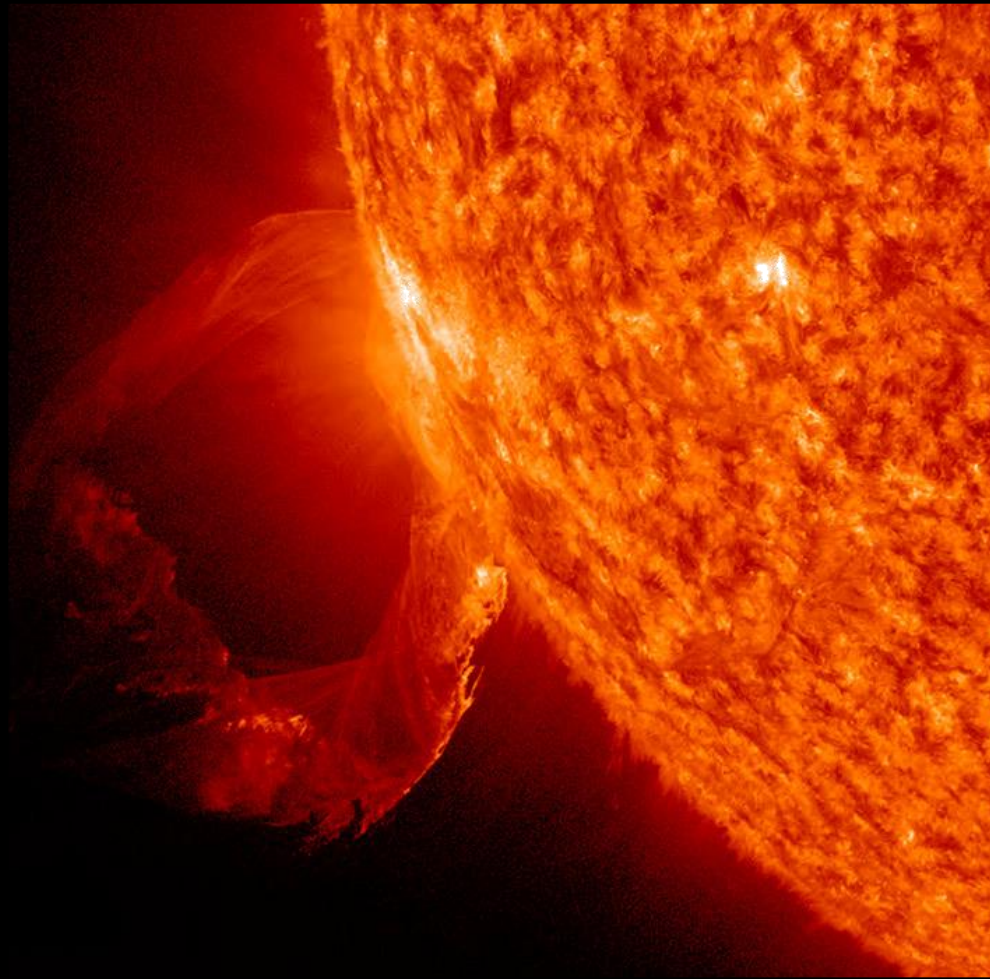


Zon & ruimteweer

Zonnekijkdag - Planetarium

5 juli 2015

Jan Janssens



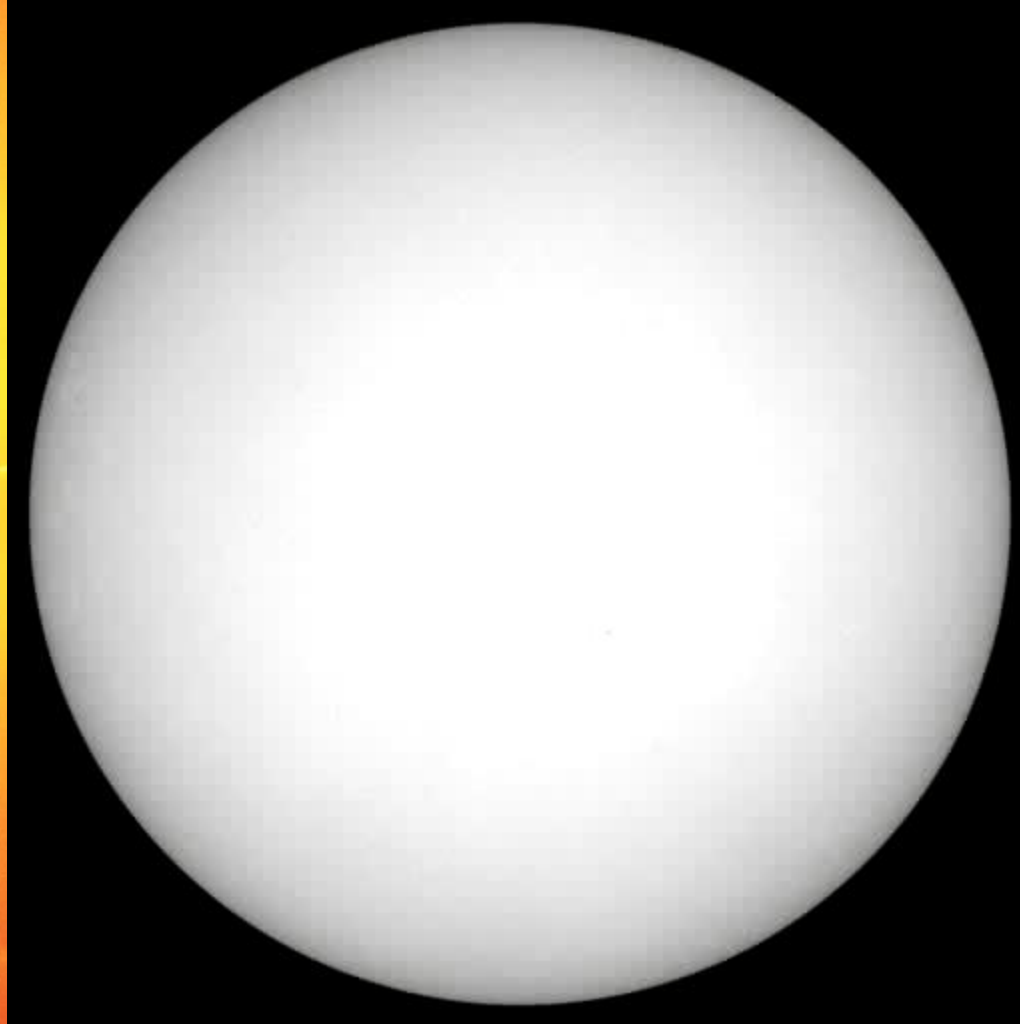
Het ruimteweer

- ...de invloed van de zon op de mens en technologische systemen



Zonnevlekken

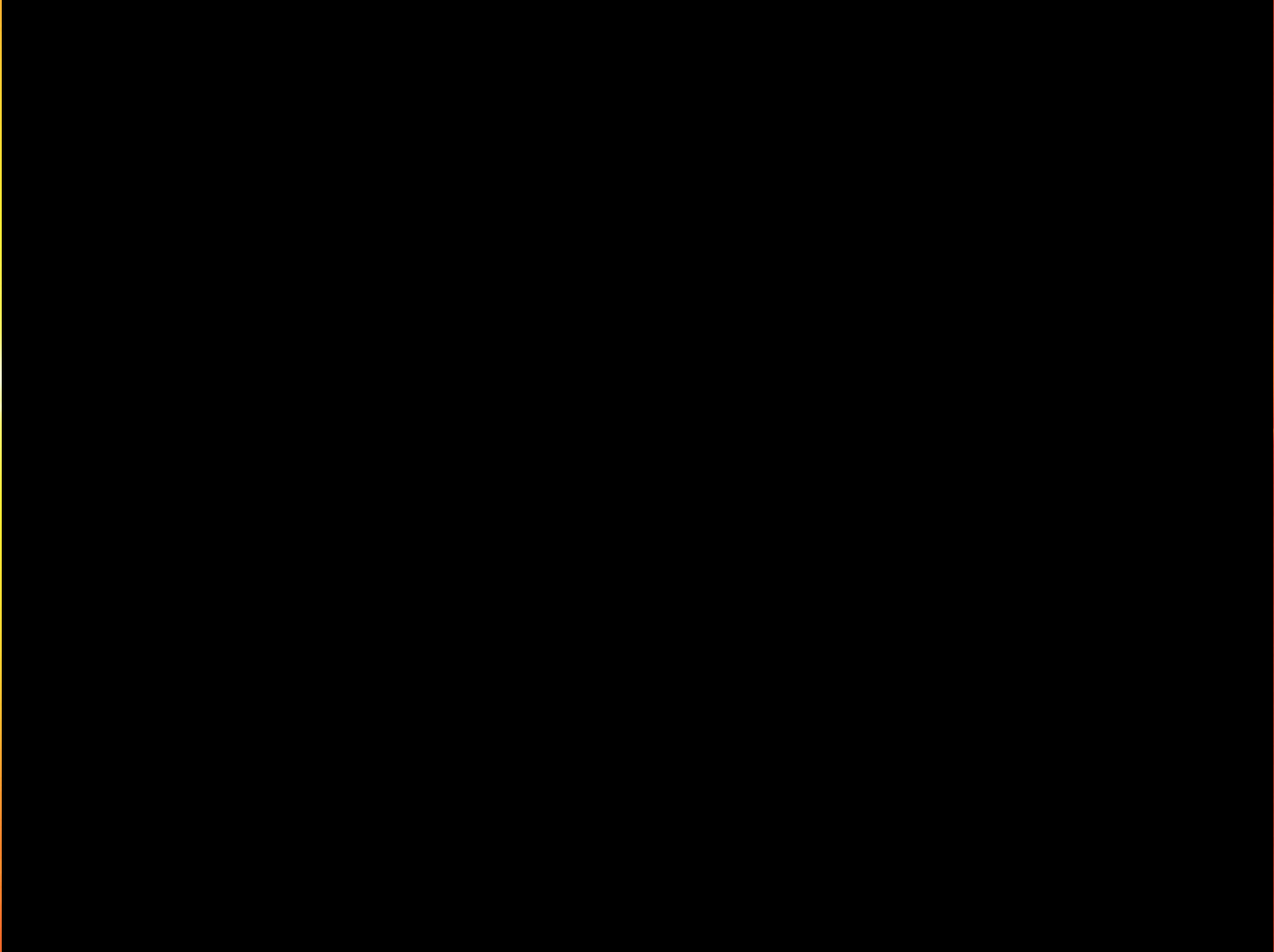
De Halloweengroepen (Okt-Nov 2003)



<http://sohowww.nascom.nasa.gov/gallery/Movies/sunspots.html>

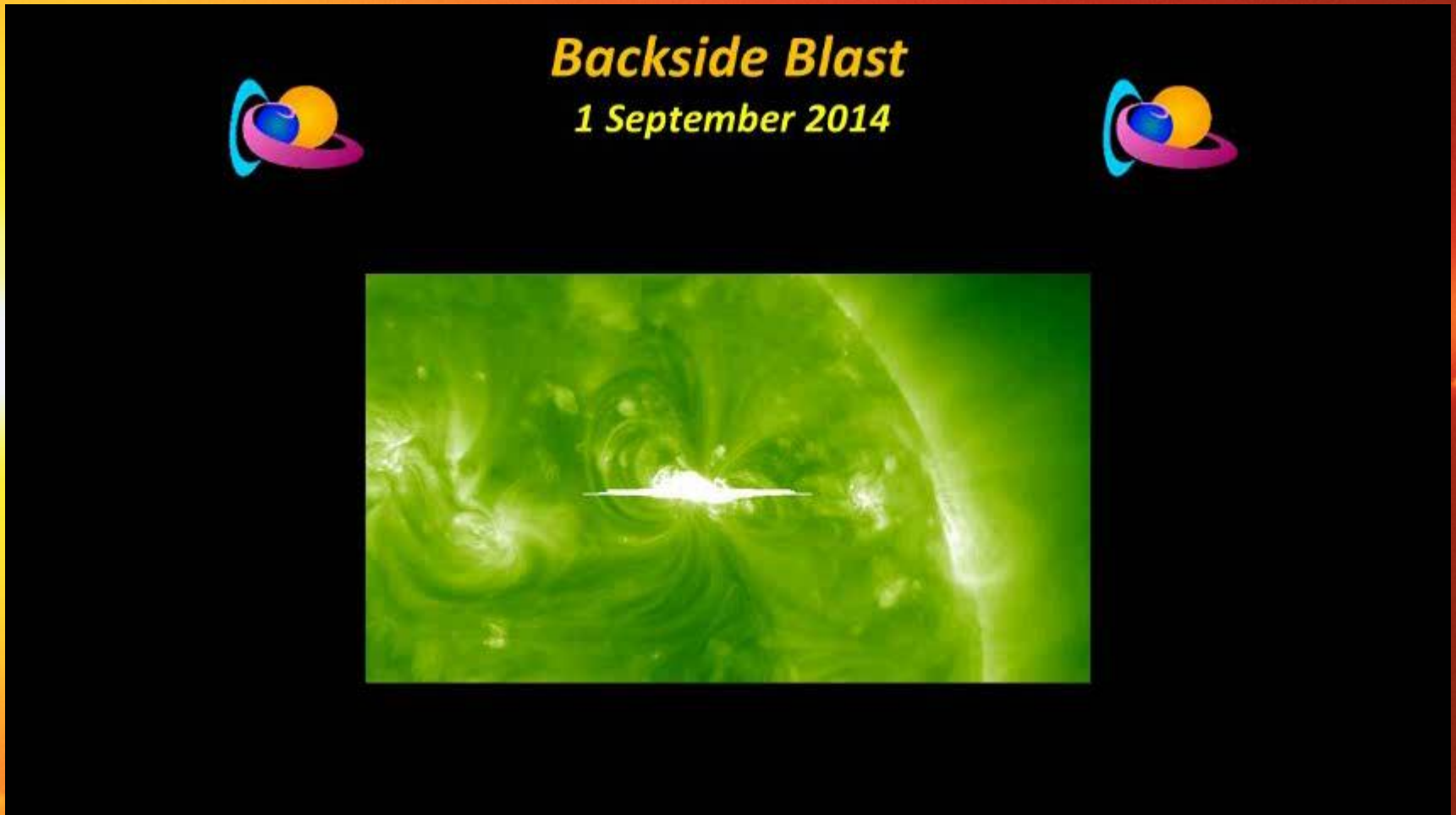
Zonnevlammen

De Halloweengroepen (Okt-Nov 2003)



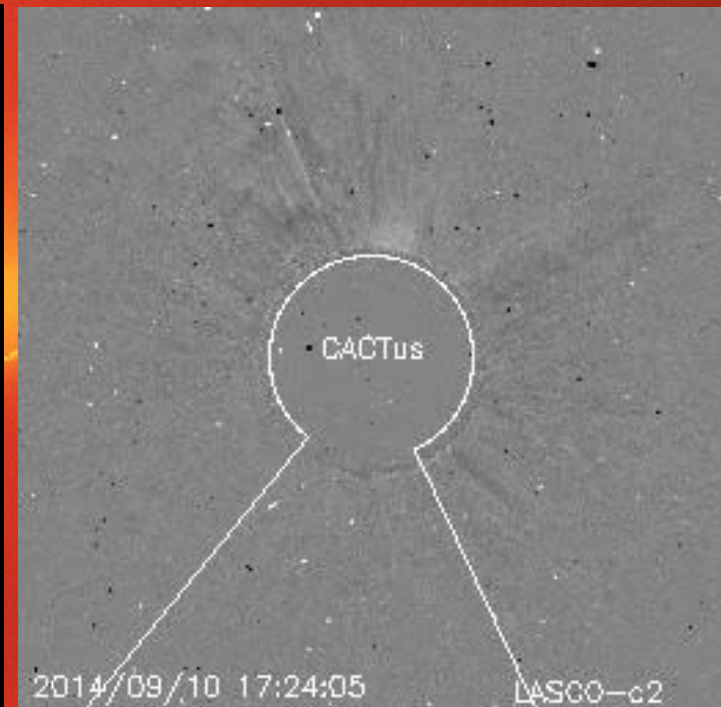
Protonstormen

1 September 2014 – Krachtige explosie op achterkant Zon

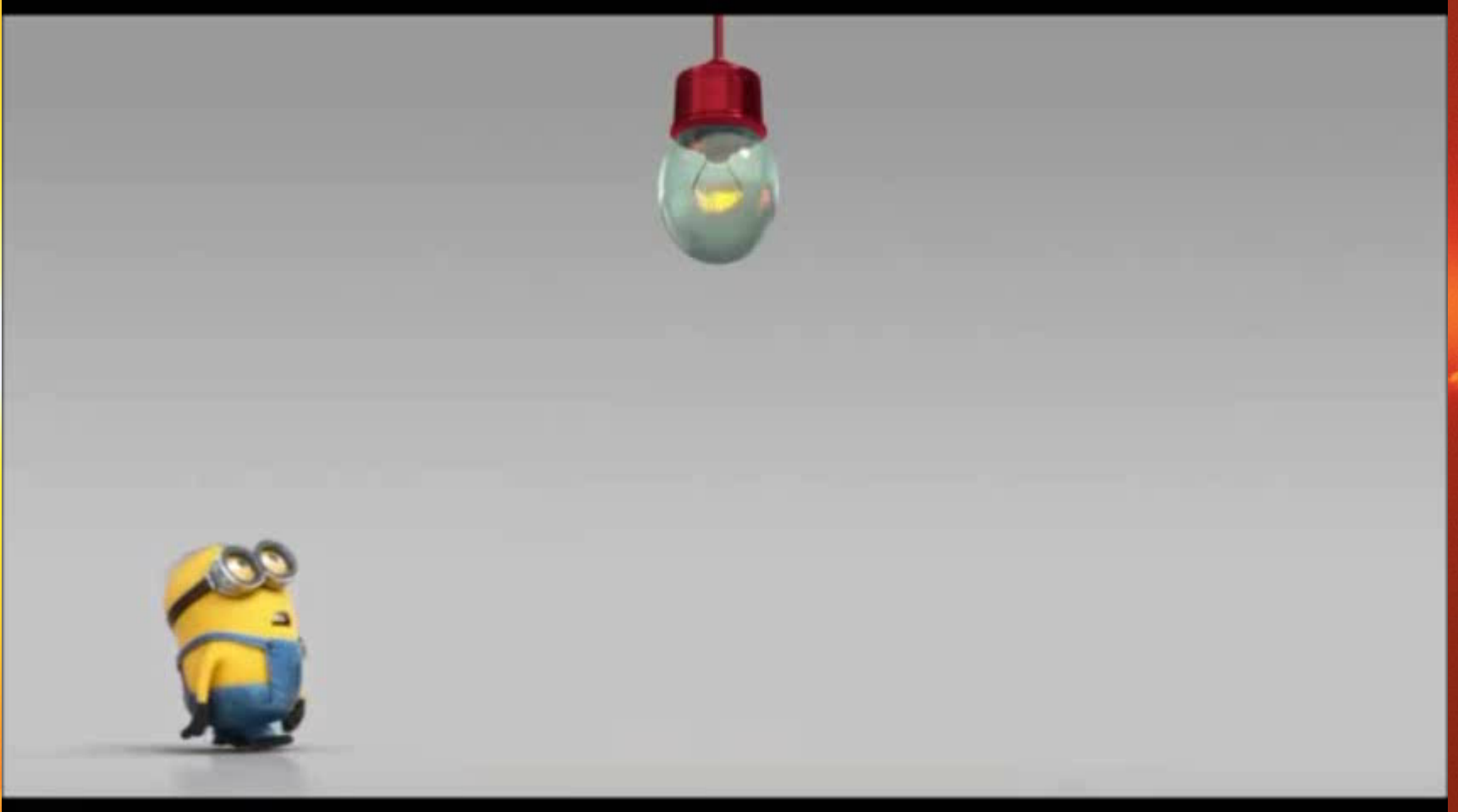


Coronale Massa Ejecties (CME)

10 September 2014 - X1.6 flare in NOAA 2158



Magnetische reconnectie

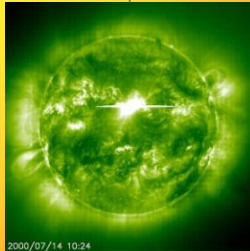


Zonne-uitbarstingen

Overzicht

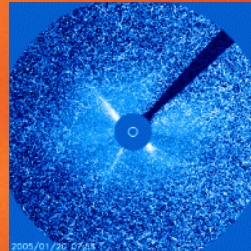
Reconnectie

Straling

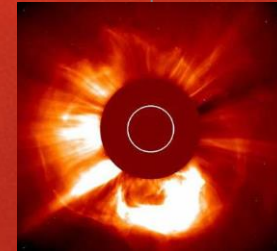


Zonnevlammen

Deeltjes



Protonstormen



Plasmawolken (CME)

Zonne-uitbarstingen

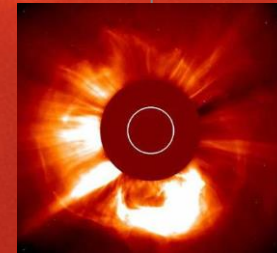
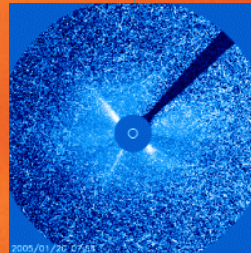
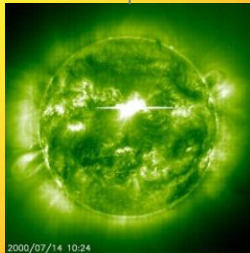
Natuurlijke beschermingsgordels



Reconnectie

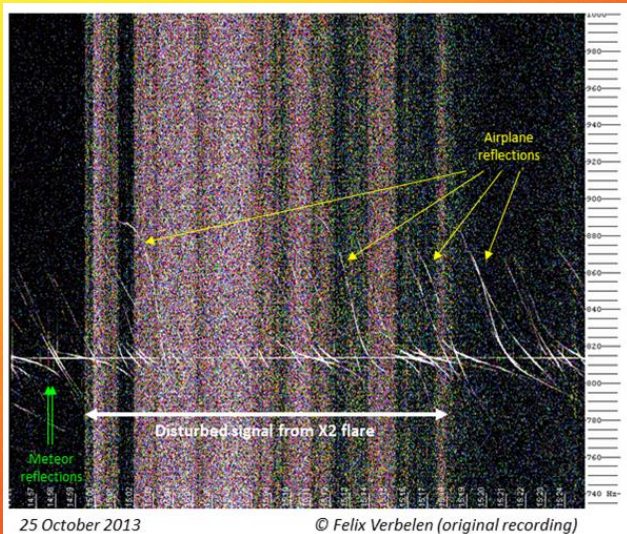
Straling

Deeltjes



- Effect van zonnevlammen

- *Radio Black-outs*



- Effect van Protonstormen

- *Straling*

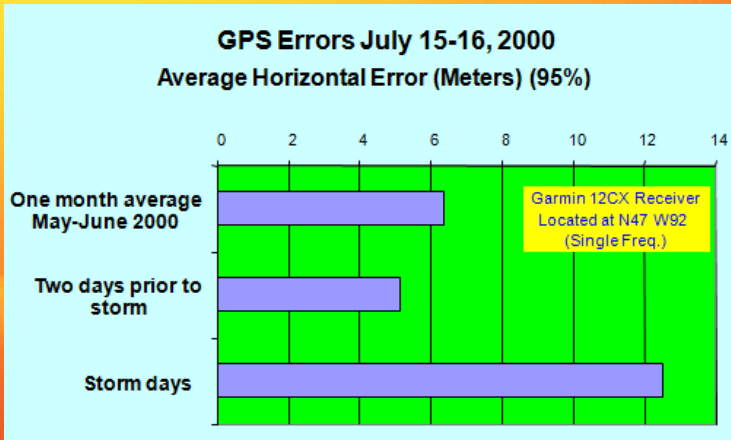
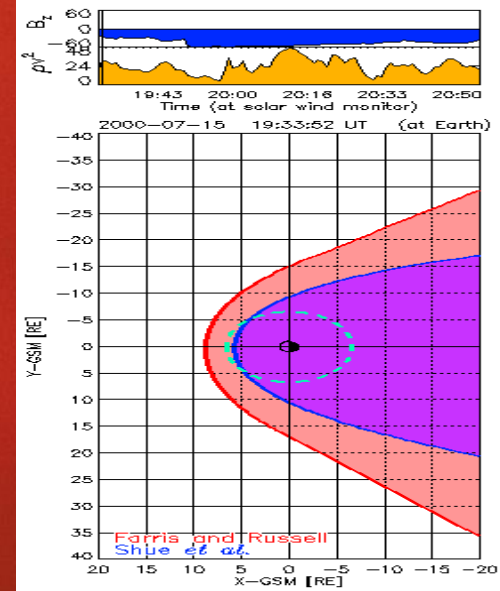
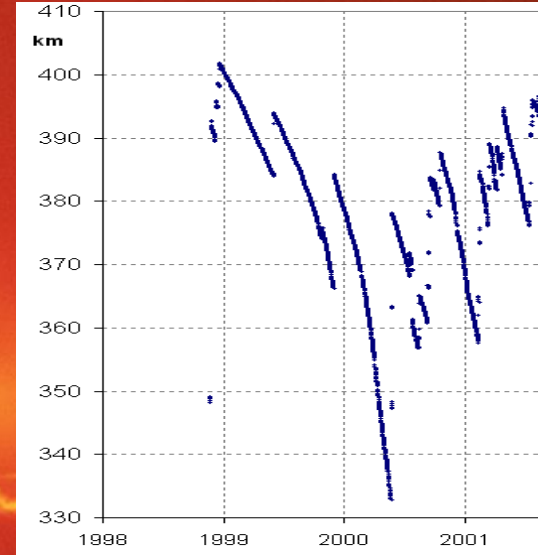


Effect van plasmawolken

Geomagnetische Storm



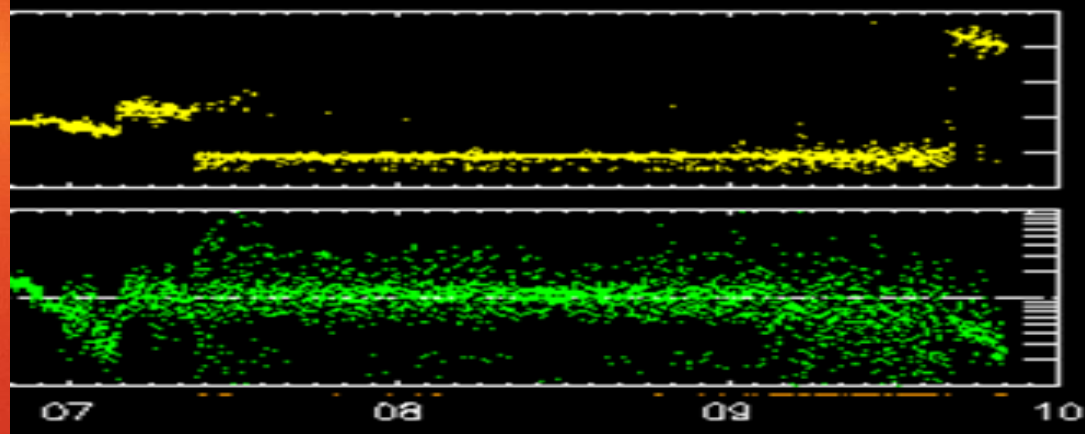
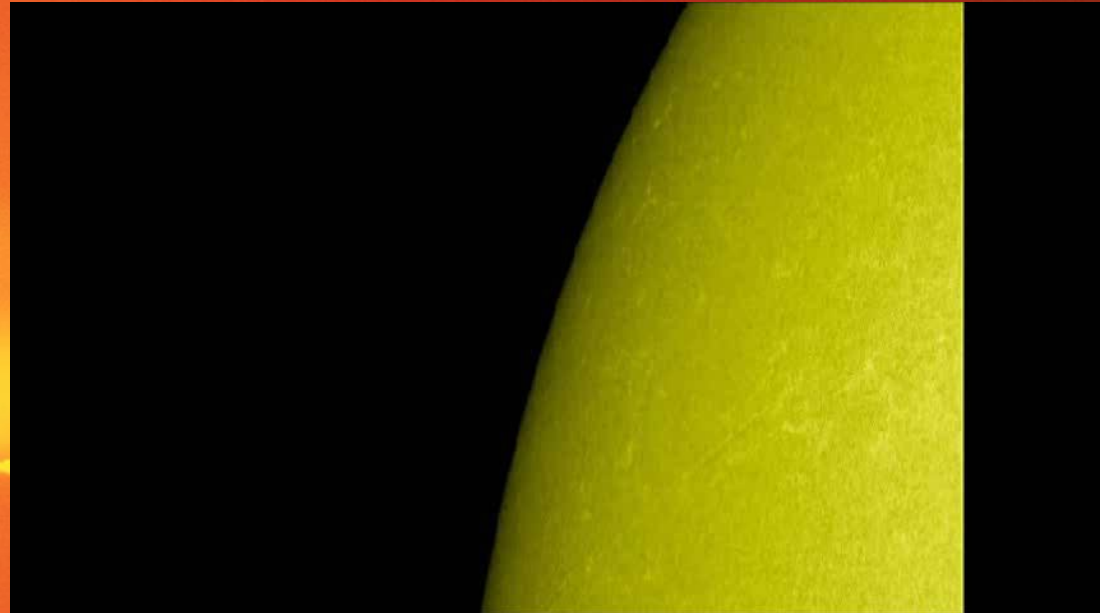
© Terje Sorgjerd



De uitbarsting van 7 Maart 2012

NOAA 1429 – X5.4

- **Zonnevlammen**
 - Slechts kortstondige radio black-outs
- **Protonstormen**
 - Omlegging poolvluchten
 - Niet straling, maar communicatie
 - Astronauten veilig
 - Satelliet-instrumenten tijdelijk down
 - ACE, Venus Express
- **Geomagnetische stormen**
 - Poollicht niet spectaculair
 - Niet in België
 - Geen invloed op GPS, ISS,...



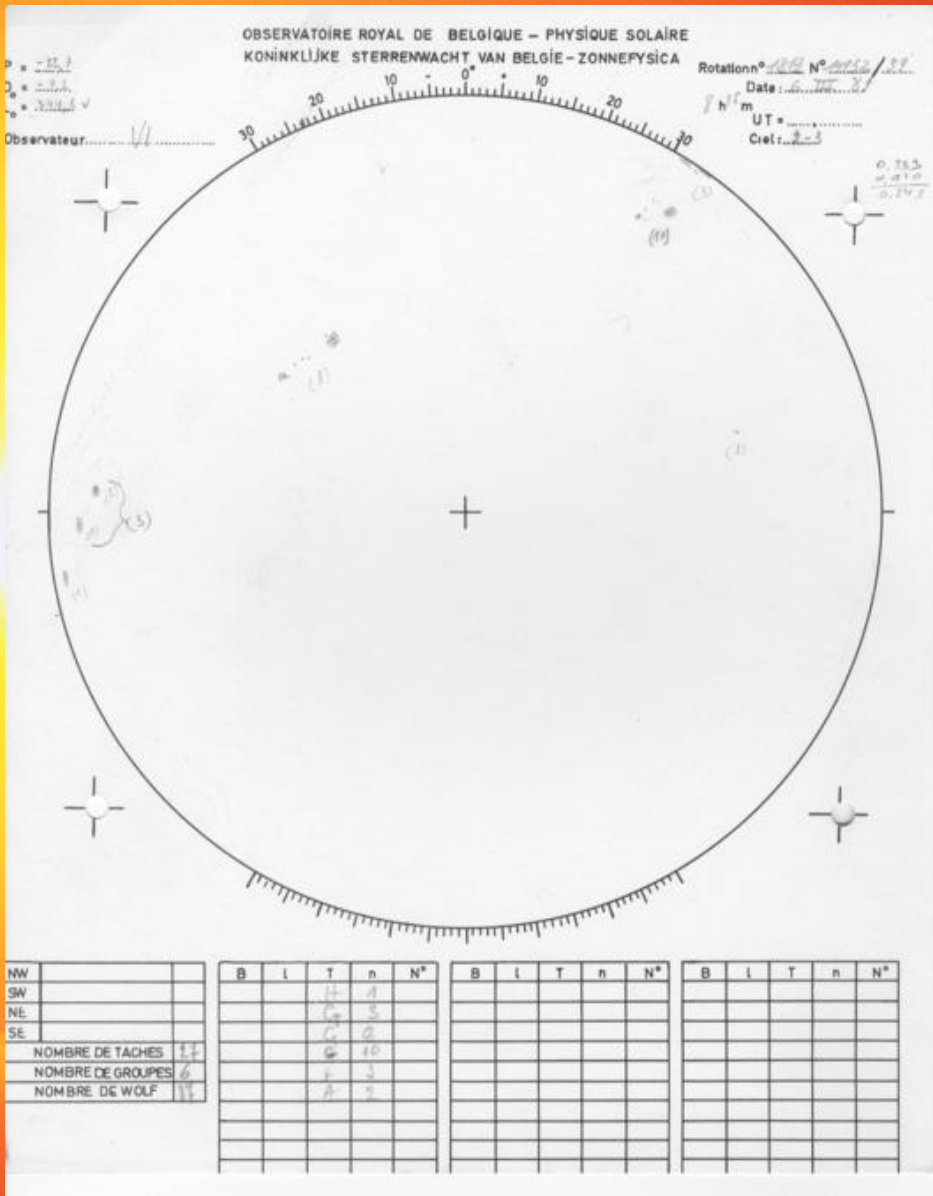
NOAA 2192

17-30 Oktober 2014

- Grootste groep sinds November 1990
 - 2750 MH
- Zeer groot aantal zonnevlammen
 - 73 C-flares
 - 35 M-flares
 - 6 X-flares
- GEEN proton flares
- GEEN CMEs



10 Maart 1989



26E 6226 02889

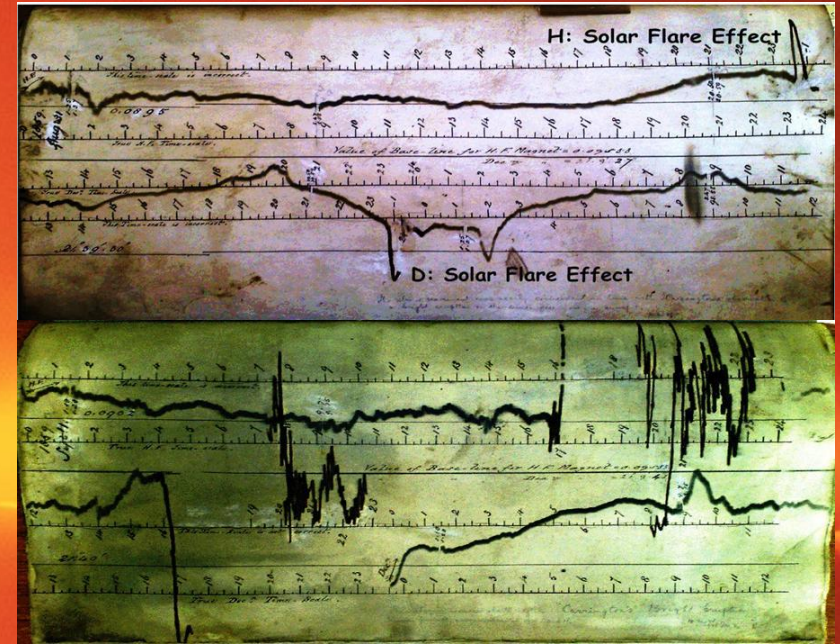
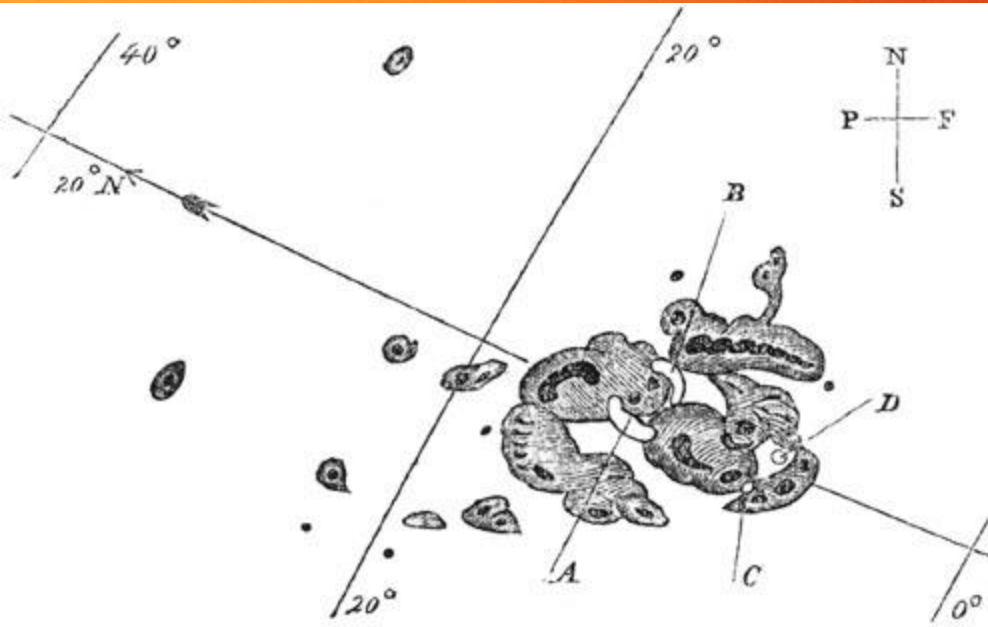


9 March 1989 - 15:38UT - X4.0

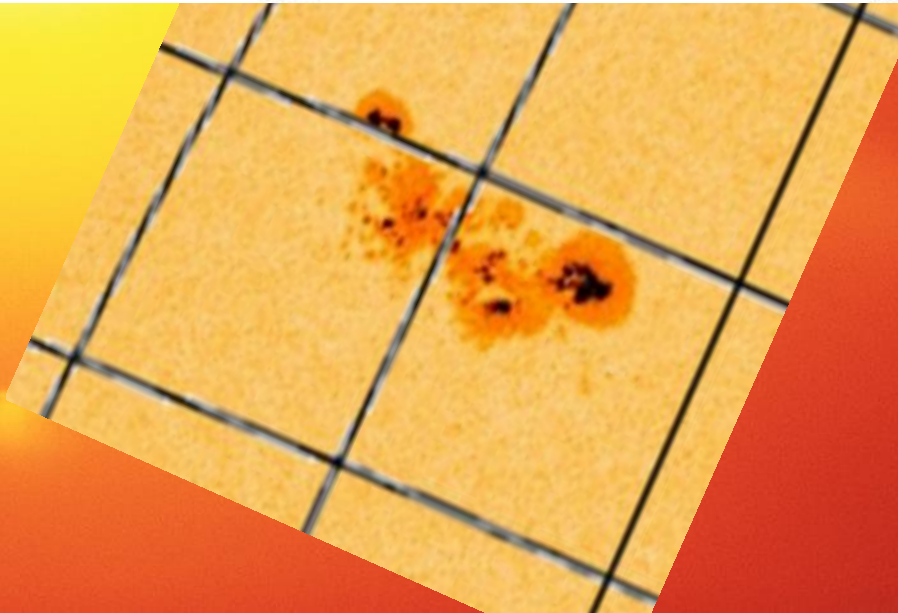
© BBSO & NJIT/SWRL - <http://sfd.njit.edu/>



1 September 1859



<http://www.geomag.bgs.ac.uk/education/carrington.html>



Dit doen we beter meteen goed...



Het SIDC ruimteweer voorspellingsteam

- Bestaat uit experts in verschillende domeinen
- Wekelijkse tour-of-duty
- Voorspelling van zonneactiviteit, energetische deeltjes van de Zon, en geomagnetische toestand
- Beschikt over talrijke web-tools en –interfaces
 - <http://www.sidc.oma.be/index.php>



The screenshot shows the SIDC website homepage. At the top, it says "SIDC - Solar Influences Data Analysis Center" and "Predicted Ap index 29 visit us at http://www.sidc.be SID". Below this is a navigation menu with links like Home, General info, Jobs and Students, etc. The main content area features a "Press release - May 06, 2015: Extreme Space Weather: flares (NL-FR-EN)". The release text discusses solar activity, including sunspot regions, flares, and geomagnetic storm conditions. On the right side, there are four panels: "Latest SWAP image" (a solar image), "Latest LYRA curve" (a graph), "Latest USET H-alpha image" (another solar image), and "Latest Callisto Observations" (a graph). At the bottom right, there is a "Daily estimated sunspot number" section.

Ruimteweersatelliet: PROBA2

Incl. PROBA2 Science Centre (P2SC)



Het ruimteweer coördinatiecentrum (SSCC)



Meer informatie over het Ruimteweer en de Ruimteweerdiensten in Ukkel

- SIDC:
 - <http://www.sidc.oma.be/>
- STCE:
 - <http://stce.be/>
- P2SC:
 - <http://proba2.oma.be/>
- SSCC:
 - <http://swe.ssa.esa.int/web/guest/service-centre>
- Europese Week van het Ruimteweer
 - <http://www.stce.be/esww12/>

