

QUARTERLY REPORT ON PAST SPACE WEATHER

Q2 2021

16.3.2021 – 15.6.2021

SUNNSPOT NUMBERS

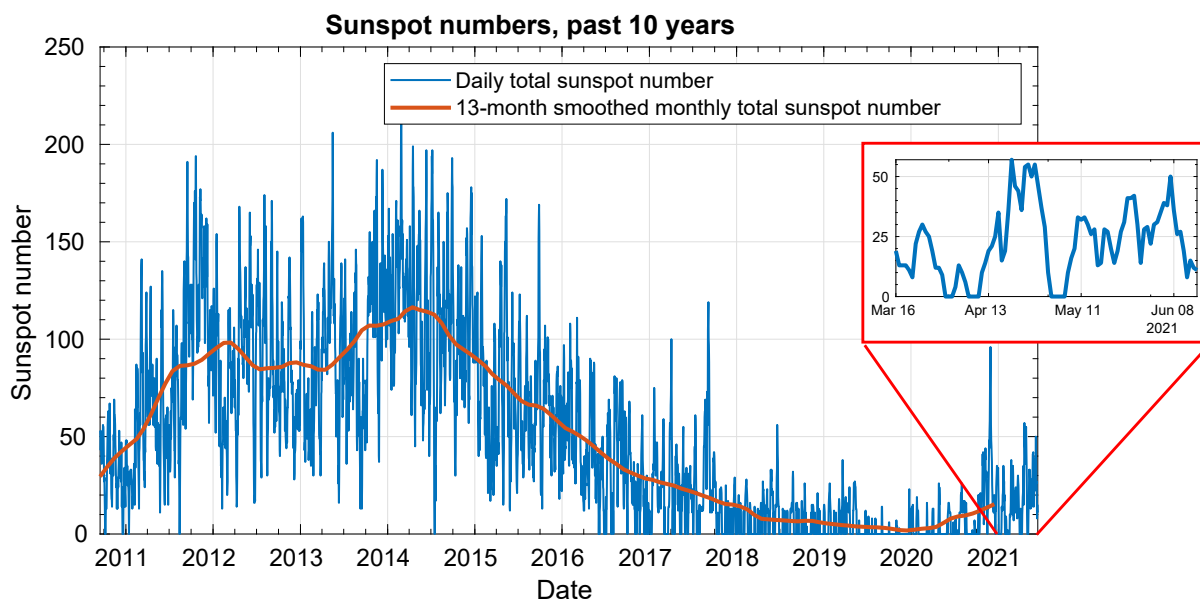


Figure 1: Sunspot numbers for the past 10 years and the last quarter. (Data from SILSO)

FLARES

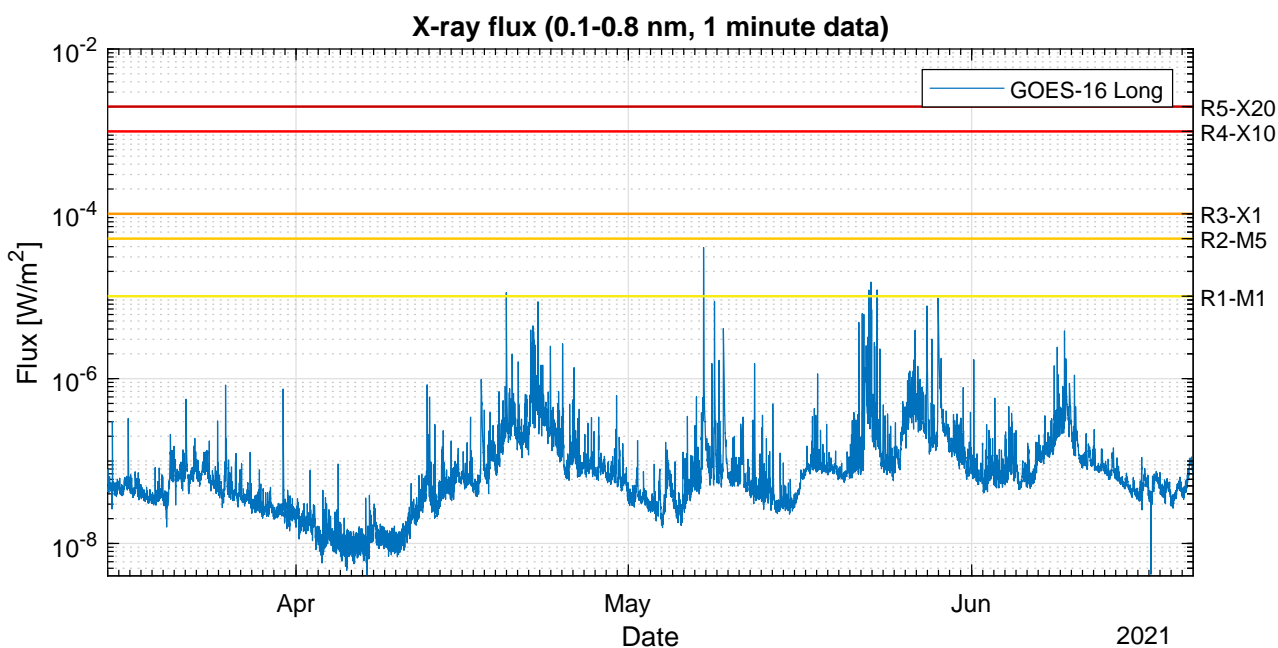


Figure 2: GOES X-ray flux (GOES – SWPC/NOAA) together with the NOAA Space weather scale thresholds for radio blackouts. (For more information on the NOAA Space Weather Scales, see <https://www.swpc.noaa.gov/noaa-scales-explanation>)

SOLAR ENERGETIC PARTICLES

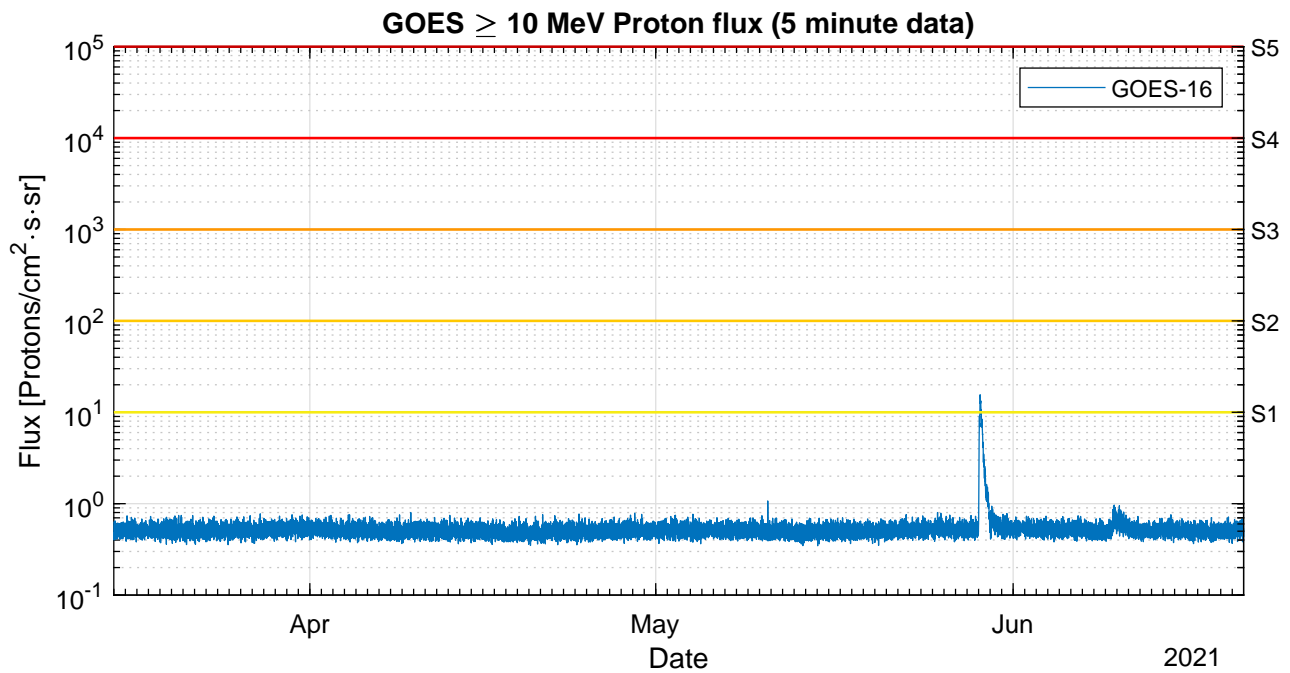


Figure 3: GOES proton flux (GOES - SWPC/NOAA) together with the NOAA Space weather scale thresholds for Solar Radiation Storms. (For more information on the NOAA Space Weather Scales, see <https://www.swpc.noaa.gov/noaa-scales-explanation>)

SOLAR WIND

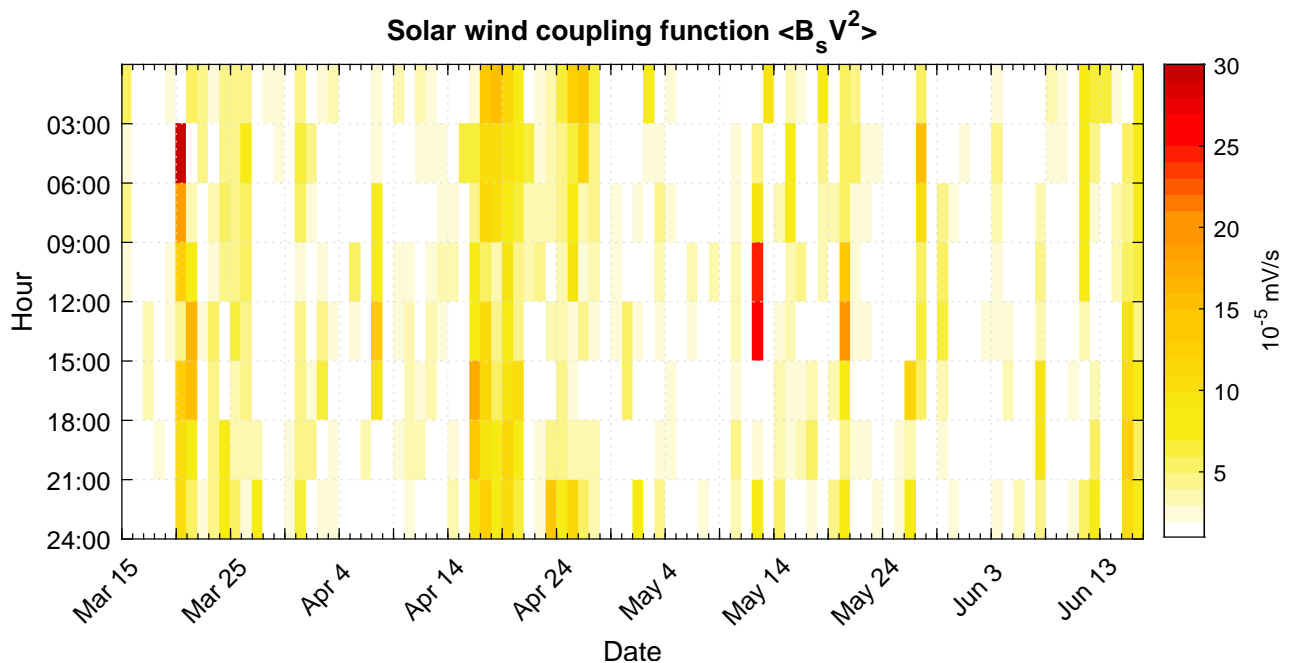


Figure 4: 3-hourly mean values of the Solar wind coupling function $\langle B_s V^2 \rangle$ based on ACE data. (NOAA/SWPC)

GEOMAGNETIC CONDITIONS

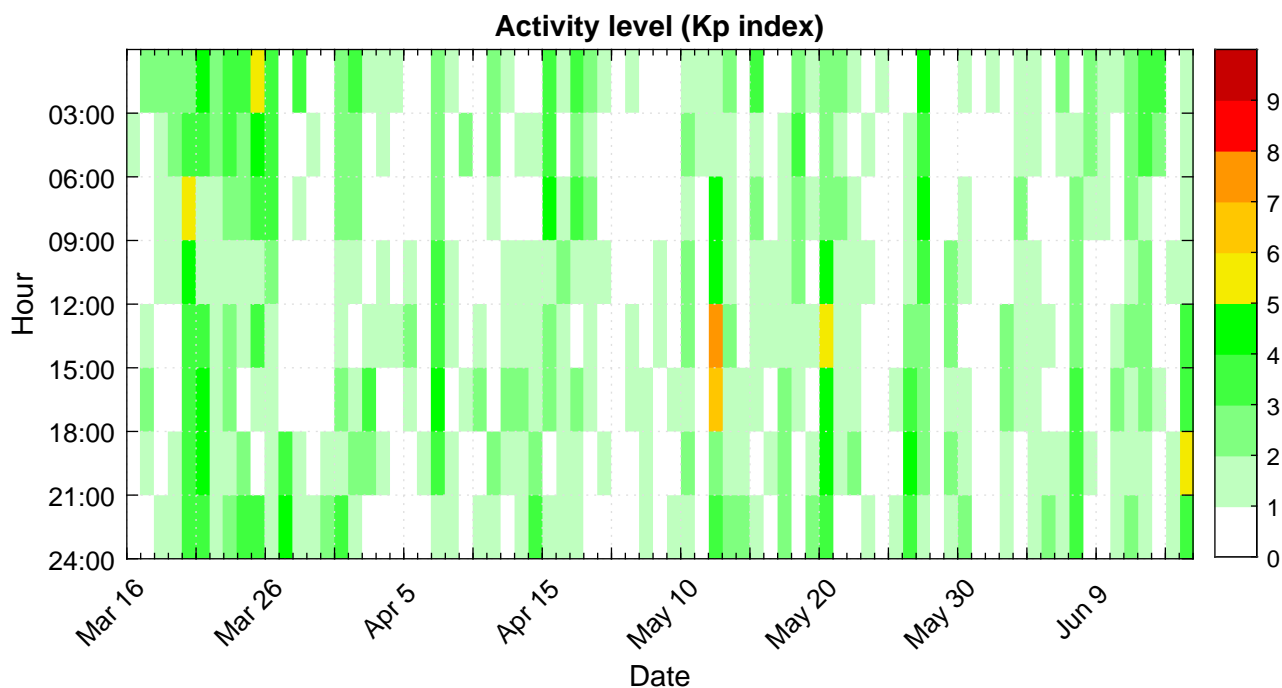


Figure 5: Kp index. (Data from GFZ Potsdam.)

CMES

- 16. March, 10:36 UT: A halo or partial-halo CME was detected. Duration 5.0 hours, velocity 158 km/s.
- 2. June 12:20 UT: A solar wind shock was observed, with solar wind speed jumping from 289 km/s to 325 km/s and the interplanetary magnetic field magnitude jumping from 3 nT to 6 nT. The origin of these enhanced solar wind conditions could be associated with the arrival of the coronal mass ejection from May 28 or the arrival of the fast solar wind speed from the equatorial coronal hole .

(Source: Solar Influences Data analysis Center – RWC Belgium)

ACKNOWLEDGEMENTS

Data from:

SILSO - <http://www.sidc.be/silso/>

GOES - <https://www.ngdc.noaa.gov/stp/satellite/goes/index.html>

DONKI - <https://kauai.cmc.gsfc.nasa.gov/DONKI/>

DSCOVR/ACE – NASA/NOAA /SWCP - <https://www.ngdc.noaa.gov/dscovr/portal/index.html#/>

GFZ Potsdam - <https://www.gfz-potsdam.de/en/kp-index/>