

QUARTERLY REPORT ON PAST SPACE WEATHER

Q2 2022

1.4.2022 – 30.6.2022

SUNSPOT NUMBERS

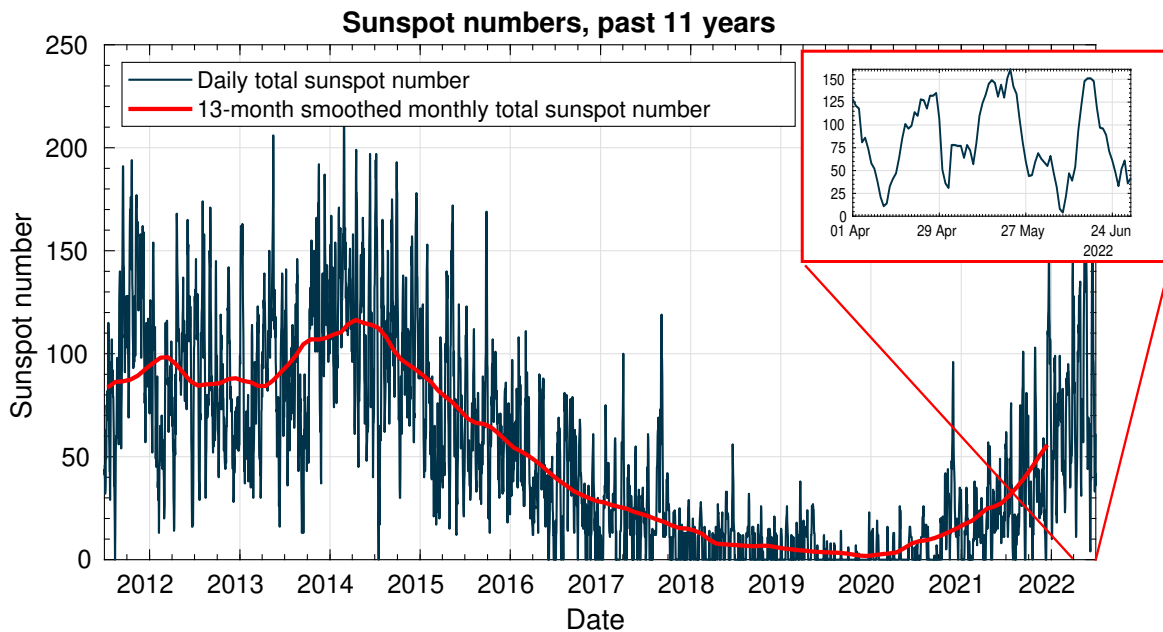


Figure 1: Sunspot numbers for the past 11 years and the last quarter. (Data from SILSO)

FLARES

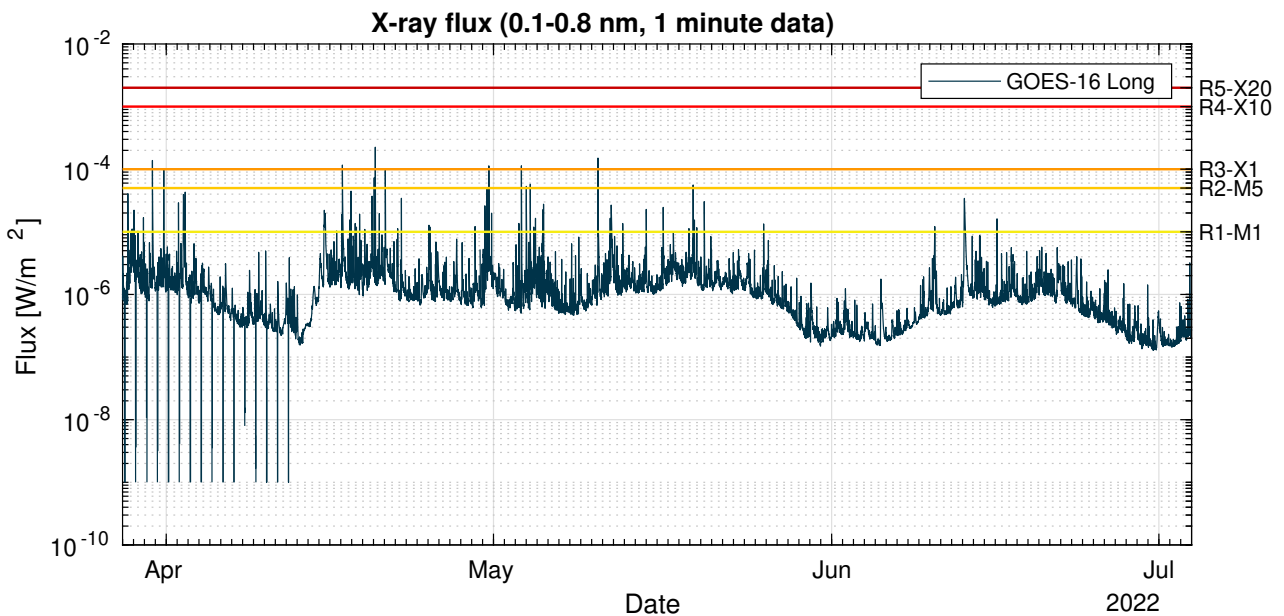


Figure 2: GOES X-ray flux (GOES – SWPC/NOAA) together with the NOAA Space weather scale thresholds for radio blackouts. (For more information on the NOAA Space Weather Scales, see <https://www.swpc.noaa.gov/noaa-scales-explanation>)

SOLAR ENERGETIC PARTICLES

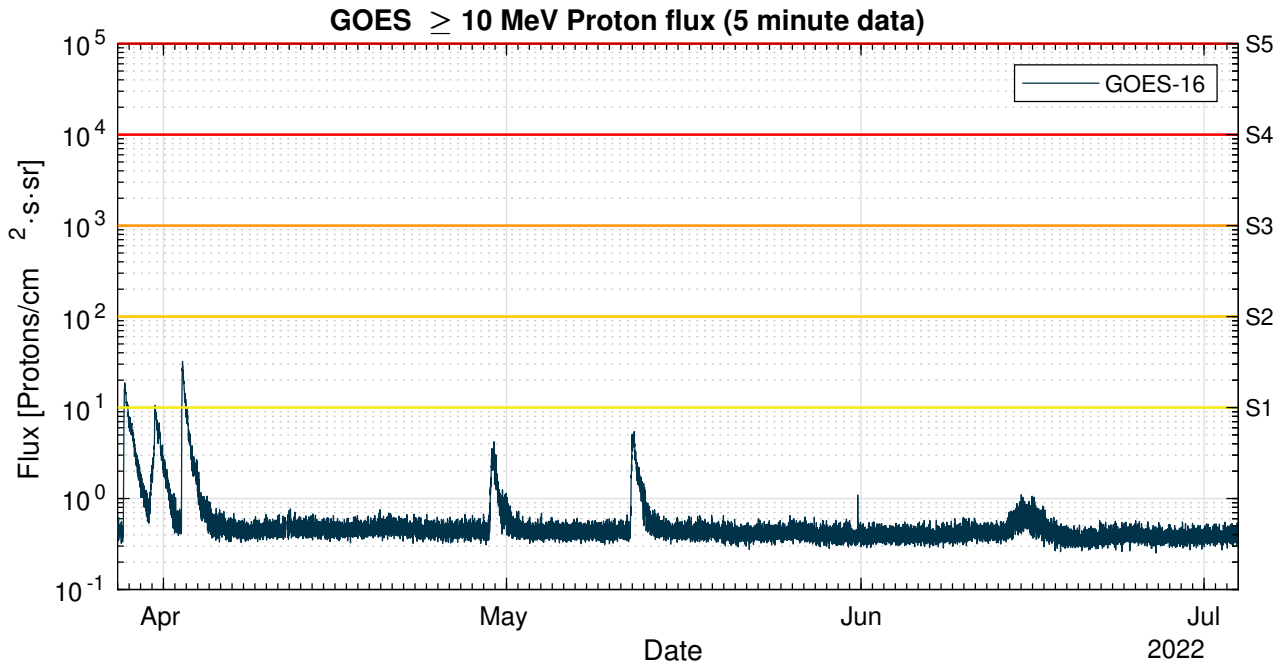


Figure 3: GOES proton flux (GOES - SWPC/NOAA) together with the NOAA Space weather scale thresholds for Solar Radiation Storms. (For more information on the NOAA Space Weather Scales, see <https://www.swpc.noaa.gov/noaa-scales-explanation>)

SOLAR WIND

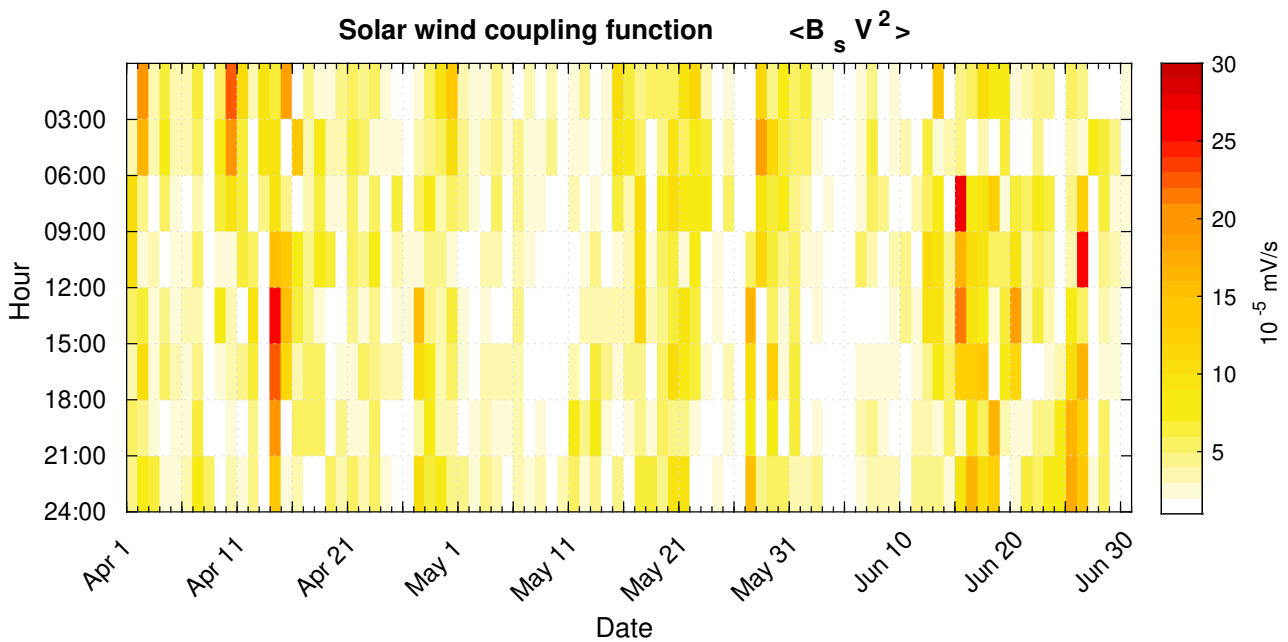


Figure 4: 3-hourly mean values of the Solar wind coupling function $\langle B_s V^2 \rangle$ based on ACE data. (NOAA/SWPC)

GEOMAGNETIC CONDITIONS

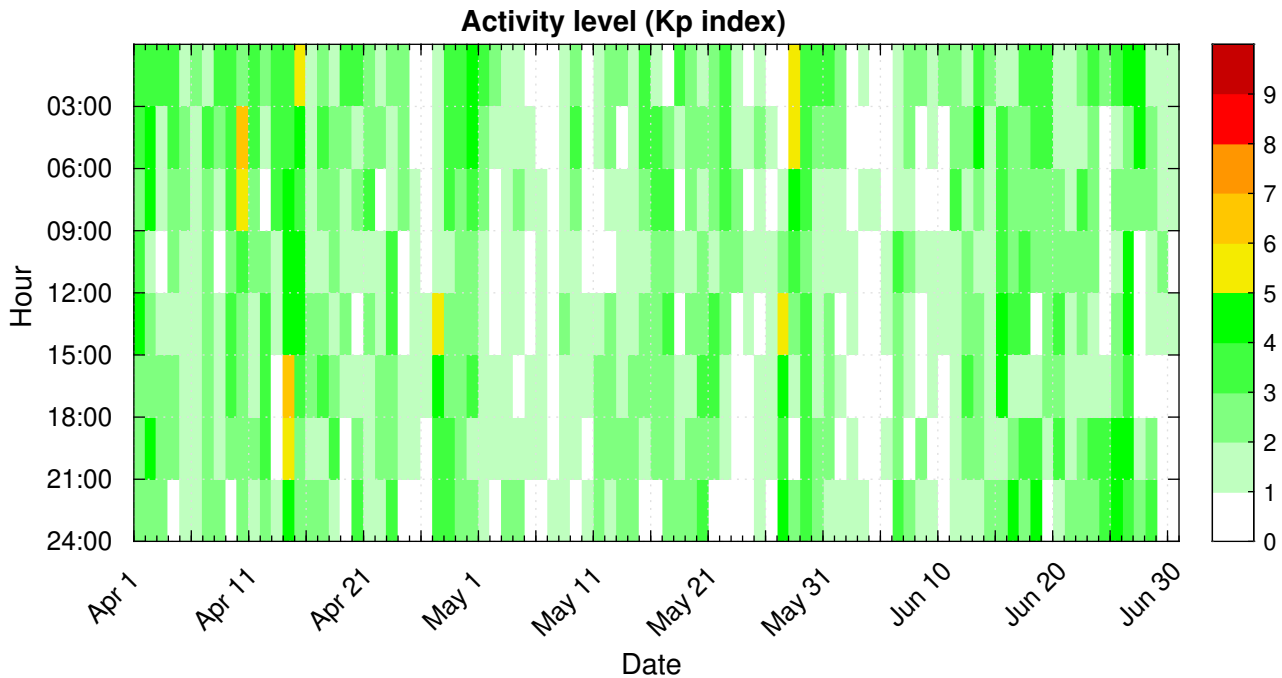


Figure 5: Kp index. (Data from GFZ Potsdam.)

CORONAL MASS EJECTIONS AND HIGH-SPEED STREAMS

Table 1: Major geoeffective coronal mass ejections (CMEs) and high-speed streams (HSS)

Date	Type	Storm level	Max Kp
10. April 2022	CME and HSS	Moderate	6.67
14. April 2022	CME	Moderate	6
27. April 2022	CME	Minor	5
30. April 2022	HSS (and CME?)		4.33
27. May 2022	HSS	Minor	5
28. May 2022	HSS	Minor	5
13. June 2022	HSS		4.67
15. June 2022	CME		4.33
25. June 2022	HSS		4.67
26. June 2022	HSS		4.67

(Source: NOAA/SWPC and GFZ Potsdam)



AKNOWLEDGEMENTS

Data from:

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

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

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

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

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