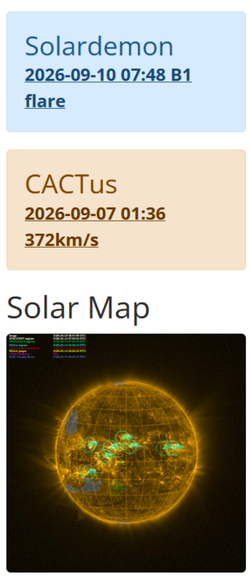
SIDC Space Weather Services



1. Daily bulletin ("ursigram")

Everyday, the forecaster on duty prepares a report, called *daily bulletin or ursigram.* This report contains a *Review* of the conditions in space during the past 24h and a *Forecast* for the next 24h.

The daily report contains information on:

- Active regions and flaring
- Coronal Mass ejections (CMEs)
- Coronal Holes (CHs)
- Solar wind conditions
- F10.7 solar radio flux
- Proton and electron flux levels (at GEO orbits)
- Geomagnetic activity

The daily report is issued nominally at 12:30 UTC, followed by a *Weekly* and a *Monthly* review

2. Fast alerts ("presto" messages)

In case of major space weather events, the forecaster issues a special, shorter message with a description of the event. These are n*ear real-time alerts for*:

- Strong flares (X class)
- Partial halo/halo Coronal Mass Ejection (CME)
- Proton event (increase of proton flux above a certain threshold)
- Fast forward shock in solar wind (a "jump" and increase in the solar wind parameters)
- Geomagnetic conditions: Kp > 5+ (i.e. a *moderate geomagnetic storm*)

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:Issued: 2024 Oct 09 0732 UTC
:Product: documentation at http://www.sidc.be/products/presto
#-----------------------------------------------------------------#
# FAST WARNING 'PRESTO' MESSAGE  from the SIDC (RWC-Belgium)      #
#-----------------------------------------------------------------#
An X1.8 flare was detected, peaking at 01:56 UTC on October 09. It was produced by
SIDC Sunspot Group 217 (NOAA AR 3848). A type II radio emission was detected,
starting at 01:44 UTC on October 09.
A halo CME, most likely related to the X1.8 flare was detected in LASCO/C2 data
around 02:30 UTC on October 09. Due to the source location an impact on Earth can be
expected. Further analysis of the event is ongoing and will be reported in the daily
bulletin.
The greater than 10 MeV proton flux as measured by GOES 16 and GOES 18 has exceeded
the 10 pfu threshold since 05:00 UTC on October 09, marking a minor solar radiation
storm. It is most likely linked to the X1.8 flare and the halo CME.
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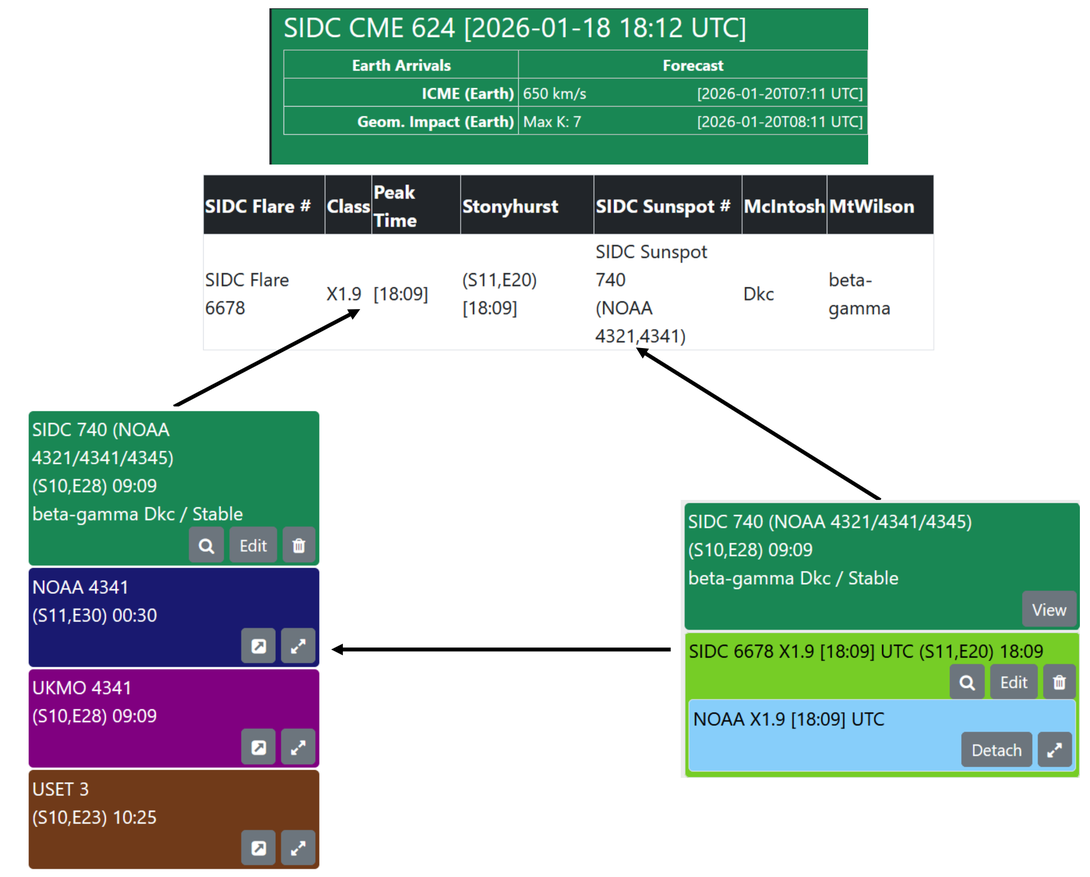
Subscribe!

- Solar flares ("flaremail")
- CMEs ("cactus")
- Major events ("presto")
- "All quiet" conditions
- Daily/weekly reports

SIDC database

The forecaster on duty also maintains the *SIDC database* via a dedicated, user-friendly interface. This facilitates the creation of *event chains*, which is crucial for the analysis of strong space weather events.



In this example, we can trace the history of a geomagnetic storm that occurred in January 2026. A complex active region (*SIDC 740, left box*) produced a strong flare (*SIDC 6678*, X1.9 flare, right box) that was associated with a coronal mass ejection (*SIDC CME 624, top box*).

We can improve existing models or test new methods by comparing their predictions with past events. This is a *research to operations to research loop (R2O2R) !*

PECASUS DASHBOARD on 2024-10-10 15:00 UTC

GNSS	Moderate	Severe	Time UTC	Values	Status	Alert	Max-3h values	Max-3h status
Amplitude Scintillation	0.5	0.8	2024-10-10 15:00	1.12	SEVERE		1.31	SEVERE
Phase Scintillation	0.4	0.7	2024-10-10 15:00	0.30	QUIET		2.92	SEVERE
Vertical TEC	125	175	2024-10-10 15:00	159.77	MODERATE		180.06	SEVERE

RADIATION	Moderate	Severe	Time UTC	Flags	Status	Alert	Max-3h flags	Max-3h status
Effective Dose FL ≤ 460	30	80	2024-10-10 15:00	0	QUIET		0	QUIET
Effective Dose FL > 460	/	80	2024-10-10 15:00	0	QUIET		0	QUIET

HF COM	Moderate	Severe	Time UTC	Values/Flags	Status	Alert	Max-3h values	Max-3h status
Auroral Absorption (AA)	8	9	2024-10-10 15:00	7.7	MODERATE		7.7	MODERATE
Polar Cap Absorption (PCA)	2	5	2024-10-10 15:00	28.97	SEVERE		28.99	SEVERE
Shortwave Fadeout (SWF)	x1.0	x10.0	2024-10-10 15:00	< M5 flare	QUIET		< M5 flare	QUIET
Post-Storm Depression (PSD)	30%	50%	2024-10-10 15:00	2	SEVERE		2	SEVERE

Sound alarm is triggered when MOD or SEV thresholds are exceeded or in case of data outages.

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0000059801
FNXX02 EFKL 292015
SWX ADVISORY
DTG:              20241029/2010Z
SWXC:             PECASUS
ADVISORY NR:      2024/307
NR RPLC:          2024/306
SWX EFFECT:       HF COM SEV
OBS SWX:          29/2010Z HNH HSH W180 - E180
FCST SWX +6 HR:   30/0300Z HNH HSH W180 - E180
FCST SWX +12 HR:  30/0900Z NOT AVBL
FCST SWX +18 HR:  30/1500Z NO SWX EXP
FCST SWX +24 HR:  30/2100Z NO SWX EXP
RMK:              SPACE WEATHER EVENT (HF COM POLAR CAP
ABSORPTION) IN PROGRESS. IMPACT ON LOWER HF COM FREQUENCY
BANDS EXPECTED AT HIGH LATITUDES.
NXT ADVISORY:     WILL BE ISSUED BY 20241030/0210Z=
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0000063501
FNXX02 EGRR 170318
SWX ADVISORY

DTG:              20240917/0318Z
SWXC:             PECASUS
ADVISORY NR:      2024/250
SWX EFFECT:       HF COM MOD
OBS SWX:          17/0314Z HNH HSH W180 - E180
FCST SWX +6 HR:   17/1000Z HNH HSH W180 - E180
FCST SWX +12 HR:  17/1600Z NOT AVBL
FCST SWX +18 HR:  17/2200Z NOT AVBL
FCST SWX +24 HR:  18/0400Z NOT AVBL
RMK:              SPACE WEATHER EVENT (HF COM AURORAL
                  ABSORPTION) IN PROGRESS. IMPACT ON LOWER
                  HF COM FREQUENCY BANDS EXPECTED AT HIGH
                  LATITUDES.
NXT ADVISORY:     WILL BE ISSUED BY 20240917/0908Z=
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0000061901
FNXX01 EFKL 292122
SWX ADVISORY
DTG:              20241029/2114Z
SWXC:             PECASUS
ADVISORY NR:      2024/522
SWX EFFECT:       GNSS SEV
OBS SWX:          29/2112Z EQN W030 - E000
FCST SWX +6 HR:   30/0400Z EQN EQS W075 - W030
FCST SWX +12 HR:  30/1000Z NOT AVBL
FCST SWX +18 HR:  30/1600Z NOT AVBL
FCST SWX +24 HR:  30/2200Z NOT AVBL
RMK:              SPACE WEATHER EVENT (IONOSPHERIC
SCINTILLATION) IN PROGRESS. IMPACT ON GNSS PERFORMANCE
POSSIBLY LEADING TO LOSS OF GNSS SIGNALS AND/OR DEGRADATION
 OF TIMING AND POSITIONING PERFORMANCE.
NXT ADVISORY:     WILL BE ISSUED BY 20241030/0311Z=
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PECASUS

SIDC is a member of the *PECASUS* consortium (https://pecasus.eu/) via the STCE (https://www.stce.be/)

- ICAO initiative, operations launched in November 2019
- Core team: FMI (Finland), ***STCE (Belgium)***, Met Office (UK)
- Real-time (24/7), worldwide Space Weather updates (commercial & general aviation)
  - Daily Briefing, Handover Briefing and *SWX Advisories*
- Part of a global network with NOAA/SWPC, ACFJ and CRC