

### 3-day Space Weather Conditions (SUPARCO)

**Friday, October 03, 2025, 14:12 PST**



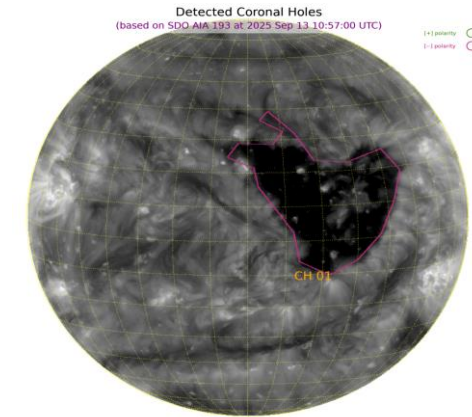
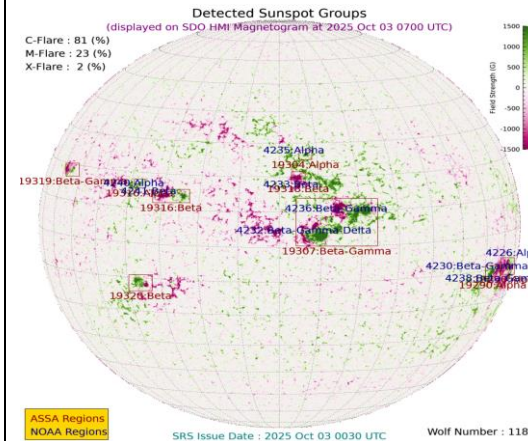
Radio Blackouts			Solar Radiation Storms			Geomagnetic Storms		
-24 Hr	Current	Predicted	-24 Hr	Current	Predicted	-24 Hr	Current	Predicted
R1	R0 / R1	R1 – R2	S0	S0	S0	G0 – G1	G0	G1

LOCAL CURRENT IONOSPHERIC CONDITIONS (SON)								
DATE	3-Oct-25 (noon)			4-Oct-25 (noon)			5-Oct-25 (noon)	
foF2	12.8 MHz			12.5 MHz			12.1 MHz	
h'F2	325 km			313 km			295 km	
TEC	78 TECU			75 TECU			72 TECU	
Maximum Usable Frequency (MUF) and Optimum Traffic Frequency (FOT) for various distances								
Distance (km)	100	200	400	600	800	1000	1500	3000
MUF (MHz) for 3 days (03 Oct – 05 Oct)	13.0	13.9	15.7	18.3	21.5	23.0	25.2	26.9
	12.7	13.6	15.4	18.0	21.1	22.7	24.9	26.4
	12.3	13.2	15.1	17.7	20.9	22.5	24.6	26.0
FOT (MHz) for 3 days (03 Oct – 05 Oct)	11.1	11.8	13.3	15.6	18.3	19.6	21.4	22.9
	10.8	11.6	13.1	15.3	18.1	13.3	21.2	22.4
	10.5	11.2	12.8	15.0	17.8	19.1	20.9	22.1
Local ionospheric conditions are normal enhanced as compared to the predicted monthly median MUF.								
LOCAL GEOMAGNETIC CONDITIONS								
K-index	2 (Quiet)			Quiet geomagnetic activity is expected.			Quiet geomagnetic activity is expected.	
F (SON/ISB)	45670/50500 nT			45672±10 /50505±20 nT			45675±10/50510±20 nT	
The local geomagnetic field is disturbed at the moment								
SOLAR CONDITIONS								
SN	161			154 (SSN-predicted)			148 (SSN-predicted)	
F 10.7	167 sfu			160 sfu			152 sfu	
Vsw	686.6 km/s (Varied in the past 12 hrs between 639 & 861 km/s)			Low to moderate levels of solar wind speed may prevail.			Low to moderate levels of solar wind speed may prevail.	
Solar flares	C2.6 (max. flare in the past (M1, 0523 UT)			Low to moderate levels of solar activity is expected.			Low to moderate levels of solar activity is expected.	
IMF Bt	+5.09 nT (varied in the past 12 hrs between +5.23 nT & +7.11 nT)			Expected to vary between positive and negative sectors.			Expected to vary between positive and negative sectors.	
Bz	-3.64 nT (varied in the past 12 hrs between -5.31 nT & +0.82 nT)							
Solar conditions are at moderate levels with background X-ray flux at C-class levels.								

## Daily Sun: 3 October 2025

There are four active regions AR4230, AR4232, AR4236 and AR4238 present on the Sun capable of producing strong M and X-class solar flares having chances of 23% and 2% respectively.

01 Coronal Hole (CH) is detected on the solar disk.



## 2-Day Conditions

- Solar activity is expected to be at moderate levels.
- Multiple M-class solar flares, have already occurred from the regions present on the solar disk.
- In case of more M/X-class solar flares, minor to moderate level HF radio blackouts are expected.
- Low to moderate levels of solar wind speed and quiet to unsettled levels of geomagnetic activity is expected.
- Normal ionospheric conditions are expected for the next 2 days. It is advised to use the frequency ranges mentioned in the ionospheric section.

### Credits:

*Solar conditions courtesy to SOHO, DSCOVR and GOES-16 missions.*

*NOAA SWPC is acknowledged for solar radio flux conditions.*

*Korean Space Weather Centre is acknowledged for solar disk and coronal hole images.*

**Sonmiani (SON): 25.2° N, 66.75° E**

**Islamabad (ISB): 33.7° N, 73.13° E**

## ANNEXURE

	<b>DEFINITIONS OF TERMINOLOGIES USED IN THIS SUMMARY</b>
foF2	Maximum frequency of F2-layer of the ionosphere
h'F2	Virtual height of the F2-layer
MUF	Maximum usable frequency for 3000 km
K-index	Local index defining geomagnetic conditions
Declination	Planetary A index defining geomagnetic conditions, predicted value during geomagnetic unsettled Conditions
F	Magnitude of the total geomagnetic field vector (unit in nano Teslas)
SON, difference	Sonmiani Geomagnetic Observatory mean value, <u>difference limit</u> from night time value of quiet conditions: 25-30 nT, max: 260 nT
ISB	Islamabad Geomagnetic Observatory mean value
SN	Relative sunspot numbers
V <sub>sw</sub>	Solar Wind Speed (km/s)
F10.7	Solar radio flux at 2.8 GHz (10.7 cm wavelength)
sfu	Solar flux unit (defines the solar radio 10.7 cm flux)
Solar Flare	Could be B, C, M and X depending upon the intensity of x-rays being emitted (each type has further 10 classes based on amount of energy released by the flare)
IMF	Interplanetary magnetic field (the source of which is the Sun)
B <sub>t</sub>	Total IMF (unit in Nano Teslas)
B <sub>z</sub>	Vertical component of IMF (could be north/upward/positive or south/downward/negative) (unit in nano Teslas)
AR	Active Regions on the sun currently in view
CME	Coronal Mass Ejection
CH	Coronal Hole
KASI	Korean Astronomy & Space Science Institute
SWFs	Short-wave fadeouts, caused by M/X class flares on the day lit side of the hemisphere absorbing lower Frequencies and hampering HF communication.
SSN-predicted	Smooth Sunspot Number-it is an estimated value using a mathematical relation to forecast it.

## **RSG SCALES**

<b><u>Radio Blackouts</u></b>				
<b>Minor</b> <b>R1</b>	<b>Moderate</b> <b>R2</b>	<b>Strong</b> <b>R3</b>	<b>Severe</b> <b>R4</b>	<b>Extreme</b> <b>R5</b>

<b><u>Solar Radiation Storms</u></b>				
<b>Minor</b> <b>S1</b>	<b>Moderate</b> <b>S2</b>	<b>Strong</b> <b>S3</b>	<b>Severe</b> <b>S4</b>	<b>Extreme</b> <b>S5</b>

<b><u>Geomagnetic Storms</u></b>				
<b>Minor</b> <b>G1</b>	<b>Moderate</b> <b>G2</b>	<b>Strong</b> <b>G3</b>	<b>Severe</b> <b>G4</b>	<b>Extreme</b> <b>G5</b>