Daily Space Weather Summary (SUPARCO)

Tuesday, December 24, 2024, 14:26 PST

SUPARCO

Radio Blackouts			Solar Radiation Storms			Geomagnetic Storms		
-24 Hr	Current	Predicted	-24 Hr	Current	Predicted	-24 Hr	Current	Predicted
R1 – R2	R0 / R1	R1 – R2	S0	S0 / S1	S0	G0	G0	G0 / G1

LOCAL CURRENT IONOSPHERIC CONDITIONS (SON)	
Critical Frequency of F2 layer (foF2)	12.3 MHz
Virtual Height of F2 layer (h`F2)	288 km
Total Electron Content (TEC)	44 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)	12.6	14.5	16.7	19.8	23.3	26.8	30.8	34.5
FOT (MHz)	10.7	12.3	14.2	16.8	19.8	22.8	26.2	29.3

Local HF conditions are slightly enhanced as compared to the predicted monthly median MUF.

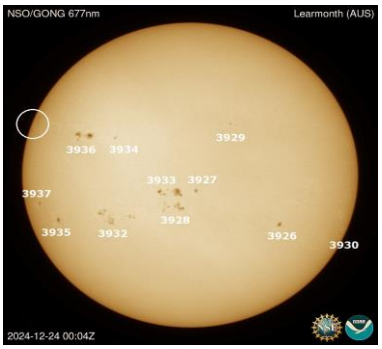
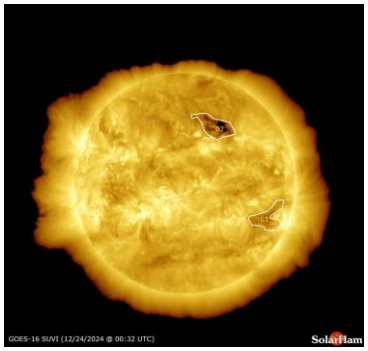
LOCAL GEOMAGNETIC CONDITIONS	
K-index	2 (Quiet)
Total Field (F) (Son/Isb)	45675/50718 nT

The local geomagnetic field is quiet at the moment.

LATEST SOLAR CONDITIONS	
Sunspot Number (SN)	199
Solar radio flux (F10.7)	238 sfu
Solar wind speed	603.7 km/s (varied in the past 24 hrs between 486 & 647 km/s)
Solar x-ray flares	C3.0 (max flare in the past 24 hrs (M8, 1112 UT)
Interplanetary Magnetic Field (IMF) **Total Field (Bt)** **Z Component of Field (Bz)**	+6.03 nT (varied in the past 12 hrs between +3.75 nT & +5.69 nT) +5.11 nT (varied in the past 12 hrs between -3.48 nT & +4.31 nT)

Solar conditions are at moderate to high levels with background X-ray flux at C-class level.

Daily Sun: 24 December 2024

There are three active regions AR3928, AR3932 and AR3933 present on the Sun capable of producing strong solar flares. 02 Coronal Holes (CHs) are detected on the solar disk.		

DISCUSSION:

Solar activity is expected to be at moderate to high levels. Multiple M-class solar flares, have occurred from the regions mentioned above causing minor to moderate levels radio blackouts. In case of more M/X-class solar flares, R1–R2 levels radio blackouts may be observed. Moderate to slightly elevated levels of solar wind speed is expected to prevail due to the combined effect of CME and coronal holes. Geomagnetic activity is expected to be at quiet to unsettled levels. HF conditions are slightly enhanced.

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

RSG SCALES

Radio Blackouts				
Minor	**Moderate**	**Strong**	**Severe**	**Extreme**
R1	**R2**	**R3**	**R4**	**R5**

Solar Radiation Storms				
Minor	**Moderate**	**Strong**	**Severe**	**Extreme**
S1	**S2**	**S3**	**S4**	**S5**

Geomagnetic Storms				
Minor	**Moderate**	**Strong**	**Severe**	**Extreme**
G1	**G2**	**G3**	**G4**	**G5**