3-day Space Weather Conditions (SUPARCO)

Friday, October 28, 2022, 12:28 PST
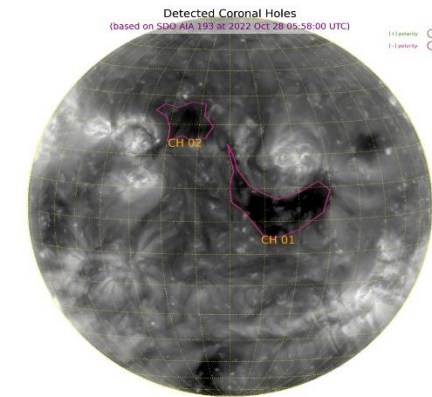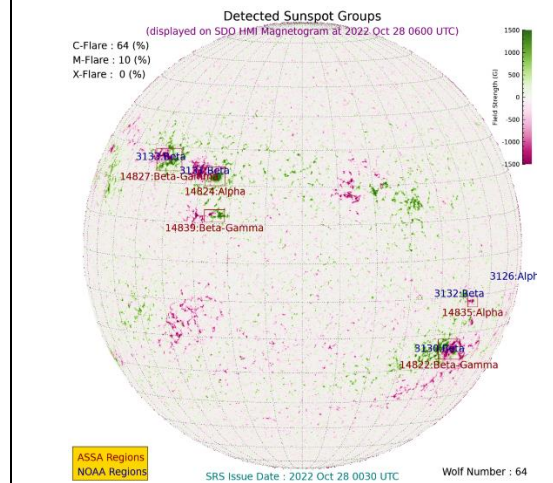
	LOCAL CURRENT IONOSPHERIC CONDITIONS (SON)		
DATE	**28-Oct-22(noon)**	**29-Oct-22 (noon)**	**30-Oct-22 (noon)**
foF2	10.7 MHz	10.4 MHz	10.1 MHz
h'F2	255 km	248 km	240 km
TEC	48 TECU	46 TECU	44 TECU

		Maximum Usable Frequency (MUF) and Optimum Traffic Frequency (FOT) for various distances						
Distance (km)	**100**	**200**	**400**	**600**	**800**	**1000**	**1500**	**3000**
MUF (MHz) for 3 days (28 Oct - 30 Oct)	10.9	11.4	13.3	15.7	18.4	21.0	26.9	31.7
	10.6	11.2	13.0	15.5	18.2	20.8	26.7	31.2
	10.3	10.8	12.7	15.3	18.0	20.6	26.5	30.8
FOT (MHz) for 3 days (28 Oct - 30 Oct)	9.3	9.7	11.3	13.4	15.6	17.9	22.9	26.9
	9.0	9.5	11.1	13.2	15.5	17.7	22.7	26.6
	8.8	9.2	10.8	13.0	15.3	17.5	22.5	26.2

Local ionospheric conditions are normal as compared to the predicted monthly median MUF.

	LOCAL GEOMAGNETIC CONDITIONS		
K-index	2	Quiet geomagnetic activity is expected.	Quiet geomagnetic activity is expected.
F (SON/ISB)	45535/50045 nT	45545±10 /50050±20 nT	45545±10/50050±20 nT

The local geomagnetic field is quiet at the moment.

	SOLAR CONDITIONS		
SN	72	70 (SSN-predicted)	68 (SSN-predicted)
F 10.7	130 sfu	124 sfu	118 sfu
Vsw	397.9 km/s (Varied in the past 12 hrs between 310 & 559 km/s)	Low levels of solar wind speed may prevail.	Low levels of solar wind speed may prevail.
Solar flares	B5.7 (max. flare in the past 24 hrs: C1, 1003 UT)	Low levels of solar activity expected.	Low levels of solar activity expected.
IMF Bt **Bz**	3.3 nT (varied in the past 12 hrs between 2.1 nT & 8.1 nT) -0.6 nT (varied in the past 12 hrs between -0.9 nT & 5.2 nT)	Expected to vary between positive and negative sectors.	Expected to vary between positive and negative sectors.

Solar conditions are at low levels with background X-ray flux at B-class levels.

Daily Sun: 28 October 2022

There is no active region present on the Sun capable of producing strong solar flares.

02 Coronal Holes (CHs) are detected on the solar limb.

Detected Sunspot Groups
(displayed on SDO HMI Magnetogram at 2022 Oct 28 0600 UTC)

C-Flare : 64 (%)
M-Flare : 10 (%)
X-Flare : 0 (%)

3137:Beta
14827:Beta-Gamma
14824:Alpha
14839:Beta-Gamma
3126:Alph
3132:Beta
14835:Alpha
14822:Beta-Gamma

ASSA Regions
NOAA Regions

SRS Issue Date : 2022 Oct 28 0030 UTC   Wolf Number : 64

Detected Coronal Holes
(based on SDO AIA 193 at 2022 Oct 28 05:58:00 UTC)

CH 02
CH 01

2-Day Conditions

Solar activity is expected to be at low levels with background X-ray flux at B-class levels. In case of solar flares, shortwave radio fadeouts are possible.
Low solar wind speed and quiet geomagnetic activity is expected to prevail over the weekend.
Normal ionospheric conditions are expected for the next 2 days. It is advised to use the frequency ranges mentioned in the ionospheric section.

For information on radio blackout levels, please follow the link:
http://www.swpc.noaa.gov/noaa-scales-explanation

Acknowledgements:

Images source: Solar Dynamics Observatory-SDO both images showing the Solar disk and Coronal Holes have been processed at SUPARCO using Automatic Solar Synoptic Analyzer (ASSA), developed jointly by the Korean Space Weather Centre of the Radio Research Agency (RRA) & Space Environment Laboratory (SELab).

Data sources: The planetary indices and solar data are taken from the URLs below:

*http://*www.spaceweather.go.kr
*http://*www.sws.bom.gov.au
*http://*www.solarmonitor.org

Sonmiani (SON): 25.2º N, 66.75º E
Islamabad (ISB): 33.7º N, 73.13º E

DEFINITIONS OF TERMINOLOGIES USED IN THIS SUMMARY	
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, difference limit from night time value of quiet conditions: 25-30 nT, max: 260 nT
ISB	Islamabad Geomagnetic Observatory mean value
SN	Relative sunspot numbers
Vsw	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)
Bt	Total IMF (unit in Nano Teslas)
Bz	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 daylit 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.