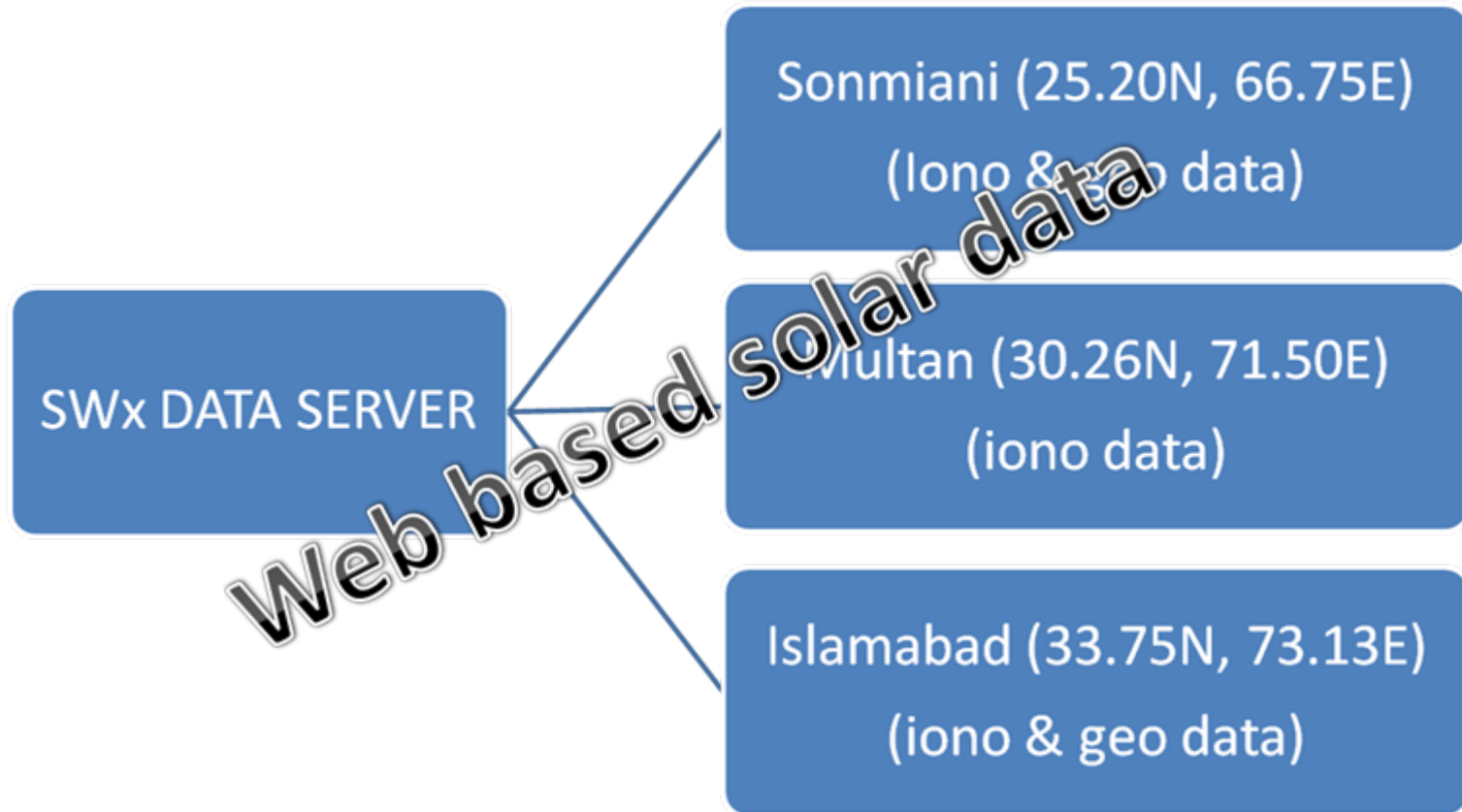
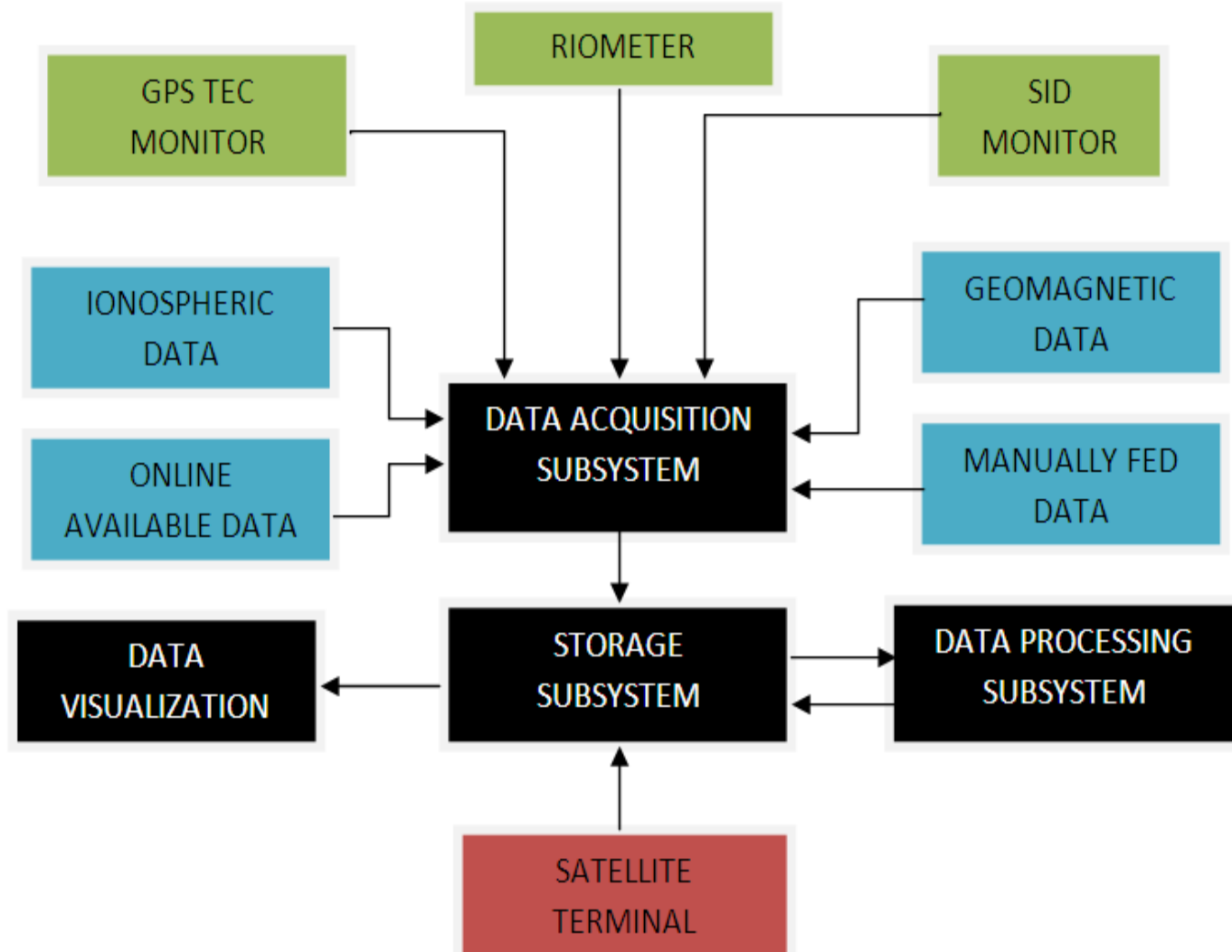
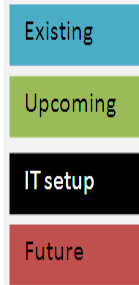


# PRESENT SCENARIO



Additionally, three Sudden Ionospheric Disturbance (SID) monitors one at each location are acquiring data under testing phase

# PROPOSED SPACE WEATHER MONITORING CENTRE



# PRESENT PRODUCTS/SERVICES

- 5 day SWx summary
- HF and MUF Bulletins
- Ionospheric and geomagnetic data bulletins
- Capacity building of users, policy makers and academia in SWx

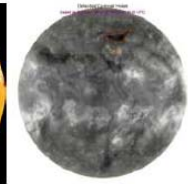
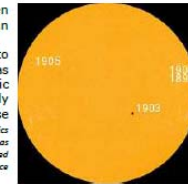
Daily Space Weather Summary (SUPARCO)  
Tuesday, November 26, 2013, 12:07 PST



LOCAL CURRENT IONOSPHERIC CONDITIONS	
foF2	9.0 MHz
h'F2	310.2 km
MUF	30 MHz
Local ionospheric conditions are nominal for now. Short-wave fadeouts possible. HF radio comms expected to be enhanced on Nov 28. In case of HF comms difficulty, try a higher frequency band.	
LOCAL GEOMAGNETIC CONDITIONS	
Kp	0 (max Kp in 24 hrs: 1, no effect)
Ap	1 (max Ap in 24 hrs: 8, no effect)
F	45038 nT (SON: 44800 nT)
	49571 nT (ISP: 49700 nT)
The local geomagnetic field is quiet now (as shown in green).	
LATEST SOLAR CONDITIONS	
SN-NOAA/KASI	52/52
Solar radio flux-NOAA/KASI	127/119 sfu
Solar wind speed	289.24 km/sec (varied in the past 12 hrs between 319 & 275 km/s)
Solar x-ray flares (11:30 PST)	C 1.1
IMF	
Bt	1.886 nT (varied in the past 12 hrs between 1.7 & 3.042 nT)
Bz	+1.024 nT (varied in the past 12 hrs between -0.7 & +1.2 nT)
Solar activity is active with background X-ray flux at C-class levels. Local geomagnetic conditions are at quiet levels. Local HF working frequencies are slightly elevated compared to monthly average predicted values. (The Kp and Ap indices and solar X-ray flares info are taken from the real-time software Proplab-Pro 3) ( <a href="http://www.spaceweather.go.kr">www.spaceweather.go.kr</a> , <a href="http://spaceweather.sansa.org.za/products-and-services/forecasts-and-predictions">http://spaceweather.sansa.org.za/products-and-services/forecasts-and-predictions</a> , <a href="http://www.ips.gov.au">www.ips.gov.au</a> , <a href="http://www.spaceweather.com">http://www.spaceweather.com</a> , <a href="http://sidc.oma.be/">http://sidc.oma.be/</a> )	

Daily Sun: 26 November 2013

Normal geomagnetic and ionospheric conditions have been observed. Also, MUF values were upto 70% higher than normal values yesterday. The Active Regions AR 1904 and AR 1905 have potential to release further M class flares. This may continue as long as the sunspot region maintains its complex magnetic configuration. There is one CH on the solar limb currently which would become earth-directed in 2 days to cause slight geomagnetic disturbance. (Images source: Solar Dynamics Observatory-SDO) Both images on right showing the Solar disk and Coronal Hole has been processed at SUPARCO using Automatic Solar Synoptic Analyzer (ASSA), developed jointly by the Korean Space Weather Centre of the Radio Research Agency (KRWAC) & Space Environment Laboratory (SELab)



DEFINITIONS	
foF2	Maximum frequency of F2-layer of the ionosphere
h'F2	Virtual height of the F2-layer
MUF	Maximum usable frequency for 3000km
Kp, Max Kp	Planetary index defining geomagnetic conditions, predicted value during geomagnetic unsettled conditions
Ap, Max Ap	Planetary A index defining geomagnetic conditions, predicted value during geomagnetic unsettled conditions
F	Magnitude of the total geomagnetic field vector
SON, difference	Sonmiani Geomagnetic Observatory mean value, difference limit from night time value from quiet conditions: 25-30 nT, max: 260 nT
ISP	Islamabad Geomagnetic Observatory mean value
SN	Relative sunspot numbers
NOAA	National Oceanic & Atmospheric Administration
KASI	Korean Astronomy & Space Science Institute
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)
IMF	Interplanetary magnetic field (the source of which is Sun)
Bt	Total IMF
Bz	Vertical component of IMF (could be north/upward/positive or south/downward/negative)
AR	Active Regions on the sun currently in view
CME	Coronal Mass Ejection
CH	Coronal Hole

# WAY FORWARD

The establishment of the Centre shall be used for:

- Prediction and generation of space weather products in near-real time using local and online available data sources
- Timely dissemination of reliable space weather information to users
- Safe launching & smooth operation of satellites
- To become part of ISES

# CONCLUSION

- SUPARCO is a member of different regional and international SWx related fora, such as AOSWA, APSCO, UN COPUOS, ICTSW, INTERMAGNET, COSPAR etc, however we look forward to collaboration/assistance in establishing Pakistan's SWx centre in terms of data acquisition & troubleshooting, data analysis and SWx forecasting
- We are keenly awaiting any opportunity provided for Masters/Ph.D. courses under expert supervision from developed countries
- We welcome SWx experts, Solar & Space Physicists to visit SUPARCO
- We are open to initiating collaborative studies and publications



**THANK YOU**