

Item	Element	Description
SFI	Solar Flux Index	DRAO Penticton reported value from 62.5 to 300. Intensity of solar radiation measured at 2800MHz (10.7cm). Good indication of the F layer ionization (layer that gives us most of our DX on HF). The higher the number, the greater the level of ionization is, and the higher the frequency. Measured three times daily, and the last received value is reported.
SN	Sunspot Number	NOAA reported value from 0 to 250. Daily Sunspot Number provided by NOAA is computed using a formula $[R=k(10g+s)]$ by Rudolph Wolf in 1848, where R is the sunspot number; g is the number of sunspot groups on the solar disk; s is the total number of individual spots in all the groups; and k is a variable scaling factor (usually <1) that accounts for observing conditions and the type of observing device. SN does loosely correlate to SFI. Updated once daily.
A	Planetary A Index	NOAA reported value from 0 to 400. Provides a daily average level for geomagnetic activity. Uses the average of eight 3 hour K-Index values (magnetic value measured in nanotesla or nT) to provide the level of instability in the earth's geomagnetic field. When used with K-Index: Both high indicates geomagnetic field is unstable, and HF signals are prone to sudden fades, and some paths may close while others open up abruptly and with little warning. High K index/Low A indicates a sudden, abrupt disturbance in the geomagnetic field, which can cause an intense but brief disruption in HF propagation, but can cause an auroral event. Updated once daily.
K	Planetary K Index	NOAA reported value from 0 to 9. Measures disturbances in the horizontal component of earth's magnetic field. Value in nT is measured using a magnetometer during a three-hour interval, and then converted to a factor. Use with A-Index – sees above to determine HF conditions. Updated eight times daily.
X-Ray or XRY	Hard X-Rays	NOAA reported value from A0.0 to X9.9. Intensity of hard x-rays hitting the earth's ionosphere. Impacts primarily the D-layer (HF absorption). The letter indicates the order of magnitude of the X-rays (A, B, C, M and X), where A is the lowest. The number further defines the level of radiation. Updated eight times daily.
304A	304 Angstroms	NOAA reported value from 0 to unknown. Relative strength of total solar radiation at a wavelength of 304 angstroms (or 30.4 nm), emitted primarily by ionized helium in the sun's photosphere. Two measurements are available for this parameter, one measured by the Solar Dynamics Observatory, using the EVE instrument, and the other, using data from the SOHO satellite, using its SEM instrument. Responsible for about half of all the ionization of the F layer in the ionosphere. 304A does loosely correlate to SFI. Updated hourly.
Pnt Flx or PF	Proton Flux	NOAA reported value from 0 to unknown. Density of charged protons in the solar wind. The higher the numbers, the more the impact the ionosphere. Primarily impacts the E-Layer of the ionosphere. Updated hourly.
Elc Flx or EF	Electron Flux	NOAA reported value from 0 to unknown. Density of charged electrons in the solar wind. The higher the numbers (>1000), the more the impact the ionosphere. Primarily impacts the E-Layer of the ionosphere. Updated hourly.
Aur	Aurora	NOAA reported value from 0 to 10++. Indicates how strong the F-Layer ionization is in the polar regions. Higher values cause auroral events (including northern/southern lights) to move to lower latitude. Updated hourly.
n	Normalization	NOAA reported value from 0 to 5. When <2.0, high confidence in Aurora measurement. When >2, low confidence. Updated hourly.
Bz	Bz Component	NOAA reported value from +50 to -50. Strength and direction of the interplanetary magnetic field as impacted by solar activity. Positive is same direction as the earth's magnetic field, and negative is the opposite magnetic polarity. Cancels out earth's magnetic field when negative, which increases the impact of solar particles in the ionosphere. Updated hourly.

SW	Solar Wind	NOAA reported value from 0 to 1000. Speed (kilometers per second) of the charged particles as they pass earth. The higher the speed, the greater the pressure is exerted on the ionosphere. Values greater than 500 km/sec have impact on HF communications. Updated hourly.
Aur Lat	Aurora Latitude	Calculated value from 67.5 to <45.0. Calculation from NOAA utilizes the current Aurora measurement. Used to estimate the lowest latitude impacted by the auroral event. Updated hourly.
Aur	Aurora	DX-Robot reported event (used with permission). Reports Band Closed for No/Low Auroral activity, High LAT AUR for Auroral activity >60°N, or MID LAT AUR for Auroral activity from 60° to 30°N. Updated every ½ hour.
EsEU	Sporadic E Europe	DX-Robot reported event (used with permission). Reports Band Closed, High MUF when 2M only is open, or 50/70/144MHz ES when the respective band is reported open. Updated every ½ hour.
EsNA	Sporadic E North America	DX-Robot reported event (used with permission). Reports Band Closed, High MUF when conditions support Es, and 144MHz ES when the band is reported open. Updated every ½ hour.
EME Deg	Earth-Moon-Earth Degradation	Make More Miles reported value (used with permission). Reports EME path attenuation as Very Poor (>5.5dB), Poor (4dB), Moderate (2.5dB), Good (1.5dB), Very Good (1dB), Excellent (<1dB). Updated every ½ hour.
MUF	Maximum Usable Frequency	Make More Miles reported value (used with permission). Provides the Maximum Usable Frequency in a colored bar. Gray indicates No Sporadic E (ES) activity, blue indicates ES reported @ 6M, green indicates ES reported @ 4M, yellow indicates conditions support 2M ES, and red indicates reported @ 2M. Updated every ½ hour.
MS	Meteor Scatter	Make More Miles reported value (used with permission). Provides the Meteor Scatter activity, blue (low), green, yellow, orange, to red (high) activity in a colored bar. Updated every ½ hour.
GeoMag Fld	Geomagnetic Field	Calculated value. Indicates how quiet or active the earth's magnetic field is based on the K-Index value. Reports as Inactive, Very Quiet, Quiet, Unsettled, Active, Minor Storm, Major Storm, Severe Storm, or Extreme Storm. Higher indications can cause HF blackouts and auroral events. Updated every three hours.
Sig Noise Lvl	Signal Noise Level	Calculated value. Indicates how much noise (in S-units) is being generated by interaction between the solar wind and the geomagnetic activity. A more active and disturbed solar wind, the greater the noise. Updated every ½ hour.
MUF	Maximum Usable Frequency	NOAA reported value from 0 to 100MHz. Provides the maximum usable frequency in MHz at one of 11 locations worldwide. Updated every 15 minutes.
CME	Coronal Mass Ejection	NOAA/SWPC predicted date and time (in UTC). Provides the date and time of a predicted earth bound CME event. Color coded for severity, where green is minor, yellow is moderate, and red is severe. Updated when predictions are received from NOAA/SWPC

HF & VHF Propagation Conditions based on Current Solar-Terrestrial and other Data

Current Solar-Terrestrial Data	Category	Radio Blackouts Use X-Ray	Solar Radiation Storms Use Proton Flux	Geomagnetic Storms Use K-Index/K-nT/ Aurora/Solar Wind/Bz	Band Openings Use Solar Flux (SN)	Electron Alert Use Electron Flux															
<div style="background-color: black; color: white; padding: 5px;"> <p>Solar-Terrestrial Data 2011 Sep 25 1805 UTC SFI: 174 SN: 88 A: 4 K: 3/27 nT X-Ray: C5.0 304A: 172.7 @ SEM Ptn Flx: 1.74e+01 Elc Flx: 1.07e+02 Aurora: 6 /n=0.87 Bz: 6.6 SW: 338.9</p> <p>HF Conditions</p> <table border="1" style="font-size: small; border-collapse: collapse;"> <tr><th>Band</th><th>Day</th><th>Night</th></tr> <tr><td>80n-40n</td><td>Poor</td><td>Fair</td></tr> <tr><td>30n-20n</td><td>Poor</td><td>Good</td></tr> <tr><td>17n-15n</td><td>Good</td><td>Good</td></tr> <tr><td>12n-10n</td><td>Good</td><td>Poor</td></tr> </table> <p>VHF Conditions</p> <p>Aur Lat 68.7° Aurora Band Closed 6m EsEU Band Closed 4m EsEU Band Closed 2m EsEU Band Closed 2m EsMF Band Closed EME Lp: Very Good</p> <p>MUF  MS </p> <p>Geomag Field UNSETTLD Sig Noise Lvl S2-S3 MUF US Boulder 28.29</p> <p>Current Solar Image</p>  </div>	Band	Day	Night	80n-40n	Poor	Fair	30n-20n	Poor	Good	17n-15n	Good	Good	12n-10n	Good	Poor	Extreme	X20 (1 per cycle) Complete HF blackout on entire sunlit side lasting hours	1000000 (1 per cycle) Complete HF blackout in polar regions	K=9 (nT=>500) [Aur=10++] (SW=>800) [Bz=-40 -50] (4 per cycle) HF impossible. Aurora to 40°. Noise S30+.	200-300 (SN=160-250) Reliable communications all bands up through 6m	>1000 Alert Partial to complete HF blackout in polar regions
	Band	Day	Night																		
	80n-40n	Poor	Fair																		
	30n-20n	Poor	Good																		
	17n-15n	Good	Good																		
12n-10n	Good	Poor																			
Severe	X10 (8 per cycle) HF blackout on most of sunlit side for 1 to 2 hours	100000 (3 per cycle) Partial HF blackout in polar regions	K=8 (nT=330-500) [Aur=10+] (SW=700-800) [Bz=-30 -40] (100 per cycle) HF sporadic. Aurora to 45°. Noise S20-S30.																		
Strong	X1 (175 per cycle) Wide area HF blackout for about an hour on sunlit side	10000 (10 per cycle) Degraded HF propagation in polar regions	K=7 (nT=200-330) [Aur=10] (SW=600-700) [Bz=-20 -30] (200 per cycle) HF intermittent. Aurora to 50°. Noise S9-S20.	150-200 (SN=105-160) Excellent conditions all bands up through 10m w/6m openings																	
Moderate	M5 (350 per cycle) Limited HF blackout on sunlit side for tens of minutes	1000 (25 per cycle) Small effects on HF in polar regions	K=6 (nT=120-200) [Aur=9] (SW=500-600) [Bz=-10 -20] (600 per cycle) HF fade higher lats. Aurora to 55°. Noise S6-S9.	120-150 (SN=70-105) Fair to good conditions all bands up through 10m	<1000 Active Degraded HF propagation in polar regions																
Minor	M1 (2000 per cycle) Occasional loss of radio contact on sunlit side	100 (50 per cycle) Minor impacts on HF in polar regions	K=5 (nT=70-120) [Aur=8] (SW=400-500) [Bz=0 -10] (1700 per cycle) HF fade higher lats. Aurora to 56°. Noise S4-S6.	90-120 (SN=35-70) Fair conditions all bands up through 15m	<100 Active Minor impacts on HF in polar regions																

	Active	C1 Moderate Flare Low absorption of HF signals	10 Active Very minor impacts on HF in polar regions	K=3-4 (nT=20-70) [Aur=6-7] (SW=200-400) [Bz=0-+50] Unsettled/Active Minor HF fade higher lats. Aurora 60-58°. Noise S2-S3.	70-90 (SN=10-35) Poor to fair conditions all bands up through 20m	<10 Normal No impacts on HF
	Normal	A1-B9 No/Small Flare No or very minor impact to HF signals	1 Normal No impacts on HF	K=0-2 (nT=0-20) [Aur=<5] (SW=200-400) [Bz=0-+50] Inactive/Quiet No impacts on HF. Aurora 67-62°. Noise S0-S2.	64-70 (SN=0-10) Bands above 40m unusable	<1 Normal No impacts on HF

VHF Conditions

Aur Lat (Auroral Latitude): Indicates lowest latitude from the current Aurora Activity measurement. Text color coded for low activity, hi-latitude, & mid-latitude.

Aurora (Northern Auroral Activity): Band Closed = No/Low Auroral activity. High LAT AUR = Auroral activity >60°N. MID LAT AUR = Auroral activity 60° to 30°N.

EsEU (Sporadic E - Europe): Band Closed = No Sporadic E (ES) activity. High MUF (2M only) = Cond support 2M ES 50/70/144MHz ES = Respective band open

EsNA (Sporadic E - North America): Band Closed = No Sporadic E (ES) activity. High MUF = Cond support 2M ES 144MHz ES = ES reported @ 2M

EME (Earth-Moon-Earth): Current EME degradation. Very Poor (>5.5dB), Poor (4dB), Moderate (2.5dB), Good (1.5dB), Very Good (1dB), Excellent (<1dB).

MUF (Max Usable Frequency Bar Color): No Sporadic E (ES) activity / ES reported @ 6M / ES reported @ 4M / Cond support 2M ES / ES reported @ 2M

MS (Meteor Scatter Bar): Use color code below bar to determine relative activity.