

HANDIMAN'S GUIDE TO SOLAR ACTIVITY & HF PROPAGATION FOR THE QRPer

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USEFUL LINKS:

www.sec.noaa.gov/today.html

Official Space Environment Center current "Space Weather" from NOAA. Also check: www.spaceweather.com

www.dxlc.com/solar

Graphical display of solar flux, sunspots and A-index by Jan Alvestad, SOHO images, and other very useful information.

<http://umtof.umd.edu/pm/>

Solar wind data (speed and density) from proton monitor on SOHO satellite.

www.spacew.com/www/realtime.php

Near real-time MUF (max. usable freq.) map

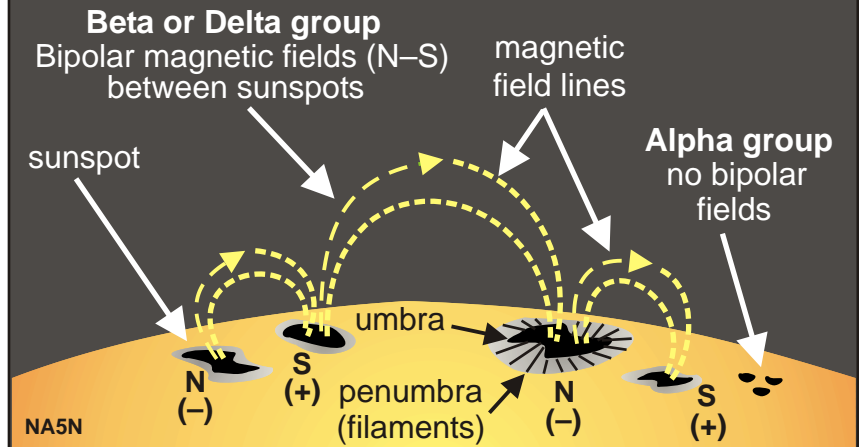
www.drao-ofr.hia-ihh.nrc-cnrc.gc.ca/icarus/www/current_flux.shtml

Current solar flux from the "horses mouth" - Pentictin

Classifications of Sunspots/Active Regions

Sunspot Class	Description of the Active Region	Potential for Solar Flare Activity
ALPHA	Unorganized, unipolar magnetic fields	Little threat, but watched for further growth
BETA	Bipolar magnetic fields between sunspots	C class flares and possible M class flares
DELTA	Strong, compact bipolar fields between sunspots	High potential for large M or X class flares

Sunspot Groups Illustrated



Geomagnetic Indices & Conditions

	K Index	Ap Index	Geomagnetic Conditions	HF Noise	Aurora
NORMAL	0	0-2	Very Quiet	S1-S2	None
	1	3-5	Quiet	S1-S2	None
	2	6-9	Quiet	S1-S2	Very low
	3	12-19	Unsettled	S2-S3	Very low
STORM	4	22-32	Active	S2-S3	Low
	5	39-56	MINOR storm	S4-S6	High
	6	67-94	MAJOR storm	S6-S9	Very high
	7	111-154	SEVERE storm	S9+	Very high
	8	179-236	SEVERE STORM	Blackout	Extreme
	9	300-400	EXTREME storm	Blackout	Extreme

Equivalent Planetary A-Index (Ap)
Geomagnetic conditions yesterday

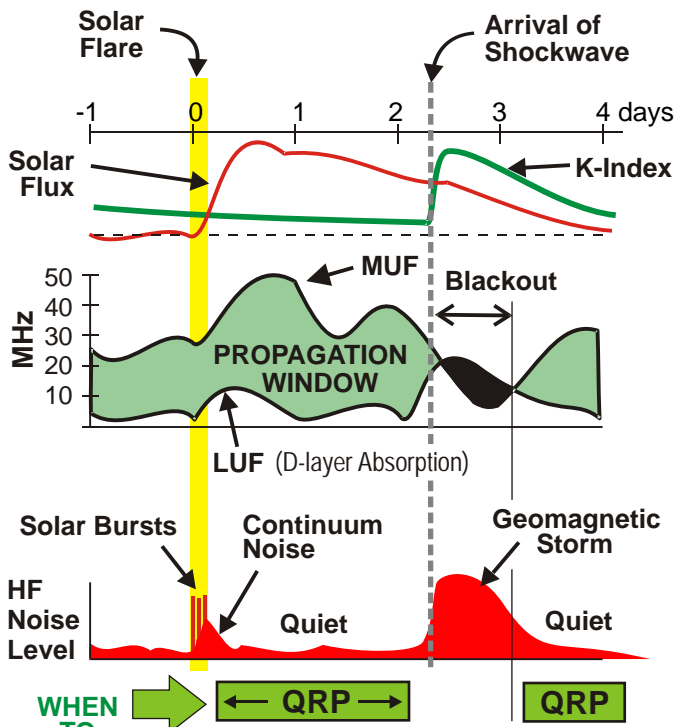
For current 3-hour conditions, use K-index

Solar Flare Classifications

Flare Class	Type of Flare	HF Radio Effects (30M to 10M)	Geomagnetic storm (<20M)
A	Very small	None	None
B	Small	None	None
C	Moderate	Low absorption	† Active to Minor
M	Large	High absorption	† Minor to Major
X	Extreme	Possible blackout	† Major to Severe

† Conditions cited only if Earth is in the trajectory of the flare's shockwave.

Anatomy of a strong Solar & Geomagnetic storm



- 1) After a solar flare - MUF is elevated
- 2) After G.M. Storm - Earth's field is quiet