

HF Propagation

The Hype

K8TE

ADDXA

**Albuquerque DX
Association**

Good DX

Good Luck in the Contest!

<https://adxa.groups.io/>

**"HF Propagation
Fact vs. Hype and Misinformation"
You're Not in Cycle 24 Anymore!**

Bill Mader

K8TE@ARRL.NET

<https://www.dukecityhamfest.org/>

HF Propagation

- The Hype
- The Misinformation
- Reality Sources
- What do the Data Mean?
- Dispelling Hype & Misinformation

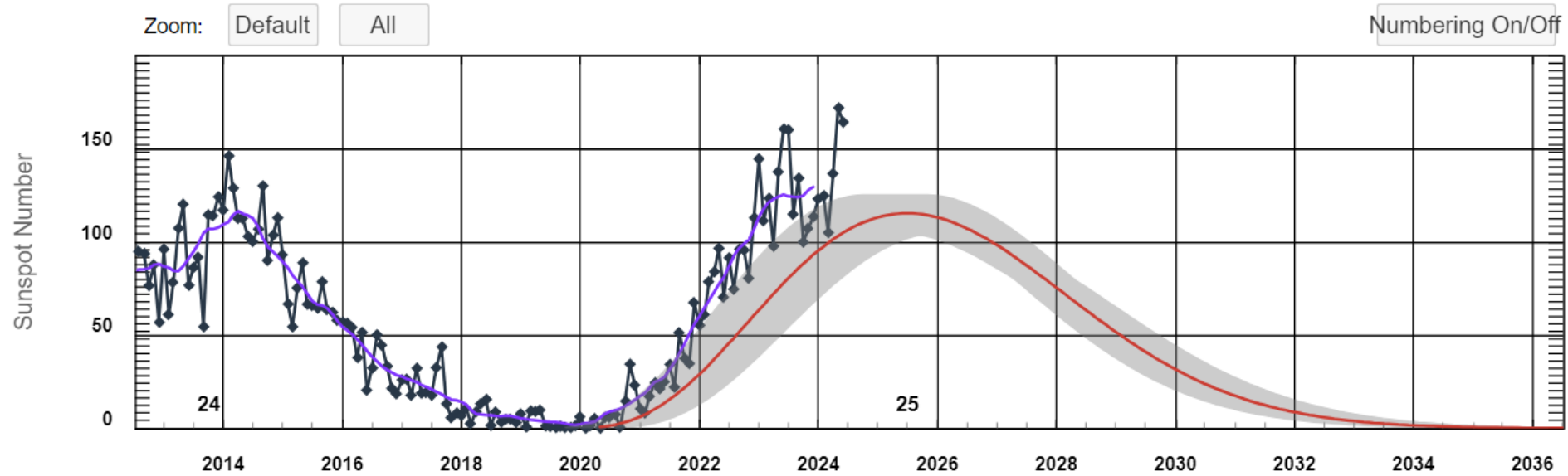
Propagation Hype

Cycle 25 Prediction

“the National Center for Atmospheric Research in Boulder, Colorado is predicting that the sunspot cycle that started this fall could be one of the strongest since record-keeping began”

Propagation Reality

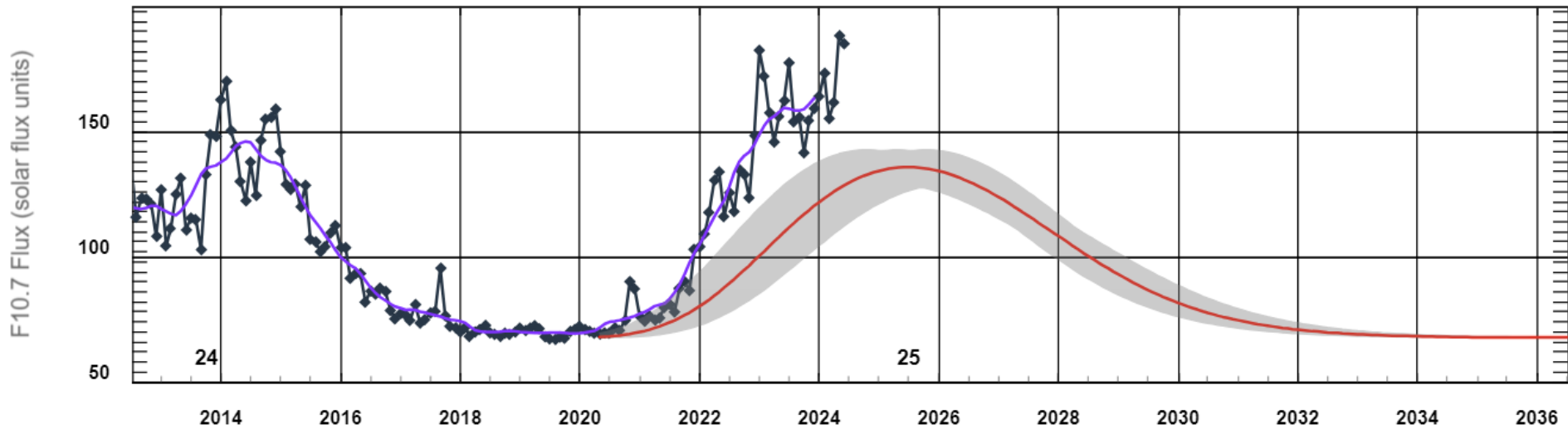
ISES Solar Cycle Sunspot Number Progression



More Propagation Reality

ISES Solar Cycle F10.7cm Radio Flux Progression

Zoom:



Hype vs. Reality

- TV News “Vision” of Programming
“If it Bleeds it Leads”
- PBS’ NOVA Dramatic Music
- New Cars Sales Commercials
- Over-the-Top Political...
“Alternative Facts”

Define Hype

Noun:

Extravagant or Intensive
Publicity or Promotion

Consider Who or What is Promoted

Propagation Misinformation

- Listen to HF/VHF/UHF
 - “The Bands are Dead Today”
 - “Nobody is on 20 meters CW”
 - “Is 10 meters Open?”
- Subscribe to Any E-Mail List
 - “R5 Blackout This Week” (Actually R1)
 - “CME Changed Receive Frequencies”
 - “15 meters Was Dead Yesterday”
(I worked 7 DX Stations)

Dispelling Hype & Misinformation

- Don't Pass On the "I heard..." Comments
- Check Reliable Sites/Sources
It Takes Seconds to Get the Facts
- Do Your Experiences Match Reliable Sources?
- Compare Your Antennas Against Others'
- Learn More Propagation Science

Propagation Reality Sources

- <https://www.solarham.net/index.htm>
- <https://www.hamqsl.com/solar.html#addwebsites>
- <https://prop.kc2g.com/>
- <https://www.reversebeacon.net/srch.php>
- <https://www.contestuniversity.com/files/>
- <https://www.swpc.noaa.gov/>
- **ARRL Propagation Bulletin**

S
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3 Day Geomagnetic Forecast

| July 7 | July 8 | July 9 |
|----------------------|-----------------|---------------|
| 2 (G0) | 3-4 (G0) | 3 (G0) |
| <i>Max Kp</i> | | |
| M-Lat | M-Lat | M-Lat |
| 01% | 15% | 05% |
| H-Lat | H-Lat | H-Lat |
| 20% | 45% | 30% |
| <i>Probabilities</i> | | |

Latest SWPC Forecast (@ 00:30 + 12:30 UTC)

[Detailed Forecast](#)

Current Moon Phase:
3% Illumination

Flare Events (M2+) Past 48 Hours

| | | |
|-------------|----------|---------------------------|
| M2.4 | E | 7/7/24 @ 22:30 UTC |
| Limb | | |

[Event Report](#) [Top Solar Flares](#)

Visible Sunspot Regions

Solar Flare Detection

Data provided by NOAA/SWPC **GOES-16 X-Ray Flux** [Click to expand data](#)

Solar Flare Class (left axis): X, M, C, B, A

Radio Blackout Level (right axis): R5, R3, R1, R0

Current Status: X-Rays **C5.0**, Current **Solar Demon**, Solar SOFT

Global D-LAYER Absorption

Current Solar Flare Threat

| | |
|---------------------|---------------------|
| C-Flare: 99% | M-Flare: 40% |
| X-Flare: 05% | Proton: 05% |

[Probability Details](#)

Geomagnetic Field and Aurora

Past 24 Hours **Unsettled**

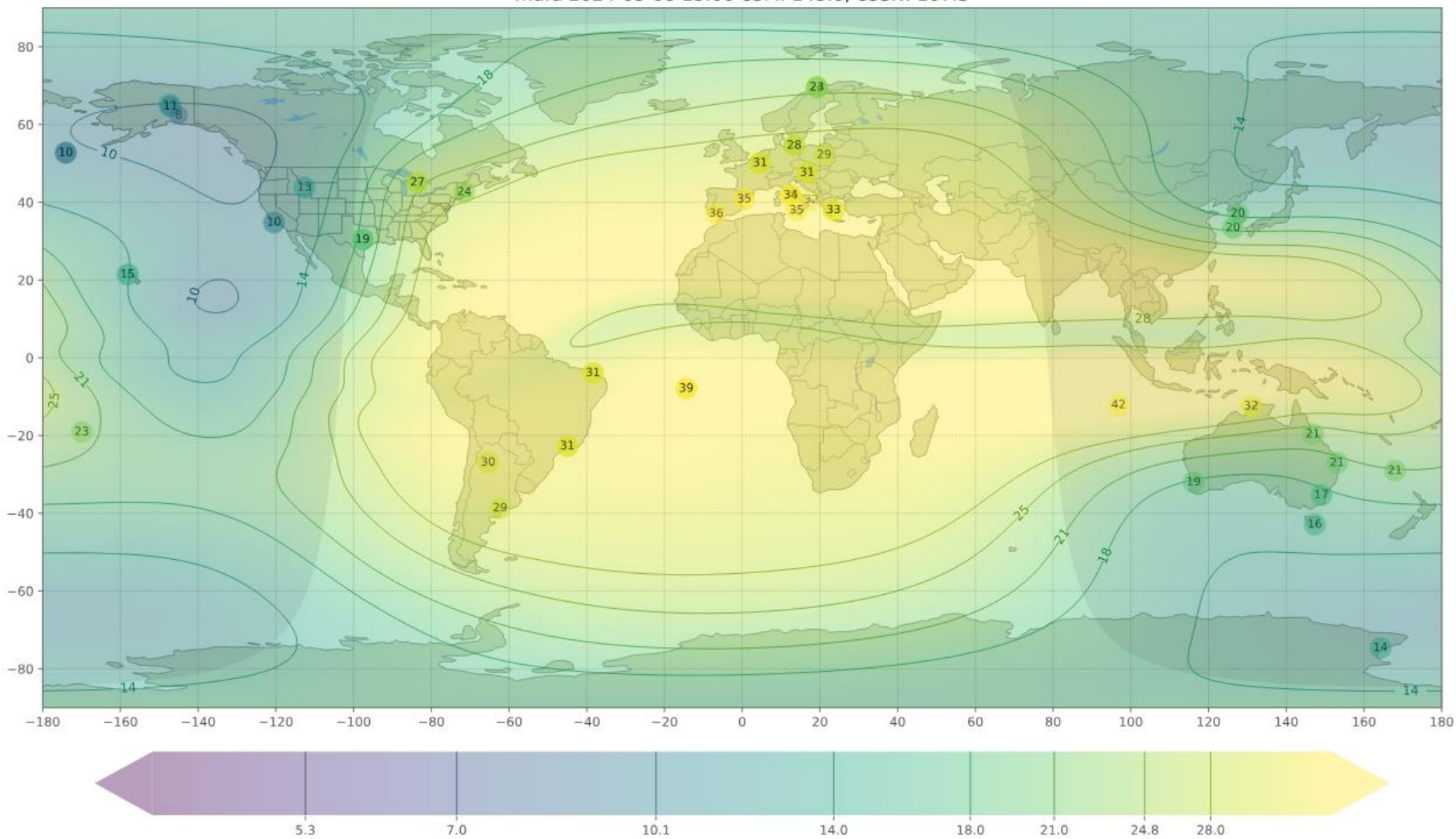
Aurora Forecast for 2024-07-08 01:21 EDT
Forecast Lead Time: 66 minutes
Scale: 1.0-5.0 (range 5 to 200)

Kp Index (y-axis): 0 to 9

Begin: Sat, 06 Jul 2024 00:00:00 GMT

KC2G.com

mufd 2024-03-08 13:00 eSFI: 143.0, eSSN: 107.5



KC2G.com

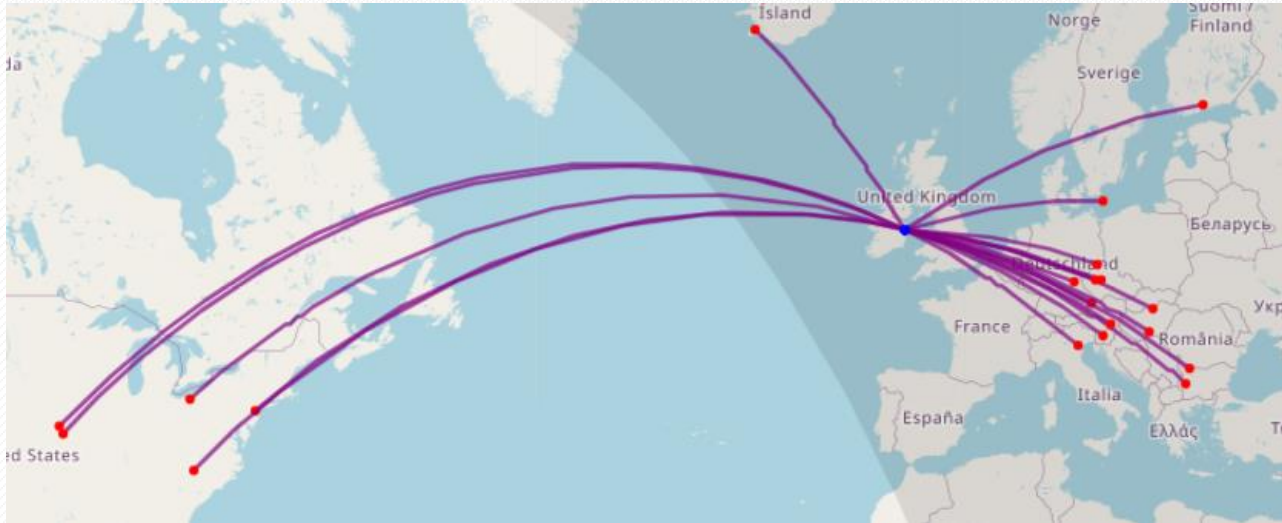


hamwaves.com/swx/lite.html

| Privacy | Acknowledgements | Location | Legend | SWX |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|
| <p>~~~ Space Weather Nowcast ~~~ by Serge Y. Stroobandt, ON4AA</p> | | | | |
| <p>Local D Layer Absorption</p> <p>geoloc 34.992947 N -106.623795 E</p> <p>f-1dB 5.5 MHz for DX</p> <p>f-3dB 2.6 MHz for NVIS</p> <p>Xflux C3.5 [R normal]</p> <p>pflux 2.2E-1 pfu [S normal]</p> | | <p>Auroral Ea: Blanket & Noise</p> <p>MUF_{Ea} No Ea</p> <p>fo_{Ea} No Ea</p> <p>h_{Ea} No Ea</p> <p>Kp 3.0 [G normal]</p> <p>MLAT_a 60.4 °</p> | | |
| <p>Ionosonde</p> <p>online 33 stations</p> <p>station Austin</p> <p>URSI AU930 30.40 N -97.70 E</p> <p>time 2024-07-08T00:40:05Z</p> <p>CS 100 %</p> <p>fmin 1.50 MHz</p> | | <p>F1 Layer</p> <p>foF1 3.82 MHz</p> <p>fminF 2.70 MHz</p> <p>hF 221.0 km</p> | | |
| <p>E Layer</p> <p>foE 2.42 MHz</p> <p>fminE 1.50 MHz</p> <p>hE 90.0 km</p> | | <p>F2 Layer for NVIS</p> <p>fxI 9.90 MHz</p> <p>foF2 9.150 MHz</p> <p>hF2 260.0 km</p> | | |
| <p>Sporadic Es: DX & Blanketing</p> <p>MUF_{Es} 12.77 MHz</p> <p>fo_{Es} 2.40 MHz</p> <p>fmin_{Es} 2.50 MHz</p> <p>h_{Es} 90.0 km</p> | | <p>F2 Layer for DX</p> <p>MUF_D 26.71 MHz</p> <p>OWFD 22.70 MHz</p> <p>MD 2.93</p> | | |
| | | <p>Solar Flux & Sunspots</p> <p>F10.7obs 181.5 sfu</p> <p>EISN 125</p> | | |

All stated frequencies are to be interpreted as maxima.

Reverse Beacon Network



● Spotter (de)

| callsign | spotter-callsign | | | | | | EI80MB |
|-----------|------------------|-------------|---------|------|------|-------|--------|
| ● spotter | ● spotted | distance mi | freq | mode | type | snr | |
| DL0LA | EI80MB | 861 mi | 14027.0 | CW | CQ | 35 dB | |
| HA1VHF | EI80MB | 1080 mi | 14027.0 | CW | CQ | 21 dB | |
| W1NT-6 | EI80MB | 2973 mi | 14027.0 | CW | CQ | 28 dB | |
| RK3TD | EI80MB | 1928 mi | 14027.0 | CW | CQ | 31 dB | |
| OZ1AAB | EI80MB | 752 mi | 14027.0 | CW | CQ | 14 dB | |













What Do the Data Mean?

- <http://bandconditions.com/PROP.htm> for more
- **Solar Flux Index-10.7cm “Noise” Solar Activity Measure**
50-Very Low 300-Very High
Relates to F2 Layer Intensity; Low Intensity=Low Bands
- **A & K Magnetometer Readings**
K Measured 8x Daily 0=Inactive 9=Extreme Activity
Quasi-Logarithmic Higher is Worse for Propagation
A is Linear Average of 8 Previous K Values
0=Quiet (Good) 400=Severe Storm (Bad)
- **$K \leq 3$ is Good $A \leq 15$ is Good**

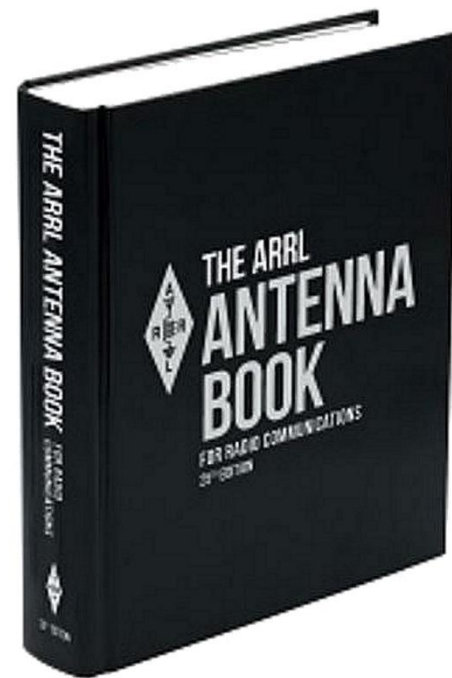
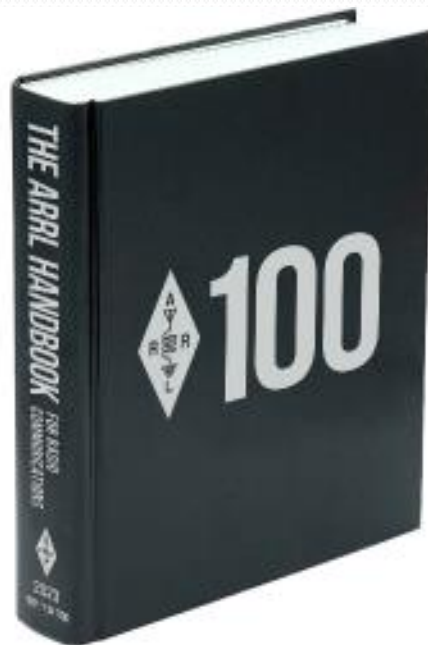
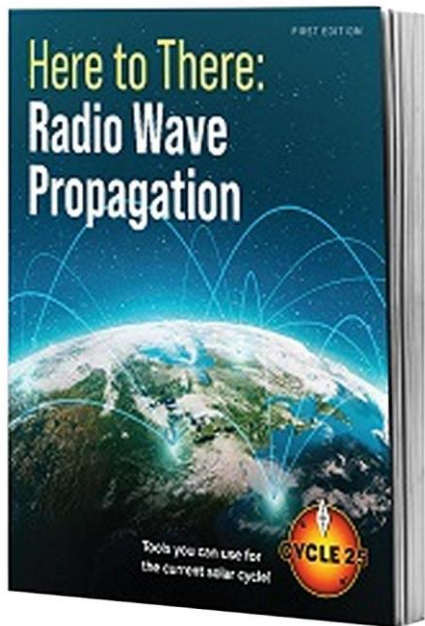
What Do the Data Mean?

- **SOLAR FLUX**
- 50 - 159 = **POOR**
- 160 - 200 = **SO SO**
- 201 - 300 = **GREAT**
- **K INDEX - TODAY (1X)**
- 9 - 4 = **STORM**
- 3 - 0 = **CALM**
- **A INDEX - LAST 24 HOURS (8X)**
- 400 - 16 = **STORM**
- 15 - 0 = **CALM**

Dispelling Hype & Misinformation

| de | dx | freq | obs | time |
|--------|--------------------------------------------------------------------------------------------|---------|----------------------|--------------|
| KD0KIB |  LY34A | 24947.2 | Ind Day Call Sign | 1413z 08 Mar |
| K3LU |  IU1DZZ | 18088.5 | | 1413z 08 Mar |
| W6YXY |  DS4EJA | 7076.2 | [LoTW] | 1413z 08 Mar |
| N6YYO |  Z33T | 21275 | 5x5 in SoCal | 1412z 08 Mar |
| W6YXY |  BH6BEZ | 7076.2 | [LoTW] | 1412z 08 Mar |
| W6YXY |  JH2BJL | 7076.2 | [LoTW] | 1410z 08 Mar |
| KG5DKG |  K2JVB | 18092 | | 1410z 08 Mar |
| N9ZI |  I18ICN | 18074 | | 1410z 08 Mar |
| WA1GZY |  4X04I | 28415 | | 1409z 08 Mar |
| K4CUP |  RM2A | 18145 | [LoTW] TNXS 59 in KY | 1409z 08 Mar |
| AJ4EN |  C91CCY | 14188 | 5/9 | 1409z 08 Mar |
| W6YXY |  JK1TJQ | 7076.2 | | 1409z 08 Mar |
| K3LU |  I18ICN | 18074 | | 1407z 08 Mar |

Dispelling Hype & Misinformation



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- www.dukecityhamfest.org



Summary

- Hype
- Misinformation
- Reality Sources
- What do the Data Mean?
- Dispelling Hype & Misinformation
- Questions?

References

- <https://www.voacap.com/hf>
- www.solarham.com
- www.hamqsl.com
- <https://k9la.us/>
- <https://adx.groups.io/g/ADXA/>
- <https://www.contestuniversity.com/>
- www.hamwaves.com