Cycle 25

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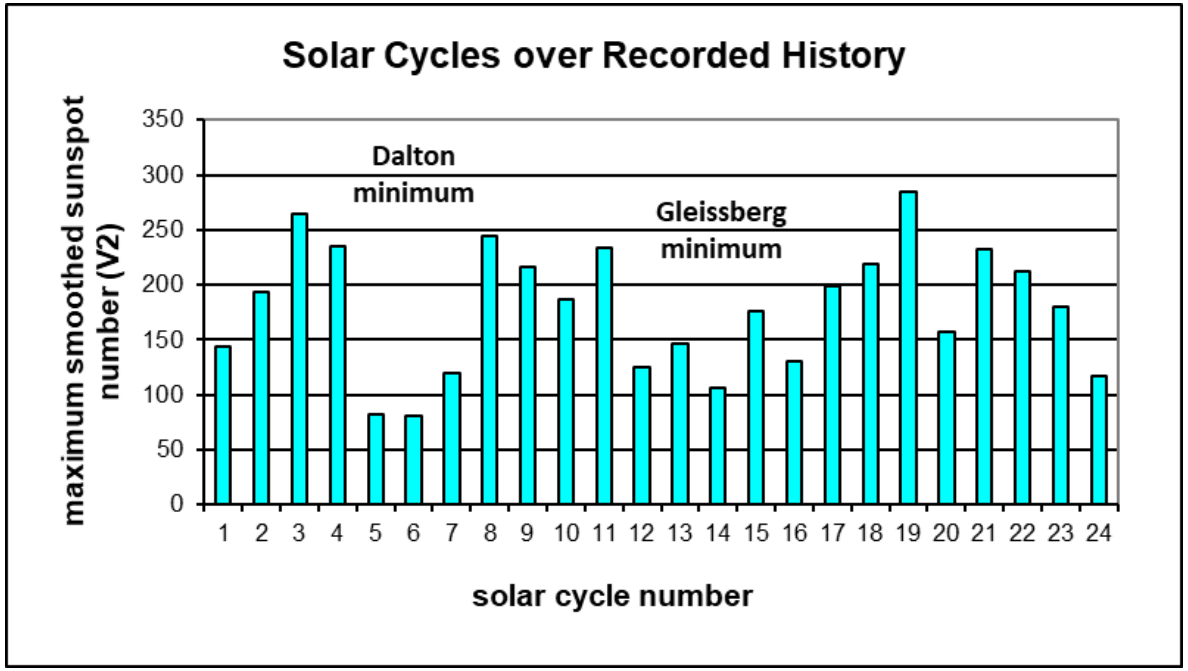
If you've only been licensed for several years, you may be asking "what's so great about 15m, 12m and 10m?" as most of the time there is only noise and not many signals on those bands

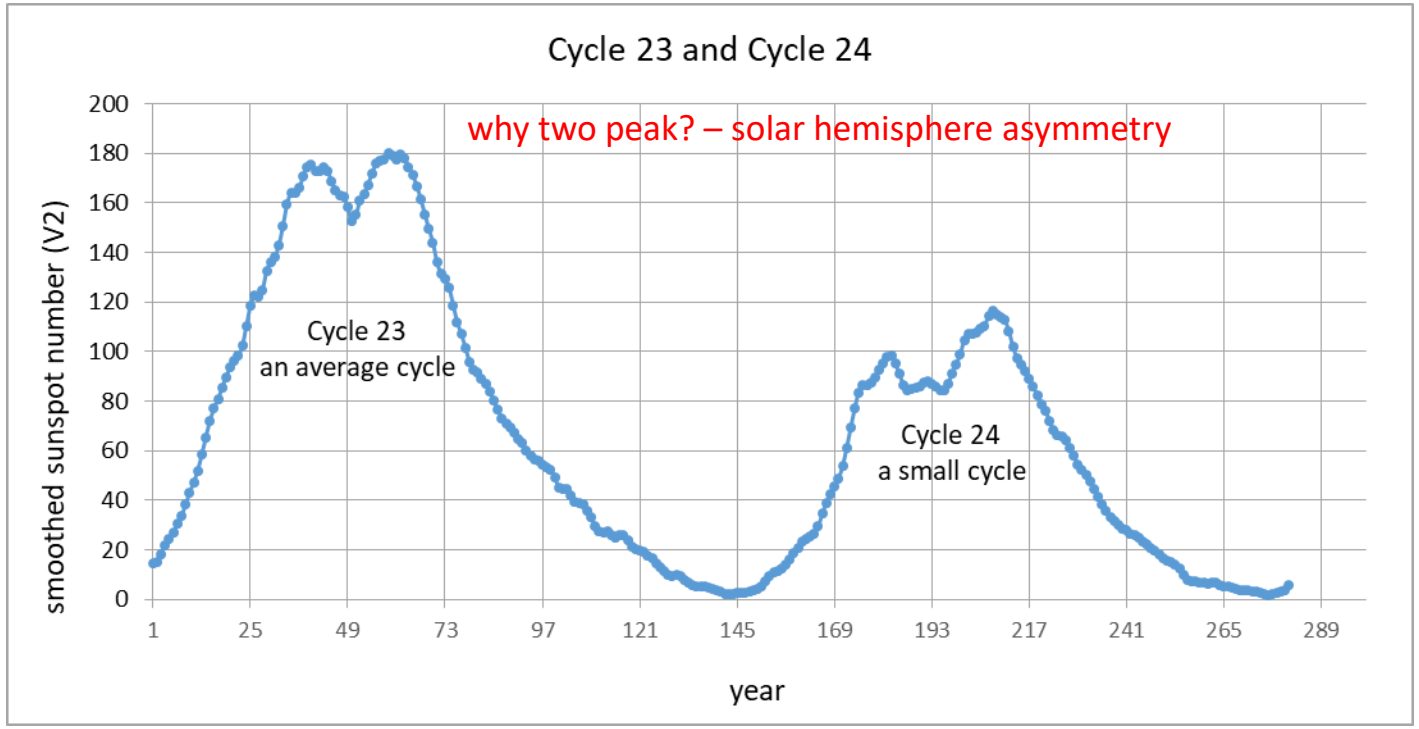
All I can say is "wait a couple years and you'll be amazed what those bands can do around <u>solar maximum</u> with low power and modest antennas"

Historical Data – All 24 Solar Cycles



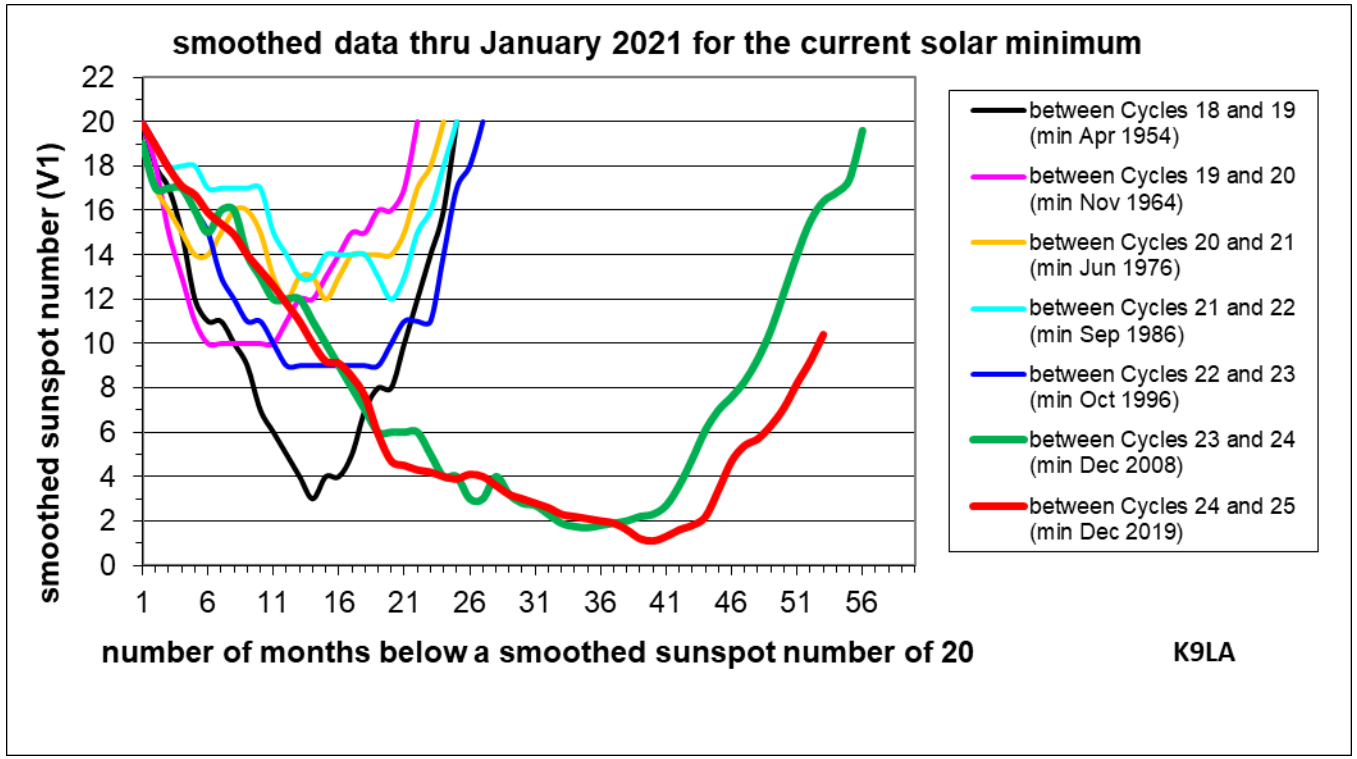
- We've been thru three periods of big cycles
- We've been thru two periods of small cycles
- We appear to be in a third period of small cycles
- Important question – will Cycle 25 get us out of this third period of small cycles?

Cycle 24 – What It Did



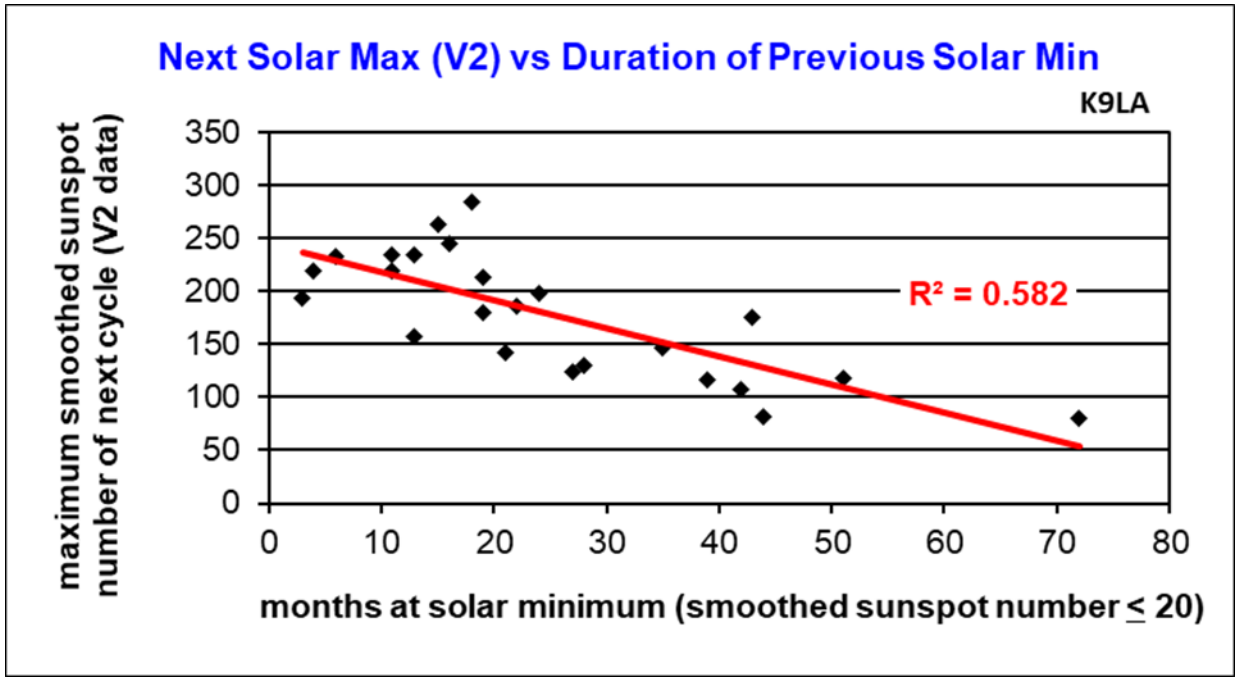
- Cycle 24 (smallest in our lifetimes)
- Several of the 57 predictions were correct
  - Were they correct for the right reason?

Previous Solar Minimums



- Minimum between Cycles 24 and 25 is longer than the previous minimum between Cycles 23 and 24

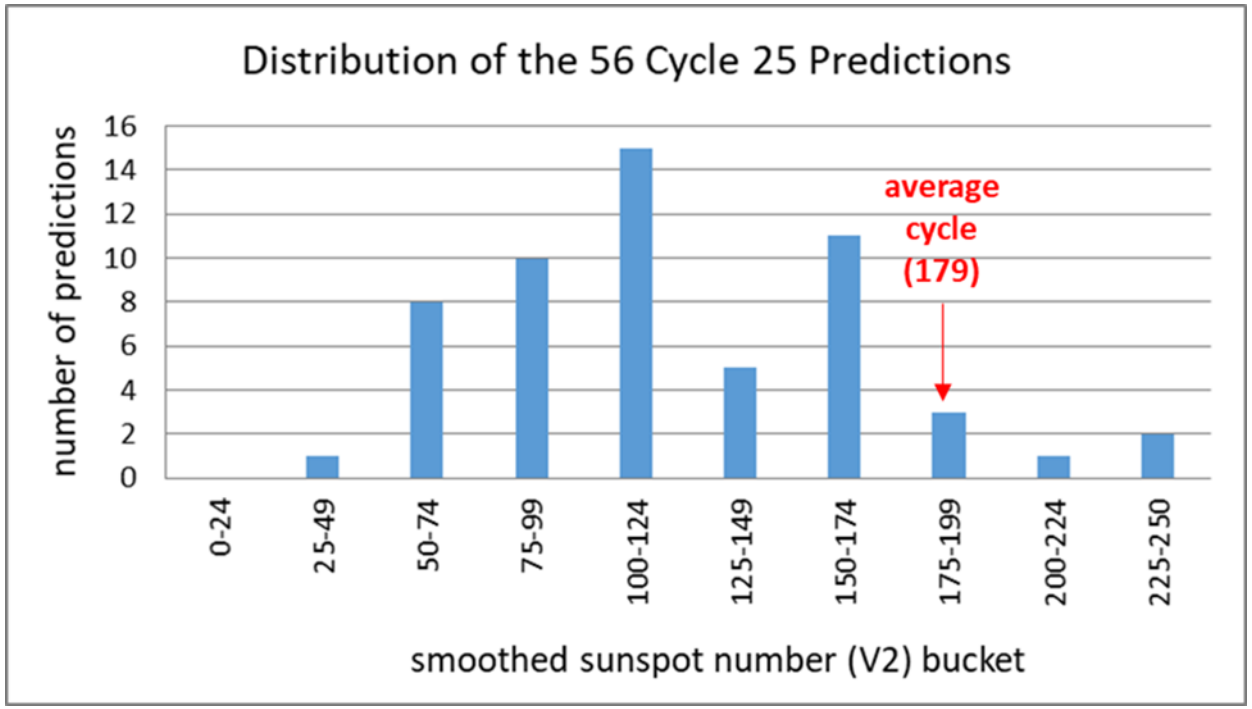
Next Maximum vs Previous Minimum



- A long solar minimum suggests a small cycle
- All we can do is wait and see what happens

Cycle 25 Predictions

- I'm aware of 56 predictions for Cycle 25 – not much of an improvement over the number of predictions for Cycle 24



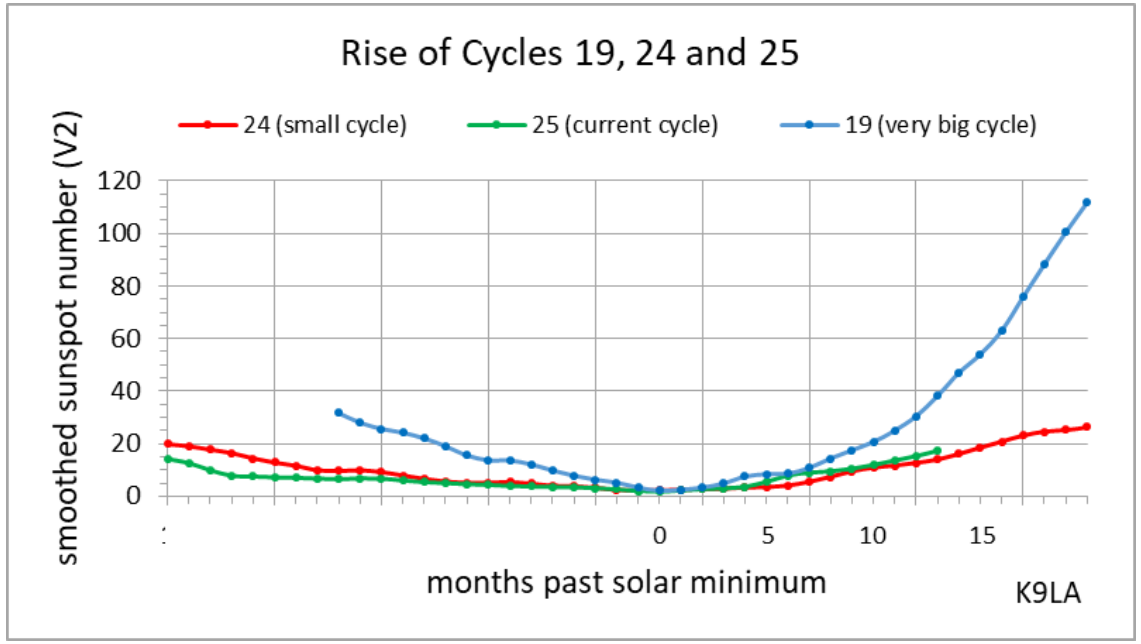
- Most of the predictions (89%) are for a below average solar cycle

Big Cycle 25 Predictions

- 3 predictions for an average cycle – similar to Cycle 23
- 3 predictions for a big cycle – similar to Cycles 21 and 22
- The big prediction from Dr. Scott McIntosh and colleagues has received the most publicity – originally a smoothed sunspot number of about 229 (similar to Cycles 21 and 22)
  - Time difference between termination dates (inferred magnetic bands within the sun) of Cycles 23 and 24 correlate to Cycle 25 maximum
    - Longer time difference = smaller cycle (similar concept to concept on slide 6)
  - Dr. McIntosh, et al, are waiting for the termination date of Cycle 24
    - They recently revised their prediction downward a bit – now 195 (similar to Cycle 23)
  - If the termination date moves farther out, this gives an even smaller solar cycle (like Cycle 24)

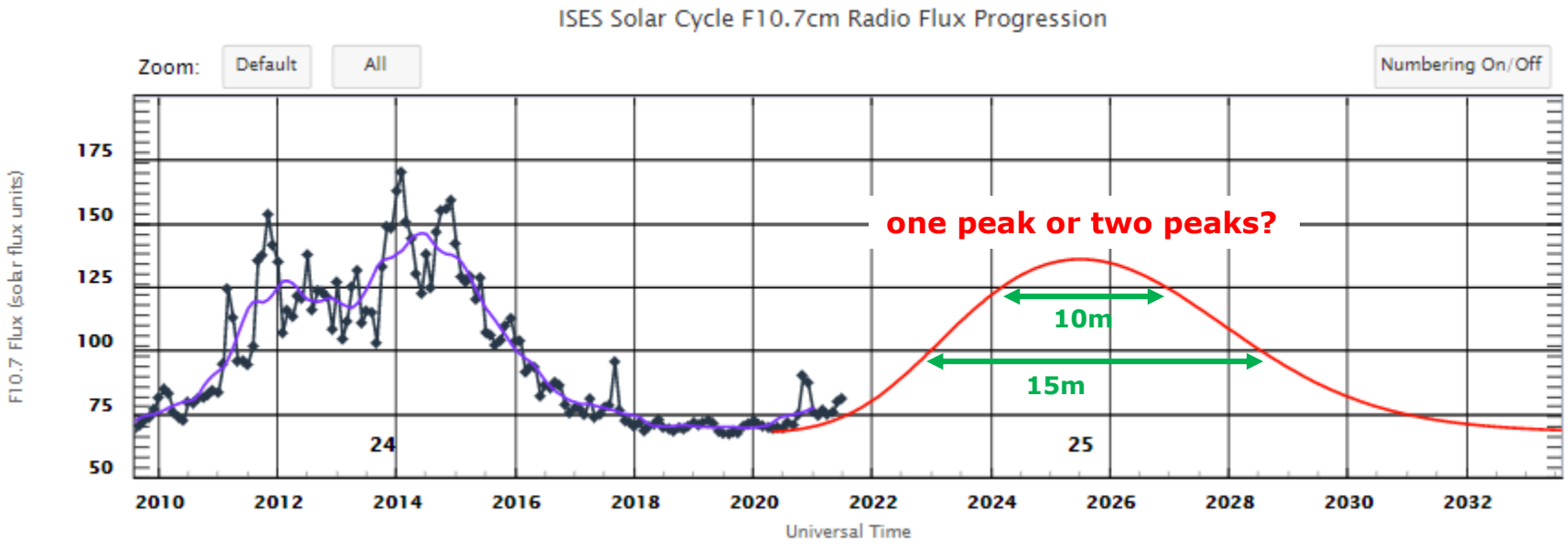
How Is Cycle 25 Doing?

- Historical data says big cycles rise faster than small cycles



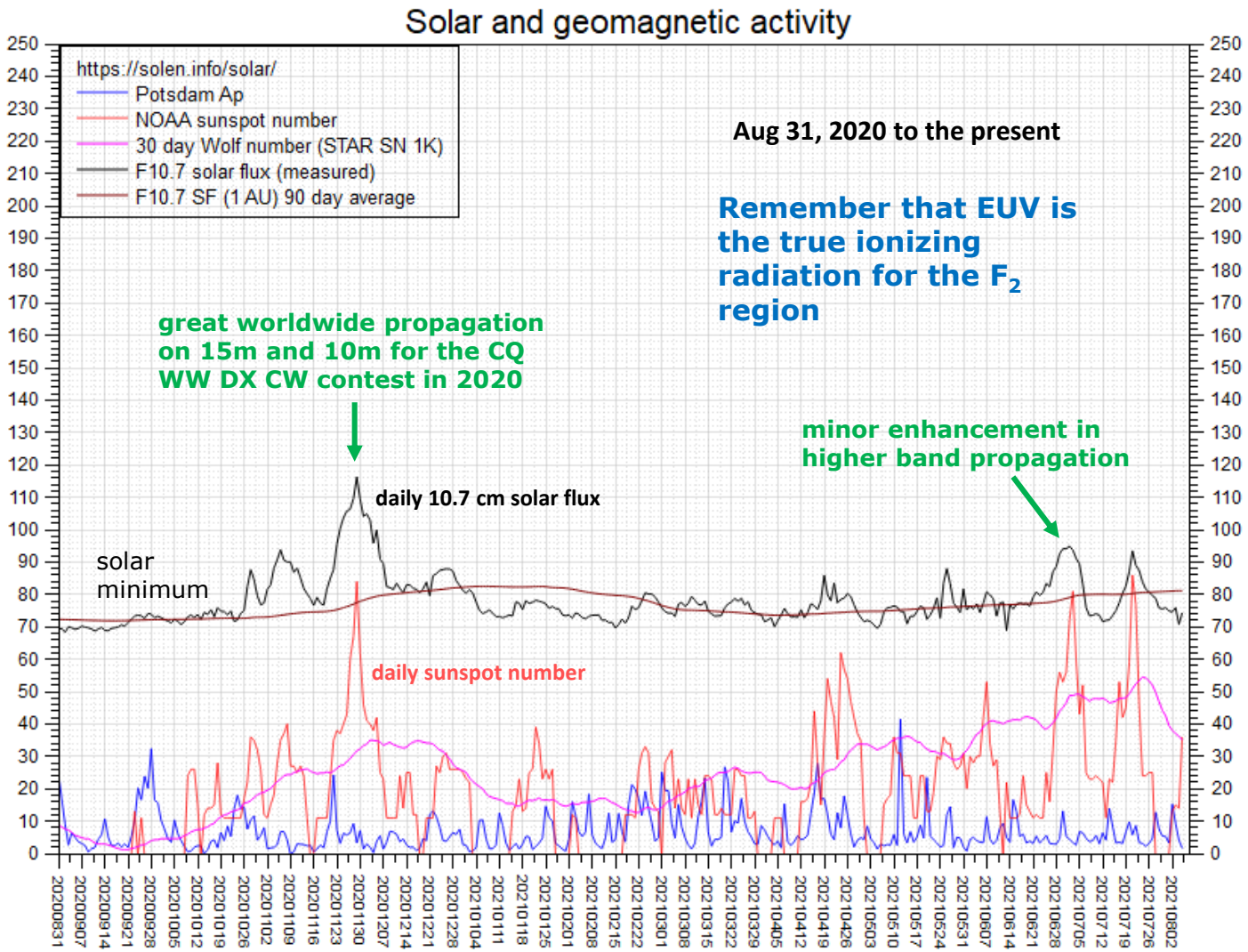
- After 13 months of data, Cycle 25 is rising a bit faster than Cycle 24
- Not looking like a big cycle – unless something very interesting happens soon

What to Expect If Cycle 25 Is Similar to Cycle 24



- We still have a way to go before 15m, 12m, and 10m open on a daily basis
- But watch for . . .
  - a big spike in SFI, SN, EUV – as happened in late 2020 – next slide
  - a small spike in the K index – as happened in the 2018 California QSO Party

Big Spike in SFI, SN, EUV in Late 2020



- Outer layers of the Sun are the photosphere, chromosphere and corona
- 10.7 cm solar flux originates in the <u>chromosphere</u> and low in the <u>corona</u>
- Sunspots are dark areas that become apparent at the Sun's <u>photosphere</u>

Summary

- Get on the air and operate – experience is a great way to gain knowledge
  - Make QSOs in contests, go after WAS, go after DXCC, go after WAZ
  - Have fun on 15m/12m/10m, especially when Cycle 25 has more sunspots!
- Watch for a big spike in 10.7 cm solar flux or a small spike in the K index
  - May result in enhanced propagation on the higher bands
- Use the digital modes on 15m, 12m, 10m until Cycle 25 really gets going