

SB PROP @ ARL \$ARLP045
ARLP045 Propagation de K7RA

ZCZC AP45
QST de W1AW
Propagation Forecast Bulletin 45 ARLP045
>From Tad Cook, K7RA
Seattle, WA November 7, 2014
To all radio amateurs

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Solar activity softened a bit this week. From October 30 through November 5 the average daily sunspot number was 95.7, down 24.2 points from the previous seven days. Average daily solar flux declined from 198 to 127.9.

On November 5 Penticton reported the noon solar flux reading at 145.2, but it must have been flare-enhanced because NOAA scaled it back to 135 in their data.

The latest forecast has solar flux at 135 on November 7, then 140 on November 8-10, 145 on November 11-12, then 150, 160 and 170 on November 13-15, 180 on November 16-17, 190 on November 18, and peaking at 200 on November 19-20, then dropping down below 100 after November 30 and reaching a low of 80 on December 5. Flux values then rise to 180 on December 16-17.

Predicted planetary A index is 8, on November 7-13, 12 on November 14-15, then 22, 15 and 10 on November 16-18, 8 on November 19-21, 12 on November 22-24, 8 on November 25 and 5 on November 26-30.

OK1HH predicts quiet to unsettled geomagnetic conditions on November 7, mostly quiet November 8-9, quiet to unsettled November 10, mostly quiet November 11-12, active to disturbed on November 13, quiet on November 14-15, active to disturbed November 16, quiet to active November 17-19, mostly quiet November 20-21, quiet to active November 22, quiet to unsettled November 23-24, quiet to active November 25, mostly quiet November 26, quiet November 27-30, active to disturbed December 1, and back to quiet again on December 2-3.

OK1HH expects enhanced solar wind on November 8, 19-21 and 29, although he is less certain about November 8.

October is over, so let's look at our 3-month moving average of sunspot numbers. Average sunspot number for October was 92.1, down from 127.4 for September. The three month average ending in October was 100.4, the lowest average since a year earlier, when it was 102.9. The three month moving averages of daily sunspot numbers centered on August 2013 through September 2014 were 77.4, 91.2, 102.9, 123.7, 123.3, 138.5, 146.4, 148.2, 129.6, 118.4, 112.8, 109.2, 115.6 and 100.4. From this data it seems pretty clear that the currently solar cycle peaked earlier this year, around February and March 2014.

The official peak will be determined much later using a year-long moving average. During Cycle 24 I decided to try a much shorter period for averages to see if trends could be spotted sooner with a more agile arithmetic average. I think it worked out well. Next year NOAA will release some official charts based on the 1-year smoothed sunspot numbers, and I suspect the results should be about the same, although the NOAA graph will appear much smoother.

The yearly averages of daily sunspot numbers from 2008-2013 were 4.7, 5.1, 25.5, 80.1, 82.3 and 97.1. So far in 2014 the average is 122.7, for the 309 days from January 1 through November 5.

On November 1, Brendan Wahl, WA7HL near Bisbee, Arizona (in DM51ck,

less than 10 miles north of our border with the state of Sonora in Mexico) wrote in an email that for various reasons he has been off the air for a long time, and plans on erecting a 31 foot vertical soon. But he is very active monitoring WSPR mode on 10 meters.

He writes, "The last month has been fantastic DX on 10 meters: I have spotted E51, CX2, VK, and ZL virtually every time I monitor the band. Earlier this morning (1 Nov) I received spots from OZ, SQ, D, F, G, PD5, ON, TI3, and TA2.

"Both the SQ and the TA are completely new countries for me. Over these weeks I have also spotted FR5, and ZR6 as well, sometimes well after local sunset here in Arizona. I have been able to, on separate days, spot every western EU country at least once using WSPR on 10 meters. For the Pacific region, JAs are common (but not entirely regular), and the VKs, ZLs, KH6, and E51 are seemingly always there. North America is too easy, and on those days when propagation has gone elsewhere, I've gotten only NA stations.

"In short, nearly every continent has been spotted by my WSPR gear on 10 meters. Most amazing is that I'm doing this using a Comet DS150S discone antenna, good for 25 to 1500 MHz. At only about 4 feet high and mounted about 11 feet up, it's quieter than my very low dipole, and much less prone to interference. I use a FiFi SDR as my main receiver currently, without any antenna tuning whatsoever. Antenna to radio to PC: that's all. When I shift to the vertical, I'll be using a Yaesu FT-817 for WSPR duties as I want to see how far I can get with that mode.

"Conditions on 10 have been so good, I'm not currently bothering with the other bands. While I am not making 'real' QSOs, it's still fun to watch the DX roll in."

Readers who have not been getting the same results on 10 meters with CW or SSB should keep in mind that the WSPR mode is used for extremely weak signal communications, and when communicating, these stations are just handshaking automatically and exchanging very little data. The band may sound dead, but WSPR seizes the tiniest shred of a signal, verifies it, and that counts as communication. It turns out that communication of some sort is possible via some very marginal paths. But this is for verifying marginal propagation modes that we did not know existed until the powerful WSPR protocol was able to detect it.

If you would like to make a comment or have a tip for our readers, email the author at, k7ra@arrl.net.

For more information concerning radio propagation, see the ARRL Technical Information Service web page at <http://arrl.org/propagation-of-rf-signals>. For an explanation of the numbers used in this bulletin, see <http://arrl.org/the-sun-the-earth-the-ionosphere>. An archive of past propagation bulletins is at <http://arrl.org/w1aw-bulletins-archive-propagation>. More good information and tutorials on propagation are at <http://k9la.us/>.

Monthly propagation charts between four USA regions and twelve overseas locations are at <http://arrl.org/propagation>.

Instructions for starting or ending email distribution of ARRL bulletins are at <http://arrl.org/bulletins>.

Sunspot numbers for October 30 through November 5 were 121, 71, 82, 91, 93, 99, and 113, with a mean of 95.7. 10.7 cm flux was 140.4, 121.2, 119.9, 124.4, 125.2, 129.4, and 135, with a mean of 127.9. Estimated planetary A indices were 5, 6, 6, 9, 6, 21, and 16, with a mean of 9.9. Estimated mid-latitude A indices were 5, 5, 5, 6, 5, 12, and 13, with a mean of 7.3.

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