

SB PROP @ ARL \$ARLP033
ARLP033 Propagation de K7RA

ZCZC AP33
QST de W1AW
Propagation Forecast Bulletin 33 ARLP033
>From Tad Cook, K7RA
Seattle, WA August 15, 2014
To all radio amateurs

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Solar activity showed further signs of weakness this week, with the average daily sunspot number dropping 41.8 points to 94.9, while average daily solar flux declined 36.5 points to 113.1.

In the 45-day forecast for solar flux, it was surprising back on August 3 to see a new solar flux prediction of 150 for August 31 through September 3. I suspected this prediction would come down to a lower level, more in line with predicted values before and after that period, and in the August 11 forecast, that is what happened. The predicted solar flux for those dates was changed to 125 on August 31 through September 2, then 120 on September 3, where it remains today.

>From that 45-day forecast, solar flux at 105 is predicted for August 15, 110 on August 16 to 18, 105 on August 19 and 20, then 100 and 110 on August 21 and 22, 115 on August 23 and 24, 120 on August 25 and 26, then 125 and 130 on August 27 and 28, 125 on August 29 through September 2, 120 and 115 on September 3 and 4, and 110 on September 5 to 7. Flux values are expected to go as low as 100 on September 13 to 16, then rise to 135 by September 24, the day following the fall equinox.

Predicted planetary A index is 8 on August 15 and 16, 5 on August 17 to 23, 8 on August 24, 5 on August 25 to 27, 8 on August 28 and 29, then 5, 12, 10 and 8 on August 30 through September 2, 5 on September 3 to 5, 8 on September 6, 5 on September 7 and 8, 8 on September 9, and 5 until September 18.

Not all looks weak or bleak. On Thursday, August 14 there were four new sunspot regions emerging. We have not seen four or more new regions emerge in one day since December 31, 2013. And solar activity is certainly higher now than it was a year ago. Average daily sunspot numbers for propagation bulletins 31-33 this year (representing the past three weeks) were 107.7, 136.7 and 94.9. For the same weeks in 2013 the averages were 79.6, 85.4 and 85.

OK1HH believes we should expect quiet to unsettled geomagnetic conditions on August 15, mostly quiet conditions August 16, quiet on August 17 and 18, mostly quiet August 19 to 21, quiet to unsettled August 22, active to disturbed August 23, quiet to unsettled August 24, mostly quiet August 25, quiet to active August 26 to 29, active to disturbed August 30, quiet to active August 31, mostly quiet September 1 and 2, quiet to unsettled September 3, quiet September 4 and 5, quiet to unsettled September 6, quiet on September 7, mostly quiet September 8, and quiet to unsettled September 9. He thinks we will see increased solar wind on September 7 to 9.

Scott Bidstrup, TI3/W7RI sent this report:

"In spite of the recent uptick in solar activity, there has been only a modest improvement in propagation here in the low latitudes. Ten meters has been open for several days during the first week of this month, but little before or since. Six has been entirely dead, and most of the avid six meter aficionados have pretty much given up for now. Often we will see TES openings from here into Brazil, Argentina and Chile on a daily basis for a month or so, beginning about now, but so far the propagation has been late to appear. Given the bust that this year's Es season into the States has been, we're not terribly hopeful, especially with the 304a index headed down again.

The improved conditions on 75 meter DX have been continuing, but oddly enough, it's been almost entirely into VK/ZL and adjacent areas of the South Pacific from here. Normally, we'd be working Japan on gray line every day, but there've been just a few openings so far this season. The Intertropical Convergence Zone has been exceptionally active this year, and so atmospheric noise levels have been downright brutal - S9+30 on many mornings, and rarely below S9+10. This may account for the lack of Qs with Japan. We have yet another two months of high thunderstorm activity, and everyone's already looking forward to an end to it. 73 and best regards from rainy Costa Rica."

Scott also sent along this article, about using techniques from weather forecasting to aid in predicting solar cycles:

<http://www2.ucar.edu/atmosnews/just-published/12097/next-step-toward-predicting-sun-cycles>

Penn State has an article and impressive video on the 2.5 meter telescope at Apache Point Observatory, Sunspot, New Mexico. Read about it here:

<http://news.psu.edu/video/322684/2014/08/12/research/sloan-foundation-25m-telescope-apache-point-observatory-sunspot-new>

The video on that page is a wonderful time-lapse movie of this very busy telescope over one night. Be sure to select the HD option and expand to full screen. Watch the stars track across the sky, while a technician scurries around tending to this telescope. Eventually the sun rises. Separately, the video is available at:

https://www.youtube.com/watch?feature=player_embedded&v=AHsS57NMQjE

Here is a great big representation of smoothed sunspot numbers, back to 1985, for cycles 22 to 24. Note you can click on it to make it appear even larger:

<http://solarscience.msfc.nasa.gov/images/Cycle22Cycle23Cycle24big.gif>

David Moore of Morro Bay, California frequently sends interesting items about our sun, and here is one explaining why the sun's atmosphere is so much hotter than its surface:

<http://www.sciencealert.com.au/news/20140408-25970.html>

For more information concerning radio propagation, see the ARRL Technical Information Service 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 August 7 through 13 were 158, 101, 111, 64, 82,
80, and 68, with a mean of 94.9. 10.7 cm flux was 136, 123, 113,
108, 105, 104, and 103, with a mean of 113.1. Estimated planetary A
indices were 6, 8, 4, 9, 7, 12, and 6, with a mean of 7.4. Estimated
mid-latitude A indices were 6, 9, 4, 9, 7, 11, and 8, with a mean of
7.7.

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