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ARLP006 Propagation de K7RA

ZCZC AP06
QST de W1AW
Propagation Forecast Bulletin 6 ARLP006
>From Tad Cook, K7RA
Seattle, WA February 6, 2015
To all radio amateurs

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Solar activity rose over the last week, with average daily sunspot numbers rising from 89.1 to 139 in the seven days ending February 4.

Average daily solar flux rose from 136.8 to 151.1. This is the second week in a row with higher sunspot numbers and solar flux than the previous week. Predicted average solar flux for the next 7 days, February 5-11 is 141.

Twice over the past week the daily solar flux was adjusted downward, due to overloading of the receiver at Penticton, the Canadian observatory which provides those readings. On January 29 the reading was 171.8, which was lowered to an estimated 165, and again on February 4 when 154.4 was lowered to 145.

A new sunspot appeared on January 29, two more on February 2, and another one on February 4.

At 0211 UTC on February 2, the Australian Space Forecast Centre issued a geomagnetic disturbance warning in an email.

Here is what they wrote:

"High solar wind speeds coupled with significant southward pointing of the interplanetary magnetic field are causing active to minor storm levels of geomagnetic activity across the Australian region. Mostly active conditions are expected over the next 2-3 days but further active to minor Storm periods are possible. Note that this supersedes earlier forecasts of unsettled to active conditions."

They said that increased geomagnetic activity was expected due to a high speed solar wind from a coronal hole

They predicted unsettled to minor storm conditions on February 1, unsettled to active conditions with possible minor storm periods on February 2, and unsettled to active conditions on February 3.

And what were conditions like on February 2-3? On February 2-3 the planetary A index was 27 and 17, and on the same dates the high-latitude college A index readings were 44 and 28. Alaska and northern Canada operators will tell you that HF conditions are pretty rotten when the A index gets to 44, with extreme absorption of HF signals.

The average daily sunspot number for January was 101.3. Looking at our recent 3-month moving averages of sunspot numbers, you can see the second larger peak of cycle 24 early last year, when the moving averages centered on January, February and March were 138.5, 146.4 and 148.2. Averages centered on April through December 2014 were 129.6, 118.4, 112.8, 109.2, 115.6, 108.4, 107, 104.7, and 107.8.

In order to calculate the three month average centered on December

2014 we needed sunspot data from all of January 2015, as that period averages all sunspot numbers from November 1 through January 31. We can calculate the three-month average for January at the end of February.

Predicted solar flux for the near term is 140 on February 6-7, 145 on February 8-9, then 140, 135 and 130 on February 10-12, 125 on February 13-16, then 120, 115 and 120 on February 17-19, 125 on February 20-21, and 120 on February 22-23. Flux values then reach a high of 135 on February 26-28, and dip down to 115 on March 17.

Predicted planetary A index is 10 on February 6-7, 8 on February 8-11, 6 on February 12, 5 on February 13-14, 12 on February 15, 10 on February 16-18, 8 on February 19, and 5 on February 20-23.

F.K. Janda, OK1HH has this geomagnetic forecast: Expect quiet to active conditions February 6-8, quiet to unsettled February 9-13, mostly quiet February 14-15, quiet on February 16, active to disturbed February 17, quiet to active February 18, quiet on February 19, mostly quiet February 20, quiet to unsettled February 21-22, quiet to active February 23, quiet to unsettled February 24, mostly quiet February 25-26, disturbed February 27, quiet to active February 28, active to disturbed March 1, disturbed on March 2, quiet to active March 3, and mostly quiet March 4.

He says increases in solar wind are unpredictable, but he expects increases around February 19-20, February 25 and 28, and March 1.

Ed Valentine, W2YPM of New Bern, North Carolina sent a report about his operating in the recent January ARRL VHF Contest. He said he worked only two stations from FM15kb on 2 meter SSB, and both were in Virginia.

Rick Radke, W9WS and Donald Kalinowski, NJ2E sent this interesting article and video:

http://www.nytimes.com/2015/02/05/science/living-with-a-star.html

Jim McIntosh, W8MKR of Shepherd, Michigan sent a link to an old National Geographic article from four years ago about predictions of a sunspot free future. He was curious about the implications for ham radio, and I pointed out that you can still communicate worldwide with no sunspots, just not as easily.

I ran some predictions with W6ELprop from his location with 0 sunspots, and found that on today's date on a path to Brazil he had a 25% chance of communication on 15 meters from 1530-2000 UTC. On 17 meters, he could add an hour on each end of that period, and that conditions should be good from 1630-1900 UTC. 20 meters looked good from 1830-2130 UTC, and of course 80, 40 and 30 meters looked quite promising. Change the date to March 22, and the possibilities look much better. What suffers are 10 and 12 meters. But no sunspots should be fantastic for 160 meter propagation, with a smaller chance of geomagnetic disturbance disrupting communications.

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 January 29 through February 4 were 181, 193, 153, 132, 117, 112, and 85, with a mean of 139. 10.7 cm flux was 165, 159.4, 153.5, 141.7, 144, 149.3, and 145, with a mean of 151.1. Estimated planetary A indices were 9, 11, 9, 21, 27, 17, and 9, with a mean of 14.7. Estimated mid-latitude A indices were 7, 8, 6, 11, 17, 12, and 5, with a mean of 9.4.
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