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À: DX-News@njdx.org
Objet: [DX-NEWS] ARLP040 Propagation de K7RA

SB PROP @ ARL \$ARLP040
ARLP040 Propagation de K7RA

ZCZC AP40
QST de W1AW
Propagation Forecast Bulletin 40 ARLP040
>From Tad Cook, K7RA
Seattle, WA October 4, 2013
To all radio amateurs

SB PROP ARL ARLP040
ARLP040 Propagation de K7RA

Solar activity weakened again, with the average daily sunspot number dropping from 75.6 to 52, and average daily solar flux down three points to 106.6, when compared to the previous week, September 19-25.

Geomagnetic activity was up, with planetary A index at 39 on October 2, mid-latitude A index at 29, and the high latitude college A index at 64.

The cause of the upset was a coronal mass ejection barreling toward Earth at 2,000,000 MPH on September 30, triggering a G2 class geomagnetic storm on October 2 and aurora displays well south of the Canadian border.

Predicted solar flux values are 110 on October 4-5, 105 and 100 on October 6-7, 95 on October 8-13, 100 on October 14-15, 105 on October 16-18, and 110 on October 19-24.

Predicted planetary A index is 20 on October 3, 8 on October 4, 5 on October 5-9, 8 on October 10-11, 5 on October 12-13, then 8, 10 and 8 on October 14-16, 5 on October 17-20, 10 on October 21, and 5 on October 22-26.

OK1CC predicts a quiet to unsettled geomagnetic field on October 4, mostly quiet October 5, quiet on October 6, quiet to active October 7-10, quiet to unsettled October 11, quiet on October 12-13, quiet to active October 14, active to disturbed on October 15-16, quiet to active October 17-18, quiet October 19-20, active to disturbed October 21, mostly quiet October 22, quiet October 23-27, quiet to active October 28, and active to disturbed October 29-30.

I've been keeping an archive of the 45-day solar flux and planetary A index predictions from NOAA/NASA, and it is interesting to see how they change over time. Conditions 30-45 days out must be pretty hard to predict, but I've noticed that the outlook seems to be increasingly pessimistic recently, suggesting weakening sunspot activity.

For instance, the 45 day prediction for September 16 began on August 2, with a solar flux of 125. Then over time it drifted around, within a few

days down to 105 (August 5-11), then back up to 125 on August 19-25, then the prediction begins to wither to 115 August 26 to September 8, declining again to 100 (September 9-12), then in the few days before the target date September 13-15 at 95, which was right on the nose with the end result being 94.5. This of course rounds up to 95, the whole number used in the prediction.

I keep seeing predictions with solar flux values dropping below 100, even down to 90. Take a look at, <http://www.swpc.noaa.gov/ftpmenu/forecasts/45DF.html>.

You can also see my own longer term archive in spreadsheet format at <http://snurl.com/27xfhcg>. Password is k7ra. This particular archive goes back to April 19.

The column on the left shows the dates of the forecasts, and across the top are the dates that the data correspond to. The numbers in blue across the bottom are the actual flux values recorded on the dates for each column, or when the column and row intersect on the same date.

A similar spreadsheet for the planetary A index can be downloaded from <http://snurl.com/27xfgtc>. Same password, k7ra.

Today we have an addition to our three-month moving average data set, and I am now convinced that we may have already passed the now classic double-peak for Cycle 24 that some have predicted based on activity in previous cycles. As others have suggested, those peaks seem to be clearly centered around October to November 2011, and April to May 2013. For the 3-month period ending September 30 the average was 77.4

Starting from a three month average centered on January 2011 (data from December 1, 2010 through February 28, 2011), averages for that year were 35.3, 55.7, 72.3, 74.4, 65.9, 61.5, 63, 79.6, 98.6, 118.8, 118.6 and 110.

For 2012 it was 83.3, 73.7, 71.2, 87.3, 91.5, 96.5, 91.9, 89.9, 81.2, 82.3, 74.4, and 82.8.

So far in 2013 the averages are 73.6, 80.7, 85.2, 106.4, 106.4, 97.5, 85.6 and 77.4.

Some solar scientists suggest a possible subsequent peak in 2014. I certainly hope so, but have no way of knowing. Our nearest star remains baffling and full of surprises. The body of knowledge and available tools expanded tremendously over the past couple of decades, yet accurate predictions elude us. Remember a few years ago when one of the more optimistic scientific papers suggested a record-breaking Cycle 24, perhaps approaching the levels of Cycle 19 in the late 1950s? The future looked bright.

There is this interesting theory that the first cycle following the beginning of any century is weak. Could there also be a 100 year recurrence of Cycle 19? Tell your children or grandchildren. That would be over a century after my birth, and planning for it now would be a fool's errand.

Thanks to Jimmy Mahuron, K9JWJ for reminding us about the 2007 book by Stuart Clark, "The Sun Kings: The unexpected tragedy of Richard

Carrington and the tale of how modern astronomy began." I suggested it in this bulletin several years ago, checked it out from the library, but it joined the tall stack of non-fiction to read and I finally returned it. I just reserved it again, and if you happen to be in Seattle, I see it is currently on display at the Green Lake Branch of Seattle Public Library. I guess that our librarians selected a number of books about astronomy or the Sun for a themed display, but these are never locked in display cases. These books can be picked up, perused and even checked out.

Jimmy also noted on September 27 that 40 meters was good for him the previous Saturday, September 21.

Emil Pocock, W3EP reported on September 29, "It is a bit early in the Fall DX season and solar activity is still low, but 10 meters has come alive. The band opened to Western Europe at the unusually late time of 1920-2000 (I assume he means UTC, rather than local time) September 13. There were teaser openings to Europe on the mornings of September 17, 18, and 21. I was surprised to work 3B8/G0TSM on the September 18 among the European callers.

"The first significant opening from here in Connecticut was on September 22 and then every morning to September 29. Eastern European stations dominated, especially UR and UA. Interesting stations worked included FR5FC, HZ1SK, FH4VOS and OD5ZZ on September 24, all on SSB. The following day, snagged on CW 5A1AL and SU9AF. On September 25, logged 4Z5SG, 4Z5ML, ZA1G, 4K9W and UP50A. Stations worked on the September 27 included some real surprises, including EW80 and EW3AN (EW not worked on previous days), but also VU3KPL and XV4Y. XV4Y was worked on direct path over the pole. What a thrill to hear Vietnam through the European callers! Eastern Europeans continued to dominate QSOs on September 28 and 29, including UA9XO.

"Hope this bodes well for the rest of the Fall season, even if solar activity remains sluggish."

Hope so too, Emil, and thanks for sending an uplifting counterpoint to my gloomy assessment earlier in this bulletin.

Jim Smith, K3RTU of Aston, Pennsylvania wrote on October 2 about another hike in one of his favorite parks, taking along a portable HF radio and antenna, of course: "Despite the less than desirable predicted solar flux for Monday September 30, I went on a hike in Ridley Creek State Park here in Southeast Pennsylvania (FM29). In one of my favorite spots I tried a different antenna instead of my trusty Buddistick vertical. I was using an end fed wire of 30' with a 9:1 UNUN matching transformer. I got the end of the wire up into a tall tree at about a 50 degree angle and attached the other end with the matching transformer to a plastic tent peg. Then I ran the coax back to my KX3. I was running the KX3 with AA lithium batteries so I kept the power cut back to just under 3 watts. Even with this less simple setup I was able to work COOCW in Havana and received a RST of 579 at about 1540 UTC on 17 meters. I wasn't hearing many station, however, so I tried 15 meters. I was delighted to then work SM5NZG near Stockholm at about 1620 UTC. I only received an RST of 539 from Heide, but was still able to chat for about 10 minutes. Heide's 6 element Yagi was obviously doing the heavy lifting, but it was still good to see that less than 3 watts from a simple end fed wire could make the trip across the Atlantic even without much help from the

Sun. "

Thanks to Max White, MOVNG in the UK for this interesting piece on some space weather research:

<http://newsroom.ucla.edu/portal/ucla/lunar-orbiters-discover-source-247774.aspx>.

And finally, Jeff Hartley, N8II of West Virginia wrote to us last evening, "Conditions on September 27-30 were good on the high bands with October 2 being the poorest day. Throughout the period the SFI ranged from low 100's to around 115.

"On September 27, 12 meters was open well to Europe by 1300 UTC (sunrise is just after 1100 UTC, sunset around 2345 UTC) working many Ukrainians. By 1330 UTC, 10 meters was open to southern Europe and especially the UA6 area and Ukraine. At 1500 UTC, JW9JKA on Bear Island, EU-027 was easily worked S5 on 10 phone followed by OZ1BTE, OH5UZ, several Germans, Polish, Austrians and a few Southern Europeans, mostly with S7-S9 signals going QRT at 1533 UTC. Andy, UA0BA was found on my return at 1828 UTC a solid 599 on 10 CW from far northern zone 18, which is well after midnight there, with some auroral Es probably involved. Then I found him on 12 meter CW at 1846 UTC about 559. Both UA0ZC and R0FA were loud on 12 CW at 2103/2124 UTC, but the band every day seems to close to Asia by sunset. About an hour after sunset RA/KE5FA, HL2XUM, and DU2US were around S5 on 17 CW.

"On September 28, my first morning QSO was UA9FAR on 12 meter CW, and he was 589. By 1318 UTC, 10 meters opened to RA1QD and YL2TQ. DXing took a back seat to the Texas QSO Party for most of the rest of the weekend. 20 meters was in pretty good shape to Texas most of the time except Sunday after about 1730 UTC when absorption was high. 15 meters opened to Texas well by about 1540 UTC both days and stayed open until past 2230 UTC Saturday, but activity could have been better.

"10 meters opened on Sunday well to Europe at 1308 UTC when I turned on the radio, with many UA3 area stations logged. Conditions actually seemed to favor Russia with about 25 stations logged before QRTing for the Texas QSO Party at 1352 UTC; western EU was weak at best. This was the best day into Russia and surprisingly good conditions considering the fairly low SFI.

"On September 30, 10 meters did not open well to Europe, but again there was some propagation to RU3EG (1506 UTC) and UA3YDH (1335 UTC). And surprisingly, Kumar, VU2BGS was worked S5 on 10 CW using a 6 element yagi on his end and 5 el on my end. Twelve meters was open well to UR and Russia as far as RQ4F. Outside of India, Central Asia conditions have not been good above 20 meters. 8Q7AM was 57 on 15 meter phone at 1653 UTC, but he is far south. Since October 2, 10 has sounded poor except to the south and even 12 meters has been quite poor or closed to Europe.

"Today, Oct 3, conditions seemed to improve later in the day with a good 12 meter opening to JA around 2220 UTC and a good signal from TO2TT on Mayotte in the Indian Ocean on 17 phone at 1942 UTC. There was some sporadic-E into New England as well as to county activator W0GXQ in eastern Oklahoma, logged on 12 and 10 meters with S5 signals or better

(1540-1722 UTC) and still loud on 15 most of the time on F2 thru 2046 UTC."

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/wlaw-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 September 26 through October 2 were 63, 54, 58, 39, 42, 49, and 59, with a mean of 52. 10.7 cm flux was 109.9, 107.9, 105.7, 103.1, 104.9, 106.8, and 108.1, with a mean of 106.6. Estimated planetary A indices were 2, 2, 2, 3, 3, 5, and 39, with a mean of 8. Estimated mid-latitude A indices were 2, 2, 2, 3, 3, 6, and 29, with a mean of 6.7.

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