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ARLP019 Propagation de K7RA

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QST de W1AW
Propagation Forecast Bulletin 19 ARLP019
>From Tad Cook, K7RA
Seattle, WA May 9, 2014
To all radio amateurs

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We saw an uptick in solar indices over the past reporting week (May 1-7) compared to the previous seven days, with average daily sunspot number rising from 73.4 to 118.4, and average daily solar flux up 13 to 135.6. The most active geomagnetic days were May 4-5, with planetary A index at a relatively moderate 16 and 10, mid-latitude A indices of 15 and 11, and the high latitude college A index (measured at Fairbanks, Alaska) at 25 and 10.

Since then, we saw another active day yesterday (May 8) when the planetary A index reached 20, mid-latitude A index was 13, and Alaska's college A index (from Fairbanks) was 41, a high number.

Predicted solar flux for the near term is 145 on May 9-10, 150 on May 11, 155 on May 12-13, then 160, 165, 150, 140 and 135 on May 14-18, 130 on May 19-20, 125 on May 21, 120 on May 22-26, 115 on May 27-29, 120 on May 30, and 125 on May 31 through June 4.

The near term peak of 184 on June 9 disappeared from the daily 45-day outlook on May 5. The predicted solar flux for that date was 155 in the April 25-27 forecasts, jumped to 184 from April 28 through May 4, and was down to 131 in the May 5-8 forecasts. You can track the predictions yourself, which are updated daily after 2100Z at http://www.swpc.noaa.gov/ftpmenu/forecasts/45DF.html .

Currently we see a solar flux peak at 165 on May 15 and 184 on June 16. We see a minimum flux value (via the 45-day forecast) of 115 on May 27-29.

Predicted planetary A index is 8, 12, 10, 8, 5, 10 and 8 on May 9-15, 5 on May 16-20, then 10 and 8 on May 21-22, 5 on May 23-30, then 8 on May 31 through June 1, 12 on June 2, 8 on June 3-4, and 12 on June 5-6.

At 0538Z on May 8 the Australian Space Forecast Centre issued a geomagnetic warning. Increased geomagnetic activity was expected for the rest of May 8 due to a coronal mass ejection. This was the source of the high geomagnetic indices on that date.

Currently a mess of new sunspot groups is appearing around our Sun's eastern horizon. This is good news for HF propagation. You can track the progress of emerging sunspots at http://stereo.gsfc.nasa.gov/ which currently has an odd view with the earth-facing area of the Sun in black. Apparently data from the Solar Dynamics Observatory is temporarily offline.

Conditions are good right now for HF propagation, especially when compared to earlier points in the weak current solar cycle. We

appear to be at a second or third peak in Cycle 24 activity, and we really have no certainty as to how long this will last. Hope for the best!

F.K. Janda, OK1HH predicts active to disturbed conditions May 9-10, quiet to active May 11, mostly quiet May 12, quiet to unsettled May 13-15, quiet to active May 16, quiet May 17-18, mostly quiet May 19, quiet to active May 20-21, mostly quiet May 22-26, quiet to active May 27-28, mostly quiet May 29, quiet to unsettled May 30, active to disturbed May 31 through June 1, quiet June 2-3, and active to disturbed on June 4.

We heard from Jeff, N8II in West Virginia this week. He wrote, "A couple of weeks ago we had several morning openings to Thailand and Malaysia around 1400-1500Z with good signals. I worked the 9W2 beginner's license prefix for the first time. Yesterday, Daud, now with new call YB0IBM (ex YB8DX) was about 5 dB over S9 on 15M phone at 1540Z, so that opening is still good from around 1330-1600Z most days. Western and southern Africa has been workable even on 10 meters until 2400Z many days. The numerous solar flares have caused quite a few days with very poor propagation to Europe and Asia above 17 meters.

"Last weekend, I worked the 7th Call Area QSO Party and broke the QRP mixed out of state record by 77 percent with 606 QSOs, so needless to say conditions were quite good. 15 was the best band for propagation to all of 7 land most of the daylight hours opening well by 1440Z and open well to N9RV in Missoula, MT by 1330Z. My QSO total on 15 was about 215 with many multipliers (counties) found there. I kept checking 10 off and on all day and finally it opened extremely well around 2315Z until at least 0040Z with signals getting weaker around 0020Z.

"All of 7-land was loud with the first QSO being NK7U in Baker, OR peaking at 20 dB over S9. I made 48 QSOs on 10 which could have been many more with better activity. My guess is the opening was primarily F2, but there was some Es at that time also. The fact that signals from all parts of 7-land were loud at the same time and there was not rapid QSB leads me to suspect F2 over Es. There were many mobiles and expeditions operating from rare remote counties especially in ID, but I missed several counties in WA, OR, AZ, and NV (much better turnout in NV than usual including W1AW/7 in 3 counties). Even 40 and 80 were very good (NK7U over S9 on 80), but with limited activity. 20 was the band with the most activity, but absorption was high from here from 1520-2200Z. 20 was open until past 0300Z which is 11 PM here.

"The Florida QSO Party the weekend before featured very, very weak backscatter on Sunday to FL on 15 with many western USA and EU/West Asia having good prop to FL for many hours with UA9FAR S-9 off the back of my Yagi. 20M was marginal to the panhandle of FL at times and 40 never really opened from here Sunday, but I missed the 8AM start by about 2 hours."

Interesting article about the history of Sunspot, New Mexico can be found at,
http://www.alamogordonews.com/alamogordo-news/ci_25692642/sunspot-circa-1957-finest-solar-research-laboratory-world
.

Scott Bidstrup, TI3/W7RI in Costa Rica wrote on May 6, "The propagation on 6 meters has been fabulous down here for about a month - up until about a week ago, when activity on 6 meters has

fallen off a cliff.

"It began with Phil, TI5/N5BEK here in Costa Rica working Japan on long path, via a chordal duct (aiming his beam just south of due east), and Remi, FK8CP, being audible here in Central America in the early evening hours, almost daily, sometimes for hours at a stretch, and often with S9+20 signal levels.

"But beginning about a week ago, with the dip in solar activity, there's been almost nothing but a few weak sporadic E openings into the Leeward Islands. Looking at the 6 meter DX map from http://www.dxmaps.com, we can often see a mass of QSO lines going directly over our heads via TEP, but for us on the ground, tuning around the 6 meter band has yields no signals at all, no matter where the antennas are pointed. It's been frustrating to say the least.

"With sporadic-E activity in the States picking up, we're hoping for the best, though sporadic-E openings down here tend to be rather uncommon. When they happen, they're usually into Florida, the Gulf Coast and occasionally Texas. So you fellas up there, especially along the Gulf Coast, check the beacons down here often during the sporadic-E season. Never know when you might work some Central American DX."

Scott also noted that we often see more solar flares on the downside of the solar cycle, after the peak, as mentioned in this article he sent along:

http://www2.ucar.edu/atmosnews/features/11505/watch-solar-superstorms

Scott sent this article on sprites, and wonders "Since this phenomenon occurs in the D-region of the ionosphere, and the ion density is high enough to be luminous, I am curious to know if this phenomenon could support propagation in the VHF, UHF, or possibly lower microwave regions (short enough wavelength to be well out of the absorption region), if for only for a second or two. It would be interesting to do some experiments to find out."

The article can be found at,
http://phys.org/news/2014-05-sprites-plasma-irregularities-ionosphere.html

Scott also has a web site devoted to propagation:

http://www.bidstrup.com/w7ri-hf-radio-propagation.htm

Jim Henderson, KF7E of Queen Creek, Arizona wrote, "There is a great tool for visualizing CMEs in 3-D available at http://www.swpc.noaa.gov/wsa-enlil/ .

"It is still in development, and I find the estimate of 'time of arrival' at Earth to vary widely in accuracy, but it is getting better."

Note that ARRL Field Day is seven weeks away, on June 28-29.

Also, K6TU is offering free propagation forecasts for the WRTC event:

https://k6tu.net/?q=node/add/dx-prediction-wrtc

http://www.wrtc2014.org/k6tu-provides-propagation-forecast-service-for-wrtc2014/

Sorry to hear of the passing of Lee Wical, KH6BZF. Lee occasionally filled in for me over the past two decades when I was out of town, when I couldn't write the bulletin. He was quite knowledgeable about propagation, and always entertaining. Lee will be missed!

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 May 1 through 7 were 93, 114, 121, 128, 131, 137, and 105, with a mean of 118.4. 10.7 cm flux was 125.7, 135.4, 132.6, 131.5, 139, 138.9, and 145.9, with a mean of 135.6. Estimated planetary A indices were 6, 3, 7, 16, 10, 3, and 4, with a mean of 7. Estimated mid-latitude A indices were 5, 3, 5, 15, 11, 4, and 5, with a mean of 6.9.
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