

SB PROP @ ARL \$ARLP012
ARLP012 Propagation de K7RA

ZCZC AP12
QST de W1AW
Propagation Forecast Bulletin 12 ARLP012
>From Tad Cook, K7RA
Seattle, WA March 21, 2014
To all radio amateurs

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Average daily sunspot numbers decreased from 138.7 to 129 on March 13-19, compared to the previous seven days. Average daily solar flux went from 149.7 to 141.4.

The latest 45 day forecast shows solar flux at 150 on March 21-22, 145 on March 23, 140 on March 24-26, then 135, 145 and 160 on March 27-29, 165 on March 30-31, 160 on April 1-2, 155 on April 3, 150 on April 4-7, 145 on April 8-9, 140 on April 10-11, and 135 on April 12-16. This (135) represents a low for the short term, then the forecast shows a rise to 165 on April 26-27.

Predicted planetary A index is 5 on March 21-22, 8 on March 23-24, 5 on March 25-29, 8 on March 30 through April 1, 5 on April 2-8, 10 on April 9, 5 on April 10-12, 8 on April 13-14, 5 on April 15-25, and 8 on April 26-28, followed by 5 during the foreseeable future. Predicted values out that far are likely to change over the next 30 days.

The entire 45-day flux forecast took a big jump on March 17. On March 16 the average solar flux for April was predicted to be 122.3. On March 17 and every day since the average solar flux for April is predicted to be 149.8, an increase of over 22 percent. Check the recent history of these changes along with daily updates at <http://www.swpc.noaa.gov/ftpmenu/forecasts/45DF.html> . You will find new daily updates usually between 2100-2300 UTC.

I noticed something odd with the geomagnetic data reported every three hours at <http://www.swpc.noaa.gov/ftpdirest/DGD.txt> . When I checked this link at 0831 UTC on March 20, the mid-latitude A index for March 15-19 was 26, 11, 5, 10 and 11. But when I checked the same link 24 hours later, the same values were 3, 1, 2, 5, and 2.

What caught my attention on March 20 was the March 15 mid-latitude A index of 26, while the same date showed a planetary A index of 4, and college A index (in Alaska) at 2. This seemed odd, because during periods of moderate or high geomagnetic activity, the mid-latitude value measured in Virginia is the lowest, followed by the planetary A index at a higher value, and the college A index as the highest. This is because the college A index is measured near Fairbanks, Alaska, where the polar region sees a concentration of geomagnetic unrest during any disturbance.

The planetary A index is calculated using data from observatories at Sitka, Alaska (57.0576 degrees north latitude); Meanook, Alberta, Canada (at 54.616 degrees north latitude); Ottawa, Canada; Fredericksburg, Virginia; Hartland, UK; Wingst, Germany; Niemegek,

Germany; and Canberra, Australia. Note that the mid-latitude Fredericksburg data is also a component of the planetary index.

These magnetic observatories are often in little shacks out in remote areas. See <http://geomag.usgs.gov/monitoring/observatories/sitka/#photos> , <http://geomag.nrcan.gc.ca/obs/mea-eng.php> , http://www.intermagnet.org/imos/imos-list/imos-details-eng.php?iaga_code=AAE , http://www.intermagnet.org/imos/imos-list/imos-details-eng.php?iaga_code=ASC , http://www.intermagnet.org/imos/imos-list/imos-details-eng.php?iaga_code=AQU , <http://geomag.usgs.gov/monitoring/observatories/fresno/#photos> and http://www.intermagnet.org/imos/imos-list/imos-details-eng.php?iaga_code=KOU and http://www.intermagnet.org/imos/imos-list/imos-details-eng.php?iaga_code=KDU .

The daily geomagnetic A index for each day is calculated from the K index, measured every three hours. See http://www.swpc.noaa.gov/rt_plots/kp_3d.html for more info on the planetary values.

This week's geomagnetic forecast from OK1HH, who has been distributing these predictions since 1978: The geomagnetic field will be quiet to unsettled on March 21, quiet to active on March 22, quiet to unsettled March 23, quiet March 24, quiet to active March 25, quiet to unsettled March 26-27, mostly quiet March 28, quiet March 29, mostly quiet March 30, quiet to active March 31, mostly quiet April 1, quiet for a whole week on April 2-8, mostly quite April 9, active to disturbed April 10, quiet to unsettled April 11, quiet April 12, mostly quiet April 13, quiet to active April 14, and quiet again on April 15-16.

Hey, the first day of Spring was yesterday, March 20! With solar radiation equally distributed between the northern and southern hemispheres, we are in an ideal time for HF propagation. Not only that, but we are at the peak of the current solar cycle. This is about as good as it gets, at least for the next decade or so.

Several readers (thanks to M0VNG in Worcester, England, N1IN, KA7RJO, and several others) sent in news reports on the monster solar flare of July 2012, which was aimed squarely at our Earth's orbital path. Fortunately, our planet would not be in position to receive the disturbance for a week (or perhaps nine days earlier was the disaster point, according to some sources) and we missed another Carrington event, like the one in the 19th century which set telegraph offices on fire. Read about it at <http://www.theregister.co.uk/2014/03/19/> and <http://www.nature.com/ncomms/2014/140318/ncomms4481/full/ncomms4481.html> and <http://newscenter.berkeley.edu/2014/03/18/fierce-solar-magnetic-storm-barely-missed-earth-in-2012/> .

I am not an alarmist, but if that solar blast had struck Earth in the most geoeffective position in 2012, I am convinced that the result would have been a major collapse of civilization worldwide, just from effects on the power grid, let alone everything else. And without power or internet access for an extended period, I would not even be able to report it, and I don't know if I would even realize what had happened.

Here is another article about the event, this time from National Geographic: <http://news.nationalgeographic.com/news/> .

A few days ago we had this interesting report and cautionary tale from Peter Gambia, K6TTD of Sacramento, California. This is from his March 17 email: "Before anybody spots this in your next report ... I have a small correction to make.

"My 'AD8J/YA (Afghanistan)' wasn't exactly what I thought it was. One of the members of the NCDXC caught my reference to this QSO on the club list serve and dropped me a line. It was really AD8J/YAN, operating in the N.C. QSO Party.

"The spotting networks were showing it as 'Afghanistan,' and that is the way it came up in my logger. Thought that one was a little too easy - I got him on first call, which should've been a tip-off. But it did feel awesome right up to the point reality hit.

"I still made my 100th confirmed on LoTW - earned DXCC - and a snagged some entities that I thought would take years to get, all in the span of about ten days. I can live with that and be happy."

Earlier, he sent this email:

"I thought I might be sticking my neck out a few months ago when I predicted that I could get to DXCC before the end of Cycle 24. Frankly, thought I was inviting the solar 'gods' to smite me. But, just as the solar flux was beginning to trail off it happened: This afternoon, my DXCC count on LoTW crested the 100 mark, and a new check box popped up on my LoTW application page: 'Send Certificate.'

"Not to hold everybody in suspense, but I put a check mark in the box and hit 'send' at about the speed of light.

"The second peak of Cycle 24 has been VERY good to me. I went from about 20 confirmed DXCC to well over 100 in the span of about six months. The last few weeks included some huge (and for me, extremely elusive) 'ATNO' QSOs, including VU2GSM (India), TA3X (Turkey), 4Z4DX (Israel), AD8J/YA (Afghanistan), 9J2T (Zambia), 4S7FRG (Sri Lanka). Most of these came within the last week, and only one, 4Z4DX, counted toward my 100 confirmed LoTW QSOs (actually, his confirmation was the one that just put me over the top.) The 9J2T QSL is ordered and 'in the mail.'

"My logging software shows that I have 114 DXCC confirmed, and over 180 worked, so I have a pretty good pile of cards to get out. I hate paperwork with a passion, but I REALLY want some of these cards and wouldn't mind being on the path to DXCC Honor Roll so it's time to get down to stuffing, sealing, stamping, sorting ... Why can't more DX be on LoTW? After the luck I've had this cycle, I really can't complain all that much.

"What a blast!

"I do have some thanks to put out there ... To Sol, who seemed to kick things up a notch just when most of the 'experts' were predicting a Maunder Minimum; to VE3NEA, the author of 'CW Skimmer,' whose genius software made the ugliest pileups extremely workable; to the geniuses at Elecraft for designing one of the best receivers on the market available to mere mortals; to the good people at ARRL and LoTW, who made the process of getting confirmations for my first 100 DXCC an absolute breeze -- and last, but not least, to my loving wife and children who have shown extreme patience in the face of my

growing obsession/mania ... Thank you!! I couldn't have done it without you!

"Now, gotta run. I'm off to the Post Office."

Regarding solar flares, we got this from George Hall, N2CG of Saddle Brook, New Jersey:

"I remember the X15 Solar Flare of March 1989 like it happened yesterday.

"On Monday morning March 6 around 7 AM EST/1200 UTC I was monitoring The BBC World Service on or near 10.120 MHz. This was back when we shared the 30m band with a few shortwave broadcast stations in addition to military and utility stations that we still share the band with today.

"The BBC came in every morning on 10.120 MHz like gang busters with a solid S9+40 over signal. Around 7:15 AM I left the shack to have breakfast and do some chores. When I returned to the shack around an hour later I turned on my transceiver (it was still tuned to the BBC station) and all I heard was noise. I then tuned around the band and still heard nothing but inherent receiver noise. I changed bands and antennas and attempted to monitor various frequencies that should have been full of stations but all I found was no radio signals at all! It sounded like I forgot to connect the antenna to the receiver jack.

"I called (on the telephone) Ralph W2GKG (now SK) a local ham friend who had been a ham and professional radio and TV broadcast engineer for over 40+ years to tell him of my HF dead bands experience. He said he also experienced the same conditions at his station and said we probably are experiencing HF Radio Blackout which is caused by a major solar flair. Sure enough, that is exactly what it was and a few hours later the breaking news of the day being broadcast on radio and TV was the major solar flare that occurred and how it could negatively affect us on earth like power grid outages and damaging satellites in space with excessive radiation.

"Since 1989 we've had quite a few solar flares but none that created such a severe and long lasting (If I remember correctly I did not hear radio HF signals until late afternoon that day) HF Radio Blackout conditions."

Now instead of solar flares, some 10 meter reports.

First from Dean Lewis, W9WGV of Palatine, Illinois.

"As I'm sure you're hearing from everyone else, 10M propagation for the Russian DX Contest last weekend was amazing.

"Due to family obligations, I didn't have much air time, but beat my previous best DX by 1,000 miles, working VK6AA on the northwest coast of (Western) Australia: direct path 10,000 miles. He was 'running' fast, but heard me on the first call; no fills, no repeats. His signal was down near the noise, and I'm sure mine was no better. My station is the most 'modest' I've heard of: an IC-703 (10 watts max) into an end-fed 40 meter half-wave wire resonant on 10, 15, 20, and 40 meters, indoors along the upstairs ceiling (local CC&Rs), running CW-only."

And from Jon Jones, N0JK of Lawrence, Kansas.

"10 meters continued to have enhanced conditions to the Far East as the equinox approached.

"On March 19 UTC logged Charlie, VR2XMT, Fajj, 9W6ZIM both on SSB and HL2DC CW. Heard but no QSO with XZ1N.

"On March 20 UTC BD4TS and JA9SJI on SSB. All from mobile station.

"Very pleased to work VR2XMT. Back in November, 2001 I worked VR2XMT from HC8N on 6 meters."

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 March 13 through 19 were 130, 121, 141, 139, 110, 125, and 137, with a mean of 129. 10.7 cm flux was 147.7, 143.8, 139, 135.6, 136.4, 138.3, and 149.2, with a mean of 141.4. Estimated planetary A indices were 13, 5, 4, 3, 3, 6, and 5, with a mean of 5.6. Estimated mid-latitude A indices were 7, 5, 3, 1, 2, 5, and 2, with a mean of 3.6.

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