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ARLP024 Propagation de K7RA

ZCZC AP24
QST de W1AW
Propagation Forecast Bulletin 24 ARLP024
>From Tad Cook, K7RA
Seattle, WA June 13, 2014
To all radio amateurs

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Last week's bulletin opened with your author (me) moaning about a decline in solar activity, but this was short lived. The current week saw average daily sunspot numbers more than double, rising from 60.1 to 144.3, and average daily solar flux rise from 104.1 to 146.4. In addition, on June 12 the daily sunspot number was 196, and solar flux was 174.5. It actually was not long ago when sunspot numbers were last at that level. April 16-19, 2014 had numbers ranging from 245-296.

Predicted values are also up. The latest has solar flux at 170, 165 and 155 on June 13-15, 145 on June 16-18, 140 on June 19, 130 on June 20-21, then reaching down for a low of 110 on June 24-25, then peaking at 165 on July 8. The outlook for Field Day Weekend has brightened, with solar flux at 115 on June 27-28 and 120 on Sunday, June 29.

Predicted planetary A index is 18, 20, 10 and 8 on June 13-16, 5 on June 17, 8 on June 18, 5 on June 19-24, 8 on June 25-26, 5 on June 27 through July 5, 15 on July 6, 5 on July 7-9, 8 on July 10, 5 on July 11-14, and 8 on July 15-16.

OK1HH predicts mostly quiet geomagnetic conditions on June 13, quiet to active June 14, quiet to unsettled June 15, quiet June 16-18, quiet to active June 19, quiet to unsettled June 20, mostly quiet June 21, quiet June 22-24, mostly quiet June 25, quiet to active June 26, active to disturbed June 27, quiet to unsettled June 28, quiet on June 29, quiet to active June 30, mostly quiet July 1-2, quiet to unsettled July 3-4, quiet July 5, quiet to unsettled July 6, active to disturbed July 7, quiet to active July 8, and mostly quiet July 9.

Again this week there was an interruption in data from the middle latitude geomagnetic observatory in Fredericksburg, Virginia, so the middle latitude A index numbers at the end of this bulletin for June 8-9 are my own guesses.

We saw a lot of geomagnetic activity over last weekend, June 8-9, when the planetary K index reached 6 in two 3-hour periods, and the planetary A index was 13 on Saturday, then 39 on Sunday. This geomagnetic storm was from a CME which hit Earth at 1630 UTC on June 7, but left the Sun on June 4.

A significant solar flare on June 10 could cause polar geomagnetic storms today, Friday June 13. It will probably deliver a glancing blow to Earth's magnetic field. See <http://earthsky.org/space/x2-solar-flare-today> for an article about the June 10 flare, and for a UPI story on possible effects today,

see

http://www.upi.com/Science_News/2014/06/12/Solar-storm-to-hit-Earth-on-Friday-the-13th/7891402590302/

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Ted Leaf, K8HI sent a fascinating video and article about renewed activity at the peak of the current solar cycle. See <http://earthsky.org/space/solar-maximum-is-back> .

Max White, MOVNG sent two relevant articles. See http://www.upi.com/Science_News/2014/06/11/Another-giant-solar-flare-erupts/4281402500673/ and

http://www.sciencecodex.com/the_solar_wind_breaks_through_the_earths_magnetic_field-135443

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David Moore sent a review of "Nearest Star; the surprising science of our Sun" which you can read at <http://www.thespacereview.com/article/2513/1#.U5NRe3TXbgY.email> .

An excellent book I've been reading is "Tesla: Inventor of the Electrical Age" by W. Bernard Carlson. This may be the best biography yet on Tesla, as other articles and books I've seen accepted uncritically some of his later work, which included transmitting electrical power via wireless. I think copper wire works better for this.

NASA has a new and slightly revised prediction for Cycle 24. View it at <http://solarscience.msfc.nasa.gov/predict.shtml> . The changes from a month ago are:

May 2, 2014 forecast: "The current prediction for Sunspot Cycle 24 gives a smoothed sunspot number maximum of about 70 in the Fall of 2013. The smoothed sunspot number reached 75.0 in October 2013."

to:

June 12, 2014 forecast: "The current prediction for Sunspot Cycle 24 gives a smoothed sunspot number maximum of about 70 in late 2013. The smoothed sunspot number reached 75.4 in November 2013."

These are smoothed numbers, averaged with real and predicted values over a year, so when we have higher and extended activity this year, that changed the maximum from fall of 2013 to late 2013, and 75.0 in October 2013 to 75.4 in November 2013.

Astrophysicists at Trinity College in Dublin are using crowdsourcing for classifying sunspots. They want people to visit <http://www.sunspotter.org/> to rank pairs of sunspot images based on complexity. As you are presented with each pair, use your gut feelings and vote for the image that seems the most complex. Or if you want examples, go to <http://www.sunspotter.org/#/classify> .

We learned of this from the Irish internet news site TheJournal.ie, and you can read their article "Trinity College astrophysicists want you to play 'Hot or Not' with sunspots" at <http://www.thejournal.ie/article.php?id=1513613> .

Another interesting project to use crowdsourcing is "Seafloor Explorer," where they want help classifying real images of the ocean floor. Check it out at <http://www.seafloorexplorer.org/> . People who believe they see a face on Mars or pyramids on the moon should find

a lot to like here.

Find other projects and educational info at <https://www.zooniverse.org/projects>. Click on "Study explosions on the Sun" to enter their Solar Stormwatch project.

This weekend is the ARRL June VHF Contest. The multiplier is number of grid squares worked. The contest begins at 1800 UTC Saturday. See <http://www.arrl.org/june-vhf> for details.

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 June 5 through 11 were 102, 132, 155, 144, 152, 149, and 176, with a mean of 144.3. 10.7 cm flux was 110.5, 133, 136.7, 148.6, 161.2, 166.2, and 168.4, with a mean of 146.4. Estimated planetary A indices were 7, 6, 13, 39, 5, 7, and 7, with a mean of 12. Estimated mid-latitude A indices were 7, 5, 14, 40, 6, 7, and 8, with a mean of 12.4.

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