Cycle 24 Update – Second Peak

Carl Luetzelschwab K9LA – August 2014

One year ago, the August 2013 column asked the question "Will Cycle 24 Have a Second Peak?" If you've been following the progress of Cycle 24 and if you've been active on the higher bands (15-Meters, 12-Meters and 10-Meters) over the past year, you would have to answer "Yes, Cycle 24 definitely had a second peak!"

The first figure in the August 2013 column was in terms of sunspot number. It included data through April 2013 for the monthly mean sunspot numbers and data through October 2012 for the smoothed sunspot number. The high monthly mean sunspot number activity at the end of 2011 resulted in a peak in Cycle 24 in early 2012. Remember that solar cycle peaks (and minimums) are in terms of smoothed values – not monthly mean values.

Figure 1 of this column brings the data up to date, but now in terms of the 10.7 cm solar flux. The latest monthly means (blue vertical columns) are through April 2014, and the latest smoothed values (red line) are through October 2013. Remember that the smoothed value for a designated month uses six months of monthly mean data ahead of the designated month, and thus the smoothed value is six months behind the monthly mean data.

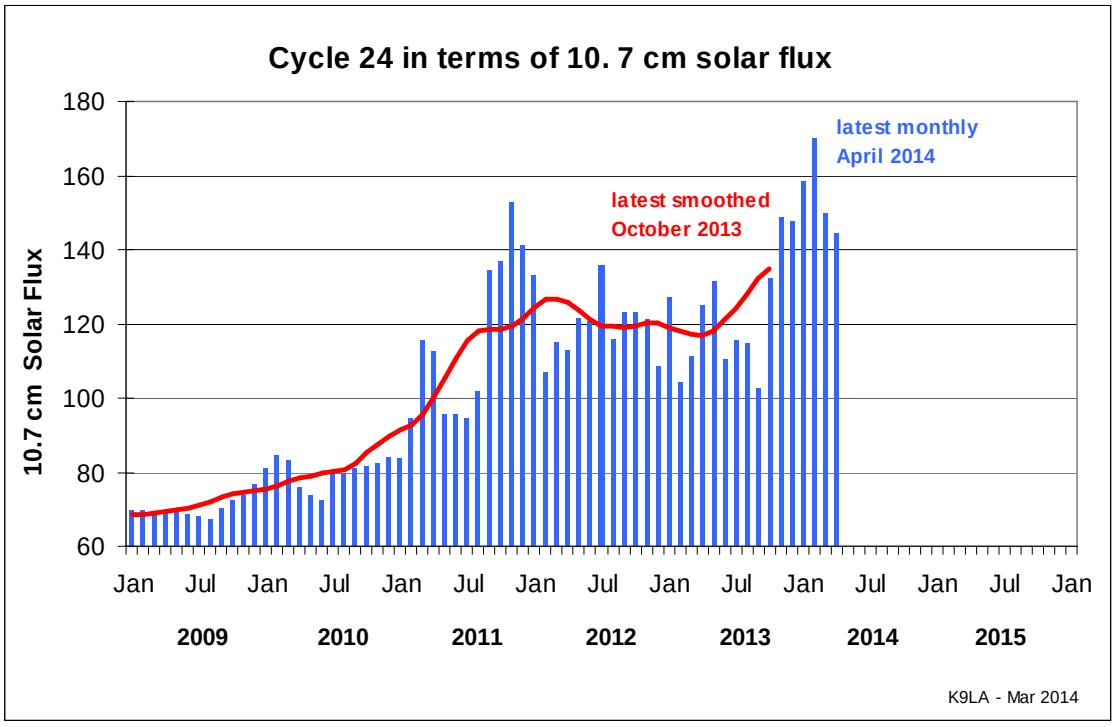

Figure 1 – Latest Cycle 24 Data

As can be seen, the high monthly mean activity in late 2011 (which gave Cycle 24 its first peak in early 2012) was followed by typical up and downs of the monthly means through 2012 and mid 2013. But in late 2013 the monthly mean activity surged – and it surged to

even higher values than late 2011. The result of this surge will be a second peak in Cycle 24.

From the data so far, this second peak will obviously be even higher than the first peak. We don't have enough data yet to exactly pin down the 'when' and 'how high' – but the next several months should give us a good clue (if not the full answer).

With the significant surge in solar activity in late 2013, we would expect to have some really great propagation on the higher bands since MUFs (maximum useable frequencies) in the northern hemisphere are highest in the fall and winter months.

Indeed, my log shows lots of excellent 'normal' openings to Europe, the Mid East, India and Japan on the higher bands during the day. It also shows many 'more exotic' long path openings in the mornings on the higher bands to JA (Japan), XZ (Myanmar), S2 (Bangladesh), VR (Hong Kong), and many more countries. Additionally, Joe W6VNR, my wife Vicky AE9YL and I did another multi-op effort from ZF1A (Cayman Islands) in the December ARRL 10-Meters Contest. We ended up with over 3000 QSOs.

The cause of this second peak was due to solar activity being asymmetric in the two solar hemispheres. Figure 2 is an update of the second figure in the August 2013 column. The data comes from SILSO data/image, Royal Observatory of Belgium, Brussels.

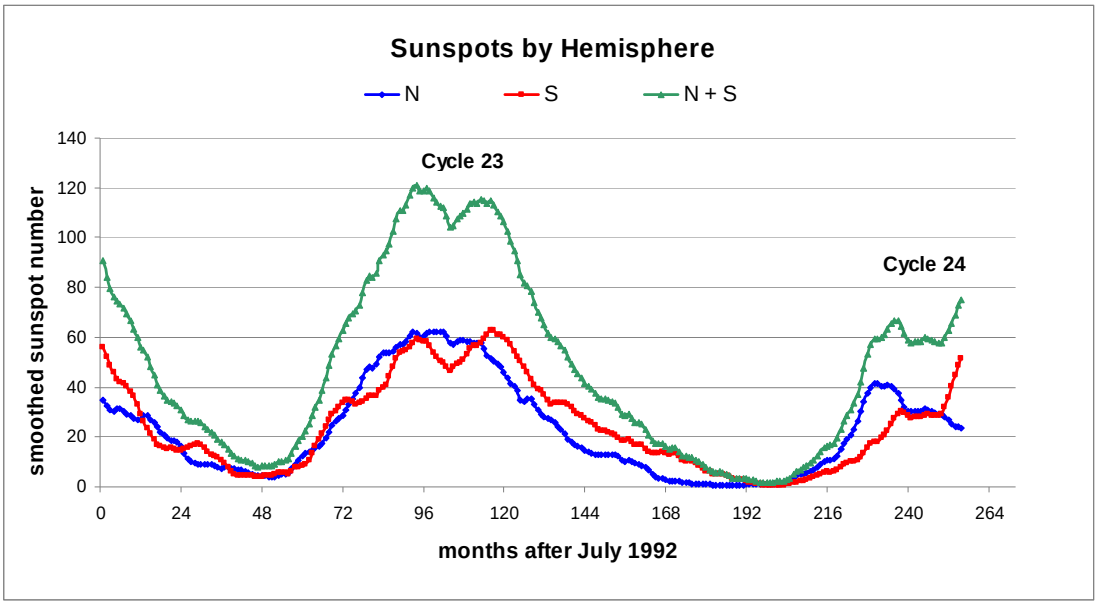

Figure 2 – Asymmetric Sunspot Numbers

Note that Figure 2 is now in terms of the smoothed sunspot number (not smoothed 10.7 cm solar flux). I had to revert back to sunspots as we can visually see in which hemisphere they emerge – not so with 10.7 cm solar flux. Also note that the data starts in July 1992 (the descent phase of Cycle 22), and the latest data is for October 2013.

Early on in Cycle 24, the northern hemisphere dominated in sunspot emergence. But then the northern hemisphere quieted down in mid 2012, and the southern hemisphere really took off in mid 2013 – and the southern solar hemisphere continues to dominate.

After the usual summer lull in MUFs, this second peak says we'll likely have decent propagation on the higher bands this coming fall and winter. That should be good for casual operators, DXers and contesters alike. We'll likely activate ZF1A again in the 10-Meter Contest, so we have our fingers crossed.