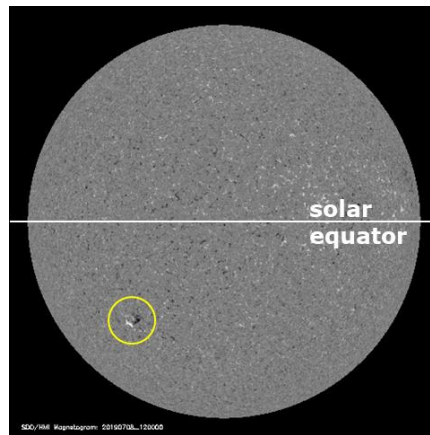


Cycle 25 Sunspots Carl Luetzelschwab February 2020

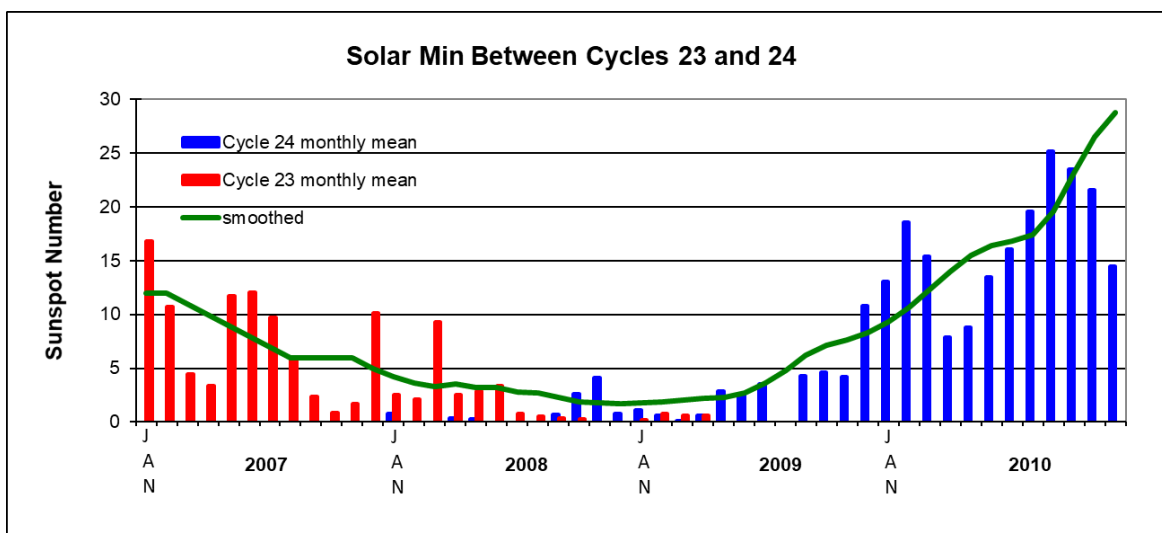
If you've been following the news at www.spaceweather.com (or any of the other similar web sites), you probably know that we've seen Cycle 25 sunspots. The first Cycle 25 sunspot occurred in December 2016, but it was so small and of such a short duration that it was not assigned an AR (Active Region) number. Similar small and short duration Cycle 25 sunspots occurred in April 2018, November 2018, May 2019 and early July 2019. None of these were assigned an AR number, either.

Later in July 2019 another Cycle 25 sunspot appeared. It was big enough and lasted long enough to be assigned AR2744. Here's the magnetogram image of this active region (circled in yellow) from <http://soi.stanford.edu/magnetic/index5.html>. This is likely the first official Cycle 25 sunspot.



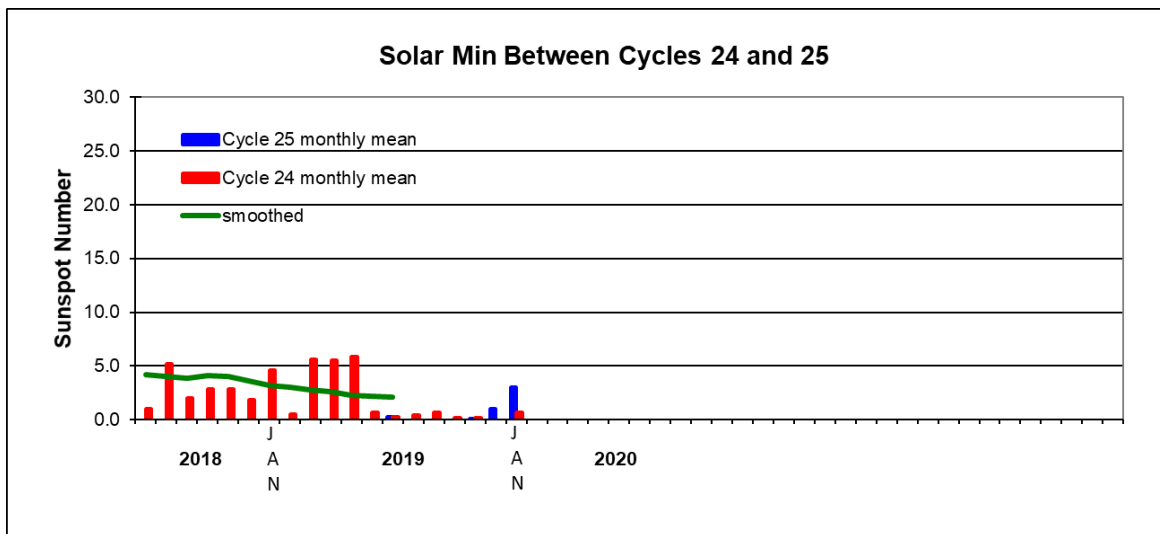
Solar scientists can tell if a sunspot is from the old cycle or the new cycle by where the sunspot emerges on the solar disk (old cycle sunspots emerge near the solar equator and new cycle sunspots emerge at higher latitudes) and by the polarity of the sunspot (the orientation of the white and black areas on the magnetogram). More Cycle 25 sunspots occurred in November 2019 (AR2750, AR2751), December 2019 (AR2753, AR2754) and January 2020 (AR2755, AR2756). Cycle 25 is alive!

Let's go back to the solar minimum between Cycles 23 and 24.



As can be seen, solar minimum (as defined by the numerical minimum of the smoothed sunspot number) occurred around December 2008. Cycle 23 had sunspots (the red vertical bars) out to April 2009, and Cycle 24 sunspots (the blue vertical bars) began in January 2008. Thus it's clear to see that old solar cycles and new solar cycles overlap. This overlap for Cycles 23 and 24 was about a year and a half. Also note that solar minimum was about a year after the first Cycle 24 sunspot was seen.

Here's the data for the current solar minimum (including January 2020 monthly means) for Cycles 24 and 25.



With the first sunspot of Cycle 25 showing up in July 2019, the previous solar minimum data suggests we'll be at solar minimum between Cycles 24 and 25 in mid 2020. This falls in line with the Cycle 25 prediction from the NOAA/NASA Solar Cycle International Panel – they say solar minimum will be in April 2020 (± 6 months). All we can do right now is wait and see what actually happens.

The NOAA/NASA Solar Cycle International Panel also predicts that the peak of Cycle 25 will occur in July 2025 (± 8 months) at a smoothed sunspot number of 115. This makes it similar to Cycle 24 in magnitude. Again, all we can do is wait and see.

Until Cycle 25 starts its ascent in earnest, stay active on the low bands. 20-Meters (and 17-Meters to a lesser extent) should be open worldwide during the day and early evening. Look for occasional north-south openings and openings to VK/ZL on 15-Meters, 12-Meters and 10-Meters (thanks to the robust equatorial ionosphere). Don't forget sporadic-E on 10-Meters and 6-Meters in the summer and December months. And take advantage of the better SNR performance of the digital modes.