

*K6MIO/KH6, Jim Kennedy, has been a student of propagation since Cycle 19 and is a physicist and active HF/VHF DXer who over the years has written extensively about six-meter propagation. He has a PhD in physics and, until retiring recently, was an Associate Director of the Gemini Observatory in Hawaii and Chile. Prior to Gemini, Kennedy was the Project Manager for the Global Oscillation Network Group (GONG) at the National Solar Observatory in Tucson. "One of the key goals of the (ongoing) GONG program has been to provide observational data on the solar interior to help explain the origins of the solar cycle", Jim says. Below is a recent post he made to one of the VHF reflectors that might help us all. Thanks Jim!*

In October I made a presentation on Cycle 24 noting that the Cycle 23 minimum occurred around early December 2008. This "officially" signaled the start of Cycle 24. (Of course we have been seeing occasional Cycle 24 spots and magnetic regions in both solar hemispheres since December 2007.)

I also presented a plot that showed the R-sunspot-index values separately for the northern and southern solar hemispheres, since differences in the northern and southern solar hemispheres' behavior have played a key role in the unusual character of Cycle 23. The sluggish southern solar hemisphere seems to be responsible for dragging out Cycle 23 for so long (12.6 years). (The total Ri is the sum of Rn and Rs.)

That plot compared the behavior of the solar minimum that began Cycle 23 to the 2008 solar minimum that began Cycle 24. I reported that the then most recent data (through September 2009) were consistent with the northern solar hemisphere beginning to track the upward climb in Rn, signaling the long awaited "upswing" of Cycle 24 activity.

I also suggested that we should be seeing a clear indication of the upswing by the beginning of 2010, IF the cycle was really starting up in a way consistent with Cycle 23.

I am happy to report that the most recent data are consistent with a real beginning of Cycle 24 activity.

The attached (below) update of the October plot shows the northern and southern R indices through December 2009. The northern hemisphere shows a clear jump in activity that continued to increase through October, November, and December (and appears to be continuing into January); and it is tracking quite close to the Cycle 23 northern-hemisphere trajectory.

Even more encouraging is that in November and December, there is a similar jump in the southern hemisphere R, which appears to be approaching the Cycle 23 track.

I must point out that, while the Cycle 23 data are the traditional 12-month running average values, the last six month's of Cycle 24 data (July-December 2009) are averages of only the available data to date (e.g. July is an 10-month average, and December is a

one-month average). Consequently, the "real" values for this last period may change over the coming months as additional months are averaged in to complete the 12-month average. (IF a normal pattern is followed, they should actually increase slightly.)

The current, very preliminary, indications continue to suggest that solar maximum may occur around the Northern Hemisphere winter of 2012-13, if normal rules apply (they may not).

I do not make any inferences about the impact on the solar maximum peak  $R_i$  value at this time.

