Natural Radio

News, Comments and Letters About Natural Radio

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All the speculation and betting that surrounds “March Madness” seems to be radiating into the Space Weather arena as space and science news this month was dominated by speculation about the next Solar Cycle.

For most of the month of February, 21 out of 28 days to be exact, the sun was totally devoid of sunspots. NASA solar physicist David Hathaway speculates: "Solar minimum has arrived." February 2006, was the first month in almost ten years when there were mostly no sunspots. This and other statistical predictions, point to a solar minimum at the end of this year with a solar max around 2010

But there is new research which might help make more accurate predictions. The tangled magnetic fields that give rise to sunspots and ultimately magnetic storms are produced by plasma flows on the surface and interior of the sun. In order to make good predictions about solar activity we need to be able to understand and observe this plasma flow. Thanks to satellite technology, flows on the surface of the sun are observable and our observations have helped us to understand the internal flows in a general way, but really had no way to see what was going on inside the sun.

Enter a new technique called “helioseismology” which uses sound waves reverberating inside the sun to create an image of the interior plasma flows. The technique is similar to the non-invasive ultrasound techniques used by the medical profession to observe the workings of the heart and other internal organs.

This breakthrough in solar research was developed by Mausumi Dikpati and colleagues at the National Center for Atmospheric Research in Boulder, Colo. Using computer simulations and data from SOHO, NASA's Solar and Heliospheric Observatory

Using this new research, this team predicts the next cycle will begin with an increase in solar activity in late 2007 or early 2008. They are also predicting 30 to 50 percent more sunspots, flares, and CMEs in cycle 24. More detailed observations from the Solar Dynamics Observatory, scheduled to launch in August 2008, should help make these predictions more accurate. Read about it at:
http://science.nasa.gov/headlines/y2006/10mar_stormwarning.htm

This method predicts a solar minimum about one year later than the traditional method using statistics such as sunspot numbers and the strength of the large-scale solar magnetic field to speculate on the next cycle. Bets anyone?

Even with the solar minimum coming, the Kp got up to 6 this weekend due to a coronal hole. I went out about midnight last night to look for aurora activity, but the geomagnetic activity wasn’t quite enough to push it this far south. Nevertheless, the dry crisp air made the view of the sky breathtaking. Next month (work schedule permitting) we’ll pick up on the series about science behind whistlers and other emissions in the Magnetosphere.