

# Video: The Sun reverses its magnetic poles

December 9 2013

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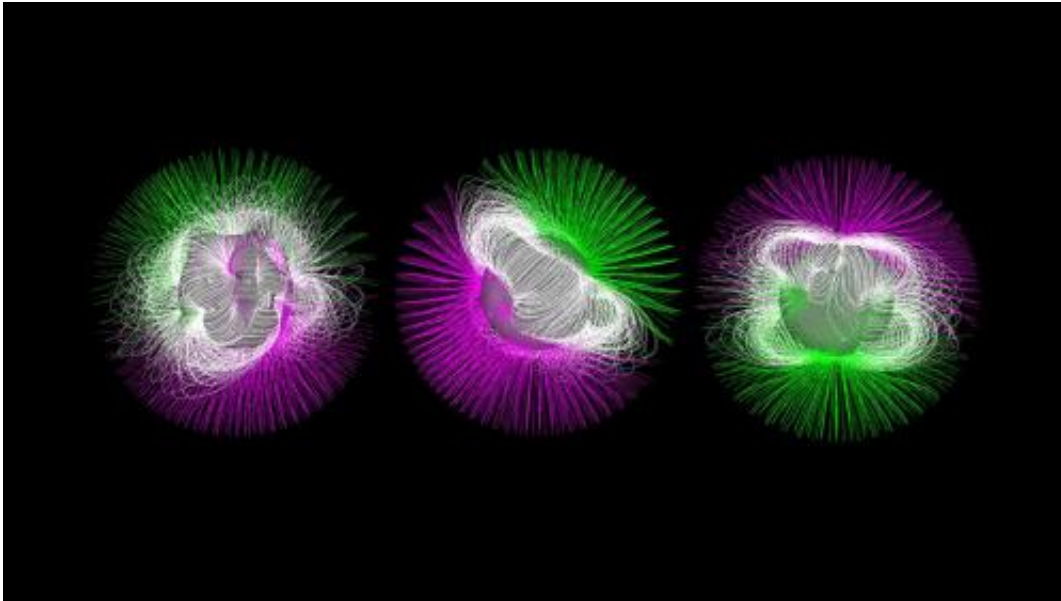


Image showing the sun's magnetic fields on Jan. 1, 1997, June 1, 2003, and Dec. 1, 2013. Green indicates positive polarity. Purple is negative.

This visualization shows the position of the sun's magnetic fields from January 1997 to December 2013. The field lines swarm with activity: The magenta lines show where the sun's overall field is negative and the green lines show where it is positive. A region with more electrons is negative, the region with less is labeled positive. Additional gray lines represent areas of local magnetic variation.

The entire sun's [magnetic polarity](#), flips approximately every 11 years—though sometimes it takes quite a bit longer—and defines what's

known as the solar cycle. The visualization shows how in 1997, the sun shows the positive polarity on the top, and the negative polarity on the bottom. Over the next 12 years, each set of lines is seen to creep toward the opposite pole eventually showing a complete flip. By the end of the movie, each set of lines are working their way back to show a positive polarity on the top to complete the full 22 year magnetic solar cycle.

At the height of each magnetic flip, the [sun](#) goes through periods of more solar activity, during which there are more sunspots, and more eruptive events such as solar flares and [coronal mass ejections](#), or CMEs. The point in time with the most sunspots is called solar maximum.

Provided by NASA

Citation: Video: The Sun reverses its magnetic poles (2013, December 9) retrieved 19 April 2024 from <https://phys.org/news/2013-12-video-sun-reverses-magnetic-poles.html>

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