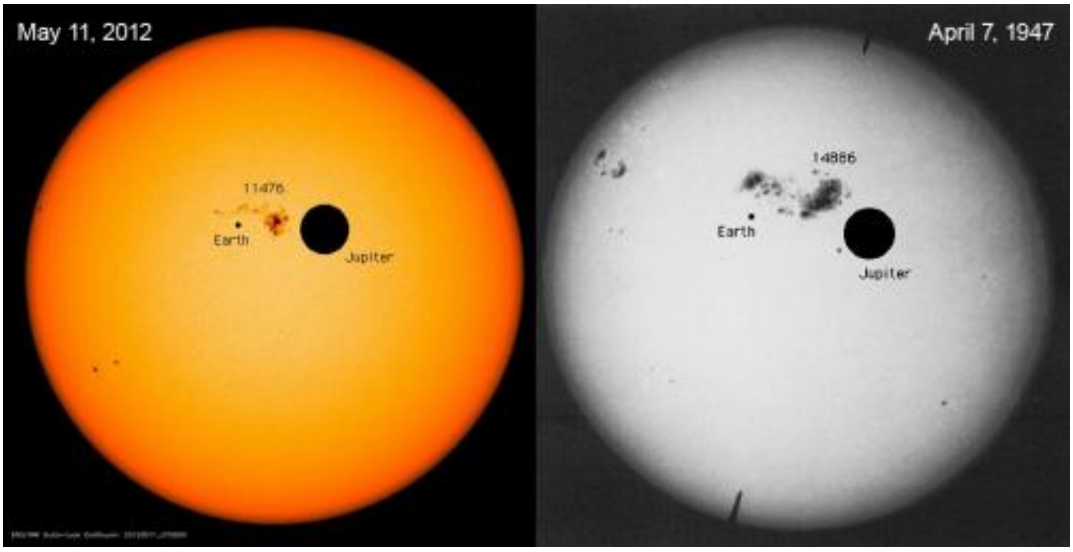
How big are sunspots?

May 18 2012, by Jason Major



Sunspots from today and from 65 years ago, with planet sizes for comparison. Credit: NASA/SDO and the Carnegie Institution

The short answer? Really big. The long answer? Really, really big.

The image above shows sunspot regions in comparison with the sizes of Earth and Jupiter, demonstrating the sheer enormity of these solar features.

Sunspots are regions where the Sun's internal magnetic fields rise up through its surface layers, preventing convection from taking place and creating cooler, optically darker areas. They often occur in pairs or clusters, with individual spots corresponding to the opposite polar ends

of magnetic lines.

The image on the left was acquired by NASA's Solar Dynamics Observatory on May 11, 2012, showing Active Region 11476. The one on the right comes courtesy of the Carnegie Institution of Washington, and shows the largest sunspot ever captured on film, AR 14886. It was nearly the diameter of Jupiter — 88,846 miles (142,984 km)!

"The largest sunspots tend to occur after solar maximum and the larger sunspots tend to last longer as well," writes SDO project scientist Dean Pesnell on the SDO is GO blog. "As we move through solar maximum in the northern hemisphere and look to the south to pick up the slack there should be plenty of sunspots to watch rotate by SDO."

Sunspots are associated with solar flares and CMEs, which can send solar storms our way and negatively affect satellite operation and impact communications and sensitive electronics here on Earth. As we approach the peak of the current solar maximum cycle, it's important to keep an eye — or a Solar Dynamics Observatory! — on the increasing activity of our home star.

Source: Universe Today

Citation: How big are sunspots? (2012, May 18) retrieved 25 April 2024 from https://phys.org/news/2012-05-big-sunspots.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.