

A diagram of the STEREO mission. On the left is a large, glowing orange and red sun with solar flares. To the right of the sun are two identical spacecraft, each with a central body and two long boom arms extending outwards. The spacecraft are positioned at different distances from the sun, creating a 3D perspective. The background is a black field of white stars.

STEREO

1
00:00:00,000 --> 00:00:02,000

Music.

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00:00:02,000 --> 00:00:07,000

Jane Houston Jones: What's up for May? A solar eclipse and 400 years of sunspots.

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00:00:07,000 --> 00:00:12,000

Hello and welcome. I'm Jane Houston Jones at NASA's Jet Propulsion Laboratory in Pasadena, California.

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00:00:12,000 --> 00:00:18,000

A unique annular solar eclipse occurs on May 20 for lucky observers

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00:00:18,000 --> 00:00:22,000

in a path from Eureka, California, to Lubbock, Texas.

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00:00:22,000 --> 00:00:26,000

The rest of the United States will see a partial solar eclipse.

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00:00:26,000 --> 00:00:32,000

An annular eclipse occurs when the moon is at its farthest distance from Earth in its monthly orbit.

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00:00:32,000 --> 00:00:38,000

At this time, the moon appears smaller than the sun, covering only 94% of the sun's disk.

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00:00:38,000 --> 00:00:43,000

The sun will appear as a bright ring, or annulus, around the dark silhouette of the moon.

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00:00:43,000 --> 00:00:49,000

No matter where you view from, you'll need a low western horizon to see this sunset eclipse.

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00:00:49,000 --> 00:00:54,000

The exposed ring of sunlight will be bright and you'll need to view using

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00:00:54,000 --> 00:00:57,000

solar-safe telescopes or projection methods.

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00:00:57,000 --> 00:01:02,000

Though only 6% of the sun's surface will be visible at greatest eclipse, it will still be

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00:01:02,000 --> 00:01:09,000

60,000 times brighter than the full moon and will damage your eyes if you look directly at it.

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00:01:09,000 --> 00:01:14,000

The hours leading up to the eclipse are a perfect time to view sunspots and other features

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00:01:14,000 --> 00:01:17,000

through safe solar telescopes.

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00:01:17,000 --> 00:01:20,000

The first sunspots were observed nearly 3,000 years ago,

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00:01:20,000 --> 00:01:28,000

but an English monk, John of Worcester, made the earliest existing drawings of sunspots in 1128.

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00:01:28,000 --> 00:01:37,000

Galileo's solar observations, exactly 400 years ago in 1612, were made at the same time of day, every day.

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00:01:37,000 --> 00:01:41,000

So he was able to track the motion of the spots across the disk of the sun.

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00:01:41,000 --> 00:01:48,000

The movement of the sunspots allowed early astronomers to estimate the sun's rotation period,

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00:01:48,000 --> 00:01:50,000

which is about 27 days.

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00:01:50,000 --> 00:01:56,000

NASA's Ulysses and TRACE spacecraft have completed their mission studying the sun.

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00:01:56,000 --> 00:02:02,000

The two STEREO spacecraft launched in 2006 to see the structure and evolution of solar storms

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00:02:02,000 --> 00:02:05,000

as they blast from the sun and move through space.

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00:02:05,000 --> 00:02:14,000

And SOHO has been studying the sun from its deep core to the outer corona and the solar wind since 1995.

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The Solar Dynamics Observatory, or SDO, is currently observing the sun in many wavelengths.

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00:02:21,000 --> 00:02:25,000

It's the first mission to be launched for NASA's Living with a Star program.

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00:02:25,000 --> 00:02:32,000

SDO will study how solar activity is created and how space weather comes from this activity.

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00:02:32,000 --> 00:02:36,000

In the night sky, watch Venus drop in altitude all month long.

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00:02:36,000 --> 00:02:40,000

Through a telescope you'll see a slender crescent.

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00:02:40,000 --> 00:02:44,000

Mars and Saturn remain great viewing targets all month long, too.

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00:02:44,000 --> 00:02:51,000

You can read about this month's solar system theme at [solarsystem dot nasa dot gov slash y s s](http://solarsystem.nasa.gov/yss)

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00:02:51,000 --> 00:02:53,000

for Year of the Solar System.

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00:02:53,000 --> 00:02:58,000

And you can learn about all of NASA's missions at [w w w dot nasa dot gov](http://www.nasa.gov).