



1

00:00:00,010 --> 00:00:04,020

Voice off Screen: Scientists around the world have their eyes turned

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00:00:04,040 --> 00:00:08,050

to the sun this week as it reveals a massive active region that could affect

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00:00:08,070 --> 00:00:12,080

us here on Earth. And here joining us from NASA's Goddard Space Flight Center

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00:00:12,100 --> 00:00:16,100

in Greenbelt, Maryland is Dr. Alex Young. Thank you for joining us.

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00:00:16,120 --> 00:00:20,120

Dr. Young: Thank you. Voice off Screen: So what is a sunspot and why

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00:00:20,140 --> 00:00:24,140

is this one so special? Dr. Young: Well sunspots are these regions

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00:00:24,160 --> 00:00:28,150

of really, really intense magnetic field, they're massive areas they're

8

00:00:28,170 --> 00:00:32,160

slightly cooler than the surrounding sun so they appear dark.

9

00:00:32,180 --> 00:00:36,210

This one is of great interest for us because it's the largest one we've

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00:00:36,230 --> 00:00:40,250

seen in almost 24 years. It's more than ten times

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00:00:40,270 --> 00:00:44,290

the size of the Earth.

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00:00:44,310 --> 00:00:48,320

Voice off Screen: Why do we want to learn more from this sunspot? Dr. Young: Well,

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00:00:48,340 --> 00:00:52,340

this one is really interesting because generally sunspots of this size

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00:00:52,360 --> 00:00:56,360

produce a lot of activity that can have direct impact

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00:00:56,380 --> 00:01:00,380

on us here on Earth. This particular one

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00:01:00,400 --> 00:01:04,390

though it's produced some activity, has not produced the kind of activity we

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00:01:04,410 --> 00:01:08,410

expected. So this has been a very interesting puzzle for

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00:01:08,430 --> 00:01:12,450

scientists to study, so that we can better understand sunspots in general.

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00:01:12,470 --> 00:01:16,480

Voice off Screen: Will it affect us here in Earth?

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00:01:16,500 --> 00:01:20,510

Dr. Young: The sunspots can throw out huge blasts of

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00:01:20,530 --> 00:01:24,540

light, we call solar flares, sometimes big blobs of material.

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00:01:24,560 --> 00:01:28,570

It doesn't impact us directly but all of this is

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00:01:28,590 --> 00:01:32,580

electromagnetic in nature and therefore it impacts our technology.

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00:01:32,600 --> 00:01:36,600

Sometimes it can disrupt communications, it can cause

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00:01:36,620 --> 00:01:40,620

problems with GPS and even impact our power grids

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00:01:40,640 --> 00:01:44,630

if the storms are strong enough. Voice off Screen: What is NASA doing

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00:01:44,650 --> 00:01:48,670

to understand sunspots better? Dr.Young: Well in particular we have

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00:01:48,690 --> 00:01:52,700

several spacecrafts such as the Solar Dynamics Observatory

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00:01:52,720 --> 00:01:56,740

which is looking at the sun twenty four hours a day providing

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00:01:56,760 --> 00:02:00,780

great amounts of data for us to study it. We also have this huge

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00:02:00,800 --> 00:02:04,810

fleet of spacecraft that is studying not just the sun,

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00:02:04,830 --> 00:02:08,830

but also the suns interaction with the Earth, the other planets

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00:02:08,850 --> 00:02:12,850

and throughout the solar system. Now, next year we're launching

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00:02:12,870 --> 00:02:16,850

a new mission called MMS, which is four spacecraft,

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00:02:16,870 --> 00:02:20,900

that is going to circle the Earth and study;

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00:02:20,920 --> 00:02:24,940

using the Earth's magnetic field study this particular

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00:02:24,960 --> 00:02:28,980

phenomenon that happens both at the Earth,

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00:02:29,000 --> 00:02:33,000

on the Sun and sunspots and also through the entire solar system.

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00:02:33,020 --> 00:02:37,030

Voice off Screen: Where can we learn more? Dr.Young: If you go to

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00:02:37,050 --> 00:02:41,060

nasa.gov/sunearth you can learn more about this

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00:02:41,080 --> 00:02:45,080

other missions and you can also find a lot of great imagery videos

42

00:02:45,100 --> 00:02:49,090

and all sorts of articles about the kind of research we do