
NASA
mars.nasa.gov

1
00:00:08,050 --> 00:00:04,010
[no sound]

2
00:00:08,070 --> 00:00:12,070
on Sunday, October 19th when a rare comet will pass by at

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00:00:12,090 --> 00:00:16,100
an extremely close distance, and here to tell us more about Comet

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00:00:16,120 --> 00:00:20,130
Siding Spring is NASA scientist Dr. Jared Espley. Thank you for joining us.

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00:00:20,150 --> 00:00:24,150
>>JARED: Good morning. >>INTERVIEWER: So what is a comet and why do we study them?

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00:00:24,170 --> 00:00:28,200
>>JARED: Most people when they think of comets, think of these objects that they can

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00:00:28,220 --> 00:00:32,240
look up into the night sky, these beautiful objects that have these long, arching

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00:00:32,260 --> 00:00:36,270
tails that come out behind them. From our modern observations, we actually

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00:00:36,290 --> 00:00:40,300
know that these are chunks of ice and rock, dirty snowballs,

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00:00:40,320 --> 00:00:44,350
that are the leftovers of the beginnings of the solar system. They are

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00:00:44,370 --> 00:00:48,360
ancient relics of the beginnings of the planets, and potentially the beginnings of life.

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00:00:48,380 --> 00:00:52,390
So generally, they reside in the outer reaches of the solar system, and occasionally something

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00:00:52,410 --> 00:00:56,450

nudges them into the inner solar system, where they start to heat up, and they get this cloud of

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00:00:56,470 --> 00:01:00,470
gas that is around the comet, and that's what you can see when you

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00:01:00,490 --> 00:01:04,490
look up at the night sky. >>INTERVIEWER: What makes Comet Siding Spring

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00:01:04,510 --> 00:01:08,510
so special, and will we be able to see it? >>JARED: Comet

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00:01:08,530 --> 00:01:12,520
Siding Spring, like most of its siblings, resided in the outer reaches

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00:01:12,540 --> 00:01:16,550
of the solar system. But about a million years ago, it started to drift slowly

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00:01:16,570 --> 00:01:20,610
and invisibly, at first, into the inner solar system.

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00:01:20,630 --> 00:01:24,650
When we humans first noticed it about a year ago, we realized it was on a near direct collision course

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00:01:24,670 --> 00:01:28,680
with Mars. And so that nucleus, that central chunk of ice and rock

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00:01:28,700 --> 00:01:32,730
would just barely miss the planet. But the gas cloud will in fact envelop

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00:01:32,750 --> 00:01:36,750
the planet. And so that will give us a fantastic opportunity to do science when

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00:01:36,770 --> 00:01:40,770
the comet comes by, and swallows Mars on Sunday for a few

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00:01:40,790 --> 00:01:44,820
hours. >>INTERVIEWER: How will NASA study Comet Siding Spring from Mars?

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00:01:44,840 --> 00:01:48,840
>>JARED: NASA's going to use a variety of telescopes on

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00:01:48,860 --> 00:01:52,870
the ground observatories to look up, and also telescopes in orbit at Earth

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00:01:52,890 --> 00:01:56,890
like Hubble, but most especially are going to use the spacecraft at Mars.

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00:01:56,910 --> 00:02:00,920
The rovers that are on the surface to look up at the night sky, the Martian night sky,

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00:02:00,940 --> 00:02:04,960
and also the spacecraft that are in orbit around the planet. And in particular

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00:02:04,980 --> 00:02:09,030
I'm really excited about a mission called MAVEN that by really good luck is

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00:02:09,050 --> 00:02:13,050
going to arrive at Mars, just, has just arrived, and so it is there

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00:02:13,070 --> 00:02:17,090
in perfect opportunity to be able to study the comet and how it

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00:02:17,110 --> 00:02:21,150
will be potentially heating up and potentially temporarily blowing away the Martian

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00:02:21,170 --> 00:02:25,160
atmosphere, which is what MAVEN is designed to do, so it's a fantastic opportunity for science.

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00:02:25,180 --> 00:02:29,180
>>INTERVIEWER: Is the comet dangerous, and will the satellites orbiting

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00:02:29,200 --> 00:02:33,190
Mars be damaged? >>JARED: So the dust, which is

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00:02:33,210 --> 00:02:37,210

distinct from the gas cloud that I mentioned before, the dust is moving at about a hundred thousand

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00:02:37,230 --> 00:02:41,250
miles per hour. And so yes, if that were to hit a spacecraft

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00:02:41,270 --> 00:02:45,260
at Mars, that would be a really sad day for that spacecraft. However, we

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00:02:45,280 --> 00:02:49,290
very carefully modeled the dust, and we think that it's going to just barely miss the planet,

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00:02:49,310 --> 00:02:53,330
and therefore the satellites that are in orbit around the planet. Nonetheless, we're

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00:02:53,350 --> 00:02:57,340
going to try to time the orbit of our spacecraft so that we're hiding behind the planet

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00:02:57,360 --> 00:03:01,360
when the dust tail comes by, so that we'll be protected by the planet

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00:03:01,380 --> 00:03:05,400
from the dust. And so, we'll be able to avoid all the danger, and be able to do all

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00:03:05,420 --> 00:03:09,420
the awesome science that are a result. >>INTERVIEWER: Sounds good, where can we

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00:03:09,440 --> 00:03:13,450
learn more? >>JARED: You can learn more at mars.nasa.gov,

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00:03:13,470 --> 00:03:17,500
there you can learn about all the Mars program missions there, and also

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00:03:17,520 --> 00:03:21,520
about the Comet Siding Spring encounter specifically.

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00:03:21,540 --> 00:03:25,560
>>INTERVIEWER: Dr. Jared Espley from NASA Goddard Space Flight Center, thank you very much.