1
00:00:00,050 --> 00:00:05,680
[music]

2
00:00:05,700 --> 00:00:15,630
Far beyond the orbit of Neptune, at the gravitational fringes of our solar system, sits a vast field of icy debris kn

3
00:00:15,650 --> 00:00:21,180
Extending nearly one light-year from the Sun, the Oort cloud is thought to be the reservoir of comets

4
00:00:21,200 --> 00:00:26,760
like C/2013 A1, better known as Comet Siding Spring.

5
00:00:26,780 --> 00:00:31,430
This chunk of frozen water and gas, with the estimated mass of a small mountain,

6
00:00:31,450 --> 00:00:35,290
left the Oort cloud's southern hemisphere millions of years ago.

7
00:00:35,310 --> 00:00:40,580
It was discovered by astronomers at Australia's Siding Spring Observatory in 2013,

8
00:00:40,600 --> 00:00:47,030
and is now approaching the plane of the solar system, set to make a remarkably close encounter with Mars.

9
00:00:47,050 --> 00:00:56,240
On October 19, Comet Siding Spring will come within 88,000 miles of the Red Planet, roughly one third of the d

10
00:00:56,260 --> 00:01:05,080
Anyone standing on Mars might be treated to a spectacular view, with the comet's long tail of gas and dust dom

11
00:01:05,100 --> 00:01:12,250
At Gale Crater, NASA's Curiosity rover will turn its gaze skyward for several days surrounding the flyby.

12
00:01:12,270 --> 00:01:19,320
Curiosity's Mastcam will study the comet's general features, while the ChemCam instrument will look at its che

13
00:01:19,340 --> 00:01:29,740

Although Curiosity and its fellow rover Opportunity will be protected from comet dust by the Martian atmospher

14
00:01:29,760 --> 00:01:35,880
Scientists believe that the odds of hitting dust are low, but with particles moving at 33 miles per second,

15
00:01:35,900 --> 00:01:42,660
NASA isn't taking chances, and will position its orbiters behind Mars during the period of greatest danger.

16
00:01:42,680 --> 00:01:51,850
For orbiters like MAVEN, Comet Siding Spring is not just a risk, but also an opportunity to study a first-time visi

17
00:01:51,870 --> 00:01:56,970
MAVEN will join NASA's Mars Reconnaissance Orbiter and Mars Odyssey in observing the comet,

18
00:01:56,990 --> 00:02:02,480
looking at its composition and the effects of its coma on the Mars upper atmosphere.

19
00:02:02,500 --> 00:02:10,400
One planet over, the Hubble Space Telescope and other space and ground-based observatories will also be ke

20
00:02:10,420 --> 00:02:15,140
as will legions of amateur astronomers armed with backyard telescopes,