



1
00:00:00,000 --> 00:00:05,000
(Music)

2
00:00:05,000 --> 00:00:10,000
Don Yeomans - This is going to be an opportunity to observe a brand new comet and we noted

3
00:00:10,000 --> 00:00:14,000
immediately that it's going to make a very close approach to Mars on Oct. 19th.

4
00:00:14,000 --> 00:00:18,000
Zurek - When we first heard about the comet and that it was coming very close to Mars,

5
00:00:18,000 --> 00:00:22,000
we had so little tracking information that there was a possibility it could hit Mars.

6
00:00:22,000 --> 00:00:27,000
Lock - The accuracy of the trajectory started to improve and we realized

7
00:00:27,000 --> 00:00:32,000
it wasn't going to hit Mars but still might provide a threat to our spacecraft there.

8
00:00:32,000 --> 00:00:41,000
(Music)

9
00:00:41,000 --> 00:00:46,000
Zurek - This is a first time visitor from the outer solar system, from the Ort Cloud.

10
00:00:46,000 --> 00:00:52,000
That's coming in close to where we can see it and close enough that it's actually encountering Mars.

11
00:00:52,000 --> 00:00:57,000
Lock - Comets are very dusty. They spew off small particles of dust and gas and that's what you see.

12
00:00:57,000 --> 00:01:03,000
So when you see the tail of a comet, it's dust and gas coming off of the main nucleus.

13
00:01:03,000 --> 00:01:08,000

Zurek - It's when Mars is closest to that trail of that debris that is the most dangerous situation.

14

00:01:08,000 --> 00:01:15,000

Yeomans - It only takes a half a millimeter size particle traveling at 56kilometers per second

15

00:01:15,000 --> 00:01:19,000

to injure one of these spacecraft.

16

00:01:19,000 --> 00:01:22,000

Lock - We're going to hide behind Mars. So sort of like diving under your desk

17

00:01:22,000 --> 00:01:25,000

if there's an earthquake and flying glass around, it's exactly the same sort of thing.

18

00:01:25,000 --> 00:01:27,000

We're not going to take any chances.

19

00:01:27,000 --> 00:01:32,000

We've taken steps to make sure our orbiters are on the other side of Mars at the time.

20

00:01:32,000 --> 00:01:36,000

Yeomans - When Mars moves ahead and through the orbital debris of the comet.

21

00:01:36,000 --> 00:01:43,000

Hide those spacecraft behind the planet itself. Take your observations - duck and cover.

22

00:01:43,000 --> 00:01:49,000

The rovers are safe and Mars does have an atmosphere that will protect it from the smallest particles.

23

00:01:49,000 --> 00:01:56,000

This approach to Mars gives us an opportunity to try to model the motion of this comet

24

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

to find out how well are we going to know where it is with respect to Mars at any given time.

25

00:02:02,000 --> 00:02:08,000

And so that will help us understand the motions of other comets that may approach the Earth.

