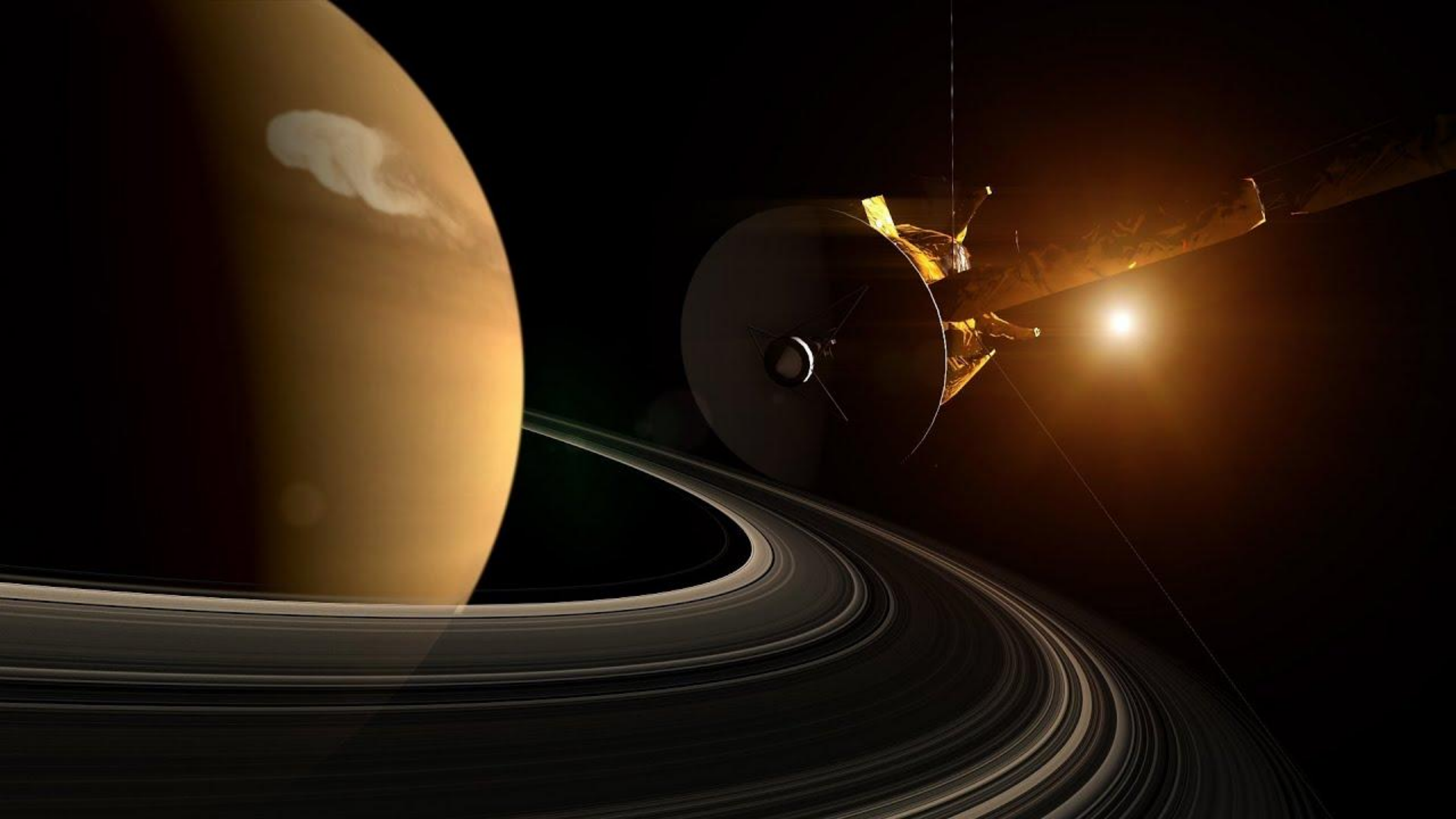

1
00:00:00,010 --> 00:00:05,420
[Music]

2
00:00:05,440 --> 00:00:10,130
My name is Brigette Hesman, and I'm a planetary scientist at NASA's Goddard Space Flight Center

3
00:00:10,150 --> 00:00:12,830
and I study storms on Saturn.

4
00:00:12,850 --> 00:00:19,140
A Great White Spot is a massive storm system that erupts on Saturn about once every Saturn year.

5
00:00:19,160 --> 00:00:23,680
The Great White Spot that erupted in December, 2010 first presented itself as this

6
00:00:23,700 --> 00:00:27,240
fluffy white storm cloud that popped up in the northern hemisphere.

7
00:00:27,260 --> 00:00:31,180
The storm when it erupted sent large waves up into the stratosphere

8
00:00:31,200 --> 00:00:36,180
and we saw effects like an increased amount of ethylene, something we never expected to see.

9
00:00:36,200 --> 00:00:40,710
In the coming days, the winds on Saturn sheared the storm in both directions

10
00:00:40,730 --> 00:00:43,730
and it wrapped all the way across the planet.

11
00:00:43,750 --> 00:00:46,580
If you were to scale that to a storm system here on the Earth,

12
00:00:46,600 --> 00:00:52,350
what you would have is a storm system that covers all of North America but wraps around the entire planet.

13
00:00:52,370 --> 00:00:57,400

There would be no escaping this storm system and it would be lasting for a very long time.

14
00:00:57,420 --> 00:01:01,510
This Great White Spot happened to occur ten years before we expected it,

15
00:01:01,530 --> 00:01:07,040
which was very fortunate because we happened to have a spacecraft called Cassini in orbit around Saturn,

16
00:01:07,060 --> 00:01:13,460
and that spacecraft has a full suite of instrumentation that allows us to study this over all wavelength ranges.

17
00:01:13,480 --> 00:01:17,550
Some of the effects that we got to see in the infrared were these two bright beacons

18
00:01:17,570 --> 00:01:20,940
that started to shine right after the storm erupted in December.

19
00:01:20,960 --> 00:01:28,810
Those beacons at first showed temperature differences of about 20 Kelvin, which is reasonable for a storm.

20
00:01:28,830 --> 00:01:33,380
However, as time progressed we started to see even larger temperature changes.

21
00:01:33,400 --> 00:01:36,580
By May 2011 the two beacons had merged into one,

22
00:01:36,600 --> 00:01:41,940
and we saw a temperature change of over 80 Kelvin from the quiet conditions before the storm.

23
00:01:41,960 --> 00:01:45,830
So that would be like going from the depths of winter in Fairbanks, Alaska

24
00:01:45,850 --> 00:01:50,350
to the height of summer in the Mojave Desert, all in one storm system.

25
00:01:50,370 --> 00:01:54,130
Can you imagine what that would feel like sitting on your deck?

26
00:01:54,150 --> 00:01:59,050
We've never before been able to study a storm system of this magnitude in the infrared,

27
00:01:59,070 --> 00:02:02,980
so we are very fortunate at this time to have a spacecraft in orbit