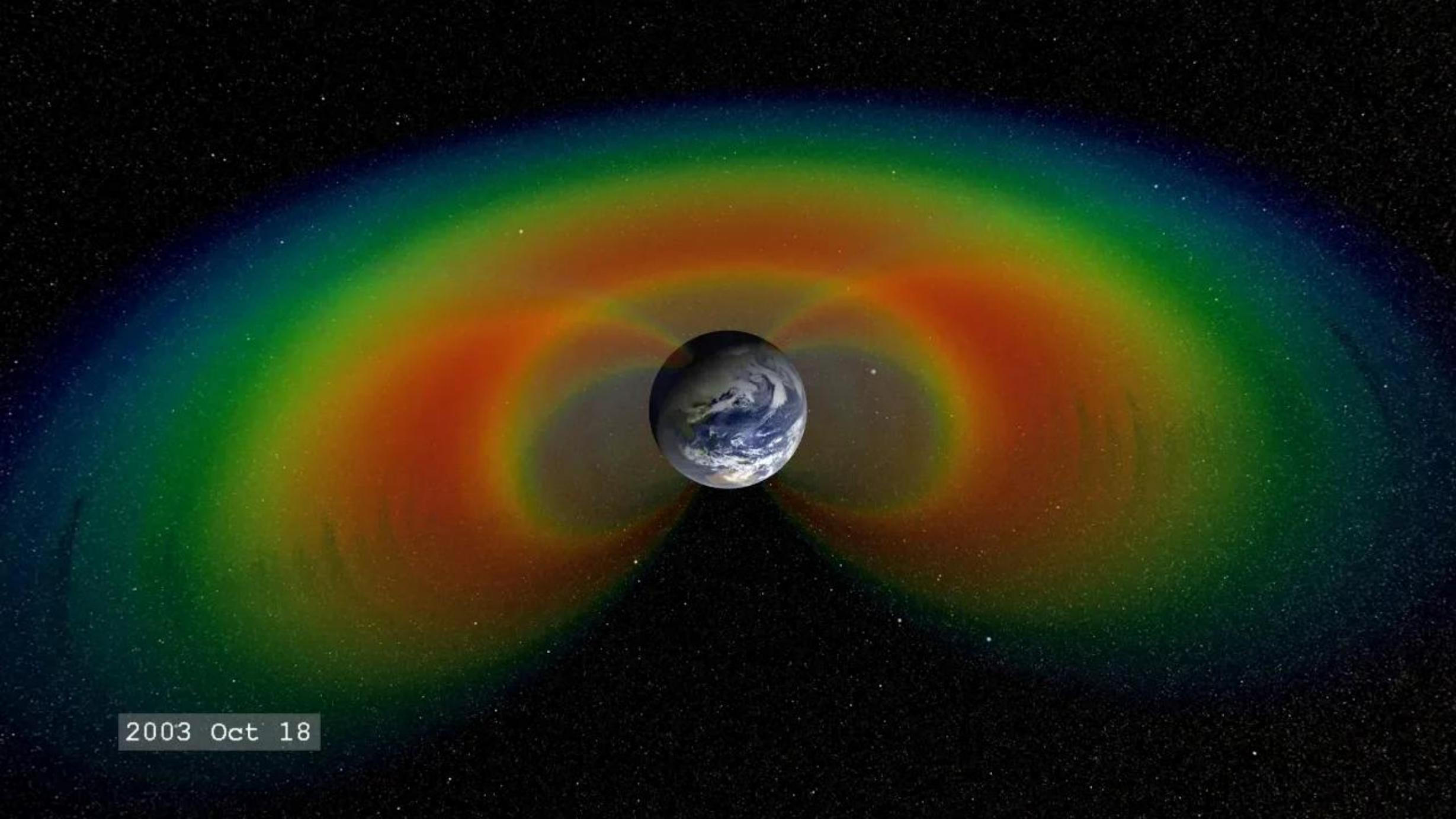
2003 Oct 18

1
00:00:01,740 --> 00:00:03,000
Not that kind of donut!

2
00:00:04,140 --> 00:00:10,580
[MUSIC]

3
00:00:11,240 --> 00:00:14,520
Earth is surrounded by donut shaped clouds of radiation.

4
00:00:14,820 --> 00:00:20,960
These clouds are made of helium, oxygen and wild protons and electrons.

5
00:00:20,980 --> 00:00:25,440
Radiation happens when those tiny particles start moving really fast.

6
00:00:25,520 --> 00:00:33,020
Space is not empty! It's a crazy environment created by all of the matter and energy the Sun spews out.

7
00:00:33,020 --> 00:00:39,800
Near Earth, that radiation in space can disrupt our technology, communications, such as GPS.

8
00:00:39,800 --> 00:00:45,540
These radiation belts were discovered 61 years ago by the very first satellite America launched

9
00:00:45,540 --> 00:00:48,420
into space, Explorer 1.

10
00:00:48,420 --> 00:00:50,780
The radiation belts were named after the mission's

11
00:00:50,780 --> 00:00:53,660
lead scientist, James Van Allen.

12
00:00:53,660 --> 00:00:56,940
That was the first time that scientists realized that space is

13
00:00:56,980 --> 00:00:59,460

way more complicated than we ever thought.

14
00:00:59,840 --> 00:01:02,340
So NASA has been studying this region ever since,

15
00:01:02,340 --> 00:01:05,740
so we can protect our technology and our astronauts

16
00:01:05,740 --> 00:01:07,540
from these bands of radiation.

17
00:01:07,540 --> 00:01:12,760
In 2012, NASA launched the twin Van Allen Probes to study how

18
00:01:12,760 --> 00:01:17,920
these radiation belts change in intensity, in shape and in size.

19
00:01:17,920 --> 00:01:21,460
The Van Allen Probes lasted three times as long as anyone expected

20
00:01:21,520 --> 00:01:25,060
in this harsh environment. And now we're going into a new orbit

21
00:01:25,080 --> 00:01:28,800
their final swan song before they succumb to orbital drag.

22
00:01:29,360 --> 00:01:33,300
We can't wait to see what discoveries they make before we say goodbye.