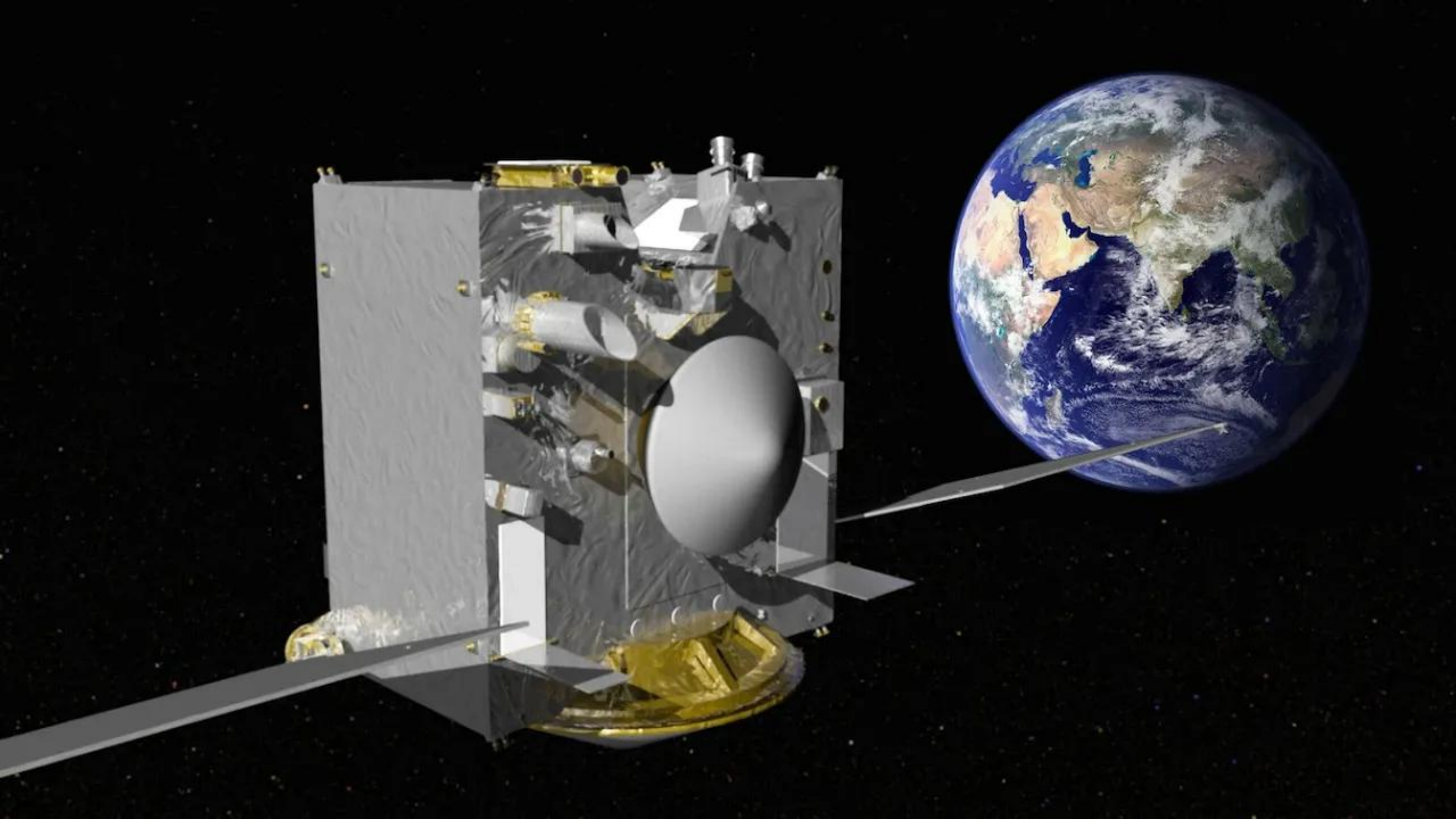

1
00:00:00,010 --> 00:00:01,730
[music]

2
00:00:01,750 --> 00:00:06,710
My name is Jason Dworkin. I'm the director of the Astrobiology Analytical Laboratory at NASA Goddard.

3
00:00:06,730 --> 00:00:10,380
I'm also the Project Scientist for OSIRIS-REx.

4
00:00:13,170 --> 00:00:18,480
We're interested in studying the origin and evolution of life on the Earth and other bodies in the solar system,

5
00:00:18,500 --> 00:00:21,880
from the perspective of understanding simple organic chemistry.

6
00:00:21,900 --> 00:00:29,250
We don't understand what happened in the ancient Earth. Most of that record is lost by subduction and other g

7
00:00:29,270 --> 00:00:35,250
However, meteorites and the asteroid Bennu witnessed the chemistry of the early solar system.

8
00:00:35,270 --> 00:00:40,380
A problem with studying meteorites is that they invariably land on the ground:

9
00:00:40,400 --> 00:00:45,680
they land in ice in Antarctica, for example, or in dirt or soil,

10
00:00:45,700 --> 00:00:49,630
and life very rapidly contaminates these samples.

11
00:00:49,650 --> 00:00:54,080
By going to collect the samples from an asteroid we can keep the samples pristine,

12
00:00:54,100 --> 00:01:01,780
by having very tight controls over what the spacecraft is made out of and how it's returned, and archived and d

13
00:01:04,050 --> 00:01:10,440

OSIRIS-REx is a NASA mission which launches in 2016 and goes to the near-Earth asteroid Bennu,

14
00:01:10,460 --> 00:01:15,070
which is a organic-rich, very dark, primitive asteroid,

15
00:01:15,090 --> 00:01:20,460
orbits the asteroid for about a year, studies it in great detail, and then collects a sample,

16
00:01:20,480 --> 00:01:23,980
and returns it to the Earth for worldwide distribution and study.

17
00:01:24,000 --> 00:01:29,780
Samples from Bennu will be returned to Earth in 2023. They land at the UTTR facility in Utah,

18
00:01:29,800 --> 00:01:34,090
then are transported to the Johnson Space Center in Houston.

19
00:01:36,260 --> 00:01:42,080
Any scientist in the world can write a proposal to request some sample and justify what they'll get from it.

20
00:01:42,100 --> 00:01:45,700
The Bennu samples will contain riches which can be studied today

21
00:01:45,720 --> 00:01:49,310
and are in many ways beyond technology right now to study.

22
00:01:49,330 --> 00:01:54,500
For example, in this laboratory we've been studying samples brought back by the Apollo missions.

23
00:01:54,520 --> 00:01:59,940
The analysis is being performed by a woman who was not born yet when the samples were returned,

24
00:01:59,960 --> 00:02:04,600
using instrumentation that was not designed, asking questions not thought possible.

25
00:02:04,620 --> 00:02:10,160
This is the value of sample return: it's a gift to the Earth that keeps giving generation after generation

26
00:02:10,180 --> 00:02:16,880
as technologies advance and as new people come up with new questions that we're not smart enough now to t