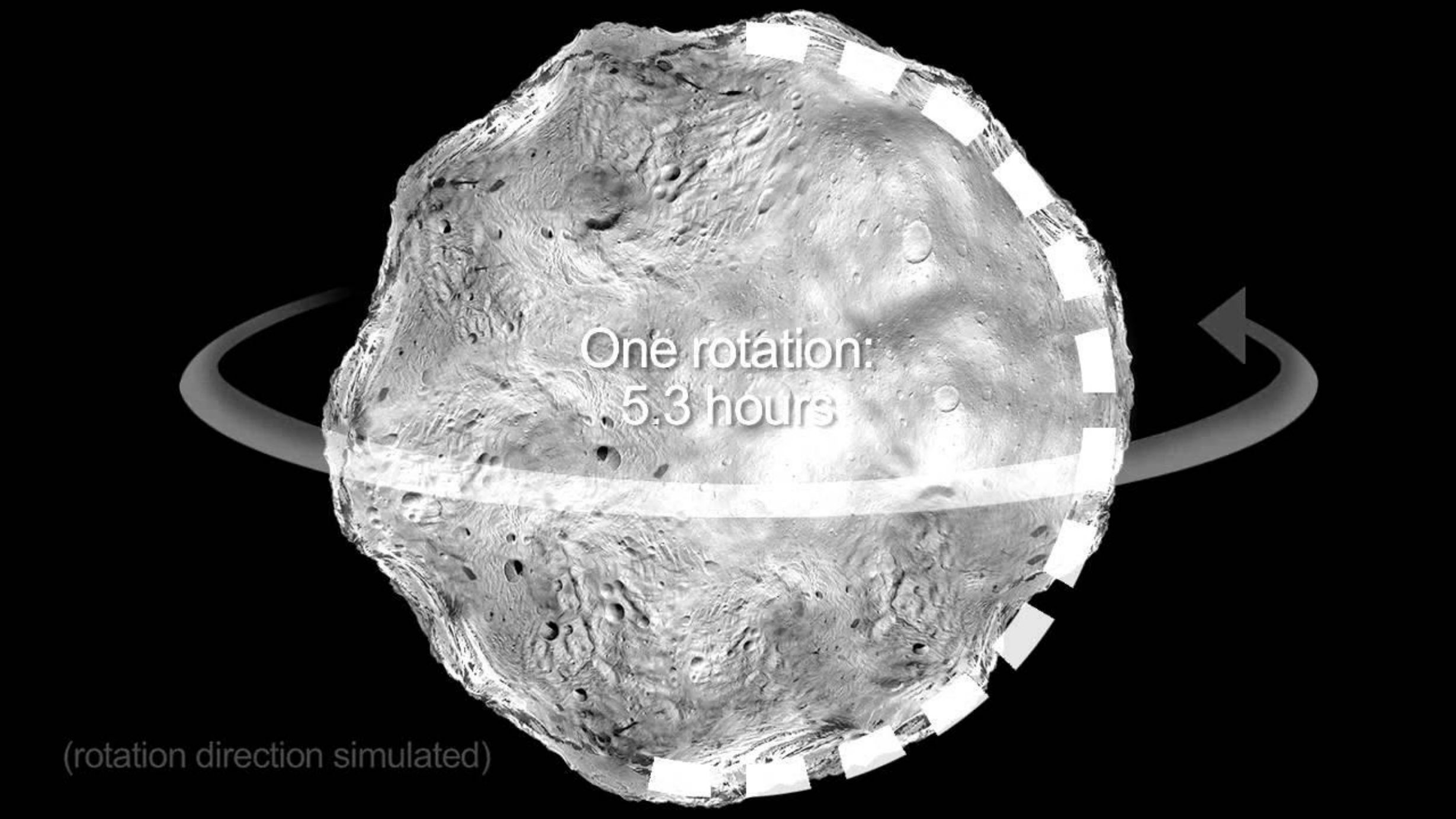
One rotation:
5.3 hours
(rotation direction simulated)

1
00:00:00,000 --> 00:00:03,000
Music.

2
00:00:03,000 --> 00:00:08,000
Marina Brozovic: 1998 QE 2 is going to make a relatively close approach to Earth on May 31st.

3
00:00:08,000 --> 00:00:11,000
Lance Benner: The orbit for this object is very well known.

4
00:00:11,000 --> 00:00:15,000
It'll be to the south, rising in the southeast setting in the southwest.

5
00:00:15,000 --> 00:00:21,000
In late May, especially early June, it'll reach a visual magnitude of about 10-1/2 to 11.

6
00:00:21,000 --> 00:00:27,000
And that means that amateur astronomers who have 4- or 6- inch telescopes could potentially see it.

7
00:00:27,000 --> 00:00:31,000
Brozovic: It is going to come within 15 lunar distances.

8
00:00:31,000 --> 00:00:35,000
Benner: About 15 times the distance between the Earth and the moon.

9
00:00:35,000 --> 00:00:39,000
Although it is labeled as a potentially-hazardous asteroid,

10
00:00:39,000 --> 00:00:44,000
what that really means is that its orbit can approach within a certain distance of the Earth's orbit.

11
00:00:44,000 --> 00:00:46,000
For the foreseeable future there's nothing to worry about.

12
00:00:46,000 --> 00:00:49,000
I mean, it's far more dangerous to walk across the street.

13
00:00:49,000 --> 00:00:52,000

Brozovic: The asteroid is believed to be about 1.7 miles in diameter.

14
00:00:52,000 --> 00:00:55,000
That is about 9 QE2 cruise ships end to end.

15
00:00:55,000 --> 00:01:00,000
It rotates within 5.3 hours and we know it's likely rounded.

16
00:01:00,000 --> 00:01:05,000
Even the most powerful optical telescopes and I'm talking even, you know, Hubble telescope,

17
00:01:05,000 --> 00:01:10,000
they can only see this asteroid as a point of light. It is just too far and too small.

18
00:01:10,000 --> 00:01:15,000
Radar is a very powerful instrument that we use to study near Earth asteroids.

19
00:01:15,000 --> 00:01:19,000
Asteroid Toutatis was millions of kilometers away

20
00:01:19,000 --> 00:01:23,000
and we were able to resolve surface rocks, we could see boulders.

21
00:01:23,000 --> 00:01:27,000
Benner: There are currently only two radar facilities in the world that have sufficient sensitivity

22
00:01:27,000 --> 00:01:31,000
for doing regular observations of near Earth objects: Arecibo and Goldstone.

23
00:01:31,000 --> 00:01:35,000
It provides an extraordinary opportunity to get very detailed radar images.

24
00:01:35,000 --> 00:01:40,000
Brozovic: You are transmitting microwaves propagating at the speed of light towards the asteroid.

25
00:01:40,000 --> 00:01:47,000
It is bouncing back. And this radar echo is containing surface features of the asteroid,

26
00:01:47,000 --> 00:01:54,000
it's telling us about its rotation and it's very precisely pinpointing its distance from the radar.

27
00:01:54,000 --> 00:01:59,000
This is a great opportunity because instead of sending a spacecraft to an asteroid,

28
00:01:59,000 --> 00:02:02,000
you are on Earth and an asteroid is coming to you.

29
00:02:02,000 --> 00:02:05,000
Benner: We think we're going to see images that'll rival the caliber of what we can get

30
00:02:05,000 --> 00:02:08,000
from a spacecraft flyby mission. They really should be that detailed,

31
00:02:08,000 --> 00:02:13,000
and opportunities like that, they sometimes happen a few times a year