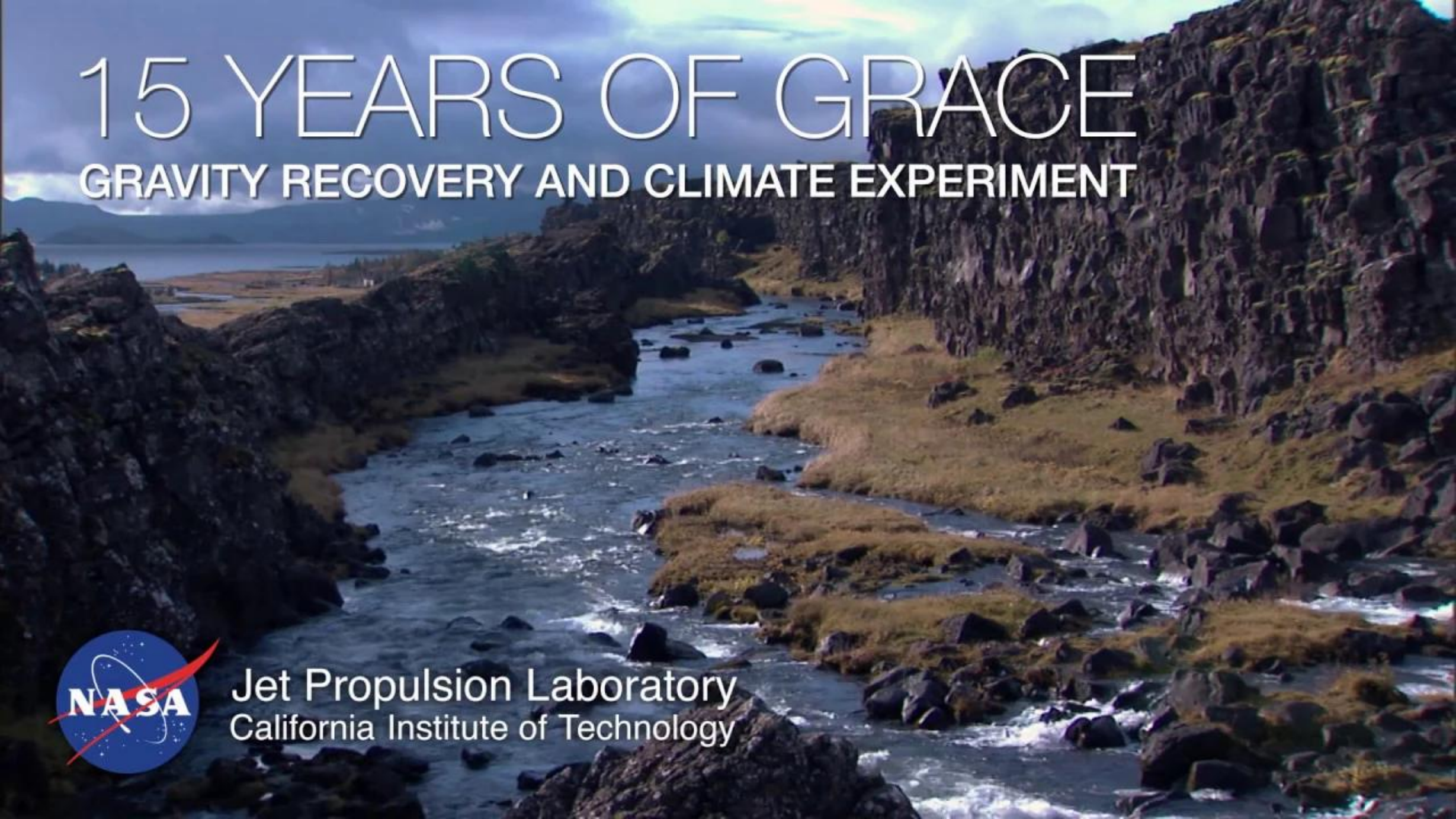
15 YEARS OF GRACE
GRAVITY RECOVERY AND CLIMATE EXPERIMENT
NASA
Jet Propulsion Laboratory
California Institute of Technology

1
00:00:00,400 --> 00:00:01,267
(Water flowing)

2
00:00:01,300 --> 00:00:02,668
TITLE: 15 Years of GRACE

3
00:00:02,701 --> 00:00:04,303
GRAVITY RECOVERY AND
CLIMATE EXPERIMENT

4
00:00:04,336 --> 00:00:07,473
(MUSIC: A Moment In Time)

5
00:00:07,506 --> 00:00:09,776
(raindrops)

6
00:00:09,809 --> 00:00:11,377
(wind)

7
00:00:11,410 --> 00:00:14,347
Water is always moving
on and below Earth's surface,

8
00:00:14,447 --> 00:00:16,449
(center-pivot
sprinkler spraying)

9
00:00:16,482 --> 00:00:19,118
both naturally and because
of human activities.

10
00:00:19,151 --> 00:00:21,354
(water pouring from
irrigation pipe)

11
00:00:22,521 --> 00:00:26,993
The shifting water changes the
local pull of gravity on Earth.

12
00:00:28,027 --> 00:00:31,765
The GRACE mission measures
these changes from space.

13
00:00:32,465 --> 00:00:34,634
It lets us see how this
life-giving resource

14
00:00:34,667 --> 00:00:36,302
is changing worldwide.

15
00:00:38,904 --> 00:00:43,209
GRACE gave us the first
view of underground water,

16
00:00:44,810 --> 00:00:48,415
showing where agricultural water
use is draining aquifers.

17
00:00:49,181 --> 00:00:51,951
GRACE shows how fast
polar ice sheets

18
00:00:51,984 --> 00:00:54,888
and mountain glaciers
are melting,

19
00:00:57,256 --> 00:01:00,760
and adding to the threat
of sea level rise.

20
00:01:01,894 --> 00:01:05,031
Combined with other satellite
measurements, GRACE helps us

21
00:01:05,064 --> 00:01:09,669
monitor Earth's rising sea level
with amazing precision.

22

00:01:09,935 --> 00:01:12,538
GRACE shows where dry
ground is increasing

23
00:01:12,571 --> 00:01:14,474
the threat of drought,

24
00:01:15,808 --> 00:01:19,112
supplying data to help
agencies assess

25
00:01:19,145 --> 00:01:21,014
groundwater and
soil moisture.

26
00:01:22,948 --> 00:01:25,885
Ocean currents keep
our climate stable,

27
00:01:25,918 --> 00:01:27,387
but they might change
with global warming.

28
00:01:27,653 --> 00:01:31,257
GRACE lets scientists measure
the speed of currents

29
00:01:31,357 --> 00:01:35,662
even at the bottom
of the ocean.

30
00:01:40,266 --> 00:01:42,735
At 15 years,
GRACE has lasted

31
00:01:42,768 --> 00:01:45,171
three times longer than
originally planned

32
00:01:45,204 --> 00:01:50,210

and the twin spacecraft are
nearly out of fuel.

33
00:01:50,876 --> 00:01:55,582
But our view of Earth's
water won't end with them.

34
00:01:57,550 --> 00:01:59,952
The GRACE Follow-On mission
is planned for launch

35
00:01:59,985 --> 00:02:01,955
in early 2018.

36
00:02:09,595 --> 00:02:12,465
GRACE Follow-On will
carry GRACE's legacy

37
00:02:12,498 --> 00:02:15,335
into the next decade.

38
00:02:15,534 --> 00:02:17,069
(ocean waves)

39
00:02:17,102 --> 00:02:20,373
GRACE is a collaboration of the
U.S. and German space agencies,

40
00:02:20,406 --> 00:02:21,974
NASA and DLR.

41
00:02:22,007 --> 00:02:23,075
Credit: NASA/Goddard Flight
Center / NASA's Scientific

42
00:02:23,108 --> 00:02:24,777
Visualization Studio /
NDMC-UNL/USDA/NOAA / Airbus