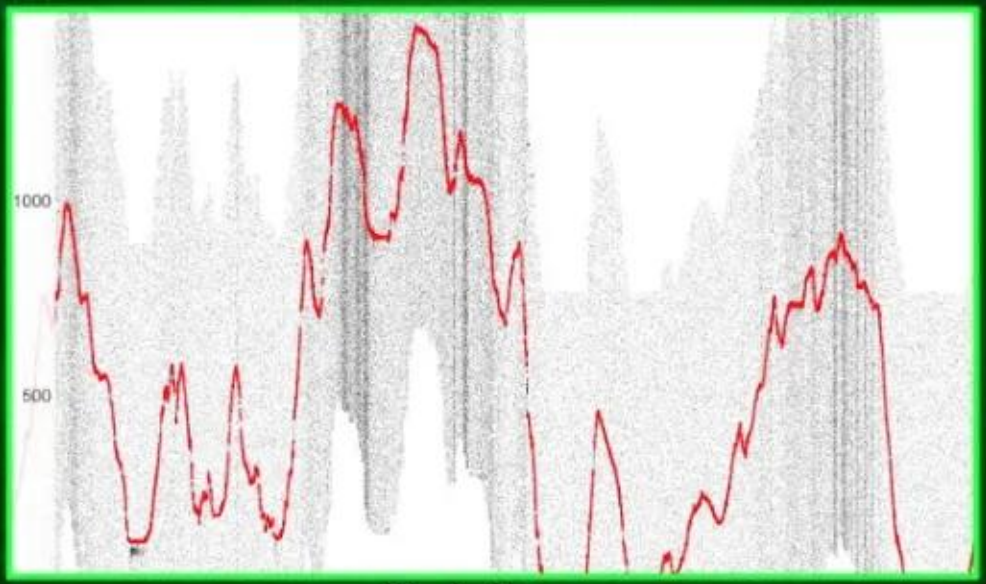

Fjords, Norway

1
00:00:22,390 --> 00:00:18,610
[Music]

2
00:00:26,630 --> 00:00:24,870
so isat2 provides bathymetric

3
00:00:28,470 --> 00:00:26,640
measurements and what that means is

4
00:00:31,189 --> 00:00:28,480
measurements beneath the surface of the

5
00:00:33,190 --> 00:00:31,199
water so we can map the topography

6
00:00:34,790 --> 00:00:33,200
underwater this is interesting because

7
00:00:36,870 --> 00:00:34,800
you might notice the really strong

8
00:00:39,670 --> 00:00:36,880
returns from beneath the surface of the

9
00:00:43,670 --> 00:00:39,680
water although this is a pretty shallow

10
00:00:45,750 --> 00:00:43,680
area about 10 meters or 30 feet deep the

11
00:00:47,750 --> 00:00:45,760
signal is quite strong just as strong as

12
00:00:49,510 --> 00:00:47,760
from the surface of the water the reason

13
00:00:51,350 --> 00:00:49,520

that is is there's a lot of limestone in

14
00:00:54,069 --> 00:00:51,360
the deposits there and it's highly

15
00:00:56,310 --> 00:00:54,079
reflective so isat2 gets a lot of

16
00:00:58,870 --> 00:00:56,320
reflected photons back from those laser

17
00:01:01,189 --> 00:00:58,880
shots

18
00:01:02,869 --> 00:01:01,199
[Music]

19
00:01:05,189 --> 00:01:02,879
in this profile the vegetation is

20
00:01:07,590 --> 00:01:05,199
dominated by shrub mapani which is

21
00:01:09,830 --> 00:01:07,600
typically in a two to three meter range

22
00:01:12,310 --> 00:01:09,840
and there's also some mapani and acacia

23
00:01:14,469 --> 00:01:12,320
trees that typically aren't the four to

24
00:01:15,670 --> 00:01:14,479
six meter height range

25
00:01:18,070 --> 00:01:15,680
something that scientists need to

26
00:01:19,830 --> 00:01:18,080
understand to quantify is where carbon

27
00:01:21,749 --> 00:01:19,840
is being taken up and where it is

28
00:01:23,429 --> 00:01:21,759
already being stored

29
00:01:25,350 --> 00:01:23,439
because much of the effort related to

30
00:01:27,109 --> 00:01:25,360
mapping global biomass has been really

31
00:01:29,590 --> 00:01:27,119
focused in the tropics where the trees

32
00:01:30,950 --> 00:01:29,600
are large and the biomass is high many

33
00:01:34,149 --> 00:01:30,960
of these savannah and woodland

34
00:01:36,469 --> 00:01:34,159
ecosystems tend to get neglected or are

35
00:01:42,870 --> 00:01:36,479
poorly characterized in global carbon

36
00:01:45,990 --> 00:01:43,990
now one of the unique things about

37
00:01:47,910 --> 00:01:46,000
icesat too is it's actually able to see

38
00:01:50,149 --> 00:01:47,920

down into the valleys of these very

39
00:01:51,670 --> 00:01:50,159
steep topography areas where the

40
00:01:53,670 --> 00:01:51,680
glaciers are and so there's other

41
00:01:55,590 --> 00:01:53,680
instruments like radar that aren't able

42
00:01:57,830 --> 00:01:55,600
to see the glaciers all the way down in

43
00:01:59,670 --> 00:01:57,840
the valleys and so icesat-2 is going to

44
00:02:01,510 --> 00:01:59,680
let us measure the changes in mountain

45
00:02:03,350 --> 00:02:01,520
glaciers so we can assess how they're

46
00:02:04,950 --> 00:02:03,360
responding to changes in climate and

47
00:02:06,950 --> 00:02:04,960
what potential they have to contribute

48
00:02:09,430 --> 00:02:06,960
to both sea level rise in the future but

49
00:02:10,949 --> 00:02:09,440
also changes in water resources

50
00:02:13,510 --> 00:02:10,959
glaciers in this region have been

51
00:02:15,270 --> 00:02:13,520
experiencing rapid rates of thinning and

52
00:02:16,869 --> 00:02:15,280
that thinning is in response to changes

53
00:02:18,790 --> 00:02:16,879
in climate and not only are these

54
00:02:21,110 --> 00:02:18,800
glaciers thinning but as they thin

55
00:02:22,390 --> 00:02:21,120
there's less force pulling them downward

56
00:02:24,150 --> 00:02:22,400
and that less force pulling them

57
00:02:26,390 --> 00:02:24,160
downward is causing them to actually

58
00:02:28,150 --> 00:02:26,400
slow down so in high mountain asia we

59
00:02:29,910 --> 00:02:28,160
actually have glaciers that are thinning

60
00:02:33,400 --> 00:02:29,920
and slowing down as they respond to