1
00:00:09,289 --> 00:00:05,780
[Music]

2
00:00:10,699 --> 00:00:09,299
we passed the point of no return and at

3
00:00:13,629 --> 00:00:10,709
this point would say it's just a matter

4
00:00:22,370 --> 00:00:13,639
of time before these glaciers completely

5
00:00:24,260 --> 00:00:22,380
disappear to see we've focused more on

6
00:00:25,790 --> 00:00:24,270
this particular sector of West

7
00:00:28,310 --> 00:00:25,800
Antarctica because this is where we see

8
00:00:29,959 --> 00:00:28,320
the most dynamic changes but we've been

9
00:00:31,850 --> 00:00:29,969
observing changes in speed the

10
00:00:34,490 --> 00:00:31,860
acceleration of these measures

11
00:00:36,920 --> 00:00:34,500
feeling of its relations and also the

12
00:00:38,900 --> 00:00:36,930
retreat inland which is kind of a

13
00:00:40,930 --> 00:00:38,910

feedback that will maintain that which

14
00:00:43,520 --> 00:00:40,940
that retreat and that feeling and that

15
00:00:45,950 --> 00:00:43,530
acceleration for many years to come

16
00:00:47,569 --> 00:00:45,960
we've been looking at 40 years of

17
00:00:50,450 --> 00:00:47,579
changes in velocity over that whole

18
00:00:53,600 --> 00:00:50,460
sector and what we see is a continuous

19
00:00:57,260 --> 00:00:53,610
increase in discharge of ice from the

20
00:00:58,660 --> 00:00:57,270
glacier to the ocean in most cases when

21
00:01:01,130 --> 00:00:58,670
you look at ice sheets the important

22
00:01:01,940 --> 00:01:01,140
stuff is taking place at the bottom that

23
00:01:04,249 --> 00:01:01,950
you can't see

24
00:01:06,469 --> 00:01:04,259
so the grounding line is the place where

25
00:01:08,990 --> 00:01:06,479
the glacier detaches from the bed and

26
00:01:11,450 --> 00:01:09,000
becomes a float with the ocean and as it

27
00:01:13,099 --> 00:01:11,460
becomes a float in the ocean we see the

28
00:01:15,440 --> 00:01:13,109
retreat of the grounding line on the

29
00:01:18,139 --> 00:01:15,450
glacier as it's being melted more

30
00:01:22,879 --> 00:01:18,149
strongly by the ocean and you see that

31
00:01:24,649 --> 00:01:22,889
the bed of the glacier slopes inland it

32
00:01:26,239 --> 00:01:24,659
never gets away from the water the water

33
00:01:28,580 --> 00:01:26,249
keeps following the glacier because it

34
00:01:31,819 --> 00:01:28,590
gets deeper inland the first time we

35
00:01:34,699 --> 00:01:31,829
could image it was in 1992 and in 2011

36
00:01:36,529 --> 00:01:34,709
we look at the data and went wow it's

37
00:01:39,039 --> 00:01:36,539
been so much change in the position of

38
00:01:43,399 --> 00:01:39,049

this grounding line you can't miss it

39
00:01:45,709 --> 00:01:43,409
so this bunch of feedbacks that makes

40
00:01:47,599 --> 00:01:45,719
this this retreat and stoppable

41
00:01:50,179 --> 00:01:47,609
unless suddenly the glacier starts

42
00:01:52,399 --> 00:01:50,189
retreating in a bed that rises up right

43
00:01:55,099 --> 00:01:52,409
but we don't see that in any of these

44
00:01:57,980 --> 00:01:55,109
glaciers this system is evolving very

45
00:02:00,169 --> 00:01:57,990
fast and is progressing exactly as you

46
00:02:01,450 --> 00:02:00,179
would you expect if it was about to

47
00:02:04,000 --> 00:02:01,460
collapse

48
00:02:06,609 --> 00:02:04,010
they retreating at rates of about a

49
00:02:08,710 --> 00:02:06,619
kilometer per year if these glaciers

50
00:02:11,140 --> 00:02:08,720
were sustaining this rate of between