
JPL
OMG

1
00:00:00,633 --> 00:00:02,168
■

2
00:00:02,201 --> 00:00:05,739
[OMG: Oceans Melting Greenland]

3
00:00:08,274 --> 00:00:10,209
[Josh Willis] There's enough
ice here in Greenland

4
00:00:10,242 --> 00:00:13,179
to raise sea
levels by 25 feet,

5
00:00:13,212 --> 00:00:14,680
all the way around
the world.

6
00:00:14,713 --> 00:00:17,050
It's an incredible
amount of ice,

7
00:00:17,083 --> 00:00:21,287
and it's melting and
adding to sea level rise.

8
00:00:21,320 --> 00:00:24,190
For Oceans Melting Greenland,
what we really want to do is

9
00:00:24,223 --> 00:00:25,958
measure the oceans,

10
00:00:25,991 --> 00:00:27,093
measure the ice,

11
00:00:27,126 --> 00:00:30,496
and watch them change
together year on year

12
00:00:30,529 --> 00:00:31,931
and try and answer
the question,

13
00:00:31,964 --> 00:00:35,535
how much are the oceans
melting away the ice

14
00:00:35,568 --> 00:00:39,072
as opposed to the air which is
what most people studied so far.

15
00:00:46,278 --> 00:00:49,115
It's really a
breathtaking landscape.

16
00:00:49,148 --> 00:00:54,020
These giant mountains and
canyons are all along the coast.

17
00:00:54,053 --> 00:00:56,689
When you look out the window,
you really get a sense of just

18
00:00:56,722 --> 00:01:01,294
how huge these glaciers are,
these gigantic rivers of ice

19
00:01:01,327 --> 00:01:04,430
that are draining the ice out
of Greenland into the ocean.

20
00:01:04,463 --> 00:01:07,700
And then they reach the ocean,
then it's gets all broken and

21
00:01:07,733 --> 00:01:10,136
craggy and big
chunks fall off.

22
00:01:10,169 --> 00:01:12,172
It's incredibly dramatic.

23
00:01:14,673 --> 00:01:18,377
Kulusuk is just a tiny little
town in southeast Greenland,

24
00:01:18,410 --> 00:01:21,747
and we've been launching
probes out of here for the

25
00:01:21,780 --> 00:01:24,016
past four or five days.

26
00:01:24,049 --> 00:01:26,886
It's already been a
fantastic year for OMG

27
00:01:26,919 --> 00:01:28,354
measuring the oceans.

28
00:01:30,189 --> 00:01:32,758
We launch 'em right out of
this tube right over here.

29
00:01:32,791 --> 00:01:36,295
Open up the tube, you can look
right down it and see the water

30
00:01:36,328 --> 00:01:38,831
passing by, or sometimes
the icebergs, or clouds,

31
00:01:38,864 --> 00:01:40,867
or whatever it is we
are flying over.

32
00:01:40,900 --> 00:01:42,001

[Man on Radio] Six

33
00:01:42,034 --> 00:01:43,235
Five

34
00:01:43,269 --> 00:01:44,971
[Willis] We slow down a little
bit, and we just push these

35
00:01:45,004 --> 00:01:47,173
big grey cylinders out of the
bottom of the plane,

36
00:01:47,206 --> 00:01:48,674
and they fall to the ocean

37
00:01:48,707 --> 00:01:51,043
and measure the
temperature and salinity

38
00:01:51,076 --> 00:01:54,647
when they get there and radio it
back to the plane.

39
00:01:54,680 --> 00:01:57,250
We're really trying to look at
the ice and the ocean

40
00:01:57,283 --> 00:02:01,787
all the way around Greenland, so
we're dropping 250 profilers.

41
00:02:01,820 --> 00:02:04,657
We're going to cover the
coastline all the way around,

42
00:02:04,690 --> 00:02:09,228
and in the spring we map out
the glaciers with a radar

43
00:02:09,261 --> 00:02:10,596
also all the way around.

44
00:02:10,629 --> 00:02:14,033
So we're really looking at
mapping all of the ocean-ice

45
00:02:14,066 --> 00:02:17,137
interactions in Greenland as
best we can with one mission.

46
00:02:20,139 --> 00:02:22,508
What we care about
with OMG really is

47
00:02:22,541 --> 00:02:24,477
the breaking off
at the edges.

48
00:02:24,510 --> 00:02:27,980
As the water eats away at the
ice then it can actually

49
00:02:28,013 --> 00:02:30,183
speed up that breaking off part.

50
00:02:30,216 --> 00:02:33,386
And when you dump more
ice in the oceans,

51
00:02:33,419 --> 00:02:35,555
then it causes sea level rise.

52
00:02:35,588 --> 00:02:38,090
So, OMG is really here
to try and figure out

53
00:02:38,123 --> 00:02:39,959
how much are the oceans doing?

54
00:02:39,992 --> 00:02:42,061
How much is this kind of
breaking off of the ice,

55
00:02:42,094 --> 00:02:43,563
it's called calving,

56
00:02:43,596 --> 00:02:45,598
how important is
that relative to

57
00:02:45,631 --> 00:02:47,500
the melting at the surface?

58
00:02:47,533 --> 00:02:50,736
And more importantly, is the
ocean causing some of this

59
00:02:50,769 --> 00:02:52,305
speed up of the calving.

60
00:02:52,338 --> 00:02:54,473
We think it is, but how
widespread is it

61
00:02:54,506 --> 00:02:57,176
and how big an impact?

62
00:02:57,209 --> 00:02:59,979
Even the smallest
iceberg looks gigantic

63
00:03:00,012 --> 00:03:01,614
when you're right next to it.

64
00:03:01,647 --> 00:03:04,617
We saw an iceberg that was
grounded in the bay.

65
00:03:04,650 --> 00:03:08,955
Remember, 90 percent of the
iceberg is below sea level.

66
00:03:08,988 --> 00:03:11,791
So, if there's about ten meters,
or about thirty feet of ice

67
00:03:11,824 --> 00:03:14,994
above sea level, then
300 feet are below.

68
00:03:16,028 --> 00:03:19,432
It's a reminder that a lot of
the stuff we're trying to

69
00:03:19,465 --> 00:03:22,034
measure is hidden below the
surface of the ocean,

70
00:03:22,067 --> 00:03:23,703
hidden below the
surface of the ice,

71
00:03:23,736 --> 00:03:26,105
and peering down
into both of those

72
00:03:26,138 --> 00:03:30,042
is really at the core of
what OMG is trying to do.

73
00:03:30,075 --> 00:03:34,046
Every time a ton of ice
comes off of Greenland,

74
00:03:34,079 --> 00:03:35,915
sea level goes up
a tiny little bit

75
00:03:35,948 --> 00:03:40,153
and it's coming off Greenland
at billions of tons per year.

76
00:03:40,620 --> 00:03:43,522
It's interesting to meet some
of the Greenlandic folks

77
00:03:43,555 --> 00:03:46,158
who have been here
their whole lives.

78
00:03:46,191 --> 00:03:48,628
They've all watched
the glaciers

79
00:03:48,661 --> 00:03:50,296
literally vanish
before their eyes.

80
00:03:50,329 --> 00:03:53,299
They didn't need satellites
and airplanes and scientists

81
00:03:53,332 --> 00:03:55,067
to tell them that
Greenland was melting.

82
00:03:55,100 --> 00:03:58,771
They look out and see the
glacier used to be here

83
00:03:58,804 --> 00:04:01,207
and now it's way up there.

84
00:04:01,240 --> 00:04:03,109
Sea level rise is really
a global problem.

85
00:04:03,142 --> 00:04:04,644
It's something we
can't just ignore.

86
00:04:04,677 --> 00:04:07,747
Two thirds of the planet are
covered by the oceans,

87
00:04:07,780 --> 00:04:09,782
and it's really the same ocean.

88
00:04:09,815 --> 00:04:12,485
I mean if ice is lost here,

89
00:04:12,518 --> 00:04:14,987
seal level rises
back home in Los Angeles,

90
00:04:15,020 --> 00:04:17,757
it rises in
Southeast Asia, in Australia,

91
00:04:17,790 --> 00:04:19,759
all across the planet.

92
00:04:19,792 --> 00:04:25,031
Being here and seeing the ice
disappearing and literally

93
00:04:25,064 --> 00:04:28,668
watching it fall into the
ocean is really profound,

94
00:04:28,701 --> 00:04:31,337
and I think it's something
that I, I hope that

95
00:04:31,370 --> 00:04:33,739
we help people

understand with OMG

96
00:04:33,772 --> 00:04:35,174
that we all live
on the same planet,

97
00:04:35,207 --> 00:04:37,977
and it's changing
and we need to know how.

98
00:04:38,877 --> 00:04:40,680
[NASA / Jet Propulsion
Laboratory