1
00:00:13,270 --> 00:00:10,629
my name is dave eastmont i'm the mission

2
00:00:14,070 --> 00:00:13,280
manager for wallops aircraft at this

3
00:00:15,749 --> 00:00:14,080
time

4
00:00:18,390 --> 00:00:15,759
my previous experience has been with the

5
00:00:20,950 --> 00:00:18,400
p3 i've done dc8 flights i've done

6
00:00:23,269 --> 00:00:20,960
aerosond uav flights

7
00:00:25,830 --> 00:00:23,279
and c-130 flights

8
00:00:29,269 --> 00:00:25,840
i probably got upwards to about

9
00:00:32,310 --> 00:00:29,279
4 000 hours in the back of the plane

10
00:00:34,389 --> 00:00:32,320
okay my name is bill crable i'm the

11
00:00:35,750 --> 00:00:34,399
project scientist for operation

12
00:00:38,150 --> 00:00:35,760
icebridge

13
00:00:44,310 --> 00:00:38,160

and i've been flying missions like this

14
00:00:49,510 --> 00:00:46,950
aircraft behind me is nasa's p3

15
00:00:53,350 --> 00:00:49,520
uh research aircraft it's used as a

16
00:00:54,790 --> 00:00:53,360
platform for various remote sensors

17
00:00:56,790 --> 00:00:54,800
and we're going to be using it in

18
00:00:59,670 --> 00:00:56,800
greenland this year

19
00:01:01,670 --> 00:00:59,680
as we have most years since 1991 to

20
00:01:03,189 --> 00:01:01,680
collect a suite of measurements that

21
00:01:06,310 --> 00:01:03,199
tell the scientists

22
00:01:09,510 --> 00:01:06,320
the uh the thickness of the ice and how

23
00:01:12,230 --> 00:01:09,520
fast it's flowing um out to the ocean

24
00:01:14,469 --> 00:01:12,240
and what we're observing is the the

25
00:01:17,429 --> 00:01:14,479
decade of the 90s was

26
00:01:19,910 --> 00:01:17,439
was exhibiting very small changes

27
00:01:21,910 --> 00:01:19,920
if we saw a half a meter to a meter per

28
00:01:24,950 --> 00:01:21,920
year of thinning that was a pretty large

29
00:01:27,109 --> 00:01:24,960
number uh in that time frame

30
00:01:29,350 --> 00:01:27,119
but since the turn of the century

31
00:01:32,390 --> 00:01:29,360
we're seeing some of those same glaciers

32
00:01:35,109 --> 00:01:32,400
now thinning at 15 and 20 and 25 meters

33
00:01:38,789 --> 00:01:35,119
per year so there are some very drastic

34
00:01:40,789 --> 00:01:38,799
changes taking place up in greenland

35
00:01:43,109 --> 00:01:40,799
the additional work that we'll be doing

36
00:01:45,749 --> 00:01:43,119
for operation icebridge

37
00:01:48,789 --> 00:01:45,759
will be to follow the exact same orbit

38
00:01:51,030 --> 00:01:48,799

paths on the surface that that icesat

39
00:01:53,030 --> 00:01:51,040
has followed in the past and and will

40
00:01:55,350 --> 00:01:53,040
follow in the future and that icesat-2

41
00:01:57,510 --> 00:01:55,360
would follow when it gets launched in

42
00:02:01,030 --> 00:01:57,520
2015.

43
00:02:02,870 --> 00:02:01,040
it does a a very nice job of of global

44
00:02:04,789 --> 00:02:02,880
coverage particularly of antarctica

45
00:02:06,709 --> 00:02:04,799
that's quite remote and very difficult

46
00:02:09,270 --> 00:02:06,719
to get to with an airplane

47
00:02:11,190 --> 00:02:09,280
so whereas the the typical flights that

48
00:02:13,430 --> 00:02:11,200
we would make in the past are are

49
00:02:14,630 --> 00:02:13,440
focused targeted towards the outlet

50
00:02:15,510 --> 00:02:14,640
glaciers

51
00:02:17,510 --> 00:02:15,520
um

52
00:02:19,750 --> 00:02:17,520
we'll now also do the same kinds of

53
00:02:21,830 --> 00:02:19,760
measurements that a satellite would and

54
00:02:24,790 --> 00:02:21,840
this sort of ties the two projects

55
00:02:29,270 --> 00:02:27,270
i'm jim jungle i'm a lead engineer on

56
00:02:31,589 --> 00:02:29,280
the nasa airborne topographic mapper

57
00:02:33,670 --> 00:02:31,599
project it measures the elevation of the

58
00:02:34,869 --> 00:02:33,680
train the aircraft flies over

59
00:02:36,869 --> 00:02:34,879
it does this

60
00:02:39,270 --> 00:02:36,879
by firing pulses of laser light from the

61
00:02:42,390 --> 00:02:39,280
aircraft to the ground and back

62
00:02:43,509 --> 00:02:42,400
those pulses are scanned in a an oval

63
00:02:46,470 --> 00:02:43,519

scan

64
00:02:48,710 --> 00:02:46,480
and this allows us to map a swath of

65
00:02:51,589 --> 00:02:48,720
terrain underneath the aircraft and it

66
00:02:54,790 --> 00:02:51,599
allows us to return in a future year

67
00:02:56,150 --> 00:02:54,800
and repeat those measurements uh pretty

68
00:02:58,229 --> 00:02:56,160
accurately

69
00:03:00,309 --> 00:02:58,239
we're we're concerned with the ice

70
00:03:02,790 --> 00:03:00,319
sheets of the world because

71
00:03:04,869 --> 00:03:02,800
to some degree they control sea level

72
00:03:07,910 --> 00:03:04,879
greenland is the second largest ice

73
00:03:10,149 --> 00:03:07,920
sheet in the world it contains enough

74
00:03:12,149 --> 00:03:10,159
ice and snow that if it were to melt

75
00:03:14,550 --> 00:03:12,159
would raise sea levels substantially

76
00:03:17,190 --> 00:03:14,560
maybe as much as 20 feet in this area

77
00:03:19,589 --> 00:03:17,200
you can imagine greenland as a huge ice

78
00:03:21,430 --> 00:03:19,599
cube that's a thousand miles long and

79
00:03:23,830 --> 00:03:21,440
400 miles wide

80
00:03:26,949 --> 00:03:23,840
and two miles thick in the center

81
00:03:30,070 --> 00:03:26,959
it nicely buffers global climate

82
00:03:32,149 --> 00:03:30,080
regional climate so that changes in the

83
00:03:34,550 --> 00:03:32,159
ice sheet

84
00:03:43,110 --> 00:03:34,560
become very important indicators of

85
00:03:49,670 --> 00:03:46,710
it's something you have to experience

86
00:03:51,830 --> 00:03:49,680
we'll fly these patterns at 1500 feet

87
00:03:53,270 --> 00:03:51,840
above the ground level and

88
00:03:54,869 --> 00:03:53,280

you get up on your sheets like flying

89
00:03:57,110 --> 00:03:54,879
over the clouds when you look down it's

90
00:03:59,110 --> 00:03:57,120
just white fluffy sometimes it just

91
00:04:01,030 --> 00:03:59,120
looks like a cloud you have to keep in

92
00:04:03,670 --> 00:04:01,040
your head that that's solid underneath

93
00:04:06,309 --> 00:04:05,110
probably one of the neatest things to

94
00:04:08,390 --> 00:04:06,319
see is when you're flying down the

95
00:04:09,190 --> 00:04:08,400
glacier towards the ocean you're at 1500

96
00:04:10,550 --> 00:04:09,200
feet

97
00:04:12,229 --> 00:04:10,560
and just as you hit the ocean the

98
00:04:14,630 --> 00:04:12,239
glacier drops off and about another

99
00:04:15,990 --> 00:04:14,640
thousand feet it's just