
N426NA

1
00:00:24,710 --> 00:00:22,630
across north america spring has sprung

2
00:00:27,269 --> 00:00:24,720
as the mercury rises the winter snow

3
00:00:29,509 --> 00:00:27,279
seems like ancient history

4
00:00:31,589 --> 00:00:29,519
not so for nasa's operation icebridge

5
00:00:33,110 --> 00:00:31,599
scientists who continue to brave arctic

6
00:00:35,590 --> 00:00:33,120
temperatures at thule air base in

7
00:00:37,910 --> 00:00:35,600
northern greenland

8
00:00:39,750 --> 00:00:37,920
since mid-march the icebridge dc-8

9
00:00:41,670 --> 00:00:39,760
aircraft has flown the equivalent of one

10
00:00:43,990 --> 00:00:41,680
and a half times around the earth

11
00:00:46,069 --> 00:00:44,000
logging more than 60 000 kilometers and

12
00:00:47,990 --> 00:00:46,079
100 flight hours

13
00:00:49,830 --> 00:00:48,000

the purpose of icebridge is to provide

14
00:00:51,830 --> 00:00:49,840
data about the earth's polar regions

15
00:00:53,029 --> 00:00:51,840
allowing us to monitor change in ice

16
00:00:55,110 --> 00:00:53,039
cover

17
00:00:56,869 --> 00:00:55,120
icebridge scientists accomplish this by

18
00:00:58,630 --> 00:00:56,879
measuring the ice with a variety of

19
00:01:01,430 --> 00:00:58,640
instruments aboard the fully equipped

20
00:01:03,110 --> 00:01:01,440
dc-8 aircraft

21
00:01:05,109 --> 00:01:03,120
a typical flight day for icebridge

22
00:01:06,710 --> 00:01:05,119
begins at 6 am the ground and

23
00:01:08,469 --> 00:01:06,720
maintenance crews meet at the hangar to

24
00:01:12,950 --> 00:01:08,479
power up the plane and ensure it is a

25
00:01:16,630 --> 00:01:15,030
once the dc-8 is towed out to the ramp

26
00:01:19,670 --> 00:01:16,640
the icebridge pilots and team of

27
00:01:21,590 --> 00:01:19,680
research scientists prepare for takeoff

28
00:01:23,030 --> 00:01:21,600
throughout each flight scientists manage

29
00:01:25,749 --> 00:01:23,040
seven state-of-the-art science

30
00:01:27,590 --> 00:01:25,759
instruments aboard the dc-8

31
00:01:30,469 --> 00:01:27,600
several instruments such as the airborne

32
00:01:32,390 --> 00:01:30,479
topographic mapper or atm utilize laser

33
00:01:34,390 --> 00:01:32,400
altimeter technology to measure the

34
00:01:36,149 --> 00:01:34,400
surface of the ice

35
00:01:38,230 --> 00:01:36,159
three radar instruments from university

36
00:01:41,350 --> 00:01:38,240
of kansas measure the vertical profile

37
00:01:43,510 --> 00:01:41,360
of the snow and ice the ku band and snow

38
00:01:45,590 --> 00:01:43,520

radars measure the depth of snow and ice

39
00:01:48,069 --> 00:01:45,600
on and near the surface

40
00:01:50,230 --> 00:01:48,079
the multi-channel coherent radar depth

41
00:01:52,069 --> 00:01:50,240
sounder or m cords can penetrate the

42
00:01:54,469 --> 00:01:52,079
upper layers of snow and ice to reach

43
00:01:57,030 --> 00:01:54,479
the bedrock below telling scientists the

44
00:01:59,830 --> 00:01:57,040
thickness of the ice the digital mapping

45
00:02:01,429 --> 00:01:59,840
system or dms is essentially two cameras

46
00:02:03,670 --> 00:02:01,439
mounted on the belly of the plane

47
00:02:05,910 --> 00:02:03,680
capturing images every 10 seconds while

48
00:02:07,910 --> 00:02:05,920
the plane is in flight new to icebridge

49
00:02:10,389 --> 00:02:07,920
and the dc8 this year is columbia

50
00:02:11,589 --> 00:02:10,399
university's gravimeter the gravimeter

51
00:02:14,550 --> 00:02:11,599
can distinguish the difference in

52
00:02:16,550 --> 00:02:14,560
gravity between rock water and ice to

53
00:02:18,710 --> 00:02:16,560
map what we can't see

54
00:02:21,190 --> 00:02:18,720
finally the land vegetation and ice

55
00:02:23,190 --> 00:02:21,200
sensor referred to as elvis is best

56
00:02:24,869 --> 00:02:23,200
suited for high altitude work

57
00:02:27,110 --> 00:02:24,879
from thirty thousand feet and higher

58
00:02:29,270 --> 00:02:27,120
elvis scans a two kilometer wide laser

59
00:02:35,430 --> 00:02:29,280
swath to provide a comprehensive map of

60
00:02:39,270 --> 00:02:37,030
perhaps the most impressive piece of

61
00:02:41,270 --> 00:02:39,280
equipment is the plane itself

62
00:02:43,750 --> 00:02:41,280
dc8 production was discontinued in the

63
00:02:45,430 --> 00:02:43,760

early 1970s but nasa continues to

64
00:02:47,830 --> 00:02:45,440
utilize it for a variety of earth

65
00:02:49,990 --> 00:02:47,840
science missions like icebridge

66
00:02:52,630 --> 00:02:50,000
this four-engine workhorse can fly at 40

67
00:02:54,309 --> 00:02:52,640
000 feet for over 12 hours at a time

68
00:02:55,990 --> 00:02:54,319
though the aircraft was not originally

69
00:02:58,309 --> 00:02:56,000
designed for low altitude flying it

70
00:03:00,070 --> 00:02:58,319
performs beautifully below 1500 feet for

71
00:03:01,670 --> 00:03:00,080
icebridge instruments

72
00:03:03,350 --> 00:03:01,680
after a long day of flying the ground

73
00:03:05,190 --> 00:03:03,360
crew meets the aircraft on the icy

74
00:03:06,390 --> 00:03:05,200
runway and prepares for another flight

75
00:03:08,309 --> 00:03:06,400
day

76
00:03:10,070 --> 00:03:08,319
at the evening debrief researchers and

77
00:03:11,990 --> 00:03:10,080
crew analyze the forecast for the

78
00:03:13,589 --> 00:03:12,000
following day and prepare to do it all

79
00:03:15,270 --> 00:03:13,599
over again

80
00:03:18,149 --> 00:03:15,280
icebridge is nearing the halfway point

81
00:03:20,229 --> 00:03:18,159
of the arctic 2010 campaign next week

82
00:03:22,149 --> 00:03:20,239
the dc-8 will return to dryden flight

83
00:03:23,750 --> 00:03:22,159
research center in california where it

84
00:03:25,350 --> 00:03:23,760
will remain until this fall when it

85
00:03:27,030 --> 00:03:25,360
resumes ice bridge flights over

86
00:03:28,710 --> 00:03:27,040
antarctica

87
00:03:31,110 --> 00:03:28,720
for the remainder of the arctic campaign

88
00:03:32,869 --> 00:03:31,120

in greenland nasa's p3b airplane will

89
00:03:34,789 --> 00:03:32,879
deploy from wallop's flight facility in

90
00:03:36,309 --> 00:03:34,799
virginia to sandstorm air base in

91
00:03:38,309 --> 00:03:36,319
southern greenland

92
00:03:39,990 --> 00:03:38,319
science instruments aboard the p3b will