
OPERACIÓN ICEBRIDGE
CAMPAÑA ANTÁRTICA
2012

1
00:00:08,360 --> 00:00:04,180
[music]

2
00:00:08,380 --> 00:00:12,540
Greetings from Punta Arenas, our base of operations for the Antarctic campaign of NASA’s Operation IceBridg

3
00:00:12,560 --> 00:00:16,730
Punta Arenas is the capital of Chile’s southern region

4
00:00:16,750 --> 00:00:20,910
and one of the main jumping off points for Antarctica.

5
00:00:20,930 --> 00:00:25,110
Behind me there’s a replica of the lifeboat James Caird,

6
00:00:25,130 --> 00:00:29,300
which the Antarctic explorer Ernest Shackelton used to escape Elephant Island

7
00:00:29,320 --> 00:00:33,470
after his ship, Endurance, sank in the Weddell Sea.

8
00:00:33,490 --> 00:00:37,590
The spirit of this explorer is an inspiration to IceBridge, which is dedicated

9
00:00:37,610 --> 00:00:41,690
to exploring remote areas of Antarctica to observe changes to the ice sheet

10
00:00:41,710 --> 00:00:45,750
covering the continent and the sea ice surrounding it.

11
00:00:45,770 --> 00:00:49,810
It takes between three and four hours to reach Antarctica from southern Chile.

12
00:00:49,830 --> 00:00:53,870
Since flights are longer than those of the Arctic campaign, we use

13
00:00:53,890 --> 00:00:57,910

another type of plane, a DC-8, which can carry larger quantities

14
00:00:57,930 --> 00:01:01,950
of fuel and thus lets us reach very remote areas of the frozen continent.

15
00:01:01,970 --> 00:01:06,130
This is the fourth year that IceBridge has explored Antarctica, since the

16
00:01:06,150 --> 00:01:10,320
mission began in 2009. In total, there are sixteen missions planned for

17
00:01:10,340 --> 00:01:14,500
for this campaign: twelve will study land ice and the remaining four

18
00:01:14,520 --> 00:01:18,670
will observe the ice floating on the seas of Weddell, Bellingshausen and Amundsen, in the

19
00:01:18,690 --> 00:01:22,850
the western sector of the continent. IceBridge uses several instruments to study

20
00:01:22,870 --> 00:01:27,010
sea ice. On one hand, a laser measures the freeboard,

21
00:01:27,030 --> 00:01:31,190
or the height of the ice floe above the water surface. On the other hand, one of the radars

22
00:01:31,210 --> 00:01:35,350
radars onboard the DC-8, assisted by the laser, measures the snow layer

23
00:01:35,370 --> 00:01:39,410
accumulated over sea ice. The combination of the two

24
00:01:39,430 --> 00:01:43,480
data sets allows scientists to calculate the total thickness of sea ice

25
00:01:43,500 --> 00:01:47,590
including the fraction that is under water. Finally, a high-definition

26
00:01:47,610 --> 00:01:51,670
camera system takes images that will help researchers locate leads between ice floes.

27
00:01:51,690 --> 00:01:55,720
The areas of land ice of greatest interest to IceBridge

28
00:01:55,740 --> 00:01:59,750
are located in the west coast of Antarctica, where

29
00:01:59,770 --> 00:02:03,930
the largest changes are taking place. One of the glaciers that is most quickly

30
00:02:03,950 --> 00:02:08,120
losing ice to the sea is Pine Island Glacier, southwest of the Antarctica Peninsula.

31
00:02:08,140 --> 00:02:12,300
During the 2011 campaign, IceBridge discovered

32
00:02:12,320 --> 00:02:16,390
a huge crack that crossed Pine Island's ice shelf

33
00:02:16,410 --> 00:02:20,580
almost entirely. It's thought that when it breaks,

34
00:02:20,600 --> 00:02:24,760
it will create an enormous iceberg the size of Manhattan.

35
00:02:24,780 --> 00:02:28,940
But when NASA's DC-8 visited Pine Island Glacier again in 2012,

36
00:02:28,960 --> 00:02:33,100
, the crack was still there, only wider and with a secondary crack.

37
00:02:33,120 --> 00:02:37,240
And so the iceberg remains for now.

38
00:02:37,260 --> 00:02:41,370

Meanwhile, the data collected by IceBridge instruments

39
00:02:41,390 --> 00:02:45,550
over Pine Island and the neighboring Thwaites Glacier

40
00:02:45,570 --> 00:02:49,670
will allow researchers to revisit previous years’ measurements and determine

41
00:02:49,690 --> 00:02:53,760
how the ice flow is evolving in that corner of Antarctica.