1
00:00:00,010 --> 00:00:04,080
[wind noises]

2
00:00:04,100 --> 00:00:08,130
[music]

3
00:00:08,150 --> 00:00:12,150
Hello. My name's María José Viñas and I am a science writer for NASA.

4
00:00:12,170 --> 00:00:16,270
I'm here in Greenland, in a town named Kangerlussuaq,

5
00:00:16,290 --> 00:00:20,340
accompanying a mission called IceBridge, or Puente de Hielo.

6
00:00:20,360 --> 00:00:24,370
This is the plane we use for our mission,

7
00:00:24,390 --> 00:00:28,480
a P-3B, which used to be a military plane that was readapted to be used for scientific missions.

8
00:00:28,500 --> 00:00:32,580
It's equipped with a series of instruments that I will tell you about later.

9
00:00:32,600 --> 00:00:36,650
[music, aircraft noise]

10
00:00:36,670 --> 00:00:40,720
With IceBridge we fly this airplane quite close to the ground,

11
00:00:40,740 --> 00:00:44,770
at about 450 meters above the surface, and using a series of lasers and radars

12
00:00:44,790 --> 00:00:48,950
to observe how the ice sheet evolves from year to year.

13
00:00:48,970 --> 00:00:53,060

[music, aircraft noise]

14
00:00:53,080 --> 00:00:57,090
We do this twice a year: from October to December we go to Antarctica

15
00:00:57,110 --> 00:01:01,160
and from March til May we're here in Greenland, measuring the Arctic ice sheet.

16
00:01:01,180 --> 00:01:05,350
For example, this morning we've flown over Jakobshavn Glacier,

17
00:01:05,370 --> 00:01:09,450
one of the fastest melting glaciers in the world

18
00:01:09,470 --> 00:01:13,480
and we've measured how high it is this year, and we'll compare this with data

19
00:01:13,500 --> 00:01:17,610
from previous years, to find out how much [of the glacier] has disappeared in one year.

20
00:01:17,630 --> 00:01:21,660
The P-3B carries a laser

21
00:01:21,680 --> 00:01:25,680
and four types of radar. The laser emits a pulse of light that bounces off the ice surface:

22
00:01:25,700 --> 00:01:29,780
the time that it takes for the light to return to the receivers installed

23
00:01:29,800 --> 00:01:33,830
in the body of the plane is indicative of the height of the ice sheet.

24
00:01:33,850 --> 00:01:37,880
The radars work in a similar way, but they use electromagnetic energy,

25
00:01:37,900 --> 00:01:42,030
which is able to penetrate the ice sheet and obtain information about its depth and structure.

26
00:01:42,050 --> 00:01:46,050
Two other instruments onboard the aircraft, called the gravetometer and magnetometer,

27
00:01:46,070 --> 00:01:50,110
analyze the geologic composition of the ground.

28
00:01:50,130 --> 00:01:54,200
Scientists study the data obtained during each IceBridge campaign

29
00:01:54,220 --> 00:01:58,270
and compare it to data from previous years, to calculate how

30
00:01:58,290 --> 00:02:02,380
the ice sheet changes from year to year.

31
00:02:02,400 --> 00:02:06,440
Here we are at the Russell Glacier, at the feet of Greenland’s ice sheet

32
00:02:06,460 --> 00:02:10,480
extending kilometers and kilometers into the interior of Greenland.

33
00:02:10,500 --> 00:02:14,590
And when you see this immensity is a bit hard to imagine

34
00:02:14,610 --> 00:02:18,670
disappear one day but that is what is happening right now, it's melting