1
00:00:04,050 --> 00:00:08,060
Operation Ice Bridge is one of NASA's new missions

2
00:00:08,080 --> 00:00:12,080
and what we're doing is we're monitoring the sea ice and the ice sheets.

3
00:00:12,100 --> 00:00:16,100
Right now we're up in the Arctic. We also go to the Antarctic.

4
00:00:16,120 --> 00:00:20,110
We're using the NASA aircraft to monitor these areas

5
00:00:20,130 --> 00:00:24,170
because our ICESat satellite recently died and ICESat II

6
00:00:24,190 --> 00:00:28,210
will not be launched until 2015, so in the interim we're using these aircraft.

7
00:00:28,230 --> 00:00:32,240
It gives us actually improved capabilities over the satellites

8
00:00:32,260 --> 00:00:36,260
because the satellites were measuring the surface elevations of both

9
00:00:36,280 --> 00:00:40,270
the ice sheets and the sea ice and with these aircraft we can add additional

10
00:00:40,290 --> 00:00:44,320
instruments that peer beneath the ice.

11
00:00:44,340 --> 00:00:48,360
Q: New findings about the health of the Arctic are about to be released.

12
00:00:48,380 --> 00:00:52,390
Can you give us a preview of how the ice faired this winter?

13
00:00:52,410 --> 00:00:56,400

Yes, actually we're flying over the sea ice right now because the sea ice is coming

14
00:00:56,420 --> 00:01:00,410
out of the winter season and in the winter it grows and the summer it shrinks,

15
00:01:00,430 --> 00:01:04,460
and so right now coming out of the winter, it's reaching its maximum extent.

16
00:01:04,480 --> 00:01:08,500
What we're seeing from the satelltes, we have a 30-year history of this

17
00:01:08,520 --> 00:01:12,520
that the sea ice extent is about average this year, just

18
00:01:12,540 --> 00:01:16,550
a little below average, so that's good news that it's about average

19
00:01:16,570 --> 00:01:20,560
but it is thinner than average.

20
00:01:20,580 --> 00:01:24,600
Q: Well, why is the Arctic ice such an important measure for Earth's climate health?

21
00:01:24,620 --> 00:01:28,630
The Arctic ice is a very important measure

22
00:01:28,650 --> 00:01:32,650
for the Earth's health because the Arctic will see

23
00:01:32,670 --> 00:01:36,670
climate change first as well as it will see accelerated warming

24
00:01:36,690 --> 00:01:40,680
The Arctic sea ice acts

25
00:01:40,700 --> 00:01:44,750
as a mirror on top of the Earth and as it shrinks in the summer

26
00:01:44,770 --> 00:01:48,790
it does not reflect back the sunlight, it can warm the

27
00:01:48,810 --> 00:01:52,830
oceans. As well as, when we look at the ice sheets

28
00:01:52,850 --> 00:01:56,850
as we see warming there, we see speedup

29
00:01:56,870 --> 00:02:00,860
of the glaciers, the outlet glaciers, as well as thinning which

30
00:02:00,880 --> 00:02:04,900
relates directly to sea level rise so these are important areas to monitor.

31
00:02:04,920 --> 00:02:08,940
Q: IceBridge isn't just looking at sea ice, but at glaciers too.

32
00:02:08,960 --> 00:02:12,970
Why are they so important to study?

33
00:02:12,990 --> 00:02:16,990
Yes we're actually looking at glaciers on the edges of the Greenland glaciers right now.

34
00:02:17,010 --> 00:02:21,000
These are called outlet glaciers. These glaciers drain the ice from the interior of

35
00:02:21,020 --> 00:02:25,060
the ice sheets and flow to the ocean. What we've seen in these glaciers over the past

36
00:02:25,080 --> 00:02:29,110
two decades is that many of them are thinning as well as

37
00:02:29,130 --> 00:02:33,150
increasing in speed and that means they're taking more ice and putting it into

38
00:02:33,170 --> 00:02:37,190

the oceans so we really want to understand the dynamics of what's going on

39
00:02:37,210 --> 00:02:41,210
with these glaciers so we can make better predictions of sea level rise

40
00:02:41,230 --> 00:02:45,210
in the future.

41
00:02:45,230 --> 00:02:49,250
Q: Can you tell us a little bit more about the aircraft that NASA's using -- what kinds of instruments are on them

42
00:02:49,270 --> 00:02:53,270
Yes, NASA's using two different aircraft, we're using our DC-8 aircraft

43
00:02:53,290 --> 00:02:57,310
as well as our P-3 aircraft. These aircraft are outfitted with

44
00:02:57,330 --> 00:03:01,330
many different instruments. We're using two different LIDAR measurements.

45
00:03:01,350 --> 00:03:05,330
These LIDARs are a laser altimeter and

46
00:03:05,350 --> 00:03:09,380
they send a laser pulse down and they measure the surface height

47
00:03:09,400 --> 00:03:13,410
of the ice. Then we use radars. We use four different radars that all

48
00:03:13,430 --> 00:03:17,440
look at different depths into the ice -- our deepest radar will actually look

49
00:03:17,460 --> 00:03:21,450
down to the bottoms of the ice sheets -- it can look through three kilometers of ice

50
00:03:21,470 --> 00:03:25,470
and monitor more of what's going on at the bases of the ice sheets.

51
00:03:25,490 --> 00:03:29,510
Q: Well, where can we go to learn more about Operation Ice Bridge and Earth's poles?

52
00:03:29,530 --> 00:03:33,560
You can go to our website, www.nasa.gov/icebridge