



1
00:00:00,010 --> 00:00:04,060

[music]

2
00:00:04,080 --> 00:00:08,130

I'm Michael Starobin on the flight deck of NASA's

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00:00:08,150 --> 00:00:12,180

airborne science laboratory -- it's a customized DC-8.

4
00:00:12,200 --> 00:00:16,220

We're in Punta Arenas, Chile on the trail ... of a mystery.

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00:00:16,240 --> 00:00:20,290

Kurtz: Ah, the current trend in Antarctic

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00:00:20,310 --> 00:00:24,330

sea ice is, it's been expanding. Starobin: We know this much already

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00:00:24,350 --> 00:00:28,370

global climate is getting warmer. Huge quantities

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00:00:28,390 --> 00:00:32,470

of ice are disappearing from both poles, and from glaciers around

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00:00:32,490 --> 00:00:36,510

the world. So if things are heating up? Why is

10
00:00:36,530 --> 00:00:40,650

the quantity of ice increasing around the coast of Antarctica?

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00:00:40,670 --> 00:00:44,710

Kurtz: So it actually is very counter-intuitive that Antarctic sea ice

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00:00:44,730 --> 00:00:48,760

would be increasing when global temperatures are also increasing because you would

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00:00:48,780 --> 00:00:52,820

expect it to melt, such as has been happening in the Arctic.

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00:00:52,840 --> 00:00:56,880

Starobin: But it's not. Sea ice is increasing around the southernmost continent.

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00:00:56,900 --> 00:01:00,940

And scientists are trying to understand why. They're closing in

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00:01:00,960 --> 00:01:05,020

on suspect causes. Kurtz: The major component that

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00:01:05,040 --> 00:01:09,080

looks like it's contributing to the expansion of sea ice has been the increase of winds

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00:01:09,100 --> 00:01:13,140

from the Antarctic continent. Starobin: But why those winds are increasing

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00:01:13,160 --> 00:01:17,160

is still a matter of some debate, including an unexpected suspect.

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00:01:17,180 --> 00:01:21,210

Kurtz: One of the prevailing thoughts on why winds have

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00:01:21,230 --> 00:01:25,240

strengthened from the Antarctic continent outward to the sea, is because of

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00:01:25,260 --> 00:01:29,260

the ozone hole in the Antarctic. And

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00:01:29,280 --> 00:01:33,300

climate models have been run showing that if you have

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00:01:33,320 --> 00:01:37,320

an ozone hole, the winds are much stronger than if you don't

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00:01:37,340 --> 00:01:41,360

have an ozone hole. Starobin: But there are other causes too. A warmer planet

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00:01:41,380 --> 00:01:45,420
is likely to provoke higher rates of precipitation.

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00:01:45,440 --> 00:01:49,490
Kurtz: The increase in snowfall in particular would happen

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00:01:49,510 --> 00:01:53,520
and put fresh water into the ocean, at which point you have

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00:01:53,540 --> 00:01:57,650
a fresh layer that sits on top of a saltier layer.

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00:01:57,670 --> 00:02:01,690
Starobin: Freshwater freezes faster than saltwater. A warmer planet means more

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00:02:01,710 --> 00:02:05,740
fresh water, which is why a warmer planet means more

32
00:02:05,760 --> 00:02:09,800
ice. Does the increase in sea ice around Antarctica

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00:02:09,820 --> 00:02:13,870
offset the decrease in sea ice in the North?

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00:02:13,890 --> 00:02:17,920
Kurtz: The decrease in Arctic sea ice has been about three times the increase in Antarctic sea ice.

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00:02:17,940 --> 00:02:21,990
So the actual amount of sea ice lost on the planet has been going down

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00:02:22,010 --> 00:02:26,040
substantially. It's a very unknown problem and

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00:02:26,060 --> 00:02:30,070
requires a lot of basically observations from scientists.

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00:02:30,090 --> 00:02:34,160

Starobin: Which is precisely why a team of specialized investigators

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00:02:34,180 --> 00:02:38,190

are in the field with Operation IceBridge, making vital observations

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00:02:38,210 --> 00:02:42,210

to better understand how Earth's climate is changing, and why.