
AUGUST 7, 2016
AMERICAN SAMOA

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00:00:00,020 --> 00:00:04,070
Yesterday we had a really really exciting flight. We came from Kona

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00:00:04,070 --> 00:00:08,110
in Hawaii and we flew across the equator and came down here

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00:00:08,110 --> 00:00:12,200
to American Samoa. When we crossed the equator we crossed part of the atmosphere

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00:00:12,200 --> 00:00:16,260
that was just amazing to see. It's called the Intertropical Convergence Zone

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00:00:16,260 --> 00:00:20,370
it's where the Northern Hemisphere Air meets the Southern Hemisphere air.

6
00:00:20,370 --> 00:00:24,550
It's really the engine that drives the dynamics of the atmosphere.

7
00:00:24,550 --> 00:00:28,590
the Intertropical Convergence Zone is a really special place in the planet. What you do is

8
00:00:28,590 --> 00:00:32,660
you get a lot of heat and it's warm at the equator

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00:00:32,660 --> 00:00:36,730
and a lot of moisture down low and that causes air to rise,

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00:00:36,730 --> 00:00:40,880
so you get that air rising but then that sucks in air from

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00:00:40,880 --> 00:00:44,960
the Northern Hemisphere and the Southern Hemisphere. as it rises just like a fountain,

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00:00:44,960 --> 00:00:49,120
get air spreading at high altitudes. So it's a really cool part

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00:00:49,120 --> 00:00:53,160

of the atmosphere. And one of the fun things that we did, is we flew

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00:00:53,160 --> 00:00:57,200
right down the equator, so one wing of the airplane was in

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00:00:57,200 --> 00:01:01,240
the Northern Hemisphere, and the other wing was in the Southern Hemisphere.

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00:01:01,240 --> 00:01:05,380
we were expecting to see quite a contrast between the air in the Northern Hemisphere

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00:01:05,380 --> 00:01:09,520
and the Southern Hemisphere. We expected the air to be pretty clean in both places

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00:01:09,520 --> 00:01:13,680
because we're out in the middle of the Pacific, but you know the models that we were running

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00:01:13,680 --> 00:01:17,730
had forecast that there would be some pollution off of South America right in

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00:01:17,730 --> 00:01:21,790
the equatorial regime and we did see that.

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00:01:21,790 --> 00:01:25,980
It was kind of shocking to see – benzene in the atmosphere and such from the burning

22
00:01:25,980 --> 00:01:30,030
of the agricultural lands and forests in South America.

23
00:01:30,030 --> 00:01:34,090
It was also a challenge to perform this flight all together

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00:01:34,090 --> 00:01:38,170
So big thunder storms that kind of pop up, a lot of the dynamics

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00:01:38,170 --> 00:01:42,170
of the atmosphere, and these storms aren't easily predicted

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00:01:42,170 --> 00:01:46,240
and we have to get the airplane through there, and the crew did a fabulous job

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00:01:46,240 --> 00:01:50,250
with figuring out how to get through there and how to make these measurements really work.

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00:01:50,250 --> 00:01:54,400
Today we're here in Christchurch New Zealand.

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00:01:54,400 --> 00:01:58,570
we're here in Christchurch because we're profiling through the atmosphere

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00:01:58,570 --> 00:02:02,690
making measurements because we want to understand what's going to happen to the atmosphere

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00:02:02,690 --> 00:02:06,700
in the next 20, 30, 50, 100 years.

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00:02:06,700 --> 00:02:10,780
What's in store for the future. By taking a picture now

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00:02:10,780 --> 00:02:14,880
we're hoping to project what will happen using models that are

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00:02:14,880 --> 00:02:19,070
constrained by all these observations. Now when we flew up here,

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00:02:19,070 --> 00:02:23,260
we flew through this tremendous jet stream and this

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00:02:23,260 --> 00:02:27,330
deep convective region called the South Pacific Convergence Zone.

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00:02:27,330 --> 00:02:31,410
Now when we profiled on one side, we had a certain chemistry that was going

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00:02:31,410 --> 00:02:35,460

on, and then we jumped over this jet and all this strong

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00:02:35,460 --> 00:02:39,620
convection and rain and got on the other side, clear skies on the other side,

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00:02:39,620 --> 00:02:43,880
down towards the south, down towards New Zealand, and it was completely different chemistry that we

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00:02:43,880 --> 00:02:48,060
were seeing. So this was the sort of thing we're exploring right now. How is

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00:02:48,060 --> 00:02:52,210
the tropics different from them mid-latitudes which is different from the high latitudes

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00:02:52,210 --> 00:02:56,420
here in the southern hemisphere. Once again, greetings from

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00:02:56,420 --> 00:03:00,480
the ATom project, and our next stop will be