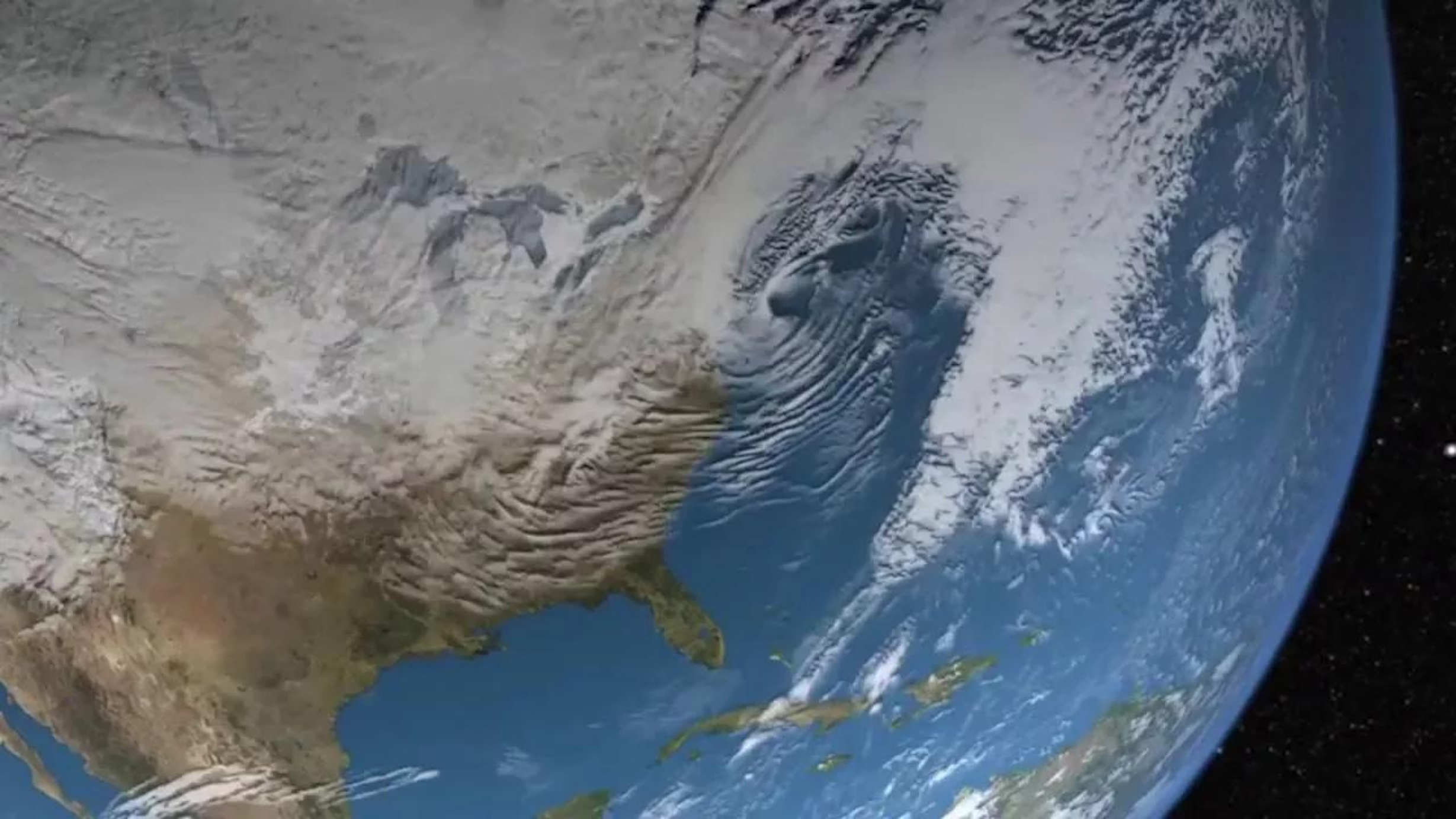

1
00:00:00,820 --> 00:00:01,980
Chemistry.

2
00:00:02,000 --> 00:00:02,980
Biology.

3
00:00:03,000 --> 00:00:03,980
Physics.

4
00:00:04,000 --> 00:00:10,220
A NASA mission has gathered experts in all three disciplines...and more....for an ambitious project

5
00:00:10,220 --> 00:00:14,980
to study Earth's climate. It's called the North Atlantic Aerosols and Marine Ecosystem Study.

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00:00:15,000 --> 00:00:17,980
NASA calls it NAAMES.

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00:00:18,000 --> 00:00:22,980
It's a complex mission with a million moving parts, but there are three big ones to note.

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00:00:23,000 --> 00:00:28,130
First, there's the research vessel Atlantis, a laboratory at sea.

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00:00:28,150 --> 00:00:33,730
Then there's NASA's own C130 Hercules, a laboratory in the sky.

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00:00:33,730 --> 00:00:38,900
And one more...but we'll get to that. It's big hardware for sure,

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00:00:38,900 --> 00:00:44,360
but the stars of the show, besides a crackerjack team of scientists, are these guys:

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00:00:44,360 --> 00:00:50,480
...phytoplankton. In the north Atlantic there are trillions, and springtime is when they bloom.

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00:00:50,480 --> 00:00:55,420

Phytoplankton produce a gas called dimethymsulfide, or DMS,

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00:00:55,420 --> 00:00:59,820
and as that gas passes into the atmosphere, it rapidly breaks down.

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00:00:59,820 --> 00:01:04,260
The resulting sulfur compounds become aerosols, microscopic particles

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00:01:04,260 --> 00:01:07,980
in essence, and water condenses around them.

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00:01:07,980 --> 00:01:14,000
And you know what you get when countless water droplets condense in the atmosphere? Clouds.

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00:01:14,000 --> 00:01:21,240
There's a startling connection: phytoplankton affect cloud formation! But phytoplankton growth depends on

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00:01:21,240 --> 00:01:27,980
available carbon, and the warmer the temperatures of the ocean, the less carbon that water can hold.

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00:01:28,000 --> 00:01:34,080
Less carbon could restrict phytoplankton growth, which in turn could affect global cloud cover,

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00:01:34,080 --> 00:01:41,560
among other things. When one part of the system changes, everything shifts, and that's why NASA

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00:01:41,560 --> 00:01:47,980
has teams out in the field, studying how that system works from all sorts of angles.

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00:01:48,000 --> 00:01:50,680
So what's the mission's third big moving part?

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00:01:50,680 --> 00:02:00,200
That would be The Agency's fleet of spacecraft, currently in orbit gathering global information 24-7-365.

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00:02:00,200 --> 00:02:05,480
Lessons learned from NAAMES and related research will help experts develop the next generation

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00:02:05,500 --> 00:02:09,760
of spacecraft, some of which are already on the drawing board.

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00:02:09,760 --> 00:02:12,480
Most people know NASA for its interplanetary adventures.