



1
00:00:00,010 --> 00:00:07,980

[Music]

2
00:00:08,000 --> 00:00:13,040

My name is Amy Simon-Miller, and I study the atmospheres of the Jovian planets.

3
00:00:13,060 --> 00:00:21,130

Weather on Jupiter is confined to a rather thin layer, kind of high up in the atmosphere, so the tops of the clouds are what we're seeing when we look at Jupiter.

4
00:00:21,150 --> 00:00:30,190

One thing we're seeing in the southern part of the equatorial region, is little V-shaped clouds, or chevrons, and we wanted to understand how those are moving in the atmosphere.

5
00:00:30,210 --> 00:00:37,260

What we think chevrons are are simply holes in the clouds. They are simply areas where we don't see any bright white clouds.

6
00:00:37,280 --> 00:00:45,290

The Cassini mission flew by Jupiter in the year 2000, and because it was a slow distant flyby, we got a lot of coverage of the planet over a long time period.

7
00:00:45,310 --> 00:00:49,310

So we were able to put those images together and make movies.

8
00:00:49,330 --> 00:00:56,390

What we found by looking at the movies is that they're not just moving from east to west, they're moving up and down, tracing out what's called a Rossby wave.

9
00:00:56,410 --> 00:01:04,440

We have these on Earth as well. In particular we see them around the poles, there are circumpolar jets, and we can also see them in the jet streams at mid-latitudes.

10
00:01:04,460 --> 00:01:13,520

Jet streams on Earth typically flow from west to east, but sometimes you can see them meandering from north to south, and that's a signature of Rossby waves here on Earth.

11
00:01:13,540 --> 00:01:21,570

These meanders can sometimes grow stronger, and that can lead to everyday

weather changes, such as the passage of fronts, or storms being generated.

12

00:01:21,590 --> 00:01:26,600

For most people, what we really want to understand is weather on Earth, and what are the things that affect weather on Earth?

13

00:01:26,620 --> 00:01:31,640

Now, Jupiter and Earth are very different planets: we don't have land and we don't have seasons on Jupiter.

14

00:01:31,660 --> 00:01:34,980

On the other hand, we see very similar weather phenomena.

15

00:01:35,000 --> 00:01:41,720

So being able to understand and study another planet teaches a lot more about what's common in an atmosphere on the Earth.