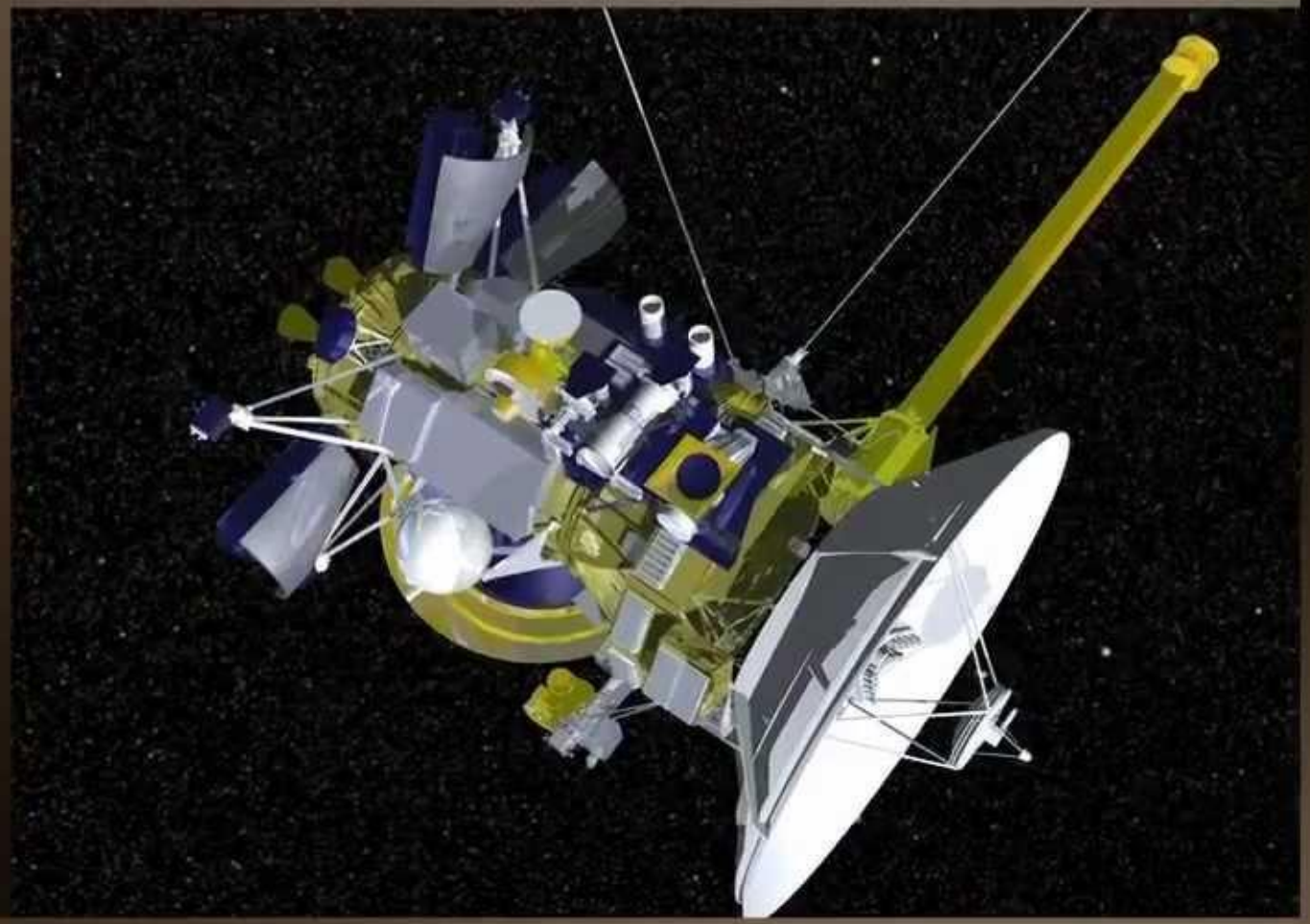

Cassini Jupiter flyby, 2000

1
00:00:12,470 --> 00:00:10,710
my name is Amy Simon Miller and I study

2
00:00:15,060 --> 00:00:12,480
the atmospheres of the jovian planets

3
00:00:17,310 --> 00:00:15,070
whether on Jupiter is confined to a

4
00:00:19,109 --> 00:00:17,320
rather thin layer kind of high up in the

5
00:00:20,190 --> 00:00:19,119
atmosphere so the tops of the clouds are

6
00:00:22,380 --> 00:00:20,200
what we're seeing when we look at

7
00:00:24,060 --> 00:00:22,390
Jupiter one thing we're seeing in the

8
00:00:26,519 --> 00:00:24,070
southern part of the equatorial region

9
00:00:28,650 --> 00:00:26,529
is little v-shaped clouds or Chevron's

10
00:00:30,660 --> 00:00:28,660
and we wanted to understand how those

11
00:00:32,609 --> 00:00:30,670
are moving in the atmosphere what we

12
00:00:34,799 --> 00:00:32,619
think Chevron's are are simply holes in

13
00:00:37,439 --> 00:00:34,809

the clouds there are simply areas where

14
00:00:39,689 --> 00:00:37,449
we don't see any bright white clouds the

15
00:00:41,790 --> 00:00:39,699
Cassini mission flew by Jupiter in the

16
00:00:43,860 --> 00:00:41,800
year 2000 and because it was a slow

17
00:00:46,140 --> 00:00:43,870
distant flyby we got a lot of coverage

18
00:00:47,160 --> 00:00:46,150
of the planet over long time period so

19
00:00:49,710 --> 00:00:47,170
we were able to put those images

20
00:00:51,390 --> 00:00:49,720
together and make movies what we found

21
00:00:52,560 --> 00:00:51,400
by looking at the movies is that they're

22
00:00:54,509 --> 00:00:52,570
not just moving from east to west

23
00:00:56,520 --> 00:00:54,519
they're moving up and down tracing out

24
00:00:58,649 --> 00:00:56,530
what's called a Rossby wave we have

25
00:01:00,359 --> 00:00:58,659
these on earth as well in particular we

26
00:01:02,160 --> 00:01:00,369
see them around the poles they're

27
00:01:04,070 --> 00:01:02,170
circumpolar Jets and we can also see

28
00:01:06,450 --> 00:01:04,080
them in the jet streams at mid-latitudes

29
00:01:09,030 --> 00:01:06,460
destinies our earth typically flow from

30
00:01:10,590 --> 00:01:09,040
west to east but sometimes you can see

31
00:01:12,510 --> 00:01:10,600
them meandering from north to south and

32
00:01:15,029 --> 00:01:12,520
that's a signature of Rossby waves you

33
00:01:16,590 --> 00:01:15,039
know earth these meanders can sometimes

34
00:01:18,240 --> 00:01:16,600
grow stronger and that can lead to

35
00:01:20,249 --> 00:01:18,250
everyday weather changes such as the

36
00:01:22,770 --> 00:01:20,259
passage of fronts or storms being

37
00:01:24,149 --> 00:01:22,780
generated for most people what we really

38
00:01:25,469 --> 00:01:24,159

want to understand is weather on earth

39
00:01:27,840 --> 00:01:25,479
and what are the things that affect

40
00:01:29,219 --> 00:01:27,850
weather on earth now Jupiter and Earth

41
00:01:30,719 --> 00:01:29,229
are very different planets

42
00:01:33,090 --> 00:01:30,729
we don't have land and we don't have

43
00:01:35,069 --> 00:01:33,100
seasons on Jupiter on the other hand we

44
00:01:36,870 --> 00:01:35,079
see very similar weather phenomenon so

45
00:01:38,999 --> 00:01:36,880
being able to understand and study

46
00:01:41,010 --> 00:01:39,009
another planet teach us a lot more about