



SCOTT BOLTON

PRINCIPAL INVESTIGATOR

SOUTHWEST RESEARCH INSTITUTE

1
00:00:08,410 --> 00:00:05,570
in Roman mythology which of course is

2
00:00:13,190 --> 00:00:08,420
rooted from Greek mythology Juno was the

3
00:00:15,740 --> 00:00:13,200
wife and sister goddess of Jupiter and

4
00:00:18,019 --> 00:00:15,750
Jupiter was sort of being naughty with

5
00:00:20,150 --> 00:00:18,029
some friends so he cast a veil of clouds

6
00:00:22,189 --> 00:00:20,160
around himself and his friends but of

7
00:00:24,500 --> 00:00:22,199
course Juno was a fairly powerful god

8
00:00:26,150 --> 00:00:24,510
herself and used her powers to look

9
00:00:27,890 --> 00:00:26,160
right through the clouds and see the

10
00:00:29,720 --> 00:00:27,900
true nature of Jupiter and understand

11
00:00:32,179 --> 00:00:29,730
what he was really up to and that's

12
00:00:34,160 --> 00:00:32,189
exactly what the Juno spacecraft does

13
00:00:36,110 --> 00:00:34,170

for us is that it goes there with

14

00:00:38,240 --> 00:00:36,120

special instruments in a special orbit

15

00:00:40,700 --> 00:00:38,250

and uses its powers to see right through

16

00:00:42,740 --> 00:00:40,710

Jupiter's clouds and understand its true

17

00:00:45,139 --> 00:00:42,750

nature which is holding these secrets

18

00:00:50,029 --> 00:00:45,149

for us about how the solar system formed

19

00:00:52,279 --> 00:00:50,039

and where we all came from Juno spins

20

00:00:53,689 --> 00:00:52,289

like a propeller where the propeller is

21

00:00:56,029 --> 00:00:53,699

kind of facing the Sun because they're

22

00:00:57,680 --> 00:00:56,039

all solar-powered if you spin something

23

00:01:00,349 --> 00:00:57,690

to stay spinning that's like a gyroscope

24

00:01:02,869 --> 00:01:00,359

we can use a spinning spacecraft to let

25

00:01:05,149 --> 00:01:02,879

each instrument get its turn to see

26

00:01:07,190 --> 00:01:05,159

Jupiter we get to go very close to the

27

00:01:08,870 --> 00:01:07,200

planet the inside the radiation belts

28

00:01:11,030 --> 00:01:08,880

instead of outside the radiation belt

29

00:01:13,460 --> 00:01:11,040

we're in a polar orbit so by small

30

00:01:15,200 --> 00:01:13,470

adjustments of the timing we can map the

31

00:01:17,120 --> 00:01:15,210

entire planet we can get repeated

32

00:01:19,670 --> 00:01:17,130

stripes and different longitudes as

33

00:01:22,039 --> 00:01:19,680

Jupiter spins underneath us it does mean

34

00:01:24,859 --> 00:01:22,049

that the Juno is going to see the polar

35

00:01:28,100 --> 00:01:24,869

regions to a greater extent than with

36

00:01:30,020 --> 00:01:28,110

other spacecraft but I think the most

37

00:01:32,060 --> 00:01:30,030

important thing is that it gets in very

38

00:01:34,550 --> 00:01:32,070

close to the planet as part of that

39

00:01:37,219 --> 00:01:34,560

ellipse brings it a few thousand miles

40

00:01:38,960 --> 00:01:37,229

above those cloud tops very close near

41

00:01:41,179 --> 00:01:38,970

the equator we're going to go over the

42

00:01:43,179 --> 00:01:41,189

poles of Jupiter that means we can study

43

00:01:45,889 --> 00:01:43,189

the magnetosphere in a different way a

44

00:01:50,660 --> 00:01:45,899

magnetosphere is the sphere of influence

45

00:01:53,840 --> 00:01:50,670

all the magnetic field so a planet

46

00:01:56,149 --> 00:01:53,850

has a magnetosphere when it's sphere of

47

00:01:58,460 --> 00:01:56,159

influence extends beyond the planet out

48

00:02:02,210 --> 00:01:58,470

into space and affects the region around

49

00:02:04,280 --> 00:02:02,220

the magnetosphere of jupiter is vast so

50

00:02:06,109 --> 00:02:04,290

if you think of jupiter being ten times

51
00:02:09,650 --> 00:02:06,119
the size of the earth and the

52
00:02:13,160 --> 00:02:09,660
magnetosphere is hundred times the size

53
00:02:17,380 --> 00:02:13,170
of Jupiter I would expect you know to

54
00:02:20,930 --> 00:02:17,390
tell us more about how planets work

55
00:02:23,750 --> 00:02:20,940
meaning how the heat gets out what kinds

56
00:02:26,120 --> 00:02:23,760
of flows exist inside the body how

57
00:02:28,880 --> 00:02:26,130
magnetic fields get generated learning

58
00:02:31,430 --> 00:02:28,890
what - Peter is made of we will learn

59
00:02:33,830 --> 00:02:31,440
such a wide range of things for indeed

60
00:02:36,949 --> 00:02:33,840
the Jupiter is the most massive planet

61
00:02:38,990 --> 00:02:36,959
in the solar system it is the body you

62
00:02:40,460 --> 00:02:39,000
want to understand in order to

63
00:02:43,610 --> 00:02:40,470

understand the architecture of