



1
00:00:11,119 --> 00:00:08,390
recently Cassini has found that a tiny

2
00:00:13,299 --> 00:00:11,129
moon that orbits around Saturn has jets

3
00:00:16,190 --> 00:00:13,309
and plumes of water coming out of it

4
00:00:18,470 --> 00:00:16,200
these particles go out and they form the

5
00:00:20,780 --> 00:00:18,480
e-ring and in flying through the e-ring

6
00:00:24,349 --> 00:00:20,790
one of the instruments on Cassini the

7
00:00:27,050 --> 00:00:24,359
cosmic dust analyzer can take those

8
00:00:34,850 --> 00:00:27,060
particles and get a composition and as

9
00:00:36,920 --> 00:00:34,860
part of that they sea salt this is salt

10
00:00:39,680 --> 00:00:36,930
is what we found in the ice particles

11
00:00:41,840 --> 00:00:39,690
detected in Saturn's earring and what we

12
00:00:44,330 --> 00:00:41,850
sink is that sea salt comes from the

13
00:00:48,290 --> 00:00:44,340

ocean below the surface of the Moon and

14

00:00:51,350 --> 00:00:48,300

settles the sodium is a tracer for a

15

00:00:54,110 --> 00:00:51,360

subsurface ocean that's a material of

16

00:00:58,430 --> 00:00:54,120

the ice particles kind of important like

17

00:01:00,799 --> 00:00:58,440

on earth and that that salty ocean tells

18

00:01:02,720 --> 00:01:00,809

us something about what might be going

19

00:01:04,910 --> 00:01:02,730

on inside them and sell it is to create

20

00:01:07,790 --> 00:01:04,920

the Jets and plumes that you need water

21

00:01:11,600 --> 00:01:07,800

liquid water in contact with the rocky

22

00:01:13,370 --> 00:01:11,610

core to get out the sodium you can sort

23

00:01:14,900 --> 00:01:13,380

of think maybe the plumes are maybe sort

24

00:01:16,850 --> 00:01:14,910

of the breath of Enceladus you know

25

00:01:22,910 --> 00:01:16,860

coming out and telling us something

26

00:01:26,960 --> 00:01:25,429

so what we can say is we have a

27

00:01:30,469 --> 00:01:26,970

reservoir of liquid water and liquid

28

00:01:45,250 --> 00:01:30,479

water is one of the three conditions for

29

00:01:50,200 --> 00:01:48,580

I was surprised and also very excited to

30

00:01:52,720 --> 00:01:50,210

find out that you know we're getting

31

00:01:54,400 --> 00:01:52,730

closer and closer to the conclusion that

32

00:01:56,860 --> 00:01:54,410

you have liquid water and possibly a

33

00:01:59,380 --> 00:01:56,870

liquid ocean on a moon that's so tiny

34

00:02:00,880 --> 00:01:59,390

and in a place where we didn't expect to

35

00:02:04,180 --> 00:02:00,890

find conditions where you might find

36

00:02:06,160 --> 00:02:04,190

life this tiny moon just 300 miles

37

00:02:08,950 --> 00:02:06,170

across I'm going to have liquid water

38

00:02:15,500 --> 00:02:08,960

and the conditions that the precursors

39

00:02:20,699 --> 00:02:18,300

the focus as Cassini continues in its

40

00:02:23,039 --> 00:02:20,709

Equinox mission and continues on into

41

00:02:26,070 --> 00:02:23,049

the future will be to have more close

42

00:02:29,670 --> 00:02:26,080

flybys of Enceladus to fly through that

43

00:02:32,190 --> 00:02:29,680

plume fly close to this tiny moon to