



1  
00:00:08,270 --> 00:00:06,349  
one of the key discoveries think the

2  
00:00:10,970 --> 00:00:08,280  
Cassini orbiter and the Huygens probe

3  
00:00:14,390 --> 00:00:10,980  
revealed for us was discovering the

4  
00:00:17,210 --> 00:00:14,400  
liquid lakes on Titan Cassini was able

5  
00:00:20,120 --> 00:00:17,220  
to look at the lakes get a sense of the

6  
00:00:22,189 --> 00:00:20,130  
course composition of the lakes but

7  
00:00:24,950 --> 00:00:22,199  
nothing about the organic molecules that

8  
00:00:26,300 --> 00:00:24,960  
are dissolved in the lakes the Titan

9  
00:00:28,400 --> 00:00:26,310  
Saturn's system mission is a

10  
00:00:30,800 --> 00:00:28,410  
three-in-one mission with an orbiter for

11  
00:00:32,749 --> 00:00:30,810  
Titan a balloon that will float through

12  
00:00:34,819 --> 00:00:32,759  
Titan's atmosphere and a lander that

13  
00:00:37,160 --> 00:00:34,829

will splash down on one of the northern

14

00:00:39,440 --> 00:00:37,170

lakes of Titan this mission will

15

00:00:41,900 --> 00:00:39,450

actually go into a lake sample the

16

00:00:45,319 --> 00:00:41,910

liquid directly see what the organic

17

00:00:47,630 --> 00:00:45,329

molecules are that are present the Titan

18

00:00:51,049 --> 00:00:47,640

Saturn's system mission also will go to

19

00:00:53,420 --> 00:00:51,059

Enceladus but tinier moon a thousand

20

00:00:56,360 --> 00:00:53,430

times smaller than Titan which has

21

00:00:58,340 --> 00:00:56,370

volcanoes geysers essentially that are

22

00:01:00,680 --> 00:00:58,350

spewing material from the inside of this

23

00:01:02,869 --> 00:01:00,690

moon outward and it's a chance to see

24

00:01:04,969 --> 00:01:02,879

whether there might be molecules that

25

00:01:07,399 --> 00:01:04,979

would indicate that life has actually

26

00:01:09,890 --> 00:01:07,409

formed within the source region of these

27

00:01:11,840 --> 00:01:09,900

geysers these geysers have water ice and

28

00:01:14,090 --> 00:01:11,850

we strongly suspect that there's liquid

29

00:01:16,130 --> 00:01:14,100

water in the region that these geysers

30

00:01:18,200 --> 00:01:16,140

are coming from we know there are

31

00:01:22,429 --> 00:01:18,210

organic molecules there because they've

32

00:01:24,350 --> 00:01:22,439

been measured by Cassini the ability to

33

00:01:27,170 --> 00:01:24,360

follow this up quickly is essential

34

00:01:29,330 --> 00:01:27,180

because with cassini-huygens we have now

35

00:01:31,460 --> 00:01:29,340

trained a generation of scientists who

36

00:01:33,620 --> 00:01:31,470

are ready to take a new generation of

37

00:01:36,140 --> 00:01:33,630

instruments and capabilities back to

38

00:01:38,030 --> 00:01:36,150

Titan and Enceladus and really answer

39

00:01:41,260 --> 00:01:38,040

the questions that cassini-huygens has

40

00:01:45,289 --> 00:01:41,270

left for us and that continuity of

41

00:01:47,240 --> 00:01:45,299

knowledge and of enthusiasm is essential

42

00:01:49,429 --> 00:01:47,250

and very difficult to maintain in the

43

00:01:52,460 --> 00:01:49,439

outer solar system because trip times

44

00:01:54,889 --> 00:01:52,470

are so long the Titan Saturn's system

45

00:01:56,510 --> 00:01:54,899

mission really as Jules Verne realized

46

00:01:58,520 --> 00:01:56,520

it's a kind of planetary exploration

47

00:02:01,010 --> 00:01:58,530

that we have never ever done before

48

00:02:03,800 --> 00:02:01,020

anywhere else in the solar system and

49

00:02:06,840 --> 00:02:03,810

can only be done on Titan

50

00:02:09,889 --> 00:02:06,850

this mission will touch the human heart

51  
00:02:12,840 --> 00:02:09,899  
in terms of the way is exploring this

52  
00:02:15,000 --> 00:02:12,850  
fascinating world it will be floating on

53  
00:02:17,490 --> 00:02:15,010  
the surface of a lake it will be

54  
00:02:19,530 --> 00:02:17,500  
floating through the atmosphere it will

55  
00:02:22,790 --> 00:02:19,540  
be revealing the entire surface from

56  
00:02:24,900 --> 00:02:22,800  
orbit at the same time as we think of

57  
00:02:27,780 --> 00:02:24,910  
exploration of unveiling a new world