



1  
00:00:15,980 --> 00:00:13,190  
about the size of a Volkswagen bug with

2  
00:00:18,830 --> 00:00:15,990  
extremely long antennas this robotic

3  
00:00:21,230 --> 00:00:18,840  
outer space Explorer called Voyager has

4  
00:00:22,910 --> 00:00:21,240  
dazzled scientists and laymen with

5  
00:00:27,290 --> 00:00:22,920  
photographs of planets in our solar

6  
00:00:31,040 --> 00:00:27,300  
system first traveling to Jupiter and to

7  
00:00:33,200 --> 00:00:31,050  
Saturn and now to Uranus Voyager has

8  
00:00:35,600 --> 00:00:33,210  
travelled a distance of 2 billion miles

9  
00:00:37,400 --> 00:00:35,610  
from Earth recently we have seen

10  
00:00:40,580 --> 00:00:37,410  
photographs from the little known world

11  
00:00:42,619 --> 00:00:40,590  
of Uranus appearing like a fuzzy

12  
00:00:45,470 --> 00:00:42,629  
blue-green tennis ball tipped on its

13  
00:00:47,470 --> 00:00:45,480

side Uranus conceals its secrets under

14

00:00:50,540 --> 00:00:47,480

an atmosphere of hydrogen and helium

15

00:00:52,819 --> 00:00:50,550

it's southern polar region sits under a

16

00:00:55,069 --> 00:00:52,829

thin layer of haze produced by the

17

00:00:58,279 --> 00:00:55,079

action of sunlight much as smog is

18

00:01:00,560 --> 00:00:58,289

produced in our major cities scientists

19

00:01:02,510 --> 00:01:00,570

feel that Uranus has a very deep ocean

20

00:01:04,670 --> 00:01:02,520

of electrically conductive water that

21

00:01:07,880 --> 00:01:04,680

forms the planet's magnetic field and

22

00:01:10,730 --> 00:01:07,890

hosts a rocky inner core about the size

23

00:01:12,560 --> 00:01:10,740

of Earth it has been recently found that

24

00:01:16,370 --> 00:01:12,570

the magnetic field is largely offset

25

00:01:18,740 --> 00:01:16,380

from the planets center besides pointing

26  
00:01:20,719 --> 00:01:18,750  
at scientific sensors and TV cameras at

27  
00:01:24,350 --> 00:01:20,729  
Uranus and it's charcoal black rings

28  
00:01:27,789 --> 00:01:24,360  
Voyager discovered 10 new moons making a

29  
00:01:30,830 --> 00:01:27,799  
total of 15 known to circle the planet

30  
00:01:32,390 --> 00:01:30,840  
the close flyby of the moon Miranda

31  
00:01:34,580 --> 00:01:32,400  
proved to be one of the most exciting

32  
00:01:38,210 --> 00:01:34,590  
highlights of the encounter according to

33  
00:01:40,190 --> 00:01:38,220  
Voyager project manager dick laser we

34  
00:01:43,340 --> 00:01:40,200  
had worked so hard to make sure that

35  
00:01:45,889 --> 00:01:43,350  
those frames as those pictures would be

36  
00:01:50,539 --> 00:01:45,899  
exactly where we wanted them when that

37  
00:01:53,870 --> 00:01:50,549  
when the first of the series the miranda

38  
00:01:56,990 --> 00:01:53,880

images amen and it clipped the corner of

39

00:01:59,959 --> 00:01:57,000

the satellite just where it was supposed

40

00:02:02,120 --> 00:01:59,969

to it was that sense of oh my god we did

41

00:02:04,700 --> 00:02:02,130

it and then I started looking at the

42

00:02:06,120 --> 00:02:04,710

substance of the pictures that varied

43

00:02:09,910 --> 00:02:06,130

topography

44

00:02:12,130 --> 00:02:09,920

really wild stuff Miranda is a blend of

45

00:02:14,110 --> 00:02:12,140

all the exotic surfaced topographies

46

00:02:14,650 --> 00:02:14,120

found in our solar system wrapped into

47

00:02:16,840 --> 00:02:14,660

one

48

00:02:19,780 --> 00:02:16,850

according to Voyager project scientist

49

00:02:23,730 --> 00:02:19,790

dr. edward stone what was surprising was

50

00:02:26,080 --> 00:02:23,740

the extent and the diversity of the

51  
00:02:28,180 --> 00:02:26,090  
geologic processes which were evident on

52  
00:02:30,160 --> 00:02:28,190  
the surface where it's much too cold to

53  
00:02:32,560 --> 00:02:30,170  
melt anything yet somehow that surface

54  
00:02:34,120 --> 00:02:32,570  
has moved has been reshaped by an

55  
00:02:37,780 --> 00:02:34,130  
internal heat source of unknown

56  
00:02:39,730 --> 00:02:37,790  
magnitude in the image processing lab at

57  
00:02:42,070 --> 00:02:39,740  
NASA's Jet Propulsion Laboratory in

58  
00:02:45,040 --> 00:02:42,080  
Pasadena California voyager imaging

59  
00:02:47,920 --> 00:02:45,050  
scientist dr. Terrence Johnson reviews

60  
00:02:50,440 --> 00:02:47,930  
Miranda's most dramatic feature an icy

61  
00:02:52,930 --> 00:02:50,450  
Rift Valley with sheer cliffs over ten

62  
00:02:54,370 --> 00:02:52,940  
miles high looking across here you're

63  
00:02:56,110 --> 00:02:54,380

looking at cross something that's at

64

00:02:59,680 --> 00:02:56,120

saying what is ten times deeper than the

65

00:03:01,720 --> 00:02:59,690

Grand Canyon now in deep space Voyager

66

00:03:04,540 --> 00:03:01,730

is on a three-year journey to Neptune as