1
00:00:07,700 --> 00:00:05,390
Mars Reconnaissance Orbiter has made a

2
00:00:09,860 --> 00:00:07,710
fortuitous discovery we found water

3
00:00:11,839 --> 00:00:09,870
somewhat closer to the equator than we

4
00:00:14,330 --> 00:00:11,849
were expecting to see it we discovered

5
00:00:16,880 --> 00:00:14,340
several new impact craters that dredged

6
00:00:20,300 --> 00:00:16,890
up or excavated ice from below the

7
00:00:23,390 --> 00:00:20,310
surface these craters were found between

8
00:00:25,540 --> 00:00:23,400
about 45 and 55 degrees north so that's

9
00:00:27,980 --> 00:00:25,550
the latitude about Paris

10
00:00:30,800 --> 00:00:27,990
the context camera team detects new

11
00:00:33,229 --> 00:00:30,810
impacts by examining before and after

12
00:00:35,930 --> 00:00:33,239
images of certain portion of the surface

13
00:00:37,760 --> 00:00:35,940

and then looking for changes usually

14
00:00:40,340 --> 00:00:37,770
what they see is the dark mark that the

15
00:00:41,900 --> 00:00:40,350
impact is left on the surface then the

16
00:00:43,840 --> 00:00:41,910
high-resolution camera the hi-rise

17
00:00:46,400 --> 00:00:43,850
camera follows up on that observation

18
00:00:48,590 --> 00:00:46,410
when high-res went in and took an image

19
00:00:50,869 --> 00:00:48,600
of these small craters they saw this

20
00:00:52,279 --> 00:00:50,879
very bright blue material that was

21
00:00:53,990 --> 00:00:52,289
poking out from the bottom of these

22
00:00:57,229 --> 00:00:54,000
craters and it looked a lot like water

23
00:00:59,599 --> 00:00:57,239
ice so they took this image using their

24
00:01:01,720 --> 00:00:59,609
spectrometer saw that in one of the five

25
00:01:04,520 --> 00:01:01,730
there was in fact a signature of ice

26
00:01:06,830 --> 00:01:04,530
high rise to take a series of images

27
00:01:08,300 --> 00:01:06,840
over several hundred days and what they

28
00:01:11,660 --> 00:01:08,310
were actually able to do is wash how the

29
00:01:13,490 --> 00:01:11,670
ice disappears over time so you take the

30
00:01:14,870 --> 00:01:13,500
styrofoam lid off your cooler here on

31
00:01:16,520 --> 00:01:14,880
earth that that eye starts to melt front

32
00:01:18,710 --> 00:01:16,530
of Mars it just turns into water vapor

33
00:01:20,390 --> 00:01:18,720
and sure enough it faded away like you

34
00:01:23,420 --> 00:01:20,400
would expect water ice to fade away so

35
00:01:24,920 --> 00:01:23,430
we have an idea now of how how much

36
00:01:26,960 --> 00:01:24,930
water was available in the Martian

37
00:01:29,179 --> 00:01:26,970
atmosphere in the recent past based on

38
00:01:32,030 --> 00:01:29,189

where we see ice in the subsurface today

39
00:01:35,210 --> 00:01:32,040
one of the great ironies about this

40
00:01:37,100 --> 00:01:35,220
discovery is that several of these

41
00:01:39,499 --> 00:01:37,110
craters were found in the vicinity of

42
00:01:42,109 --> 00:01:39,509
one of the Viking landers and that

43
00:01:44,330 --> 00:01:42,119
lander had an arm that dug down into the

44
00:01:46,219 --> 00:01:44,340
soil looking for ice and what we

45
00:01:47,840 --> 00:01:46,229
realized from looking at the

46
00:01:51,380 --> 00:01:47,850
distribution of ice from these craters

47
00:01:53,539 --> 00:01:51,390
is that if that lander had gone down six

48
00:01:56,359 --> 00:01:53,549
inches deeper it should have found ice

49
00:01:57,610 --> 00:01:56,369
it just stopped inches short of where it

50
00:01:58,780 --> 00:01:57,620
could have found ice

51
00:02:01,060 --> 00:01:58,790
I think we're the things that's really

52
00:02:04,990 --> 00:02:01,070
interesting about this is that it gives

53
00:02:06,820 --> 00:02:05,000
us a new window into the water story on

54
00:02:09,430 --> 00:02:06,830
Mars know the whole Mars program has

55
00:02:13,930 --> 00:02:09,440
been following the water and this is our

56
00:02:16,320 --> 00:02:13,940
first insight into how water and climate

57
00:02:18,640 --> 00:02:16,330
have changed on Mars over the last 10

58
00:02:20,500 --> 00:02:18,650
200,000 years it gives us another piece