1
00:00:18,529 --> 00:00:27,730
it was a time of wonder and discovery

2
00:00:33,200 --> 00:00:30,830
six trips together in the circus reveal

3
00:00:36,200 --> 00:00:33,210
much about our cases celestial neighbor

4
00:00:41,209 --> 00:00:36,210
and changed forever the way we view our

5
00:00:44,119 --> 00:00:41,219
own planet today NASA is looking towards

6
00:00:46,100 --> 00:00:44,129
returning to the moon a permanent lunar

7
00:00:48,650 --> 00:00:46,110
base would complement Space Station

8
00:00:51,200 --> 00:00:48,660
freedom and provide a springboard for

9
00:00:53,029 --> 00:00:51,210
manned missions to Mars and if

10
00:00:54,619 --> 00:00:53,039
researchers at NASA's Center for the

11
00:00:57,410 --> 00:00:54,629
commercial development of space in

12
00:01:00,889 --> 00:00:57,420
Wisconsin are successful the first lunar

13
00:01:03,080 --> 00:01:00,899

settlers will also be miners actually

14
00:01:05,660 --> 00:01:03,090
this large automated vehicle would do

15
00:01:08,359 --> 00:01:05,670
most of the work processing the moon's

16
00:01:13,730 --> 00:01:08,369
rocks and soil to remove a potentially

17
00:01:16,190 --> 00:01:13,740
valuable product helium-3 just 25 metric

18
00:01:18,980 --> 00:01:16,200
chance of this rare isotope roughly the

19
00:01:21,350 --> 00:01:18,990
capacity of the shuttle cargo bay could

20
00:01:24,170 --> 00:01:21,360
provide enough energy to generate all

21
00:01:28,790 --> 00:01:24,180
the electricity used in this country in

22
00:01:31,610 --> 00:01:28,800
an entire meal helium-3 is produced by

23
00:01:34,910 --> 00:01:31,620
fusion reactions in the Sun and carried

24
00:01:36,830 --> 00:01:34,920
through space by the solar wind birds

25
00:01:39,470 --> 00:01:36,840
atmosphere shields us from the solar

26
00:01:41,270 --> 00:01:39,480
wind but it has been depositing helium-3

27
00:01:45,260 --> 00:01:41,280
on the moon for more than a billion

28
00:01:47,420 --> 00:01:45,270
years former senator Jack Schmitt his

29
00:01:49,520 --> 00:01:47,430
part of the Apollo 17 mission rich

30
00:01:52,190 --> 00:01:49,530
marked our last or as he likes to say

31
00:01:56,300 --> 00:01:52,200
our most recent journey to the lunar

32
00:01:59,090 --> 00:01:56,310
surface we can't always use fossil fuels

33
00:02:01,640 --> 00:01:59,100
for the production of electricity there

34
00:02:03,350 --> 00:02:01,650
are many environmental reasons why you

35
00:02:05,420 --> 00:02:03,360
don't want to do that one of the most

36
00:02:08,240 --> 00:02:05,430
popular now of course is the addition of

37
00:02:10,280 --> 00:02:08,250
co2 to the atmosphere we don't need to

38
00:02:13,700 --> 00:02:10,290

panic but we ought to be making those

39
00:02:16,340 --> 00:02:13,710
kinds of research and development plans

40
00:02:17,630 --> 00:02:16,350
that we have an alternative to coal and

41
00:02:20,840 --> 00:02:17,640
other fossil fuels in the

42
00:02:23,120 --> 00:02:20,850
not-too-distant future studies indicate

43
00:02:25,790 --> 00:02:23,130
that the amount of radioactivity and a

44
00:02:29,840 --> 00:02:25,800
device like this generating energy from

45
00:02:32,870 --> 00:02:29,850
helium 3 will be one millionth less than

46
00:02:35,870 --> 00:02:32,880
in nuclear systems used today and no

47
00:02:39,680 --> 00:02:35,880
greenhouse gases acid rain or solid

48
00:02:42,440 --> 00:02:39,690
wastes will result the proposed mining

49
00:02:45,640 --> 00:02:42,450
system will be equally kind to the lunar

50
00:02:48,180 --> 00:02:45,650
environment once helium-3

51
00:02:50,190 --> 00:02:48,190
the untainted wants

52
00:02:53,040 --> 00:02:50,200
return to the surface leaving it

53
00:02:54,930 --> 00:02:53,050
essentially under the process should

54
00:02:57,090 --> 00:02:54,940
also produce a number of byproducts

55
00:03:00,870 --> 00:02:57,100
including water which will be a great

56
00:03:02,850 --> 00:03:00,880
value to a lunar colony and according to

57
00:03:04,800 --> 00:03:02,860
jerry Kucinski a professor at the

58
00:03:07,260 --> 00:03:04,810
university of wisconsin and member of

59
00:03:09,930 --> 00:03:07,270
the nasa commercial development e-way

60
00:03:13,290 --> 00:03:09,940
current oil prices makes helium-3 an

61
00:03:15,300 --> 00:03:13,300
even more attractive alternative at

62
00:03:18,060 --> 00:03:15,310
today's prices helium-3 would be worth

63
00:03:19,620 --> 00:03:18,070

four billion dollars a ton who should

64
00:03:21,540 --> 00:03:19,630
make a shuttle load worth about a

65
00:03:23,370 --> 00:03:21,550
hundred billion dollars and that's

66
00:03:26,000 --> 00:03:23,380
enough I think for any businessman to

67
00:03:29,510 --> 00:03:26,010
figure out a way to make a profit

68
00:03:32,030 --> 00:03:29,520
helium-3 mining using the moon's