
SpacetoGround

1
00:00:05,769 --> 00:00:02,790
foreign

2
00:00:08,810 --> 00:00:05,779
[Music]

3
00:00:11,209 --> 00:00:08,820
I'm Sandra Jones this week two

4
00:00:13,850 --> 00:00:11,219
first-timers suited up and took the Walk

5
00:00:16,210 --> 00:00:13,860
of a lifetime for a spacewalk outside

6
00:00:19,250 --> 00:00:16,220
the International Space Station that is

7
00:00:22,010 --> 00:00:19,260
also a first in the study of quantum

8
00:00:23,630 --> 00:00:22,020
gases in space and a seat liner move

9
00:00:26,929 --> 00:00:23,640
took place

10
00:00:29,450 --> 00:00:26,939
on Friday NASA astronaut Nicole Mann and

11
00:00:32,210 --> 00:00:29,460
Japan Aerospace Exploration Agency

12
00:00:34,910 --> 00:00:32,220
astronaut koichiwakata ventured outside

13
00:00:37,549 --> 00:00:34,920

of the Space Station's West airlock to

14
00:00:40,190 --> 00:00:37,559
conduct a spacewalk in anticipation of

15
00:00:41,990 --> 00:00:40,200
future solar array installation the

16
00:00:44,389 --> 00:00:42,000
space walking Duo worked to install

17
00:00:46,610 --> 00:00:44,399
mounting platforms as part of planned

18
00:00:47,990 --> 00:00:46,620
solar array augmentation of the

19
00:00:50,630 --> 00:00:48,000
starboard side of the International

20
00:00:52,670 --> 00:00:50,640
Space Station's truss the installation

21
00:00:54,110 --> 00:00:52,680
is part of a series of space walks to

22
00:00:55,910 --> 00:00:54,120
augment the International Space

23
00:00:57,770 --> 00:00:55,920
Station's power Channels with new

24
00:01:01,010 --> 00:00:57,780
International Space Station roll out

25
00:01:03,110 --> 00:01:01,020
solar arrays or iroses four iroses have

26
00:01:05,270 --> 00:01:03,120
been installed so far and two more will

27
00:01:07,789 --> 00:01:05,280
be mounted to the platforms installed

28
00:01:10,070 --> 00:01:07,799
during space walks in the future the

29
00:01:12,469 --> 00:01:10,080
unique microgravity environment of space

30
00:01:14,270 --> 00:01:12,479
allows research to be done in a truly

31
00:01:16,789 --> 00:01:14,280
Out of This World Way aboard the

32
00:01:19,190 --> 00:01:16,799
International Space Station one example

33
00:01:20,109 --> 00:01:19,200
of such a study includes the cold atom

34
00:01:25,730 --> 00:01:20,119
lab

35
00:01:28,429 --> 00:01:25,740
have now simultaneously produced gases

36
00:01:30,770 --> 00:01:28,439
of two Atomic species and a uniquely

37
00:01:33,649 --> 00:01:30,780
Quantum or wave-like phase of matter

38
00:01:36,710 --> 00:01:33,659

called a Bose-Einstein condensate for

39
00:01:38,990 --> 00:01:36,720
the first time in space really very much

40
00:01:40,249 --> 00:01:39,000
the same kind of atom trap that we've

41
00:01:41,929 --> 00:01:40,259
got on the ground but the beauty is

42
00:01:44,270 --> 00:01:41,939
we've got it up here and so we don't

43
00:01:46,969 --> 00:01:44,280
have to put any energy into holding

44
00:01:48,590 --> 00:01:46,979
these atoms these really cold atoms in

45
00:01:50,030 --> 00:01:48,600
their location and so that means we can

46
00:01:52,670 --> 00:01:50,040
get down to really really cold

47
00:01:55,609 --> 00:01:52,680
temperatures and the dwell time of those

48
00:01:58,429 --> 00:01:55,619
atoms interacting is fairly significant

49
00:02:00,170 --> 00:01:58,439
like on order of 10 or 20 seconds the

50
00:02:01,490 --> 00:02:00,180
cool thing for me is you know that

51
00:02:03,530 --> 00:02:01,500
that's an experiment where you can see

52
00:02:06,830 --> 00:02:03,540
quantum mechanics happening on the

53
00:02:09,109 --> 00:02:06,840
macroscopic level Ultra cold Atomic

54
00:02:11,390 --> 00:02:09,119
gases provide a unique tool for

55
00:02:13,550 --> 00:02:11,400
exploring the quantum nature of matter

56
00:02:16,729 --> 00:02:13,560
and for probing the foundations of

57
00:02:19,490 --> 00:02:16,739
modern physics cold atom lab is now the

58
00:02:21,890 --> 00:02:19,500
first and only Quantum gas experiment in

59
00:02:24,470 --> 00:02:21,900
space with with multiple Atomic species

60
00:02:26,690 --> 00:02:24,480
available for study base to ground also

61
00:02:29,869 --> 00:02:26,700
taking place this week was a seat liner

62
00:02:32,330 --> 00:02:29,879
move for NASA astronaut Frank Rubio NASA

63
00:02:34,369 --> 00:02:32,340

astronauts Josh cassida and Nicole Mann

64
00:02:36,890 --> 00:02:34,379
worked inside the SpaceX Dragon

65
00:02:39,229 --> 00:02:36,900
endurance cruise ship moving Rubio's

66
00:02:42,890 --> 00:02:39,239
seat liner from the rose Cosmos soyuz

67
00:02:44,630 --> 00:02:42,900
ms-22 spacecraft to the crew Dragon the

68
00:02:47,330 --> 00:02:44,640
seat liner move is taking place

69
00:02:50,089 --> 00:02:47,340
following the external cooling Loop leak

70
00:02:52,369 --> 00:02:50,099
on soyuz last month this move ensures

71
00:02:54,949 --> 00:02:52,379
that Rubio would be able to return to

72
00:02:57,710 --> 00:02:54,959
Earth aboard crew dragon and reduces the

73
00:03:00,410 --> 00:02:57,720
heat load inside the ms-22 spacecraft

74
00:03:02,750 --> 00:03:00,420
for cosmonauts Sergey prokopiev and

75
00:03:05,030 --> 00:03:02,760
Dimitri patellen in the unlikely event

76
00:03:07,430 --> 00:03:05,040
of an emergency evacuation from the

77
00:03:10,610 --> 00:03:07,440
space station a replacement spacecraft

78
00:03:13,250 --> 00:03:10,620
soyuz ms-23 will launch to the station

79
00:03:16,009 --> 00:03:13,260
next month once docked to the station

80
00:03:18,410 --> 00:03:16,019
prokopia of patellen and Rubio will

81
00:03:19,430 --> 00:03:18,420
return to Earth on that soyuz later this

82
00:03:21,710 --> 00:03:19,440
year

83
00:03:24,229 --> 00:03:21,720
and that's space to ground for this week

84
00:03:26,509 --> 00:03:24,239
thanks so much for watching you can get

85
00:03:29,290 --> 00:03:26,519
a daily on-orbit status report by