
Alexander Samokutyaev
Expedition 41 Flight Engineer

1
00:00:07,749 --> 00:00:05,749
for the astronauts and cosmonauts on the

2
00:00:11,190 --> 00:00:07,759
international space station's expedition

3
00:00:13,430 --> 00:00:11,200
41 the main job these days is simple to

4
00:00:15,589 --> 00:00:13,440
explain they are there to conduct

5
00:00:17,430 --> 00:00:15,599
scientific experiments and make

6
00:00:19,429 --> 00:00:17,440
discoveries

7
00:00:23,349 --> 00:00:19,439
a real opportunity to do something

8
00:00:26,470 --> 00:00:23,359
useful something helpful for humankind

9
00:00:29,750 --> 00:00:26,480
so that humankind in the future

10
00:00:32,389 --> 00:00:29,760
would live better longer

11
00:00:34,150 --> 00:00:32,399
happier that they develop that has been

12
00:00:36,150 --> 00:00:34,160
more comfortable

13
00:00:37,990 --> 00:00:36,160

although after years of preparing for

14
00:00:40,549 --> 00:00:38,000
this flight the station crew members

15
00:00:43,270 --> 00:00:40,559
have also learned that their successes

16
00:00:44,470 --> 00:00:43,280
may come as a complete surprise and

17
00:00:45,910 --> 00:00:44,480
that's good

18
00:00:47,510 --> 00:00:45,920
i think

19
00:00:50,229 --> 00:00:47,520
the biggest thing will be almost the

20
00:00:51,990 --> 00:00:50,239
accidental discovery you take these

21
00:00:53,830 --> 00:00:52,000
incredible experi experiments that have

22
00:00:55,750 --> 00:00:53,840
a lot of thought and you put them into a

23
00:00:57,430 --> 00:00:55,760
microgravity environment and you just

24
00:00:58,389 --> 00:00:57,440
really never know what the outcome will

25
00:01:00,470 --> 00:00:58,399
be

26
00:01:03,029 --> 00:01:00,480
the dozens and dozens of science

27
00:01:05,350 --> 00:01:03,039
experiments include some that take place

28
00:01:07,990 --> 00:01:05,360
on the exterior of the station without

29
00:01:10,390 --> 00:01:08,000
the human crew's involvement such as the

30
00:01:12,630 --> 00:01:10,400
alpha magnetic spectrometer gathering

31
00:01:14,550 --> 00:01:12,640
cosmic particles in the search for dark

32
00:01:16,630 --> 00:01:14,560
matter and dark energy or the

33
00:01:18,950 --> 00:01:16,640
hyperspectral imager for the coastal

34
00:01:21,429 --> 00:01:18,960
oceans viewing light in hundreds of

35
00:01:23,670 --> 00:01:21,439
wavelengths to reveal details about the

36
00:01:25,590 --> 00:01:23,680
conditions along the coasts

37
00:01:27,830 --> 00:01:25,600
the experiments conducted inside the

38
00:01:30,550 --> 00:01:27,840

station cover a range of scientific

39
00:01:33,350 --> 00:01:30,560
disciplines with a special emphasis on

40
00:01:35,830 --> 00:01:33,360
human life sciences

41
00:01:38,310 --> 00:01:35,840
as to the medical experiments

42
00:01:42,230 --> 00:01:38,320
they are very important

43
00:01:43,350 --> 00:01:42,240
because humanity is striving to

44
00:01:44,550 --> 00:01:43,360
explore

45
00:01:47,190 --> 00:01:44,560
space

46
00:01:50,710 --> 00:01:47,200
and conquer other planets this is why we

47
00:01:51,670 --> 00:01:50,720
need to understand what we need to do to

48
00:01:54,389 --> 00:01:51,680
protect

49
00:01:56,630 --> 00:01:54,399
future astronauts and cosmonauts

50
00:01:59,350 --> 00:01:56,640
these experiments are designed to learn

51
00:02:01,749 --> 00:01:59,360
how human bodies respond to being in

52
00:02:03,830 --> 00:02:01,759
weightlessness in order to develop ways

53
00:02:06,389 --> 00:02:03,840
to counter the negative effects of that

54
00:02:08,469 --> 00:02:06,399
exposure so future space explorers can

55
00:02:09,430 --> 00:02:08,479
be kept healthy and able to do their

56
00:02:11,830 --> 00:02:09,440
jobs

57
00:02:15,430 --> 00:02:11,840
but human life sciences isn't the whole

58
00:02:18,309 --> 00:02:15,440
of the station's scientific agenda

59
00:02:20,710 --> 00:02:18,319
some physics or chemical experiments

60
00:02:24,550 --> 00:02:20,720
that we run

61
00:02:28,309 --> 00:02:24,560
maybe for creating some solid substances

62
00:02:30,309 --> 00:02:28,319
of the future or something to develop

63
00:02:33,750 --> 00:02:30,319

medical

64
00:02:35,990 --> 00:02:33,760
treatments that is of a huge advantage

65
00:02:39,190 --> 00:02:36,000
to humankind and we believe it will

66
00:02:41,509 --> 00:02:39,200
benefit this humankind we actually fly

67
00:02:43,589 --> 00:02:41,519
an electromagnetic levitator which is

68
00:02:46,309 --> 00:02:43,599
alloy furnace that heats

69
00:02:48,869 --> 00:02:46,319
these alloys that we want to look at to

70
00:02:51,030 --> 00:02:48,879
several thousand degrees so they melt

71
00:02:54,229 --> 00:02:51,040
and they don't touch any

72
00:02:56,229 --> 00:02:54,239
vessel any any any box around them and

73
00:02:57,430 --> 00:02:56,239
that's the way to investigate these

74
00:02:59,270 --> 00:02:57,440
alloys

75
00:03:01,110 --> 00:02:59,280
there is also research into new

76
00:03:03,830 --> 00:03:01,120
technologies that would support future

77
00:03:04,630 --> 00:03:03,840
exploration as well as improve life on

78
00:03:07,350 --> 00:03:04,640
earth

79
00:03:08,710 --> 00:03:07,360
if we are going to send humans to mars

80
00:03:10,869 --> 00:03:08,720
you just you'll never know what will

81
00:03:12,790 --> 00:03:10,879
break and if we have a 3d printer where

82
00:03:14,949 --> 00:03:12,800
we could just boom print out a part

83
00:03:18,229 --> 00:03:14,959
throw it in the machine fix whatever's

84
00:03:22,149 --> 00:03:18,239
broken this really opens up a whole new

85
00:03:24,070 --> 00:03:22,159
dimension of long range space travels

86
00:03:26,789 --> 00:03:24,080
the station crew members are also

87
00:03:29,670 --> 00:03:26,799
charged with maintaining station systems

88
00:03:31,670 --> 00:03:29,680

that means some routine tasks inside on

89
00:03:34,149 --> 00:03:31,680
a daily and weekly basis

90
00:03:36,309 --> 00:03:34,159
but could also mean going outside on

91
00:03:38,470 --> 00:03:36,319
spacewalks from time to time

92
00:03:40,710 --> 00:03:38,480
sarayev and semokuthiayev are scheduled

93
00:03:42,550 --> 00:03:40,720
to make such a spacewalk early on in the

94
00:03:44,390 --> 00:03:42,560
mission

95
00:03:46,869 --> 00:03:44,400
in this case we're going to clean up the

96
00:03:49,670 --> 00:03:46,879
outside of the station some of the

97
00:03:51,110 --> 00:03:49,680
equipment is outdated we will need to

98
00:03:52,710 --> 00:03:51,120
remove it

99
00:03:54,309 --> 00:03:52,720
some of it will need to be brought

100
00:03:56,630 --> 00:03:54,319
inside the station

101
00:03:59,110 --> 00:03:56,640
that eva will be supported inside the

102
00:04:01,110 --> 00:03:59,120
station by sorova the first female

103
00:04:04,390 --> 00:04:01,120
russian cosmonaut to fly since elena

104
00:04:06,550 --> 00:04:04,400
kondakova in 1997 and the first to serve

105
00:04:07,509 --> 00:04:06,560
as a resident crew member on this space

106
00:04:11,509 --> 00:04:07,519
station

107
00:04:17,189 --> 00:04:13,830
i never thought about it too much

108
00:04:20,390 --> 00:04:17,199
because space is what i do for work

109
00:04:21,349 --> 00:04:20,400
and that's what i think about it it's my

110
00:04:24,310 --> 00:04:21,359
work

111
00:04:26,390 --> 00:04:24,320
but obviously for russian women

112
00:04:28,390 --> 00:04:26,400
it might be

113
00:04:30,870 --> 00:04:28,400

a breakthrough

114
00:04:33,189 --> 00:04:30,880
in this area

115
00:04:35,749 --> 00:04:33,199
the crew compliment changes in november

116
00:04:37,749 --> 00:04:35,759
when saraiv wiseman and gerst depart for

117
00:04:40,710 --> 00:04:37,759
earth leaving wilmore as station

118
00:04:43,510 --> 00:04:40,720
commander for expedition 42. two weeks

119
00:04:45,909 --> 00:04:43,520
later he'll welcome three new crewmates

120
00:04:48,469 --> 00:04:45,919
nasa's terry virts cosmonaut anton

121
00:04:50,310 --> 00:04:48,479
shkaplerov of roscosmos and european

122
00:04:52,390 --> 00:04:50,320
space agency astronaut samantha

123
00:04:54,629 --> 00:04:52,400
christopher reddy of italy europe's

124
00:04:57,030 --> 00:04:54,639
first female station crew member and

125
00:04:59,590 --> 00:04:57,040
esa's representative on hand when the

126
00:05:02,390 --> 00:04:59,600
last of its automated transfer vehicles

127
00:05:04,469 --> 00:05:02,400
undocks from the station in january

128
00:05:06,870 --> 00:05:04,479
early next year wilmore and verts are

129
00:05:09,270 --> 00:05:06,880
slated for spacewalks that are designed

130
00:05:11,350 --> 00:05:09,280
to literally lay some of the groundwork

131
00:05:13,830 --> 00:05:11,360
for new docking adapters that will be

132
00:05:15,909 --> 00:05:13,840
installed later to accommodate future

133
00:05:16,950 --> 00:05:15,919
commercial crew vehicles from the united

134
00:05:18,790 --> 00:05:16,960
states

135
00:05:20,469 --> 00:05:18,800
the power cables and systems that were

136
00:05:22,870 --> 00:05:20,479
designed for the shuttle system are not

137
00:05:24,469 --> 00:05:22,880
the same for these docking adapters so

138
00:05:25,670 --> 00:05:24,479

eventually these docking adapters go on

139
00:05:27,270 --> 00:05:25,680
but when they get there they gotta have

140
00:05:29,029 --> 00:05:27,280
power so

141
00:05:31,110 --> 00:05:29,039
terry verts and i right now are

142
00:05:33,110 --> 00:05:31,120
scheduled to run some cables we're the

143
00:05:35,830 --> 00:05:33,120
cable guys

144
00:05:38,469 --> 00:05:35,840
the work by the expedition 41 and 42

145
00:05:40,550 --> 00:05:38,479
crews is yet another step down the road

146
00:05:43,430 --> 00:05:40,560
to the day when men and women from earth

147
00:05:47,189 --> 00:05:43,440
will leave this planet to find out

148
00:05:52,710 --> 00:05:49,670
if we work all together

149
00:05:55,189 --> 00:05:52,720
we can build not only the international

150
00:05:57,110 --> 00:05:55,199
space station but we can explore other

151
00:05:59,749 --> 00:05:57,120
planets

152
00:06:03,110 --> 00:05:59,759
if we work together if we cooperate as

153
00:06:06,710 --> 00:06:03,120
partners it would enable us to achieve

154
00:06:09,029 --> 00:06:06,720
much more it's just a testament to what

155
00:06:11,350 --> 00:06:09,039
what we can do as people when we're

156
00:06:13,749 --> 00:06:11,360
given the opportunity with a common goal

157
00:06:16,710 --> 00:06:13,759
and we set our differences aside and we

158
00:06:19,510 --> 00:06:16,720
work for that common goal to do things