



1  
00:00:09,669 --> 00:00:06,550  
just a little over a week ago we kicked

2  
00:00:11,350 --> 00:00:09,679  
off expedition 43 and uh

3  
00:00:12,870 --> 00:00:11,360  
commander terry verts and his crewmates

4  
00:00:15,350 --> 00:00:12,880  
will be staying at the international

5  
00:00:16,950 --> 00:00:15,360  
space station until may to finish that

6  
00:00:18,390 --> 00:00:16,960  
up and of course they'll be joined soon

7  
00:00:20,630 --> 00:00:18,400  
by crew members who will be staying a

8  
00:00:23,429 --> 00:00:20,640  
full year scott kelly and mikiel

9  
00:00:26,150 --> 00:00:23,439  
kornienko as well as their expedition 43

10  
00:00:27,990 --> 00:00:26,160  
crewmate gennady padalka with the crew

11  
00:00:30,310 --> 00:00:28,000  
staying a year we have some interesting

12  
00:00:31,830 --> 00:00:30,320  
opportunities as far as science goes and

13  
00:00:35,270 --> 00:00:31,840

here to tell us a little bit more about

14

00:00:37,110 --> 00:00:35,280

that today is the expedition 43 and 44

15

00:00:39,270 --> 00:00:37,120

lead increment scientist jorge

16

00:00:41,190 --> 00:00:39,280

stotomayor thanks so much for joining us

17

00:00:43,430 --> 00:00:41,200

jorge

18

00:00:44,709 --> 00:00:43,440

thank you brandi is my pleasure uh yes

19

00:00:46,869 --> 00:00:44,719

yeah we're really excited about this

20

00:00:49,110 --> 00:00:46,879

mission it's gonna be very interesting

21

00:00:50,709 --> 00:00:49,120

for sure well is is it very different

22

00:00:52,150 --> 00:00:50,719

having uh crew members that'll say a

23

00:00:53,510 --> 00:00:52,160

full year does that does that change

24

00:00:54,389 --> 00:00:53,520

things for you how do you tell people

25

00:00:56,389 --> 00:00:54,399

about that

26

00:00:57,990 --> 00:00:56,399

yes yeah it's gonna be a very uh big

27

00:00:59,270 --> 00:00:58,000

difference compared to the previous

28

00:01:01,670 --> 00:00:59,280

increments where we only had the crew

29

00:01:03,670 --> 00:01:01,680

members for about four to six months in

30

00:01:05,590 --> 00:01:03,680

this particular case we're going to take

31

00:01:08,310 --> 00:01:05,600

advantage of having kelly and konyenko

32

00:01:10,870 --> 00:01:08,320

there for a year so we have a suite of

33

00:01:12,789 --> 00:01:10,880

experiments new investigations planned

34

00:01:15,109 --> 00:01:12,799

to address how

35

00:01:16,870 --> 00:01:15,119

the human body reacts to extended

36

00:01:19,190 --> 00:01:16,880

periods of microgravity so it's going to

37

00:01:20,550 --> 00:01:19,200

be very very interesting i think you

38

00:01:23,030 --> 00:01:20,560

were telling me that you've got more

39

00:01:24,789 --> 00:01:23,040

than 270 experiments and all that are

40

00:01:27,749 --> 00:01:24,799

going to be going on during the time

41

00:01:29,109 --> 00:01:27,759

expedition 43 and 44 so that's a lot to

42

00:01:30,870 --> 00:01:29,119

to keep up with

43

00:01:32,069 --> 00:01:30,880

yes we're going to be very busy yeah

44

00:01:34,390 --> 00:01:32,079

sure i think this is going to be one of

45

00:01:36,149 --> 00:01:34,400

the busiest uh increments

46

00:01:36,870 --> 00:01:36,159

that we've had ever

47

00:01:39,749 --> 00:01:36,880

so

48

00:01:41,510 --> 00:01:39,759

and we're actually it demonstrates the

49

00:01:42,710 --> 00:01:41,520

teamwork with all the international

50

00:01:45,350 --> 00:01:42,720

partners there because we have over two

51  
00:01:46,789 --> 00:01:45,360  
like you mentioned over 270 experiments

52  
00:01:49,190 --> 00:01:46,799  
including the international partners in

53  
00:01:50,950 --> 00:01:49,200  
russia and uh we have to work together

54  
00:01:52,789 --> 00:01:50,960  
and try to make everything work and

55  
00:01:54,149 --> 00:01:52,799  
that's um you know the experience

56  
00:01:55,429 --> 00:01:54,159  
experiments that we see the crew members

57  
00:01:57,270 --> 00:01:55,439  
just helping the scientists on the

58  
00:01:58,709 --> 00:01:57,280  
ground with as well as the ones that you

59  
00:01:59,830 --> 00:01:58,719  
mentioned that look at the effects of

60  
00:02:03,270 --> 00:01:59,840  
space flight on the crew members

61  
00:02:06,310 --> 00:02:03,280  
themselves right yes correct okay so um

62  
00:02:07,910 --> 00:02:06,320  
you know as in addition to um those

63  
00:02:09,990 --> 00:02:07,920

are you gonna be looking at the the

64

00:02:11,350 --> 00:02:10,000

psychological effects of being away from

65

00:02:13,190 --> 00:02:11,360

the earth so long

66

00:02:15,990 --> 00:02:13,200

yes we have uh several experiments that

67

00:02:17,990 --> 00:02:16,000

look at the habitability uh of the crew

68

00:02:20,830 --> 00:02:18,000

members uh living in space

69

00:02:23,110 --> 00:02:20,840

um also how their

70

00:02:24,550 --> 00:02:23,120

cognition varies with their longer

71

00:02:27,670 --> 00:02:24,560

exposure in space as well as their

72

00:02:30,710 --> 00:02:27,680

reaction uh when after

73

00:02:32,949 --> 00:02:30,720

losing some sleep and being under uh

74

00:02:36,470 --> 00:02:32,959

difficult stressful situations

75

00:02:38,150 --> 00:02:36,480

especially for one year period so how do

76

00:02:40,229 --> 00:02:38,160

you study that it seems like it's a

77

00:02:42,309 --> 00:02:40,239

little bit it's not easily quantifiable

78

00:02:45,270 --> 00:02:42,319

i guess that's correct yes it's very

79

00:02:47,430 --> 00:02:45,280

hard it's very hard and in terms of

80

00:02:49,350 --> 00:02:47,440

learning how the crew feels

81

00:02:51,910 --> 00:02:49,360

there's an investigation called journals

82

00:02:53,589 --> 00:02:51,920

where the crew members will write down

83

00:02:55,110 --> 00:02:53,599

on a regular basis

84

00:02:56,869 --> 00:02:55,120

whatever they want to talk about how

85

00:02:58,309 --> 00:02:56,879

they feel how is their interaction with

86

00:02:59,509 --> 00:02:58,319

the ground interaction with other crew

87

00:03:01,350 --> 00:02:59,519

members so the

88

00:03:03,910 --> 00:03:01,360

researchers on the ground can

89  
00:03:05,350 --> 00:03:03,920  
better understand how the crew member is

90  
00:03:06,550 --> 00:03:05,360  
feeling there's a

91  
00:03:10,869 --> 00:03:06,560  
cognition

92  
00:03:13,910 --> 00:03:10,879  
investigation that will also try to

93  
00:03:16,949 --> 00:03:13,920  
objectively identify the interactions

94  
00:03:19,430 --> 00:03:16,959  
between the on-orbit crew and the ground

95  
00:03:21,670 --> 00:03:19,440  
and the frequency and and based on that

96  
00:03:23,830 --> 00:03:21,680  
try to assess a psychological and

97  
00:03:25,270 --> 00:03:23,840  
physiological state of

98  
00:03:27,270 --> 00:03:25,280  
mind uh

99  
00:03:29,430 --> 00:03:27,280  
health for the crew member

100  
00:03:30,710 --> 00:03:29,440  
um i know the journals experiment that

101

00:03:31,990 --> 00:03:30,720

one's been going on for a while and

102

00:03:33,910 --> 00:03:32,000

we've done it with all the crew members

103

00:03:35,190 --> 00:03:33,920

who've just been there for six months is

104

00:03:36,229 --> 00:03:35,200

the cognition experiment you mentioned

105

00:03:37,830 --> 00:03:36,239

that was a russian one have we

106

00:03:39,910 --> 00:03:37,840

participated in it before no this is the

107

00:03:41,350 --> 00:03:39,920

first time this is the first time for us

108

00:03:43,750 --> 00:03:41,360

so that should be uh interesting new

109

00:03:45,589 --> 00:03:43,760

data for us oh definitely yes especially

110

00:03:47,430 --> 00:03:45,599

it shows also again the collaboration

111

00:03:49,830 --> 00:03:47,440

between the uh

112

00:03:52,149 --> 00:03:49,840

with the united states with nasa and the

113

00:03:53,990 --> 00:03:52,159

the russian uh space agency are there a

114

00:03:56,070 --> 00:03:54,000

number of uh experiments that we're

115

00:03:58,070 --> 00:03:56,080

working on with the russians yes there

116

00:04:01,030 --> 00:03:58,080

are several uh another uh very

117

00:04:04,710 --> 00:04:01,040

interesting experiment uh with uh uh is

118

00:04:06,309 --> 00:04:04,720

called oasis and it studies uh uh

119

00:04:08,630 --> 00:04:06,319

in microgravity it's gonna be sort of

120

00:04:10,070 --> 00:04:08,640

like a bubble and and the effects of a

121

00:04:12,309 --> 00:04:10,080

crystal growth on

122

00:04:14,070 --> 00:04:12,319

this bubble uh solid state

123

00:04:16,469 --> 00:04:14,080

uh so it's gonna be a very interesting

124

00:04:18,390 --> 00:04:16,479

uh experiment as well and we have a

125

00:04:21,110 --> 00:04:18,400

russian collaboration in a another

126

00:04:22,870 --> 00:04:21,120

experiment called fluid shifts that also

127

00:04:25,350 --> 00:04:22,880

uh studies how the

128

00:04:27,189 --> 00:04:25,360

fluids in the body move from the lower

129

00:04:30,070 --> 00:04:27,199

body to the upper body and how that

130

00:04:31,110 --> 00:04:30,080

affects the uh intracranial pressure and

131

00:04:35,990 --> 00:04:31,120

the

132

00:04:37,590 --> 00:04:36,000

that's also coming up uh very soon and

133

00:04:39,830 --> 00:04:37,600

that would be the first time okay we'll

134

00:04:42,469 --> 00:04:39,840

hear a lot about that i guess um

135

00:04:44,070 --> 00:04:42,479

has the the partnership that came apart

136

00:04:46,390 --> 00:04:44,080

came about as part of the having the

137

00:04:48,230 --> 00:04:46,400

one-year crew go up together has that

138

00:04:50,230 --> 00:04:48,240

increased the number of experiments

139

00:04:52,790 --> 00:04:50,240

we're working on with the russians or

140

00:04:56,070 --> 00:04:52,800

yes yes it has yes it's increased we

141

00:05:00,070 --> 00:04:56,080

have several in the uh human research uh

142

00:05:03,670 --> 00:05:00,080

area as well as the uh um

143

00:05:06,390 --> 00:05:03,680

in the combustion uh experiment uh

144

00:05:07,110 --> 00:05:06,400

com as well

145

00:05:11,350 --> 00:05:07,120

and

146

00:05:12,870 --> 00:05:11,360

have some support from the russian crew

147

00:05:15,430 --> 00:05:12,880

members in the

148

00:05:17,749 --> 00:05:15,440

rodent research 2 experiment that's

149

00:05:20,070 --> 00:05:17,759

coming up on spacex 6. and that's

150

00:05:22,469 --> 00:05:20,080

unusual right usually the u.s side of

151

00:05:25,110 --> 00:05:22,479

the station works on the u.s and the

152

00:05:26,390 --> 00:05:25,120

international partner projects and then

153

00:05:27,990 --> 00:05:26,400

the russian side of the station russia

154

00:05:30,710 --> 00:05:28,000

works on the russian experiments for the

155

00:05:31,830 --> 00:05:30,720

most part correct yes yes so so this is

156

00:05:34,390 --> 00:05:31,840

again we're

157

00:05:36,950 --> 00:05:34,400

breaking new ground uh and

158

00:05:39,350 --> 00:05:36,960

we started a couple of increments ago

159

00:05:41,430 --> 00:05:39,360

but now we continue to increase the

160

00:05:43,430 --> 00:05:41,440

collaboration with the russian uh

161

00:05:44,950 --> 00:05:43,440

segment of the russian space agency

162

00:05:46,550 --> 00:05:44,960

more and more and i guess that's nice

163

00:05:48,790 --> 00:05:46,560

because you get the extra data and also

164

00:05:50,390 --> 00:05:48,800

the extra hands to help with the science

165

00:05:52,790 --> 00:05:50,400

yes definitely and especially with an

166

00:05:55,990 --> 00:05:52,800

investigation like a rodent research 2

167

00:05:57,830 --> 00:05:56,000

which is very crude time intense

168

00:06:00,309 --> 00:05:57,840

we need

169

00:06:03,270 --> 00:06:00,319

that additional uh help yeah crew time

170

00:06:06,469 --> 00:06:03,280

intensive so yeah it's really good to

171

00:06:08,230 --> 00:06:06,479

have that help okay does that need more

172

00:06:11,189 --> 00:06:08,240

help because of just the taking care of

173

00:06:12,950 --> 00:06:11,199

the the rodents in space or

174

00:06:16,309 --> 00:06:12,960

it includes uh the taking care of the

175

00:06:18,070 --> 00:06:16,319

rodents uh as well as uh performing uh

176

00:06:20,390 --> 00:06:18,080

the actual uh

177

00:06:22,390 --> 00:06:20,400

the investigation and the dissections

178

00:06:25,909 --> 00:06:22,400

that are going to take place on orbit

179

00:06:28,629 --> 00:06:25,919

and those are require a lot of crew time

180

00:06:30,950 --> 00:06:28,639

uh over uh consecutive days

181

00:06:34,950 --> 00:06:30,960

so so we want to have uh it'll be good

182

00:06:36,950 --> 00:06:34,960

to have the russian uh crew time helping

183

00:06:38,710 --> 00:06:36,960

the russian crew members any other

184

00:06:40,070 --> 00:06:38,720

experiments that you'd want to highlight

185

00:06:42,309 --> 00:06:40,080

or mention

186

00:06:44,390 --> 00:06:42,319

uh there's a really cool experiment uh

187

00:06:47,670 --> 00:06:44,400

going up actually it's the the second

188

00:06:49,990 --> 00:06:47,680

part of the robotic refueling mission uh

189

00:06:52,230 --> 00:06:50,000

that's rrm phase two

190

00:06:55,029 --> 00:06:52,240

and uh we should be doing that within

191

00:06:58,150 --> 00:06:55,039

the next couple of weeks and actually

192

00:07:00,550 --> 00:06:58,160

it attempts to refuel satellites on

193

00:07:03,110 --> 00:07:00,560

orbit and these are you know more uh

194

00:07:06,790 --> 00:07:03,120

previous generation kind of satellites

195

00:07:07,670 --> 00:07:06,800

that they have a limited life so

196

00:07:09,670 --> 00:07:07,680

we would

197

00:07:11,670 --> 00:07:09,680

hope to extend the life of these

198

00:07:13,909 --> 00:07:11,680

satellites so that we can continue

199

00:07:15,830 --> 00:07:13,919

reusing them and save

200

00:07:18,550 --> 00:07:15,840

companies on the ground having to the

201

00:07:20,469 --> 00:07:18,560

expand expense of having to launch brand

202

00:07:21,830 --> 00:07:20,479

new satellites well that sounds like

203

00:07:23,350 --> 00:07:21,840

something we should definitely watch out

204

00:07:25,510 --> 00:07:23,360

for you said starting in just a few

205

00:07:26,950 --> 00:07:25,520

weeks even so yes correct well we'll

206

00:07:28,390 --> 00:07:26,960

keep an eye out for that and thank you

207

00:07:29,909 --> 00:07:28,400

so much for coming and talking with us

208

00:07:32,390 --> 00:07:29,919

we really appreciate it my pleasure

209

00:07:34,309 --> 00:07:32,400

again this was jorge sotomayor who is

210

00:07:36,629 --> 00:07:34,319

the lead increment scientist for