



1
00:00:14,709 --> 00:00:13,190
this is mission control houston and we

2
00:00:17,430 --> 00:00:14,719
want to welcome you to today's space

3
00:00:18,870 --> 00:00:17,440
station live it is monday may 6 2013

4
00:00:21,029 --> 00:00:18,880
this is a live view inside the flight

5
00:00:23,029 --> 00:00:21,039
control room for the international space

6
00:00:24,550 --> 00:00:23,039
station today the flight director who's

7
00:00:26,390 --> 00:00:24,560
in charge of this team

8
00:00:28,790 --> 00:00:26,400
is ed van sice he is sitting at the

9
00:00:31,189 --> 00:00:28,800
center console sitting beside him

10
00:00:32,790 --> 00:00:31,199
is serena anand she is today's capcom

11
00:00:35,590 --> 00:00:32,800
and will be the voice

12
00:00:37,750 --> 00:00:35,600
up to the crew of expedition 35 onboard

13
00:00:39,510 --> 00:00:37,760

the orbiting complex

14

00:00:41,990 --> 00:00:39,520

the crews had a very busy

15

00:00:43,910 --> 00:00:42,000

day today chris hadfield roman romanenko

16

00:00:45,590 --> 00:00:43,920

and tom marshburn who are on the right

17

00:00:46,790 --> 00:00:45,600

hand side of the screen they're getting

18

00:00:48,549 --> 00:00:46,800

ready to

19

00:00:50,069 --> 00:00:48,559

land back on earth coming up in the

20

00:00:51,110 --> 00:00:50,079

middle of may they had a drill this

21

00:00:52,869 --> 00:00:51,120

morning

22

00:00:54,310 --> 00:00:52,879

for their upcoming soyuz landing they're

23

00:00:56,470 --> 00:00:54,320

going to be traveling back home in the

24

00:00:57,990 --> 00:00:56,480

soyuz 33 that is the

25

00:00:59,029 --> 00:00:58,000

vehicle that brought them up to the

26

00:01:00,950 --> 00:00:59,039

station

27

00:01:03,990 --> 00:01:00,960

back almost five months ago back in

28

00:01:05,750 --> 00:01:04,000

december of 2012.

29

00:01:07,590 --> 00:01:05,760

they spent about two hours practicing

30

00:01:08,789 --> 00:01:07,600

the steps that they will take coming up

31

00:01:10,230 --> 00:01:08,799

here in

32

00:01:12,070 --> 00:01:10,240

just a few days as they get ready to

33

00:01:14,550 --> 00:01:12,080

come back to earth and make sure that

34

00:01:16,870 --> 00:01:14,560

everything is all smooth and ready to go

35

00:01:18,630 --> 00:01:16,880

for that they also did a leak check on

36

00:01:20,310 --> 00:01:18,640

their circle launch and entry suits

37

00:01:22,390 --> 00:01:20,320

everything checked out

38

00:01:24,789 --> 00:01:22,400

according to plan in terms of that

39

00:01:27,270 --> 00:01:24,799

activity as well their landing

40

00:01:29,109 --> 00:01:27,280

is coming up on may 13th

41

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

uh here in the united states they're

42

00:01:32,230 --> 00:01:30,880

going to be landing in the southern zone

43

00:01:35,190 --> 00:01:32,240

of kazakhstan that's a little bit

44

00:01:36,550 --> 00:01:35,200

different than the typical northern zone

45

00:01:39,190 --> 00:01:36,560

but their landing is going to take place

46

00:01:40,469 --> 00:01:39,200

at 9 31 pm central time that you see

47

00:01:41,830 --> 00:01:40,479

there at the bottom of the screen

48

00:01:43,590 --> 00:01:41,840

there's an entire

49

00:01:44,789 --> 00:01:43,600

list of activities taking place around

50

00:01:46,230 --> 00:01:44,799

that landing we're going to have several

51
00:01:49,749 --> 00:01:46,240
different broadcasts that day on may

52
00:01:52,389 --> 00:01:49,759
13th beginning at 2 30 pm central time

53
00:01:53,990 --> 00:01:52,399
with hatch closure coverage as the crews

54
00:01:55,670 --> 00:01:54,000
say farewell to one another the hatches

55
00:01:57,590 --> 00:01:55,680
will be closed about 20 minutes after

56
00:02:00,230 --> 00:01:57,600
that and then our undocking coverage

57
00:02:03,030 --> 00:02:00,240
will begin at 5 45 pm central time with

58
00:02:04,550 --> 00:02:03,040
the actual undocking taking place at 608

59
00:02:07,190 --> 00:02:04,560
and then our landing coverage will begin

60
00:02:11,190 --> 00:02:07,200
at 8 15 pm central time with landing

61
00:02:14,309 --> 00:02:11,200
again at 9 31 pm central time with our

62
00:02:16,470 --> 00:02:14,319
live coverage of that activity of this

63
00:02:20,309 --> 00:02:16,480

crew comes home after five months up on

64

00:02:22,070 --> 00:02:20,319

board the international space station

65

00:02:23,589 --> 00:02:22,080

chris hadfield also working on an

66

00:02:25,670 --> 00:02:23,599

experiment today called spinal

67

00:02:27,589 --> 00:02:25,680

ultrasound this has been taking place

68

00:02:29,270 --> 00:02:27,599

during this expedition and also previous

69

00:02:31,589 --> 00:02:29,280

ones it's important because the crew

70

00:02:33,509 --> 00:02:31,599

members actually get a little bit taller

71

00:02:34,869 --> 00:02:33,519

while they're up in space and

72

00:02:37,430 --> 00:02:34,879

there's no gravity pulling down on your

73

00:02:38,470 --> 00:02:37,440

muscles and bones so to take a look at

74

00:02:42,790 --> 00:02:38,480

exactly

75

00:02:44,550 --> 00:02:42,800

happens the crews actually use an

76

00:02:46,630 --> 00:02:44,560

ultrasound a small portable ultrasound

77

00:02:48,070 --> 00:02:46,640

like what you find here on earth to take

78

00:02:49,910 --> 00:02:48,080

a look at their backs and their spines

79

00:02:51,589 --> 00:02:49,920

to see how they're extending and

80

00:02:53,589 --> 00:02:51,599

behaving up in space

81

00:02:55,990 --> 00:02:53,599

that not only has impacts to future

82

00:02:57,190 --> 00:02:56,000

crews as flight doctors insurgents here

83

00:02:58,470 --> 00:02:57,200

on the ground better understand that

84

00:03:00,229 --> 00:02:58,480

phenomena

85

00:03:02,550 --> 00:03:00,239

but it also actually has

86

00:03:05,110 --> 00:03:02,560

impacts here on earth as well because

87

00:03:06,869 --> 00:03:05,120

when mris needed to be need to be done

88

00:03:08,229 --> 00:03:06,879

here on earth that obviously anybody

89

00:03:10,149 --> 00:03:08,239

who's ever had that done takes a very

90

00:03:12,869 --> 00:03:10,159

large machine that can't always take

91

00:03:15,190 --> 00:03:12,879

place especially out in remote areas but

92

00:03:16,390 --> 00:03:15,200

this technology by using this small

93

00:03:17,990 --> 00:03:16,400

ultrasound

94

00:03:19,509 --> 00:03:18,000

portable device up on board the

95

00:03:22,309 --> 00:03:19,519

international space station could

96

00:03:26,070 --> 00:03:22,319

actually lead to smaller more portable

97

00:03:27,350 --> 00:03:26,080

devices for scanning here on earth

98

00:03:29,589 --> 00:03:27,360

while hadfield is working on that

99

00:03:31,350 --> 00:03:29,599

pavlovan agradoff is working on

100

00:03:33,350 --> 00:03:31,360

unloading some cargo from the progress

101
00:03:35,190 --> 00:03:33,360
51 which is currently docked on the back

102
00:03:36,229 --> 00:03:35,200
end of the zvezda service module you see

103
00:03:39,110 --> 00:03:36,239
there on the right hand side of the

104
00:03:44,070 --> 00:03:41,350
misurkin alexander misurkin is also

105
00:03:45,750 --> 00:03:44,080
going to be helping him on that activity

106
00:03:47,750 --> 00:03:45,760
later on this afternoon paul vinogradov

107
00:03:48,949 --> 00:03:47,760
will work on a russian experiment called

108
00:03:51,350 --> 00:03:48,959
uragan

109
00:03:53,030 --> 00:03:51,360
this is a crew earth observation

110
00:03:54,630 --> 00:03:53,040
activity back in the russian segment

111
00:03:56,390 --> 00:03:54,640
they take pictures of the planet below

112
00:03:57,429 --> 00:03:56,400
taking a look at different man-made and

113
00:03:59,350 --> 00:03:57,439

natural

114

00:04:02,309 --> 00:03:59,360

phenomena down on the ground help study

115

00:04:04,070 --> 00:04:02,319

the earth to see how it's changing

116

00:04:06,149 --> 00:04:04,080

chris cassidy is busy today working on

117

00:04:08,550 --> 00:04:06,159

what's called bcat6 this stands for

118

00:04:11,350 --> 00:04:08,560

binary colloidal alloy test very long

119

00:04:13,270 --> 00:04:11,360

and fancy title but it looks at how

120

00:04:14,390 --> 00:04:13,280

gases and liquids come together and

121

00:04:15,990 --> 00:04:14,400

separate

122

00:04:17,430 --> 00:04:16,000

up in space it's a little bit different

123

00:04:18,710 --> 00:04:17,440

than what happens here on the ground but

124

00:04:20,710 --> 00:04:18,720

by looking

125

00:04:22,790 --> 00:04:20,720

at the underlying physics of fluids and

126

00:04:24,550 --> 00:04:22,800

how they behave and how they separate it

127

00:04:27,510 --> 00:04:24,560

could actually enable the development of

128

00:04:29,830 --> 00:04:27,520

less expensive and longer shelf life

129

00:04:31,270 --> 00:04:29,840

for household products foods and

130

00:04:32,710 --> 00:04:31,280

medicines

131

00:04:34,870 --> 00:04:32,720

that experiment was actually launched

132

00:04:37,270 --> 00:04:34,880

back on space shuttle discovery's final

133

00:04:39,909 --> 00:04:37,280

mission sts-133 back in the beginning

134

00:04:42,230 --> 00:04:39,919

part of 2 2011.

135

00:04:43,909 --> 00:04:42,240

it is run by procter and gamble and

136

00:04:47,590 --> 00:04:43,919

harvard university those are the two

137

00:04:48,870 --> 00:04:47,600

principal investigators of because 6.

138

00:04:50,710 --> 00:04:48,880

later today cassidy is going to be

139

00:04:52,550 --> 00:04:50,720

watching a training video on some

140

00:04:54,790 --> 00:04:52,560

upcoming robonaut activities getting

141

00:04:57,189 --> 00:04:54,800

familiar with what's going to be taking

142

00:04:58,790 --> 00:04:57,199

place with that also some other robotic

143

00:05:01,029 --> 00:04:58,800

activities taking place right now on the

144

00:05:02,790 --> 00:05:01,039

outside of the space station you see the

145

00:05:04,870 --> 00:05:02,800

dexter robot there in the center of the

146

00:05:07,029 --> 00:05:04,880

screen on the left hand side

147

00:05:09,590 --> 00:05:07,039

is also what is known as the robotic

148

00:05:12,310 --> 00:05:09,600

refueling mission or rrm

149

00:05:14,710 --> 00:05:12,320

this is a large washing machine sized

150

00:05:17,990 --> 00:05:14,720

box that's about 550 pounds it measures

151
00:05:20,469 --> 00:05:18,000
33 by 43 by 45 inches

152
00:05:22,629 --> 00:05:20,479
it has all kinds of different tools and

153
00:05:23,590 --> 00:05:22,639
other mechanical objects on the outside

154
00:05:25,029 --> 00:05:23,600
of it

155
00:05:27,830 --> 00:05:25,039
what it does

156
00:05:30,150 --> 00:05:27,840
is take a look at how in the future some

157
00:05:31,830 --> 00:05:30,160
sort of automatic robotic spacecraft

158
00:05:33,350 --> 00:05:31,840
could fly up to

159
00:05:34,870 --> 00:05:33,360
the satellites that are way far out

160
00:05:36,790 --> 00:05:34,880
there in space about twenty two thousand

161
00:05:38,390 --> 00:05:36,800
miles out in space and could service

162
00:05:40,550 --> 00:05:38,400
them because as of right now all those

163
00:05:42,790 --> 00:05:40,560

satellites that are up there are limited

164

00:05:45,029 --> 00:05:42,800

by basically how much fuel is on board

165

00:05:46,469 --> 00:05:45,039

because once the fuel runs out that's it

166

00:05:48,550 --> 00:05:46,479

also if they break down there's really

167

00:05:51,029 --> 00:05:48,560

no way to service them so the team that

168

00:05:52,390 --> 00:05:51,039

helped come up with the tools and the

169

00:05:54,230 --> 00:05:52,400

method for how the hubble space

170

00:05:55,909 --> 00:05:54,240

telescope was serviced throughout

171

00:05:56,950 --> 00:05:55,919

several different missions

172

00:05:59,830 --> 00:05:56,960

has

173

00:06:01,990 --> 00:05:59,840

invented this testing platform for the

174

00:06:03,749 --> 00:06:02,000

station's robotic arm with the dexter

175

00:06:05,029 --> 00:06:03,759

attached on the end to go out there on

176

00:06:06,550 --> 00:06:05,039

the station's

177

00:06:09,029 --> 00:06:06,560

starboard trust on the right-hand side

178

00:06:11,270 --> 00:06:09,039

that is the home of rrm and test out all

179

00:06:12,870 --> 00:06:11,280

different sorts of things like refueling

180

00:06:14,629 --> 00:06:12,880

cutting some wires and some other

181

00:06:16,070 --> 00:06:14,639

activities but this activity that's been

182

00:06:17,590 --> 00:06:16,080

going on for the past several days and

183

00:06:19,189 --> 00:06:17,600

will continue this week

184

00:06:21,909 --> 00:06:19,199

takes a look at how

185

00:06:22,870 --> 00:06:21,919

the rrm can actually remove some kapton

186

00:06:25,029 --> 00:06:22,880

tape

187

00:06:26,710 --> 00:06:25,039

open up some what's called mli this is

188

00:06:28,309 --> 00:06:26,720

multi-layer insulation which is

189

00:06:30,790 --> 00:06:28,319

basically what covers all kinds of

190

00:06:33,110 --> 00:06:30,800

satellites and spacecraft and to cut

191

00:06:35,430 --> 00:06:33,120

some wires and close up the mli which

192

00:06:37,189 --> 00:06:35,440

those are obviously some very important

193

00:06:38,309 --> 00:06:37,199

tactics that would be needed in the

194

00:06:40,230 --> 00:06:38,319

future

195

00:06:42,309 --> 00:06:40,240

as some sort of

196

00:06:44,309 --> 00:06:42,319

vehicle moved up and would service these

197

00:06:45,749 --> 00:06:44,319

satellites so this rrm

198

00:06:47,749 --> 00:06:45,759

which again is on the starboard truss

199

00:06:49,670 --> 00:06:47,759

the right-hand side of the international

200

00:06:51,749 --> 00:06:49,680

space station will take place being run

201

00:06:53,589 --> 00:06:51,759

by ground controllers here on earth and

202

00:06:55,749 --> 00:06:53,599

of course the crew is monitoring the

203

00:06:57,189 --> 00:06:55,759

progress if you would like to learn more

204

00:06:59,029 --> 00:06:57,199

about rrm

205

00:07:00,710 --> 00:06:59,039

or any of the other experiments that the

206

00:07:02,710 --> 00:07:00,720

crew is working on today and this week

207

00:07:04,150 --> 00:07:02,720

we obviously invite you to log on to