



1
00:00:06,690 --> 00:00:03,840
now the members of the space station

2
00:00:08,160 --> 00:00:06,700
crew who arrived in July or getting

3
00:00:10,590 --> 00:00:08,170
ready to come home in fact there's been

4
00:00:12,510 --> 00:00:10,600
an activity called crew departure prep

5
00:00:15,180 --> 00:00:12,520
that has been on the schedule for

6
00:00:17,670 --> 00:00:15,190
williams malenchenko and hoshide a each

7
00:00:20,000 --> 00:00:17,680
day for more than a week now in advance

8
00:00:22,680 --> 00:00:20,010
to their scheduled departure on Sunday

9
00:00:25,230 --> 00:00:22,690
what are they doing and why does it take

10
00:00:27,150 --> 00:00:25,240
so long to find out we're going to ask a

11
00:00:29,460 --> 00:00:27,160
man who just did the same thing a few

12
00:00:31,439 --> 00:00:29,470
months ago astronaut dan burbank who

13
00:00:33,630 --> 00:00:31,449

served his flight engineer on expedition

14

00:00:36,600 --> 00:00:33,640

29 and commander of the International

15

00:00:38,160 --> 00:00:36,610

Space Station's expedition 30 mission he

16

00:00:41,460 --> 00:00:38,170

returned to Earth with his two Russian

17

00:00:43,590 --> 00:00:41,470

crewmates in April after 163 days on

18

00:00:45,600 --> 00:00:43,600

board the space station good morning

19

00:00:49,319 --> 00:00:45,610

nice to see you again it's good to be

20

00:00:52,049 --> 00:00:49,329

with you pat 163 days in space began one

21

00:00:54,240 --> 00:00:52,059

year ago today with your launch at the

22

00:00:56,970 --> 00:00:54,250

Baikonur cosmodrome and we put together

23

00:00:59,430 --> 00:00:56,980

a few scenes tell us what we're seeing

24

00:01:03,389 --> 00:00:59,440

here is we look at the events that took

25

00:01:05,160 --> 00:01:03,399

place a year ago today okay well one of

26
00:01:07,410 --> 00:01:05,170
the first things you do before launch is

27
00:01:08,940 --> 00:01:07,420
you head out to the test facility near

28
00:01:11,279 --> 00:01:08,950
the launch pad and you get suited up

29
00:01:12,719 --> 00:01:11,289
gives you a chance to to do some leak

30
00:01:15,389 --> 00:01:12,729
checks on the suits make sure they're

31
00:01:17,599 --> 00:01:15,399
good to go and thats takes place about

32
00:01:19,709 --> 00:01:17,609
three and a half hours before launch and

33
00:01:22,469 --> 00:01:19,719
shortly thereafter you head out to the

34
00:01:24,149 --> 00:01:22,479
pad ideally in better weather conditions

35
00:01:25,499 --> 00:01:24,159
always fair your couch when you're back

36
00:01:27,599 --> 00:01:25,509
with you though do you you know you

37
00:01:30,059 --> 00:01:27,609
don't we had these these ponchos to keep

38
00:01:31,349 --> 00:01:30,069

the snow off the suits for fear that the

39
00:01:33,690 --> 00:01:31,359
snow would then melt and we get moisture

40
00:01:35,550 --> 00:01:33,700
in the cabin but but then we walked out

41
00:01:38,519 --> 00:01:35,560
to the to the vehicle it's all fueled

42
00:01:40,230 --> 00:01:38,529
and ready to go and very cold almost

43
00:01:43,019 --> 00:01:40,240
blizzard conditions there when you a

44
00:01:45,659 --> 00:01:43,029
couple the snow with you know the

45
00:01:48,239 --> 00:01:45,669
cryogenic fuel induced fog that it's

46
00:01:50,489 --> 00:01:48,249
swirling around the rocket visibility

47
00:01:52,830 --> 00:01:50,499
was pretty low as we as we got to the as

48
00:01:54,539 --> 00:01:52,840
we got to the base of the stairs you

49
00:01:56,629 --> 00:01:54,549
board the rocket and a couple hours

50
00:01:59,760 --> 00:01:56,639
later you're headed uphill and

51
00:02:01,800 --> 00:01:59,770
thankfully that weather is no concern

52
00:02:04,379 --> 00:02:01,810
within about 30 or 40 seconds after

53
00:02:06,809 --> 00:02:04,389
launch its long you're over on go go far

54
00:02:09,290 --> 00:02:06,819
behind you and that's right and there

55
00:02:12,240 --> 00:02:09,300
you are in your seat in the zillions

56
00:02:14,160 --> 00:02:12,250
yeah it's a it's a great ride the thrust

57
00:02:16,410 --> 00:02:14,170
profile is very similar to what a

58
00:02:20,250 --> 00:02:16,420
Space Shuttle is it's actually a little

59
00:02:21,570 --> 00:02:20,260
bit smoother on the first stage in about

60
00:02:23,490 --> 00:02:21,580
eight and a half minutes you're in

61
00:02:26,729 --> 00:02:23,500
weightlessness and as you'll be for the

62
00:02:30,870 --> 00:02:26,739
next nearly six months in your case as

63
00:02:32,220 --> 00:02:30,880

we said 163 days when you and she kept

64

00:02:34,830 --> 00:02:32,230

it off and even I shouldn't return home

65

00:02:37,470 --> 00:02:34,840

at what point in their do you really

66

00:02:40,199 --> 00:02:37,480

start to pay attention to ending the

67

00:02:42,750 --> 00:02:40,209

mission to getting ready to come home I

68

00:02:44,309 --> 00:02:42,760

guess one way to put it is only when

69

00:02:46,470 --> 00:02:44,319

absolutely necessary it's something you

70

00:02:47,759 --> 00:02:46,480

kind of you don't want to think about

71

00:02:49,949 --> 00:02:47,769

too much because you know you're really

72

00:02:52,020 --> 00:02:49,959

going to miss miss the place Space

73

00:02:54,120 --> 00:02:52,030

Station's is spectacular getting to live

74

00:02:55,710 --> 00:02:54,130

and weightlessness and enjoy the views

75

00:02:57,780 --> 00:02:55,720

of the earth that you get from there

76

00:02:58,800 --> 00:02:57,790

it's something you'll carry with you for

77

00:03:01,770 --> 00:02:58,810

the rest of your life you don't want it

78

00:03:03,090 --> 00:03:01,780

to end by the same token you very much

79

00:03:04,860 --> 00:03:03,100

want to see your family and your friends

80

00:03:06,900 --> 00:03:04,870

again so so there's it's a very

81

00:03:09,630 --> 00:03:06,910

bittersweet moment but we spend about

82

00:03:12,000 --> 00:03:09,640

probably bits and pieces of time as you

83

00:03:13,530 --> 00:03:12,010

alluded to for for every day for about

84

00:03:15,240 --> 00:03:13,540

two weeks leading up to the undock and

85

00:03:16,620 --> 00:03:15,250

that's generally how how long it takes

86

00:03:18,660 --> 00:03:16,630

to get the vehicle ready and to get

87

00:03:20,520 --> 00:03:18,670

everything packed in and get yourself in

88

00:03:22,050 --> 00:03:20,530

the right mindset to come home what are

89

00:03:24,270 --> 00:03:22,060

you packing what are you bringing home

90

00:03:26,310 --> 00:03:24,280

with you well the things that you can

91

00:03:28,949 --> 00:03:26,320

actually carry in the Sawyer's are kind

92

00:03:31,020 --> 00:03:28,959

of limited the volume is limited we we

93

00:03:33,210 --> 00:03:31,030

can actually carry about a kilogram and

94

00:03:35,520 --> 00:03:33,220

a half a couple of pounds worth of

95

00:03:37,440 --> 00:03:35,530

personal items that you carried with you

96

00:03:39,300 --> 00:03:37,450

on the way uphill might be a journal

97

00:03:40,710 --> 00:03:39,310

might be you know some pictures of

98

00:03:42,330 --> 00:03:40,720

family and friends things like that but

99

00:03:43,680 --> 00:03:42,340

it's a very small package to its limited

100

00:03:45,300 --> 00:03:43,690

that way but the things that are most

101

00:03:47,789 --> 00:03:45,310

precious for the Soyuz that we bring

102

00:03:49,259 --> 00:03:47,799

back every time is the science a lot of

103

00:03:51,240 --> 00:03:49,269

the human research that we do on bond

104

00:03:52,890 --> 00:03:51,250

board station involves taking blood

105

00:03:54,539 --> 00:03:52,900

samples urine samples other kinds of

106

00:03:56,729 --> 00:03:54,549

things that we collect in package and

107

00:03:58,140 --> 00:03:56,739

that gets towed very late that's one

108

00:04:00,920 --> 00:03:58,150

some some of the last things that come

109

00:04:03,270 --> 00:04:00,930

down with us so but there is a phased

110

00:04:05,309 --> 00:04:03,280

packing of the Soyuz for all of the

111

00:04:06,420 --> 00:04:05,319

science equipment the hardware equipment

112

00:04:08,390 --> 00:04:06,430

and then of course your personal items

113

00:04:11,580 --> 00:04:08,400

as well it takes place over several days

114

00:04:14,190 --> 00:04:11,590

do does all of your stuff come home with

115

00:04:15,599 --> 00:04:14,200

you to some of it come later yeah

116

00:04:18,029 --> 00:04:15,609

actually you know I say we have a

117

00:04:19,860 --> 00:04:18,039

kilogram and a half that we can have our

118

00:04:22,529 --> 00:04:19,870

personal items which is really small so

119

00:04:24,719 --> 00:04:22,539

you know it's a business envelope you

120

00:04:26,640 --> 00:04:24,729

know maybe a fairly thick one but but

121

00:04:28,560 --> 00:04:26,650

it's not a lot of items

122

00:04:30,480 --> 00:04:28,570

those are the things that went wrote up

123

00:04:32,040 --> 00:04:30,490

with you uphill and other things that

124

00:04:33,900 --> 00:04:32,050

they're going to come back with you you

125

00:04:36,210 --> 00:04:33,910

also can bring back about a large

126

00:04:38,480 --> 00:04:36,220

shoebox-sized worth of volume of other

127

00:04:40,379 --> 00:04:38,490

things maybe a couple of crew shirts and

128

00:04:42,840 --> 00:04:40,389

you know other things you might have on

129

00:04:45,300 --> 00:04:42,850

board that that you brought up with you

130

00:04:47,219 --> 00:04:45,310

those items will come down on a dragon

131

00:04:49,020 --> 00:04:47,229

cargo vehicle so we do have the ability

132

00:04:50,610 --> 00:04:49,030

each crew member can bring you know a

133

00:04:52,499 --> 00:04:50,620

small package of things back with them

134

00:04:54,570 --> 00:04:52,509

that way and it'll come back sometime

135

00:04:56,640 --> 00:04:54,580

after you after you get back your stuff

136

00:04:58,650 --> 00:04:56,650

still waiting for a ride home actually

137

00:05:00,719 --> 00:04:58,660

all of my health my gear came back safe

138

00:05:02,939 --> 00:05:00,729

and sound and you know again it wasn't a

139

00:05:04,950 --> 00:05:02,949

lot of equipment but but there's a lot a

140

00:05:06,779 --> 00:05:04,960

lot of good memories in those few things

141

00:05:08,490 --> 00:05:06,789

how much of the time is involved with

142

00:05:11,400 --> 00:05:08,500

the actual preparation of the Soyuz

143

00:05:13,230 --> 00:05:11,410

spacecraft in that probably starts well

144

00:05:14,909 --> 00:05:13,240

there's a few checks we do leading up to

145

00:05:16,760 --> 00:05:14,919

the undock you know even some of them

146

00:05:20,640 --> 00:05:16,770

where we do fit checks to make sure that

147

00:05:22,110 --> 00:05:20,650

the seat still fits us you know each of

148

00:05:23,370 --> 00:05:22,120

the seats are molded for each of the

149

00:05:25,230 --> 00:05:23,380

individual crew members but we do

150

00:05:27,180 --> 00:05:25,240

periodic fit check so that throughout

151
00:05:29,189 --> 00:05:27,190
the mission and there's some other you

152
00:05:31,230 --> 00:05:29,199
know simpler checks that we do but about

153
00:05:32,939 --> 00:05:31,240
a week or so before hand will do a more

154
00:05:34,650 --> 00:05:32,949
more or less a full up check out of

155
00:05:37,529 --> 00:05:34,660
those this will use equipment and in

156
00:05:38,879 --> 00:05:37,539
systems to include a suited leak check

157
00:05:40,439 --> 00:05:38,889
where we actually are going to

158
00:05:42,029 --> 00:05:40,449
d'essentials Ryan all the way up to the

159
00:05:45,149 --> 00:05:42,039
point of a pressurizing and leak check

160
00:05:48,029 --> 00:05:45,159
in the suits and and yeah that again

161
00:05:49,710 --> 00:05:48,039
about the week or so leading up to to

162
00:05:50,909 --> 00:05:49,720
undock so you know the syste so your

163
00:05:52,529 --> 00:05:50,919

systems are good and then when you're

164

00:05:54,870 --> 00:05:52,539

done with those kind of checks you'll

165

00:05:56,460 --> 00:05:54,880

back out of those and prepare the

166

00:05:58,140 --> 00:05:56,470

various volumes that are available for

167

00:06:00,060 --> 00:05:58,150

stowage of payload hardware and things

168

00:06:01,980 --> 00:06:00,070

like that and then the commander and the

169

00:06:03,510 --> 00:06:01,990

board engineer will spend you know

170

00:06:05,640 --> 00:06:03,520

chunks of time over that next week

171

00:06:06,839 --> 00:06:05,650

getting all the things so just as I need

172

00:06:09,990 --> 00:06:06,849

to be so they'll be able to make a safe

173

00:06:12,120 --> 00:06:10,000

entry so they do spend they have more

174

00:06:13,860 --> 00:06:12,130

responsibility in this check out they do

175

00:06:15,420 --> 00:06:13,870

they do although you know the the

176

00:06:17,040 --> 00:06:15,430

responsibility is shared I think you

177

00:06:19,560 --> 00:06:17,050

know the series commander obviously is

178

00:06:21,930 --> 00:06:19,570

prime for all of that I think the u.s.

179

00:06:23,939 --> 00:06:21,940

segment lead in this case you know Sonny

180

00:06:25,290 --> 00:06:23,949

who's also the board engineer is going

181

00:06:28,050 --> 00:06:25,300

to be involved as well because a lot of

182

00:06:29,850 --> 00:06:28,060

the lot of the payload life sciences

183

00:06:31,969 --> 00:06:29,860

samples things like that are kind of

184

00:06:34,920 --> 00:06:31,979

fall under her purview to prepare those

185

00:06:37,440 --> 00:06:34,930

and then when they get handed over and

186

00:06:38,580 --> 00:06:37,450

stowed that's really the responsibility

187

00:06:40,050 --> 00:06:38,590

of Uri so it's kind of a shared

188

00:06:42,060 --> 00:06:40,060

responsibility but

189

00:06:43,530 --> 00:06:42,070

everybody to some degree has some

190

00:06:45,570 --> 00:06:43,540

involvement but the two of them have the

191

00:06:48,240 --> 00:06:45,580

primary responsibility of it when you

192

00:06:51,030 --> 00:06:48,250

get near the end do you have some of

193

00:06:52,530 --> 00:06:51,040

this prep time devoted to concluding

194

00:06:55,140 --> 00:06:52,540

wrapping up any of the science

195

00:06:57,060 --> 00:06:55,150

experiments a lot of the science

196

00:06:58,680 --> 00:06:57,070

continues and it's handed over from one

197

00:07:01,110 --> 00:06:58,690

expedition to another so there's not

198

00:07:02,640 --> 00:07:01,120

major close out of science the only

199

00:07:06,030 --> 00:07:02,650

exception to that would be as a science

200

00:07:07,860 --> 00:07:06,040

that's dedicated to you and your human

201
00:07:09,480 --> 00:07:07,870
research investigations you might have

202
00:07:10,740 --> 00:07:09,490
had so there'll be some last-minute you

203
00:07:12,629 --> 00:07:10,750
know blood samples and things like that

204
00:07:14,550 --> 00:07:12,639
that will collect shortly before the

205
00:07:16,980 --> 00:07:14,560
undock and those things would be for

206
00:07:19,020 --> 00:07:16,990
Sonny for Aki and for Yuri as well so if

207
00:07:20,219 --> 00:07:19,030
you're picking up new work you are

208
00:07:21,600 --> 00:07:20,229
you're picking up a little bit new new

209
00:07:23,580 --> 00:07:21,610
work although there's still a phased

210
00:07:24,780 --> 00:07:23,590
handover because you know the crew

211
00:07:28,020 --> 00:07:24,790
that's going to stay up there you know

212
00:07:30,840 --> 00:07:28,030
Kevin Ford and in UF Kenneth relay and

213
00:07:32,280 --> 00:07:30,850

not like Nowitzki there although we have

214

00:07:34,500 --> 00:07:32,290

the change of command set for Saturday

215

00:07:36,240 --> 00:07:34,510

there is this phased gradual hand over

216

00:07:37,980 --> 00:07:36,250

where the routine operations of the

217

00:07:41,430 --> 00:07:37,990

space station has gradually shifted to

218

00:07:43,080 --> 00:07:41,440

them to afford Yuri and hockey and Sonny

219

00:07:46,170 --> 00:07:43,090

the the free time to be able to get

220

00:07:47,850 --> 00:07:46,180

things prepped so it's not quite as

221

00:07:48,810 --> 00:07:47,860

abrupt as it would be as it would appear

222

00:07:51,990 --> 00:07:48,820

during the change of command ceremony

223

00:07:53,670 --> 00:07:52,000

itself we mentioned that there is a line

224

00:07:56,430 --> 00:07:53,680

in the schedule that says crew prep time

225

00:07:58,080 --> 00:07:56,440

and it's in like an hour or an hour and

226

00:07:59,790 --> 00:07:58,090

a half chunks or something is that is

227

00:08:02,250 --> 00:07:59,800

that part of the reason it takes quite

228

00:08:03,390 --> 00:08:02,260

so long well well it actually has to be

229

00:08:04,529 --> 00:08:03,400

like that because there's a lot of

230

00:08:07,020 --> 00:08:04,539

things that you're doing some of the

231

00:08:08,670 --> 00:08:07,030

prep things are are basically you know

232

00:08:10,230 --> 00:08:08,680

packing your things many of which are

233

00:08:11,969 --> 00:08:10,240

going to need right up to you till you

234

00:08:13,800 --> 00:08:11,979

actually you know get into the vehicle

235

00:08:15,659 --> 00:08:13,810

so some things you're gradually packing

236

00:08:17,430 --> 00:08:15,669

up things stowing them maybe some things

237

00:08:19,710 --> 00:08:17,440

will return on Dragon maybe some things

238

00:08:21,840 --> 00:08:19,720

will actually get transferred to trash

239

00:08:23,460 --> 00:08:21,850

you know there's a exercise equipment

240

00:08:25,320 --> 00:08:23,470

the harnesses the the running shoes

241

00:08:26,610 --> 00:08:25,330

those kinds of things they're not going

242

00:08:28,950 --> 00:08:26,620

to be handed over from one crew to

243

00:08:30,750 --> 00:08:28,960

another so so sunny anaki have to close

244

00:08:32,190 --> 00:08:30,760

out their crew quarters there you know

245

00:08:33,750 --> 00:08:32,200

there-there's their staterooms if you

246

00:08:35,370 --> 00:08:33,760

will on station and gradually get their

247

00:08:36,990 --> 00:08:35,380

things packed up they're also going to

248

00:08:39,779 --> 00:08:37,000

be collecting up all of their personal

249

00:08:41,399 --> 00:08:39,789

data so their email files their journals

250

00:08:43,920 --> 00:08:41,409

that they might have been you know

251

00:08:45,750 --> 00:08:43,930

collecting on board a lot of their the

252

00:08:47,630 --> 00:08:45,760

imagery that they've been taken to to

253

00:08:49,650 --> 00:08:47,640

kind of get all that prepped and

254

00:08:51,090 --> 00:08:49,660

downlink to the ground so it's available

255

00:08:52,210 --> 00:08:51,100

to them when they get back here for

256

00:08:54,449 --> 00:08:52,220

debriefs and other things like

257

00:08:57,280 --> 00:08:54,459

I wonder if there's there any

258

00:08:59,650 --> 00:08:57,290

psychological aspect to this do you have

259

00:09:02,290 --> 00:08:59,660

to get in the right frame of mind to

260

00:09:04,540 --> 00:09:02,300

think okay I'm leaving now yeah you

261

00:09:08,050 --> 00:09:04,550

really do I mean this has been your home

262

00:09:11,050 --> 00:09:08,060

for six months and and it's a home like

263

00:09:13,179 --> 00:09:11,060

no other and it's it's a very difficult

264

00:09:14,769 --> 00:09:13,189

place to leave like I say you're the

265

00:09:16,929 --> 00:09:14,779

great thing you have to look forward to

266

00:09:19,179 --> 00:09:16,939

seeing your family again but but to you

267

00:09:21,100 --> 00:09:19,189

know this has been your total focus it's

268

00:09:24,429 --> 00:09:21,110

a it's a magical place you live and work

269

00:09:26,980 --> 00:09:24,439

in but but in it's been a wonderful

270

00:09:29,170 --> 00:09:26,990

chapter of your life but but it does

271

00:09:31,090 --> 00:09:29,180

take it does take some adjustment it's a

272

00:09:33,249 --> 00:09:31,100

major move you know all of the things

273

00:09:34,780 --> 00:09:33,259

that you've interacted with every day on

274

00:09:37,150 --> 00:09:34,790

a daily basis all the science you've

275

00:09:39,519 --> 00:09:37,160

done everything how you do everything

276

00:09:40,869 --> 00:09:39,529

your entire day is very different how

277

00:09:42,400 --> 00:09:40,879

you do it on board a space station as

278

00:09:45,040 --> 00:09:42,410

opposed to being down here and you're

279

00:09:47,470 --> 00:09:45,050

you're doing a move as big and as

280

00:09:48,939 --> 00:09:47,480

elaborate as any move you would from one

281

00:09:51,490 --> 00:09:48,949

house to another down here and planet

282

00:09:53,860 --> 00:09:51,500

Earth but but greatly complicated beyond

283

00:09:55,480 --> 00:09:53,870

that by virtue of the fact that you've

284

00:09:57,549 --> 00:09:55,490

been living in space and things are very

285

00:09:59,559 --> 00:09:57,559

unique about being there but the mindset

286

00:10:00,939 --> 00:09:59,569

part of it is another thing you you need

287

00:10:02,559 --> 00:10:00,949

to spend a little bit of time and it's

288

00:10:05,410 --> 00:10:02,569

hard to do because it's very busy in the

289

00:10:08,019 --> 00:10:05,420

last couple weeks looking out the window

290

00:10:10,720 --> 00:10:08,029

internalizing writing to your personal

291

00:10:12,670 --> 00:10:10,730

hard drive if you will those experiences

292

00:10:15,790 --> 00:10:12,680

because pretty soon they're going to be

293

00:10:17,670 --> 00:10:15,800

behind you right now Sonny Williams is

294

00:10:20,410 --> 00:10:17,680

in the same position that you were in

295

00:10:22,720 --> 00:10:20,420

she's going through all of that just as

296

00:10:24,910 --> 00:10:22,730

a crew member who's returning but she's

297

00:10:27,730 --> 00:10:24,920

also getting rain hand over her command

298

00:10:29,860 --> 00:10:27,740

of this vehicle to somebody else what

299

00:10:32,740 --> 00:10:29,870

what is going through your mind in that

300

00:10:34,960 --> 00:10:32,750

regard well I think the most important

301

00:10:37,809 --> 00:10:34,970

thing is that you want to do it well in

302

00:10:39,639 --> 00:10:37,819

this case Kevin hasn't had as much time

303

00:10:42,009 --> 00:10:39,649

as we would prefer to do the handover

304

00:10:43,720 --> 00:10:42,019

it's because of vehicle launch sequences

305

00:10:45,460 --> 00:10:43,730

and things like that and when you have a

306

00:10:49,509 --> 00:10:45,470

delay like we did for example with

307

00:10:50,679 --> 00:10:49,519

expedition 29 to 30 the expectation is

308

00:10:52,329 --> 00:10:50,689

you'll have a minimum of about two

309

00:10:54,759 --> 00:10:52,339

months to hand over with the previous

310

00:10:57,400 --> 00:10:54,769

crew and in some cases as much as four

311

00:10:59,199 --> 00:10:57,410

months to hand over and in our case you

312

00:11:01,210 --> 00:10:59,209

know Mike Fossum had about four days to

313

00:11:02,769 --> 00:11:01,220

teach me the things I needed to do to be

314

00:11:04,749 --> 00:11:02,779

able to you know take over as commander

315

00:11:05,550 --> 00:11:04,759

so it's a very busy time you spend as

316

00:11:07,500 --> 00:11:05,560

much time

317

00:11:09,900 --> 00:11:07,510

you know that if you get shorter done

318

00:11:12,990 --> 00:11:09,910

time you spend as much opportunity as

319

00:11:14,519 --> 00:11:13,000

possible by video downlink sand in

320

00:11:16,500 --> 00:11:14,529

spending time before launch to learn the

321

00:11:19,410 --> 00:11:16,510

things that you can but I'm sure it's

322

00:11:22,350 --> 00:11:19,420

been very much a high-bandwidth exchange

323

00:11:23,850 --> 00:11:22,360

of data from Sonny to Kevin to make sure

324

00:11:25,769 --> 00:11:23,860

that he understands everything he needs

325

00:11:27,210 --> 00:11:25,779

to understand about the space station

326

00:11:29,040 --> 00:11:27,220

all the things we can do in simulators

327

00:11:30,720 --> 00:11:29,050

and and the other kinds of training

328

00:11:33,300 --> 00:11:30,730

environments we have on the ground only

329

00:11:35,400 --> 00:11:33,310

go so far it's not the same as being

330

00:11:37,320 --> 00:11:35,410

there and this is a magnificent nearly

331

00:11:39,269 --> 00:11:37,330

million pound you know tall ship in

332

00:11:41,760 --> 00:11:39,279

space and and it is learning the ropes

333

00:11:42,960 --> 00:11:41,770

on that ship is a non-trivial thing so

334

00:11:45,180 --> 00:11:42,970

they've spent a lot of time doing that

335

00:11:47,100 --> 00:11:45,190

and that's been the primary focus by the

336

00:11:48,900 --> 00:11:47,110

same token as Sonny and Kevin been

337

00:11:51,420 --> 00:11:48,910

handing over Yuri's been handing over it

338

00:11:53,310 --> 00:11:51,430

all again and yevgeni and both of them

339

00:11:56,040 --> 00:11:53,320

first-time Flyers and Italian so it's a

340

00:11:58,170 --> 00:11:56,050

big it's a big transition the other

341

00:12:01,980 --> 00:11:58,180

thing that Sonny is doing that you did

342

00:12:05,460 --> 00:12:01,990

is getting ready to come home in a Soyuz

343

00:12:07,800 --> 00:12:05,470

for the first time ever what's that ride

344

00:12:09,210 --> 00:12:07,810

like it's a it's very different than a

345

00:12:11,460 --> 00:12:09,220

space shuttle ride like that but it's

346

00:12:13,500 --> 00:12:11,470

but it's exciting and fun in its own

347

00:12:15,600 --> 00:12:13,510

right it's a it's a really busy time

348

00:12:18,510 --> 00:12:15,610

it's you know obviously as dynamic and

349

00:12:21,480 --> 00:12:18,520

as as potentially challenging as any

350

00:12:23,100 --> 00:12:21,490

launch would be but they're going to be

351
00:12:24,870 --> 00:12:23,110
in the vehicle a couple of hours before

352
00:12:26,280 --> 00:12:24,880
undock and the undock will take place

353
00:12:29,250 --> 00:12:26,290
about three and a half hours before the

354
00:12:30,840 --> 00:12:29,260
landing itself you have already had an

355
00:12:32,730 --> 00:12:30,850
opportunity to get back in the suit to

356
00:12:34,470 --> 00:12:32,740
fit check the seeds to operate the

357
00:12:36,510 --> 00:12:34,480
equipment and get back into the motive

358
00:12:38,130 --> 00:12:36,520
of operating this vehicle you really

359
00:12:41,490 --> 00:12:38,140
haven't flown in for you know in this

360
00:12:43,650 --> 00:12:41,500
case 4 plus months I guess and and so

361
00:12:45,030 --> 00:12:43,660
you've and you've also spent a lot of

362
00:12:46,620 --> 00:12:45,040
time working with the ground working

363
00:12:48,960 --> 00:12:46,630

with your Soyuz instructors and the

364

00:12:50,699 --> 00:12:48,970

flight control team in Moscow to walk

365

00:12:52,890 --> 00:12:50,709

through all the various critical

366

00:12:54,630 --> 00:12:52,900

activities you got to do but once you

367

00:12:56,460 --> 00:12:54,640

get into the Soyuz it suddenly strikes

368

00:12:58,140 --> 00:12:56,470

you that this is it okay you're saying

369

00:12:59,460 --> 00:12:58,150

goodbye to your friends you're saying

370

00:13:02,220 --> 00:12:59,470

goodbye to this wonderful place you've

371

00:13:03,720 --> 00:13:02,230

been in and you're going to be there's

372

00:13:05,910 --> 00:13:03,730

there's some initial preps you got to do

373

00:13:07,829 --> 00:13:05,920

to get the the hatches closed and do

374

00:13:10,070 --> 00:13:07,839

some leak checks and then it's a it's a

375

00:13:13,500 --> 00:13:10,080

you have about an hour or so of

376

00:13:14,910 --> 00:13:13,510

relatively slow paced time to gradually

377

00:13:16,440 --> 00:13:14,920

get into your suit and get to get

378

00:13:17,850 --> 00:13:16,450

settled into the vehicle and then what

379

00:13:19,440 --> 00:13:17,860

you do the undocking things happen

380

00:13:21,030 --> 00:13:19,450

fairly quickly still it's three

381

00:13:23,010 --> 00:13:21,040

half hours before landing but there's an

382

00:13:24,630 --> 00:13:23,020

awful lot of very important dynamic

383

00:13:27,240 --> 00:13:24,640

things that take place in that time and

384

00:13:29,550 --> 00:13:27,250

as you undock the hooks open is you

385

00:13:31,140 --> 00:13:29,560

undock and you get that last view

386

00:13:34,020 --> 00:13:31,150

through the periscope of the Soyuz and

387

00:13:36,660 --> 00:13:34,030

of the the station you know to win dling

388

00:13:37,740 --> 00:13:36,670

in size out the window it you know

389

00:13:39,540 --> 00:13:37,750

that's another thing you have to write

390

00:13:42,150 --> 00:13:39,550

to your hard drive again but but you

391

00:13:44,430 --> 00:13:42,160

very gradually and and carefully back

392

00:13:46,500 --> 00:13:44,440

away from the station and the Soyuz will

393

00:13:49,770 --> 00:13:46,510

be in free flight for for for a bit and

394

00:13:52,020 --> 00:13:49,780

about an hour before landing deorbit

395

00:13:53,760 --> 00:13:52,030

burn will take place and that's just

396

00:13:56,730 --> 00:13:53,770

enough to slow you down to the point

397

00:13:57,990 --> 00:13:56,740

where the Soyuz will gradually intercept

398

00:13:59,310 --> 00:13:58,000

the upper reaches of the Earth's

399

00:14:01,920 --> 00:13:59,320

atmosphere and then the friction was

400

00:14:03,060 --> 00:14:01,930

slow yet still you down about 30 minutes

401

00:14:04,980 --> 00:14:03,070

after the deorbit burn we have

402

00:14:06,810 --> 00:14:04,990

separation where the three pieces of the

403

00:14:08,880 --> 00:14:06,820

Soyuz the descent module which I think

404

00:14:10,320 --> 00:14:08,890

you see in this view here which is the

405

00:14:11,970 --> 00:14:10,330

only portion of the Soyuz with a heat

406

00:14:14,960 --> 00:14:11,980

shield and that's where the crew is

407

00:14:18,030 --> 00:14:14,970

separates from the other two modules and

408

00:14:20,460 --> 00:14:18,040

we it's a very interesting ride very

409

00:14:23,640 --> 00:14:20,470

exciting very you know that's a G's pick

410

00:14:25,770 --> 00:14:23,650

up you can see the the plasma and the

411

00:14:26,940 --> 00:14:25,780

chunks of heat shield that are no

412

00:14:28,410 --> 00:14:26,950

flaming heat shield are going by the

413

00:14:30,650 --> 00:14:28,420

window right by your circle things like

414

00:14:34,110 --> 00:14:30,660

it is it is but it's doing its job and

415

00:14:36,060 --> 00:14:34,120

and then we the parachute opens and the

416

00:14:37,560 --> 00:14:36,070

parachute opening is very very dynamic

417

00:14:41,400 --> 00:14:37,570

very provocative from a vestibular

418

00:14:43,440 --> 00:14:41,410

standpoint kind of an event and you it's

419

00:14:45,240 --> 00:14:43,450

a you have about 11 minutes after that I

420

00:14:46,560 --> 00:14:45,250

guess and after the parachutes open and

421

00:14:47,550 --> 00:14:46,570

kind of in quick succession there's a

422

00:14:50,130 --> 00:14:47,560

number of things happen the heat shield

423

00:14:52,800 --> 00:14:50,140

this jettison the seats and that is

424

00:14:54,870 --> 00:14:52,810

they extend on their shock absorber if

425

00:14:57,690 --> 00:14:54,880

you will in an upward position to give

426

00:15:01,710 --> 00:14:57,700

you some more energy dissipation

427

00:15:03,900 --> 00:15:01,720

capability at landing and and the the

428

00:15:06,270 --> 00:15:03,910

heat of the plasma of reentry has

429

00:15:08,460 --> 00:15:06,280

charred over a protective cover over the

430

00:15:10,220 --> 00:15:08,470

windows so at some point when things got

431

00:15:12,420 --> 00:15:10,230

really hot suddenly that was all black

432

00:15:13,890 --> 00:15:12,430

and you couldn't see out the windows and

433

00:15:15,540 --> 00:15:13,900

then when the heat shield is jettisoned

434

00:15:17,400 --> 00:15:15,550

suddenly the windows are open that that

435

00:15:19,260 --> 00:15:17,410

protective cover that you know a blade

436

00:15:21,300 --> 00:15:19,270

of a cover if you will go basically

437

00:15:22,740 --> 00:15:21,310

falls falls free and then you're just

438

00:15:24,930 --> 00:15:22,750

within a couple of minutes of landing

439

00:15:27,380 --> 00:15:24,940

and riding the parachute down and then

440

00:15:30,480 --> 00:15:27,390

the landing itself is very very

441

00:15:31,800 --> 00:15:30,490

impressive you know to the G impulse is

442

00:15:33,019 --> 00:15:31,810

pretty high we've got soft landing Jets

443

00:15:35,190 --> 00:15:33,029

at the very last little

444

00:15:37,860 --> 00:15:35,200

and then within a couple of minutes

445

00:15:39,750 --> 00:15:37,870

before you know it your friends the

446

00:15:41,160 --> 00:15:39,760

folks that many of which helped train

447

00:15:43,170 --> 00:15:41,170

you and the Soyuz getting ready to go

448

00:15:45,540 --> 00:15:43,180

and and in some cases helps trapped you

449

00:15:48,090 --> 00:15:45,550

in the hatches hatch opens and you're

450

00:15:49,889 --> 00:15:48,100

seeing their smiling faces and and you

451
00:15:51,650 --> 00:15:49,899
know you're within certainly within a

452
00:15:54,150 --> 00:15:51,660
day or less of seeing your family again

453
00:15:57,480 --> 00:15:54,160
we talk a lot about the countermeasures

454
00:16:00,180 --> 00:15:57,490
that you do every day on orbit to help

455
00:16:03,150 --> 00:16:00,190
you for when you do come home how was

456
00:16:05,340 --> 00:16:03,160
your rehab tation to Earth's gravity I

457
00:16:07,079 --> 00:16:05,350
think we do a really good job at station

458
00:16:09,449 --> 00:16:07,089
right now I think with the the a red

459
00:16:11,519 --> 00:16:09,459
Vance resistive exercise device in t2

460
00:16:13,889 --> 00:16:11,529
and and of course Eve isn't Eva's any

461
00:16:16,139 --> 00:16:13,899
other you know devices we have crews are

462
00:16:17,970 --> 00:16:16,149
coming back in as good shape as they

463
00:16:19,560 --> 00:16:17,980

left in many respects we lose a little

464

00:16:20,910 --> 00:16:19,570

bit of cardiovascular deconditioning for

465

00:16:23,460 --> 00:16:20,920

me it took a couple of weeks to get back

466

00:16:25,199 --> 00:16:23,470

into running so i felt like i had the

467

00:16:27,449 --> 00:16:25,209

same amount of capacity as before I left

468

00:16:29,579 --> 00:16:27,459

but strength wise I think right at the

469

00:16:31,560 --> 00:16:29,589

get-go I felt stronger after six months

470

00:16:33,120 --> 00:16:31,570

on station for a long-duration mission

471

00:16:34,650 --> 00:16:33,130

than i did in many respects after a

472

00:16:36,540 --> 00:16:34,660

two-week shuttle mission shuttle

473

00:16:38,220 --> 00:16:36,550

missions are so busy so focused there's

474

00:16:40,470 --> 00:16:38,230

not a lot of time to exercise certainly

475

00:16:42,360 --> 00:16:40,480

to the degree that you do on station but

476

00:16:44,720 --> 00:16:42,370

i felt actually amazingly well and we

477

00:16:47,370 --> 00:16:44,730

spent about 45 minute 45 days excuse me

478

00:16:49,050 --> 00:16:47,380

gradually you know increasing our

479

00:16:51,269 --> 00:16:49,060

workload and strength training and other

480

00:16:53,160 --> 00:16:51,279

kinds of things and and before you know

481

00:16:55,410 --> 00:16:53,170

it you're you know in better shape by

482

00:16:57,930 --> 00:16:55,420

far then before you left what have you

483

00:17:01,110 --> 00:16:57,940

been working on since the 45 days and

484

00:17:02,460 --> 00:17:01,120

you're feeling yourself again well we

485

00:17:04,169 --> 00:17:02,470

get about six months to do various

486

00:17:05,730 --> 00:17:04,179

things some of its debrief some of its

487

00:17:07,890 --> 00:17:05,740

physical reconditioning some of it is

488

00:17:10,380 --> 00:17:07,900

also the opportunity to go and talk to

489

00:17:12,000 --> 00:17:10,390

do public affairs events where we can

490

00:17:13,710 --> 00:17:12,010

actually go to schools and you know talk

491

00:17:16,260 --> 00:17:13,720

about the the mission and things like

492

00:17:18,059 --> 00:17:16,270

that so that six-month is done for me

493

00:17:21,179 --> 00:17:18,069

and I'm back in the astronaut office

494

00:17:24,659 --> 00:17:21,189

working currently with a VA which is the

495

00:17:26,730 --> 00:17:24,669

space walking branch under under the the

496

00:17:28,350 --> 00:17:26,740

chief of the astronaut office so doing a

497

00:17:29,549 --> 00:17:28,360

lot of things that are that are an awful

498

00:17:31,880 --> 00:17:29,559

lot of fun is something I really love to

499

00:17:34,169 --> 00:17:31,890

do I appreciate that you're taking

500

00:17:35,700 --> 00:17:34,179

taking a few minutes to help us

501

00:17:37,919 --> 00:17:35,710

understand what Sonny is doing right now

502

00:17:39,120 --> 00:17:37,929

well welcome home well thanks for having

503

00:17:40,470 --> 00:17:39,130

us great to be here astronaut dan

504

00:17:41,760 --> 00:17:40,480

burbank the commander of the