



1
00:00:33,060 --> 00:00:30,300
good morning and welcome to the post

2
00:00:35,910 --> 00:00:33,070
flight crew press conference for the STS

3
00:00:38,670 --> 00:00:35,920
62 mission that was a 16th mission of

4
00:00:41,010 --> 00:00:38,680
columbia and the 61st mission in the

5
00:00:42,450 --> 00:00:41,020
shuttle program I'll turn it over to the

6
00:00:45,450 --> 00:00:42,460
crew commander he'll reintroduced the

7
00:00:46,890 --> 00:00:45,460
five-member crew to you and then they'll

8
00:00:49,049 --> 00:00:46,900
talk about their mission I'll turn it

9
00:00:51,329 --> 00:00:49,059
over to John Casper Thank You Kyle

10
00:00:53,640 --> 00:00:51,339
welcome everyone to our press conference

11
00:00:56,189 --> 00:00:53,650
post-flight press conference I'd like to

12
00:00:59,759 --> 00:00:56,199
start off by introducing the crew again

13
00:01:04,289 --> 00:00:59,769

on my far left Marsha Ivan's mission

14

00:01:07,950 --> 00:01:04,299

specialist on my left our pilot Andy

15

00:01:12,030 --> 00:01:07,960

Allen on my right mission specialist Sam

16

00:01:17,039 --> 00:01:12,040

game art and on our far right appear to

17

00:01:19,440 --> 00:01:17,049

it mission specialist I'd like to do now

18

00:01:21,390 --> 00:01:19,450

is to run the movie and we'll all

19

00:01:27,390 --> 00:01:21,400

narrate parts of the movie so if we

20

00:01:31,230 --> 00:01:27,400

could start that a little logo showing

21

00:01:33,090 --> 00:01:31,240

our crew patch it of course each crew

22

00:01:35,760 --> 00:01:33,100

gets a chance to design their own

23

00:01:39,510 --> 00:01:35,770

individual patch and some shots of

24

00:01:41,969 --> 00:01:39,520

suiting up before the flight here with a

25

00:01:44,910 --> 00:01:41,979

few scenes of each crew member as we Don

26

00:01:48,330 --> 00:01:44,920

our pressure suits landing in entry

27

00:01:56,870 --> 00:01:48,340

suits pilot Andy a little note home to

28

00:02:06,139 --> 00:01:59,209

if you're taking it easy here after he

29

00:02:08,690 --> 00:02:06,149

gets suited up and Sam with its friend

30

00:02:11,059 --> 00:02:08,700

Theodore this a little teddy bear that

31

00:02:13,550 --> 00:02:11,069

has traveled around the country and now

32

00:02:15,020 --> 00:02:13,560

around the world it's given two

33

00:02:18,199 --> 00:02:15,030

different travelers with a little note

34

00:02:20,210 --> 00:02:18,209

about where it's been and it took quite

35

00:02:23,330 --> 00:02:20,220

a journey quite a voyage this time

36

00:02:25,970 --> 00:02:23,340

Marcia and you can see all the the crew

37

00:02:28,009 --> 00:02:25,980

is fairly relaxed this was an

38

00:02:30,800 --> 00:02:28,019

experienced crew with nine flights among

39

00:02:36,350 --> 00:02:30,810

the five of us before we flew walking

40

00:02:39,979 --> 00:02:36,360

out to the launch pad and great weather

41

00:02:41,570 --> 00:02:39,989

for a launch that day we've all been

42

00:02:44,470 --> 00:02:41,580

here before and you can see some of the

43

00:02:46,729 --> 00:02:44,480

water deluge getting us ready to go and

44

00:02:48,680 --> 00:02:46,739

it is still a thrill each and every time

45

00:02:51,949 --> 00:02:48,690

we do it six seconds of prior is main

46

00:02:54,970 --> 00:02:51,959

engines and at T 0 we get the solid

47

00:02:58,880 --> 00:02:54,980

rockets to light off from the inside

48

00:03:00,440 --> 00:02:58,890

when the solids light off we definitely

49

00:03:01,759 --> 00:03:00,450

know we're going somewhere we don't know

50

00:03:06,410 --> 00:03:01,769

exactly where we're going but we know

51
00:03:07,940 --> 00:03:06,420
we're going it's it's a nice ride to get

52
00:03:10,940 --> 00:03:07,950
through there's a lot of vibration there

53
00:03:12,979 --> 00:03:10,950
in the first stage and it is really a

54
00:03:14,720 --> 00:03:12,989
tremendous kudo to all the people that

55
00:03:16,099 --> 00:03:14,730
make this work to me the most important

56
00:03:18,410 --> 00:03:16,109
part of the mission is the first eight

57
00:03:20,150 --> 00:03:18,420
and a half minutes and it was flawless

58
00:03:22,849 --> 00:03:20,160
all the way up and the people at the

59
00:03:24,949 --> 00:03:22,859
Kennedy Space Center deserved to each

60
00:03:27,259 --> 00:03:24,959
and every one of them heartfelt

61
00:03:30,229 --> 00:03:27,269
appreciation for how they make this look

62
00:03:31,729 --> 00:03:30,239
and and how easy they make this look and

63
00:03:33,319 --> 00:03:31,739

we know the thousands and thousands of

64

00:03:35,900 --> 00:03:33,329

checks that it takes to make it all work

65

00:03:38,449 --> 00:03:35,910

as well as it can this is the most

66

00:03:41,300 --> 00:03:38,459

versatile vehicle that we take into

67

00:03:45,050 --> 00:03:41,310

space anywhere and it's got so much

68

00:03:48,020 --> 00:03:45,060

capability getting it theirs is their

69

00:03:50,449 --> 00:03:48,030

work and they do it flawlessly again SRB

70

00:03:52,789 --> 00:03:50,459

separation at two minutes about 150,000

71

00:03:54,470 --> 00:03:52,799

feet now rights moves out quite a bit

72

00:03:57,470 --> 00:03:54,480

here they were about two and a half Gees

73

00:03:58,849 --> 00:03:57,480

on our bodies right there get up into

74

00:04:00,589 --> 00:03:58,859

space of three GS we dropped the

75

00:04:03,050 --> 00:04:00,599

external tank off yes our bees are

76
00:04:04,909 --> 00:04:03,060
recovered in the external tank we tried

77
00:04:06,280 --> 00:04:04,919
to follow it as it started its journey

78
00:04:08,229 --> 00:04:06,290
back into the Atma

79
00:04:11,349 --> 00:04:08,239
fear yeah this is going over some of

80
00:04:13,449 --> 00:04:11,359
Africa now you get a shot of our payload

81
00:04:14,679 --> 00:04:13,459
Bay it looked pretty full to us and we

82
00:04:16,360 --> 00:04:14,689
open the eye look out the window and

83
00:04:19,180 --> 00:04:16,370
open the doors but us MP in the front

84
00:04:22,540 --> 00:04:19,190
most in the back the eto cryo palette

85
00:04:23,830 --> 00:04:22,550
and the very aft end of the orbiter all

86
00:04:26,080 --> 00:04:23,840
the various experience that are going to

87
00:04:27,969 --> 00:04:26,090
be conducted the limited duration

88
00:04:29,200 --> 00:04:27,979

candidate materials exposure experiment

89

00:04:32,020 --> 00:04:29,210

on the left and then the dexters end

90

00:04:35,409 --> 00:04:32,030

effector behind it on the left you can

91

00:04:38,290 --> 00:04:35,419

see us MP again and right there and then

92

00:04:39,640 --> 00:04:38,300

the SSB UV the shuttle solar backscatter

93

00:04:43,719 --> 00:04:39,650

ultraviolet experiment on the right

94

00:04:45,339 --> 00:04:43,729

there now this us MP was that one of the

95

00:04:47,020 --> 00:04:45,349

primary payloads and you consent p was

96

00:04:48,159 --> 00:04:47,030

what we've talked about it was tellus

97

00:04:49,540 --> 00:04:48,169

Science and this is a shot of the

98

00:04:52,810 --> 00:04:49,550

Marshall payload operation control

99

00:04:54,129 --> 00:04:52,820

center and they set almost 10,000

100

00:04:56,350 --> 00:04:54,139

commands to their payloads throughout

101
00:04:58,120 --> 00:04:56,360
the mission this is some folks sitting

102
00:04:59,350 --> 00:04:58,130
at the console getting ready to look at

103
00:05:01,360 --> 00:04:59,360
some of the dendrites that were

104
00:05:03,640 --> 00:05:01,370
developed during the isothermal

105
00:05:05,950 --> 00:05:03,650
dianetics and detik growth experiment

106
00:05:08,290 --> 00:05:05,960
and this is what they were looking at

107
00:05:11,740 --> 00:05:08,300
this is what helped them to modify the

108
00:05:14,290 --> 00:05:11,750
experiment during the mission the eis g

109
00:05:15,490 --> 00:05:14,300
globe portion of oast you can see that

110
00:05:17,290 --> 00:05:15,500
little nozzle there right in the middle

111
00:05:19,089 --> 00:05:17,300
that plate which is where the nitrogen

112
00:05:22,390 --> 00:05:19,099
was released of course we didn't homes

113
00:05:23,649 --> 00:05:22,400

burn to lower altitude to 105 miles this

114

00:05:26,080 --> 00:05:23,659

is what you see what happens inside

115

00:05:28,260 --> 00:05:26,090

during enormous burn and the purpose of

116

00:05:31,120 --> 00:05:28,270

that was to try to maximize the globe

117

00:05:33,490 --> 00:05:31,130

during all the gas releases Marsha and I

118

00:05:35,080 --> 00:05:33,500

were busy photographing from inside the

119

00:05:36,790 --> 00:05:35,090

cabin to complement the sensors that

120

00:05:39,040 --> 00:05:36,800

were in the payload bay that were

121

00:05:41,080 --> 00:05:39,050

observing the glow phenomena and this is

122

00:05:42,730 --> 00:05:41,090

a two of us with a little red lenses on

123

00:05:45,339 --> 00:05:42,740

our flashlights taking pictures of the

124

00:05:49,510 --> 00:05:45,349

glow this was a 35 shot the tank Marsha

125

00:05:51,279 --> 00:05:49,520

took 35 millimeter shot of the glow one

126
00:05:52,330 --> 00:05:51,289
of the new technology demonstrations

127
00:05:54,460 --> 00:05:52,340
that we had on this flight was a

128
00:05:58,060 --> 00:05:54,470
dextrose and effector now here you can

129
00:06:00,730 --> 00:05:58,070
see Marsha coming in in to grapple the

130
00:06:01,930 --> 00:06:00,740
magnetic attachment tool of course this

131
00:06:03,909 --> 00:06:01,940
is a little bit different than what

132
00:06:05,950 --> 00:06:03,919
we've used in the past in pasture the

133
00:06:08,560 --> 00:06:05,960
RMS has always used the mechanical

134
00:06:10,300 --> 00:06:08,570
apparatus to to grapple payloads and

135
00:06:12,129 --> 00:06:10,310
this we use the magnetic or you can see

136
00:06:13,180 --> 00:06:12,139
the tracking mirror or the tracking

137
00:06:15,250 --> 00:06:13,190
target in the mirror

138
00:06:16,750 --> 00:06:15,260

and one of our office views on orbit

139

00:06:25,450 --> 00:06:16,760

here we're passing over the Bahamas

140

00:06:27,460 --> 00:06:25,460

during the operations the task was a

141

00:06:29,470 --> 00:06:27,470

multiple task looking at how you would

142

00:06:31,870 --> 00:06:29,480

assemble possibly structures in space

143

00:06:34,990 --> 00:06:31,880

like a space station we had a couple

144

00:06:36,520 --> 00:06:35,000

feedbacks into the Kevin the bottom

145

00:06:38,470 --> 00:06:36,530

there was a forced torque sensor in the

146

00:06:40,510 --> 00:06:38,480

top was the N effector or the cameras

147

00:06:42,670 --> 00:06:40,520

the little flashing lights in the center

148

00:06:45,070 --> 00:06:42,680

of this mirror big mirror is a camera in

149

00:06:47,530 --> 00:06:45,080

the payload bay and it looks at a mirror

150

00:06:49,960 --> 00:06:47,540

now on the end effector and data was

151

00:06:52,630 --> 00:06:49,970

gathered on this to understand how

152

00:06:54,580 --> 00:06:52,640

accurately we could move a target if you

153

00:06:56,200 --> 00:06:54,590

couldn't see it this could be important

154

00:06:57,640 --> 00:06:56,210

later in assembling a space structure

155

00:06:59,350 --> 00:06:57,650

when you can't actually see what you're

156

00:07:02,140 --> 00:06:59,360

doing but you have to mate two fairly

157

00:07:04,120 --> 00:07:02,150

large pieces of hardware together and it

158

00:07:06,040 --> 00:07:04,130

worked just fine you can see the arm

159

00:07:08,110 --> 00:07:06,050

here has this board at the bottom of it

160

00:07:10,840 --> 00:07:08,120

with some pegs at the end we basically

161

00:07:12,490 --> 00:07:10,850

inserted pegs in the holes and found

162

00:07:14,800 --> 00:07:12,500

that we could do this to a tolerance of

163

00:07:16,960 --> 00:07:14,810

about a 60 60 thousandths which is

164

00:07:18,970 --> 00:07:16,970

pretty small the force torque sensor

165

00:07:20,950 --> 00:07:18,980

display here indicated how much forces

166

00:07:23,500 --> 00:07:20,960

we had in six directions and it allowed

167

00:07:25,570 --> 00:07:23,510

us to basically feel what we were doing

168

00:07:32,140 --> 00:07:25,580

with the end effector in a work great

169

00:07:35,880 --> 00:07:32,150

here we are again simulating a space

170

00:07:38,770 --> 00:07:35,890

station task this is one of the

171

00:07:40,780 --> 00:07:38,780

biotechnology experiments from bio serve

172

00:07:43,240 --> 00:07:40,790

in Colorado these are rosy periwinkle

173

00:07:45,040 --> 00:07:43,250

sprouts which we grow by just inserting

174

00:07:47,110 --> 00:07:45,050

water into them when we get on board as

175

00:07:49,200 --> 00:07:47,120

it turns out the root of the rosy

176

00:07:51,670 --> 00:07:49,210

periwinkle is one of the major cancer

177

00:07:54,010 --> 00:07:51,680

fighting drugs that we have and they

178

00:07:57,100 --> 00:07:54,020

find that it grows more pure or the cell

179

00:07:58,840 --> 00:07:57,110

remembers to make more of its drug

180

00:08:01,150 --> 00:07:58,850

basically in orbit and than it does on

181

00:08:03,550 --> 00:08:01,160

the ground we took these little tubes

182

00:08:05,350 --> 00:08:03,560

out and photographed them to see how

183

00:08:06,550 --> 00:08:05,360

things were progressing and how things

184

00:08:08,200 --> 00:08:06,560

were growing if you look in there

185

00:08:10,659 --> 00:08:08,210

closely you see a little guy swimming

186

00:08:13,420 --> 00:08:10,669

around in circles that's a brine shrimp

187

00:08:15,190 --> 00:08:13,430

we grow these because they spend their

188

00:08:17,740 --> 00:08:15,200

entire lifetime in the duration of our

189

00:08:19,180 --> 00:08:17,750

plane this is the commercial protein

190

00:08:20,050 --> 00:08:19,190

crystal growth experiment that Marcia

191

00:08:22,339 --> 00:08:20,060

and I worked on

192

00:08:24,529 --> 00:08:22,349

every day or actually three times a day

193

00:08:27,739 --> 00:08:24,539

for the entire mission we took video of

194

00:08:29,149 --> 00:08:27,749

the top tray that experiment you can see

195

00:08:31,040 --> 00:08:29,159

inside the solutions there you can see

196

00:08:33,350 --> 00:08:31,050

what's forming the crystals that are

197

00:08:34,399 --> 00:08:33,360

forming this was the first time I've had

198

00:08:36,050 --> 00:08:34,409

an opportunity to work with on these

199

00:08:37,699 --> 00:08:36,060

experience and it's pretty exciting to

200

00:08:40,009 --> 00:08:37,709

see the actual growth of the crystals

201
00:08:42,050 --> 00:08:40,019
and knowing what what that will do for

202
00:08:45,769 --> 00:08:42,060
the scientists on the ground to help

203
00:08:47,900 --> 00:08:45,779
produce better drugs to fight disease we

204
00:08:50,509 --> 00:08:47,910
had another a pc g on board as well and

205
00:08:52,610 --> 00:08:50,519
then the pecans and were another crystal

206
00:08:54,680 --> 00:08:52,620
growth experiment this particular shot

207
00:08:56,590 --> 00:08:54,690
is of the modem index zero gravity

208
00:08:59,030 --> 00:08:56,600
dynamics experiment this is a

209
00:09:02,210 --> 00:08:59,040
characteristic and representative trust

210
00:09:03,650 --> 00:09:02,220
structure of a large space types trust

211
00:09:07,910 --> 00:09:03,660
this a second time this is blown

212
00:09:10,699 --> 00:09:07,920
previously on 48 now on 62 we find that

213
00:09:13,009 --> 00:09:10,709

you know over the course of the over the

214

00:09:14,810 --> 00:09:13,019

flight those protocols that we repeated

215

00:09:18,800 --> 00:09:14,820

from from the previous flight us he has

216

00:09:21,259 --> 00:09:18,810

48 overlay almost perfectly again we

217

00:09:23,449 --> 00:09:21,269

spent about nine days working on this

218

00:09:25,370 --> 00:09:23,459

particular experiment and collected some

219

00:09:26,900 --> 00:09:25,380

nine gigabytes of data that are now

220

00:09:28,069 --> 00:09:26,910

being analyzed by students at the

221

00:09:32,000 --> 00:09:28,079

Massachusetts Institute of Technology

222

00:09:34,490 --> 00:09:32,010

and in staff there this particular shot

223

00:09:37,370 --> 00:09:34,500

is during one of the educational dsos

224

00:09:39,230 --> 00:09:37,380

that we participated in this is a

225

00:09:44,630 --> 00:09:39,240

downlink video of course has been

226

00:09:47,689 --> 00:09:44,640

recorded on on board by by our equipment

227

00:09:51,800 --> 00:09:47,699

and John and I participated in a number

228

00:09:54,980 --> 00:09:51,810

of blood chemistry analysis type

229

00:09:56,540 --> 00:09:54,990

experiments testing some new prototype

230

00:09:58,100 --> 00:09:56,550

hardware actually this stuff is

231

00:09:59,750 --> 00:09:58,110

commercial hardware that's off the shelf

232

00:10:01,160 --> 00:09:59,760

but we're looking at applications for

233

00:10:02,750 --> 00:10:01,170

long-duration spaceflights blood

234

00:10:05,780 --> 00:10:02,760

chemistry is something obviously that

235

00:10:08,810 --> 00:10:05,790

that you have to watch very carefully on

236

00:10:10,880 --> 00:10:08,820

a long-duration mission to constantly

237

00:10:14,980 --> 00:10:10,890

check the health of the crew members on

238

00:10:18,350 --> 00:10:16,940

what we're trying to show here is a

239

00:10:20,570 --> 00:10:18,360

couple different things the first thing

240

00:10:23,030 --> 00:10:20,580

I am in our lower body negative pressure

241

00:10:24,890 --> 00:10:23,040

suit which is a device that's trying to

242

00:10:26,690 --> 00:10:24,900

help us readapt a gravity when we get

243

00:10:28,070 --> 00:10:26,700

home by creating a negative pressure in

244

00:10:29,780 --> 00:10:28,080

the lower half of our body which will

245

00:10:31,670 --> 00:10:29,790

help our fluids go back down into the

246

00:10:33,500 --> 00:10:31,680

lower half of our bodies and that will

247

00:10:35,810 --> 00:10:33,510

help us readapt a little bit better when

248

00:10:37,910 --> 00:10:35,820

we get home one of the other things you

249

00:10:40,160 --> 00:10:37,920

can get out of these scenes this scene

250

00:10:42,350 --> 00:10:40,170

in the next one that is coming along as

251

00:10:44,690 --> 00:10:42,360

is this area of our mid deck was

252

00:10:46,790 --> 00:10:44,700

everything to us it was every room in

253

00:10:49,880 --> 00:10:46,800

our house all put into one we've got

254

00:10:52,490 --> 00:10:49,890

Martian and peered working on the

255

00:10:55,340 --> 00:10:52,500

protein crystals Sam and I are working

256

00:10:57,019 --> 00:10:55,350

in the OMP as well as motives in the

257

00:10:59,510 --> 00:10:57,029

background there this is our our

258

00:11:01,490 --> 00:10:59,520

laboratory our gymnasium or a kitchen or

259

00:11:03,829 --> 00:11:01,500

bathroom or sleeping area bedroom and

260

00:11:07,220 --> 00:11:03,839

this is this is our home and our shower

261

00:11:08,600 --> 00:11:07,230

taking a sponge bath for 14 days you

262

00:11:10,700 --> 00:11:08,610

know it's the parts you miss here and

263

00:11:12,170 --> 00:11:10,710

getting your hair clean is easier for

264

00:11:14,720 --> 00:11:12,180

some of them than it was for others of

265

00:11:16,400 --> 00:11:14,730

us however it we carry some stuff on

266

00:11:17,690 --> 00:11:16,410

board that works pretty well they all

267

00:11:22,430 --> 00:11:17,700

had to get out of my way when I was

268

00:11:27,130 --> 00:11:22,440

doing my hair but you can see that doing

269

00:11:32,300 --> 00:11:29,540

and we always have the obligatory eating

270

00:11:33,470 --> 00:11:32,310

scene in the movie and the one thing

271

00:11:34,430 --> 00:11:33,480

most people don't think about when

272

00:11:36,980 --> 00:11:34,440

you're when you're eating up there is

273

00:11:38,630 --> 00:11:36,990

what if you need some seasoning so we

274

00:11:40,190 --> 00:11:38,640

carry a salt and pepper on board but

275

00:11:42,140 --> 00:11:40,200

it's not the kind that you shake it's

276

00:11:44,720 --> 00:11:42,150

the kind you squirt it's a salt pepper

277

00:11:47,030 --> 00:11:44,730

that's put into a solution with water

278

00:11:48,890 --> 00:11:47,040

and you just squirt the salt and pepper

279

00:11:50,480 --> 00:11:48,900

into your food and then stir it up a

280

00:11:54,900 --> 00:11:50,490

little bit and you can season your food

281

00:12:00,620 --> 00:11:58,370

as big dips in mushrooms my way

282

00:12:03,590 --> 00:12:00,630

now our laboratory or what was our

283

00:12:06,050 --> 00:12:03,600

daytime laboratory and dining area

284

00:12:08,600 --> 00:12:06,060

kitchen has now been confirmed and

285

00:12:10,180 --> 00:12:08,610

transformed into sleeping quarters and

286

00:12:14,780 --> 00:12:10,190

here you could see any up of flight deck

287

00:12:16,730 --> 00:12:14,790

Marsha in the in the airlock and as you

288

00:12:19,580 --> 00:12:16,740

pan around John and I were on the

289

00:12:22,760 --> 00:12:19,590

starboard bulkhead sleeping there and

290

00:12:24,620 --> 00:12:22,770

Pierre will ultimately see up suspended

291

00:12:27,170 --> 00:12:24,630

from the ceiling sleep is very

292

00:12:28,820 --> 00:12:27,180

comfortable you feel fully supported you

293

00:12:31,310 --> 00:12:28,830

can see the natural position that the

294

00:12:32,900 --> 00:12:31,320

body kinds of assumes with the hands and

295

00:12:40,460 --> 00:12:32,910

the arms out extended out in front of

296

00:12:42,050 --> 00:12:40,470

you and that's real the sleep restraints

297

00:12:43,130 --> 00:12:42,060

just keep us from kind of banging into

298

00:12:47,720 --> 00:12:43,140

each other although it would not be

299

00:12:49,640 --> 00:12:47,730

necessary another one of our duties on

300

00:12:52,550 --> 00:12:49,650

board is is taking pictures we took

301
00:12:54,110 --> 00:12:52,560
almost 10,000 pictures why we're on

302
00:12:56,780 --> 00:12:54,120
board every time any of us would have a

303
00:12:58,520 --> 00:12:56,790
minute we would get upstairs and work

304
00:13:01,790 --> 00:12:58,530
one of our cameras we had 90 millimeter

305
00:13:04,100 --> 00:13:01,800
camera with 70 millimeter cameras as

306
00:13:07,250 --> 00:13:04,110
well as our 35-millimeter on board plus

307
00:13:09,710 --> 00:13:07,260
our movies this first shot is just a

308
00:13:11,930 --> 00:13:09,720
shot looking down the Gulf of Aqaba down

309
00:13:13,790 --> 00:13:11,940
into the Red Sea sign eyes on on the

310
00:13:18,260 --> 00:13:13,800
right there in Saudi Arabia there's on

311
00:13:20,210 --> 00:13:18,270
the left and from our altitude and 39

312
00:13:23,930 --> 00:13:20,220
degree inclination we just got a real

313
00:13:26,840 --> 00:13:23,940

beautiful glimpse of most of the

314

00:13:29,950 --> 00:13:26,850

habitable earth some of the Himalayas

315

00:13:33,920 --> 00:13:29,960

chain with Tibet and China on each

316

00:13:35,210 --> 00:13:33,930

respective side we looked real hard to

317

00:13:38,810 --> 00:13:35,220

see if we could find the Great Wall of

318

00:13:40,340 --> 00:13:38,820

China and unfortunately some of it some

319

00:13:43,280 --> 00:13:40,350

of the best views of it were during our

320

00:13:46,790 --> 00:13:43,290

sleep periods this is a tropical cyclone

321

00:13:48,440 --> 00:13:46,800

with tane that was in the indian ocean

322

00:13:51,590 --> 00:13:48,450

during our flight we got some stills of

323

00:13:53,870 --> 00:13:51,600

this as well as some actual video of it

324

00:13:55,250 --> 00:13:53,880

and we went on two consecutive passes we

325

00:13:58,190 --> 00:13:55,260

basically went right over the thing was

326

00:14:01,070 --> 00:13:58,200

so huge that we saw it twice

327

00:14:02,540 --> 00:14:01,080

cold water clouds or closed cell clouds

328

00:14:04,430 --> 00:14:02,550

with their call these are off the coast

329

00:14:05,990 --> 00:14:04,440

of Chile and they made such an

330

00:14:07,730 --> 00:14:06,000

interesting pattern that we photographed

331

00:14:10,490 --> 00:14:07,740

them almost every time we went over them

332

00:14:13,220 --> 00:14:10,500

they are caused as a result of a high

333

00:14:15,290 --> 00:14:13,230

pressure over cold water this is one of

334

00:14:18,050 --> 00:14:15,300

our us passes here we're coming in over

335

00:14:20,000 --> 00:14:18,060

the San Francisco Bay Oakland Bay Area

336

00:14:22,910 --> 00:14:20,010

San Joaquin Valley to the further south

337

00:14:24,710 --> 00:14:22,920

there the tail and eventually we covered

338

00:14:27,050 --> 00:14:24,720

all the Sierra Nevadas and pushing out

339

00:14:30,020 --> 00:14:27,060

across towards the towards the East

340

00:14:34,340 --> 00:14:30,030

Coast we had for daylight passes every

341

00:14:35,600 --> 00:14:34,350

day typically in our afternoon now you

342

00:14:37,790 --> 00:14:35,610

can see the Sierra Nevadas the

343

00:14:42,670 --> 00:14:37,800

snow-capped Sierra Nevadas come into

344

00:14:45,110 --> 00:14:42,680

view there's a small like that it's just

345

00:14:46,880 --> 00:14:45,120

let's see I can't see it now in Mono

346

00:14:53,990 --> 00:14:46,890

Lake I think just disappeared off to the

347

00:14:56,390 --> 00:14:54,000

right side of the of the screen the us

348

00:14:58,480 --> 00:14:56,400

passes over we're pretty spectacular and

349

00:15:01,760 --> 00:14:58,490

again over the course of 14 days we had

350

00:15:03,800 --> 00:15:01,770

different attitudes and that we were

351

00:15:06,890 --> 00:15:03,810

able to see parts of the country that

352

00:15:08,780 --> 00:15:06,900

had not been photographed before sin or

353

00:15:10,340 --> 00:15:08,790

Las Vegas now it's coming right onto the

354

00:15:14,720 --> 00:15:10,350

tip of the tail there passing off the

355

00:15:16,430 --> 00:15:14,730

center and now we're going to come in

356

00:15:18,650 --> 00:15:16,440

with Houston is just off to the right

357

00:15:22,939 --> 00:15:18,660

side here and we'll come in over the

358

00:15:36,730 --> 00:15:25,259

now you can see the Gulf Coast coming

359

00:15:41,769 --> 00:15:39,310

this is a pass over the Great Lakes Lake

360

00:15:45,190 --> 00:15:41,779

Michigan on the left like here on in the

361

00:15:47,290 --> 00:15:45,200

middle Lake Erie to the right and from

362

00:15:49,900 --> 00:15:47,300

our this was a sort of the apex or 39

363

00:15:52,540 --> 00:15:49,910

degree inclination we could look well up

364

00:15:55,300 --> 00:15:52,550

into Canada as you can see here Hudson

365

00:15:57,010 --> 00:15:55,310

Bay right up on the horizon there that's

366

00:15:58,900 --> 00:15:57,020

like area that's coming into view now a

367

00:16:02,139 --> 00:15:58,910

lot of that part of the country snow

368

00:16:03,910 --> 00:16:02,149

covered this time of year and this is

369

00:16:09,180 --> 00:16:03,920

Cape Hatteras the Outer Banks North

370

00:16:18,070 --> 00:16:11,790

looking on up the coast to Norfolk

371

00:16:21,820 --> 00:16:19,780

there's a little more Nader shot of

372

00:16:23,830 --> 00:16:21,830

Virginia Beach's that point of land kind

373

00:16:25,030 --> 00:16:23,840

in the middle left center Norfolk a

374

00:16:27,240 --> 00:16:25,040

little bit more towards the top of the

375

00:16:30,880 --> 00:16:27,250

screen the Eastern Shore of Virginia

376

00:16:33,280 --> 00:16:30,890

beginning of the Chesapeake Bay tux and

377

00:16:34,870 --> 00:16:33,290

potomac rivers up there and looking not

378

00:16:36,430 --> 00:16:34,880

quite all the way to DC but you can

379

00:16:39,820 --> 00:16:36,440

almost see Washington DC be around the

380

00:16:42,370 --> 00:16:39,830

very right of the screen and this is a

381

00:16:45,700 --> 00:16:42,380

coming over the northwest tip of Cuba

382

00:16:47,560 --> 00:16:45,710

kind of heading southeast and get to see

383

00:16:48,970 --> 00:16:47,570

a little bit of the Bahamas and the

384

00:16:50,980 --> 00:16:48,980

water around there the beautiful colors

385

00:16:53,740 --> 00:16:50,990

that we've got some still shot of that

386

00:16:56,050 --> 00:16:53,750

you'll see that the very deep blue

387

00:17:05,350 --> 00:16:56,060

colors of the dip very deep ocean and

388

00:17:11,699 --> 00:17:07,990

here's some of our exercise on board we

389

00:17:15,069 --> 00:17:11,709

had a bicycle ergometer little stretch

390

00:17:17,260 --> 00:17:15,079

band there to workout and our doctors

391

00:17:19,809 --> 00:17:17,270

our medical folks said that we came back

392

00:17:21,100 --> 00:17:19,819

in great shape for the period of time

393

00:17:23,110 --> 00:17:21,110

that we're up there considering we're

394

00:17:25,210 --> 00:17:23,120

out there for 14 days we attribute part

395

00:17:27,429 --> 00:17:25,220

of this at least to the fact that we

396

00:17:30,100 --> 00:17:27,439

exercise all the crew exercised during

397

00:17:32,289 --> 00:17:30,110

the flight again right below me was John

398

00:17:34,000 --> 00:17:32,299

working on the odometer but we try to

399

00:17:36,820 --> 00:17:34,010

squeeze in where we can squeeze in and

400

00:17:39,580 --> 00:17:36,830

and use this laptop computer for just a

401
00:17:42,270 --> 00:17:39,590
myriad of different purposes on board as

402
00:17:44,950 --> 00:17:42,280
well as we can send home a LAN that

403
00:17:47,049 --> 00:17:44,960
since it was close to Spring Break but

404
00:17:48,070 --> 00:17:47,059
we travel bungee jumping and I don't

405
00:17:50,110 --> 00:17:48,080
think that have been done before in

406
00:17:51,760 --> 00:17:50,120
space we want to claim a first you

407
00:17:55,169 --> 00:17:51,770
probably didn't get the whole duration

408
00:18:02,140 --> 00:17:55,179
record but we did some bungee jumping

409
00:18:07,460 --> 00:18:05,990
floating is like for most of us a dream

410
00:18:09,590 --> 00:18:07,470
come true I mean you always dream as a

411
00:18:12,049 --> 00:18:09,600
child if you can fly and float and here

412
00:18:14,600 --> 00:18:12,059
you get the opportunity to do it and so

413
00:18:16,250 --> 00:18:14,610

when we did have the opportunity we did

414

00:18:21,919 --> 00:18:16,260

here they're playing volleyball with me

415

00:18:24,169 --> 00:18:21,929

here catch I guess it's the day before

416

00:18:27,049 --> 00:18:24,179

entry we're going over reviewing some of

417

00:18:30,380 --> 00:18:27,059

our procedures for re-entry going

418

00:18:34,280 --> 00:18:30,390

through some of the checklist that we're

419

00:18:36,560 --> 00:18:34,290

going to use to make the entry and andys

420

00:18:39,560 --> 00:18:36,570

over in the right seat working our pilot

421

00:18:42,500 --> 00:18:39,570

computer this is another laptop computer

422

00:18:45,560 --> 00:18:42,510

that we had to help us refresh ourselves

423

00:18:47,530 --> 00:18:45,570

and review the process we're going to do

424

00:18:49,730 --> 00:18:47,540

it and we go through as we come around

425

00:18:51,620 --> 00:18:49,740

intercept the heading alignment circle

426
00:18:54,740 --> 00:18:51,630
passing over the Kennedy Space Center

427
00:18:56,450 --> 00:18:54,750
and make our turn to to file into a

428
00:19:00,080 --> 00:18:56,460
landing so we had it set up over on the

429
00:19:01,789 --> 00:19:00,090
pilot seat and John and I worked quite a

430
00:19:04,850 --> 00:19:01,799
bit on it for the for the couple days

431
00:19:06,470 --> 00:19:04,860
before entry and this is just a shot of

432
00:19:09,610 --> 00:19:06,480
what the simulation looks like as we're

433
00:19:12,260 --> 00:19:09,620
passing over the threshold of a KSC 15

434
00:19:13,549 --> 00:19:12,270
getting into suits is quite an affair in

435
00:19:14,870 --> 00:19:13,559
space when you don't think about the

436
00:19:16,549 --> 00:19:14,880
fact that you can't just put your pieces

437
00:19:17,840 --> 00:19:16,559
of clothes on the floor pick them up one

438
00:19:19,970 --> 00:19:17,850

of the time and get into them it takes

439

00:19:21,470 --> 00:19:19,980

two people to get in these suits and it

440

00:19:23,150 --> 00:19:21,480

really is quite arrangement it takes a

441

00:19:27,200 --> 00:19:23,160

good bit of time to get everybody all

442

00:19:29,120 --> 00:19:27,210

suited up looking at the pilots window

443

00:19:30,680 --> 00:19:29,130

here we had a camcorder this is as we're

444

00:19:32,510 --> 00:19:30,690

going to our thermal phase which is our

445

00:19:34,340 --> 00:19:32,520

glow phase or the area that we go

446

00:19:36,289 --> 00:19:34,350

through our thermal heating the

447

00:19:37,700 --> 00:19:36,299

reflections you see off our backs that's

448

00:19:41,900 --> 00:19:37,710

a picture of John there and I'm on his

449

00:19:43,370 --> 00:19:41,910

right side that's what we call sometimes

450

00:19:45,230 --> 00:19:43,380

incorrectly the plasma or the fire

451
00:19:47,450 --> 00:19:45,240
spikes that you see coming over top up

452
00:19:49,580 --> 00:19:47,460
through the payload bay windows or

453
00:19:51,500 --> 00:19:49,590
through the overhead windows the glow is

454
00:19:52,850 --> 00:19:51,510
some beautiful colors and you can see

455
00:19:54,409 --> 00:19:52,860
we're just about threw it on my right

456
00:19:57,650 --> 00:19:54,419
window you can look down and see the

457
00:19:59,030 --> 00:19:57,660
earth again this is our trajectory as

458
00:20:00,650 --> 00:19:59,040
we're coming across the country the

459
00:20:02,240 --> 00:20:00,660
white line is our orbit if we had stayed

460
00:20:03,750 --> 00:20:02,250
in orbit but now we're doing a cross

461
00:20:06,590 --> 00:20:03,760
range across the country to get back

462
00:20:10,530 --> 00:20:06,600
home here's a shot of the actual runway

463
00:20:12,030 --> 00:20:10,540

KSC runway 33 taken out of the pilots

464

00:20:13,320 --> 00:20:12,040

right-hand window and the Vehicle

465

00:20:17,370 --> 00:20:13,330

Assembly Building down to the right

466

00:20:18,630 --> 00:20:17,380

there it really wasn't that bumpy on the

467

00:20:20,670 --> 00:20:18,640

approach it's just hard to hold that

468

00:20:23,310 --> 00:20:20,680

camera steady beautiful day at the

469

00:20:26,580 --> 00:20:23,320

Kennedy Space Center we come down the

470

00:20:30,840 --> 00:20:26,590

outer glide slope and aunty lowers the

471

00:20:33,870 --> 00:20:30,850

gear at 300 feet it's always amazing to

472

00:20:38,040 --> 00:20:33,880

me that this vehicle which has been our

473

00:20:40,350 --> 00:20:38,050

home our spaceship for 14 days now comes

474

00:20:42,180 --> 00:20:40,360

back and lands like an airplane and

475

00:20:47,539 --> 00:20:42,190

we're touching down about two hundred

476
00:20:54,169 --> 00:20:50,690
we had one last test to perform that was

477
00:20:56,350 --> 00:20:54,179
to deploy the landing drag chute which

478
00:20:59,359 --> 00:20:56,360
we've made some modifications to

479
00:21:01,789 --> 00:20:59,369
deployed that just at the start of our D

480
00:21:07,230 --> 00:21:01,799
rotation at 175 knots and worked very

481
00:21:15,060 --> 00:21:10,110
and very bright light breaking to bring

482
00:21:19,650 --> 00:21:15,070
us to a complete stop in all we flew 224

483
00:21:23,190 --> 00:21:19,660
orbits around the earth some 5.8 million

484
00:21:25,890 --> 00:21:23,200
miles and it was a great flight we're