
Jerry Ross
Chief, Vehicle Integration Test Office, JSC

1
00:00:10,370 --> 00:00:08,390
good day and welcome back to the Johnson

2
00:00:13,610 --> 00:00:10,380
Space Center as our pre-flight briefings

3
00:00:15,950 --> 00:00:13,620
continue for the sts-132 Ulf for mission

4
00:00:17,720 --> 00:00:15,960
coming up this is the mission overview

5
00:00:19,990 --> 00:00:17,730
briefing and with us to discuss the

6
00:00:22,340 --> 00:00:20,000
flight today are Mike Seraphin the

7
00:00:26,330 --> 00:00:22,350
sts-132 leads space shuttle flight

8
00:00:28,400 --> 00:00:26,340
director Emily Nelson the sts-132 Ulf

9
00:00:30,950 --> 00:00:28,410
for Leeds Space Station flight director

10
00:00:32,900 --> 00:00:30,960
and astronaut Jerry Ross the chief of

11
00:00:34,970 --> 00:00:32,910
the vehicle integration test office here

12
00:00:37,100 --> 00:00:34,980
at the Johnson Space Center one of two

13
00:00:39,110 --> 00:00:37,110

men to fly a record seven times in space

14
00:00:41,420 --> 00:00:39,120
and the only astronaut who has flown

15
00:00:43,459 --> 00:00:41,430
five times on the space shuttle Atlantis

16
00:00:46,069 --> 00:00:43,469
soon to be retired and we'll start off

17
00:00:48,410 --> 00:00:46,079
with Mike well good morning and thank

18
00:00:51,200 --> 00:00:48,420
you for your interest in the sts-132

19
00:00:52,970 --> 00:00:51,210
mission in the planned last flight of

20
00:00:54,139 --> 00:00:52,980
the space shuttle Atlantis and its

21
00:00:56,540 --> 00:00:54,149
journey to the international space

22
00:00:58,819 --> 00:00:56,550
station this morning along with my

23
00:01:01,160 --> 00:00:58,829
colleague Emily Nelson will introduce

24
00:01:03,619 --> 00:01:01,170
you to some key players that are going

25
00:01:06,920 --> 00:01:03,629
to play some pivotal roles in the

26
00:01:09,530 --> 00:01:06,930
mission of it sts-132 along with the

27
00:01:11,090 --> 00:01:09,540
provide an overview of the mission plan

28
00:01:13,280 --> 00:01:11,100
and the timeline that we have in place

29
00:01:16,219 --> 00:01:13,290
so with that I'd like you to introduce

30
00:01:18,620 --> 00:01:16,229
you to the crew of the space shuttle

31
00:01:21,350 --> 00:01:18,630
Atlantis if we could pull up the photo

32
00:01:26,570 --> 00:01:21,360
of the crew of Atlantis you see here our

33
00:01:29,120 --> 00:01:26,580
commander Ken Ham he will be the first

34
00:01:31,819 --> 00:01:29,130
time commander on this flight and he

35
00:01:33,800 --> 00:01:31,829
will be supporting the suit up of the

36
00:01:36,230 --> 00:01:33,810
spacewalkers before they go out to hatch

37
00:01:38,359 --> 00:01:36,240
each day as well as performing a lot of

38
00:01:41,600 --> 00:01:38,369

our transfer activities to resupply the

39
00:01:43,310 --> 00:01:41,610
International Space Station pilot on

40
00:01:45,590 --> 00:01:43,320
this mission is tony antonelli you see

41
00:01:48,020 --> 00:01:45,600
him in the back row in the center this

42
00:01:50,960 --> 00:01:48,030
will be his second flight as well and he

43
00:01:52,639 --> 00:01:50,970
will be supporting the task IV role on

44
00:01:56,149 --> 00:01:52,649
this mission so he'll be overseeing the

45
00:01:58,459 --> 00:01:56,159
spacewalks from inside Atlantis and just

46
00:02:01,490 --> 00:01:58,469
ensure that those happen in a timely and

47
00:02:03,800 --> 00:02:01,500
safe fashion he will also be performing

48
00:02:07,399 --> 00:02:03,810
some of the robotic activities on this

49
00:02:09,080 --> 00:02:07,409
flight along with undocking and fly

50
00:02:11,540 --> 00:02:09,090
around the International Space Station

51
00:02:14,000 --> 00:02:11,550
at the end of the mission our three

52
00:02:15,860 --> 00:02:14,010
spacewalkers garrett reisman

53
00:02:18,020 --> 00:02:15,870
Mike good and steve bowen will each be

54
00:02:21,140 --> 00:02:18,030
going out the hatch two times during our

55
00:02:23,899 --> 00:02:21,150
three plan dba's have all flown once

56
00:02:25,699 --> 00:02:23,909
before garrett in particular is a

57
00:02:27,679 --> 00:02:25,709
long-duration flyer on board the

58
00:02:30,170 --> 00:02:27,689
International Space Station stayed on

59
00:02:33,050 --> 00:02:30,180
board during the expedition 1617 time

60
00:02:36,319 --> 00:02:33,060
frame and then Pierce sellers has flown

61
00:02:39,080 --> 00:02:36,329
twice before in space get peers will be

62
00:02:41,059 --> 00:02:39,090
our systems expert on the Russian module

63
00:02:42,710 --> 00:02:41,069

flying up on this flight the rassvet or

64
00:02:47,000 --> 00:02:42,720
the miniature research module number one

65
00:02:49,640 --> 00:02:47,010
and will also be supporting the robotics

66
00:02:52,369 --> 00:02:49,650
from the International Space Station on

67
00:02:54,890 --> 00:02:52,379
the station arm all of these are veteran

68
00:02:57,020 --> 00:02:54,900
flyers only six astronauts on this

69
00:02:59,270 --> 00:02:57,030
flight we've been flying seven in the

70
00:03:00,770 --> 00:02:59,280
past and that provides with a little bit

71
00:03:02,569 --> 00:03:00,780
of a timeline challenge and workload

72
00:03:04,460 --> 00:03:02,579
challenge on this flight but it also

73
00:03:06,710 --> 00:03:04,470
provides a benefit of having additional

74
00:03:09,649 --> 00:03:06,720
launch mass to resupply the

75
00:03:12,140 --> 00:03:09,659
International Space Station I'll also

76
00:03:13,940 --> 00:03:12,150
provide you with an overview or some

77
00:03:17,599 --> 00:03:13,950
information on the crew patch if we

78
00:03:20,470 --> 00:03:17,609
could show the sts-132 crew patch this

79
00:03:25,189 --> 00:03:20,480
depicts the space shuttle Atlantis

80
00:03:28,309 --> 00:03:25,199
flying off into the sunset will if the

81
00:03:30,830 --> 00:03:28,319
12-day mission plans plays out as

82
00:03:34,990 --> 00:03:30,840
planned the Space Shuttle orbit the

83
00:03:37,640 --> 00:03:35,000
Earth 186 times during its final flight

84
00:03:41,030 --> 00:03:37,650
you can see it here flying off into the

85
00:03:44,210 --> 00:03:41,040
sunset we orbit the Earth 16 times a day

86
00:03:46,939 --> 00:03:44,220
and we see 16 sunrises and sunsets per

87
00:03:49,369 --> 00:03:46,949
orbit so is Atlantis flies off into the

88
00:03:52,909 --> 00:03:49,379

sunset we deliver in this case the

89
00:03:55,189 --> 00:03:52,919
rassvet module which means sunrise for a

90
00:03:58,789 --> 00:03:55,199
continuation of the International Space

91
00:04:00,800 --> 00:03:58,799
Station the mission itself is a very

92
00:04:03,050 --> 00:04:00,810
challenging mission we have robotics on

93
00:04:06,140 --> 00:04:03,060
nine of the 12 days of this mission

94
00:04:07,879 --> 00:04:06,150
flight day one we break out the

95
00:04:08,960 --> 00:04:07,889
shuttle's robotic arm and check it out

96
00:04:12,199 --> 00:04:08,970
and make sure that it's ready to go

97
00:04:14,599 --> 00:04:12,209
flight day two we inspect the the heat

98
00:04:16,640 --> 00:04:14,609
shield on Atlantis flight day three we

99
00:04:17,960 --> 00:04:16,650
pull the integrated cargo carrier out of

100
00:04:22,009 --> 00:04:17,970
the payload bay and install it on

101
00:04:24,860 --> 00:04:22,019
station flight day 4 we support one of

102
00:04:26,570 --> 00:04:24,870
the spacewalks played a 5 we install the

103
00:04:27,870 --> 00:04:26,580
miniature research module number one

104
00:04:30,810 --> 00:04:27,880
flight day 6 is

105
00:04:32,640 --> 00:04:30,820
support of our second spacewalk fly day

106
00:04:34,950 --> 00:04:32,650
eight again support of our third

107
00:04:36,870 --> 00:04:34,960
spacewalk flight day nine we install the

108
00:04:39,240 --> 00:04:36,880
cargo carrier back into the shuttles

109
00:04:40,830 --> 00:04:39,250
payload Bay for return and then flight

110
00:04:42,660 --> 00:04:40,840
day 10 we inspect the heat shield one

111
00:04:44,970 --> 00:04:42,670
last time so three-quarters of our

112
00:04:47,190 --> 00:04:44,980
mission is taken up with robotics

113
00:04:49,830 --> 00:04:47,200

activities and provides a great

114
00:04:52,110 --> 00:04:49,840
combination of man and machine is we

115
00:04:54,480 --> 00:04:52,120
utilize not only the robotics on this

116
00:04:58,230 --> 00:04:54,490
flight but our human space flowers

117
00:05:00,270 --> 00:04:58,240
during this 12-day mission with that I

118
00:05:02,190 --> 00:05:00,280
would like to introduce you to the key

119
00:05:03,660 --> 00:05:02,200
players on the ground here in Mission

120
00:05:05,970 --> 00:05:03,670
Control that will be supporting the

121
00:05:08,760 --> 00:05:05,980
space shuttle side of the mission I will

122
00:05:10,680 --> 00:05:08,770
be supporting is the orbit one and lead

123
00:05:12,300 --> 00:05:10,690
flight director for the mission I'll be

124
00:05:14,850 --> 00:05:12,310
a supporting during the first half of

125
00:05:17,100 --> 00:05:14,860
the cruise day from the time they wake

126
00:05:18,600 --> 00:05:17,110
up through their midday meal I'll be

127
00:05:21,090 --> 00:05:18,610
overseeing the rendezvous and docking

128
00:05:23,100 --> 00:05:21,100
operation as well as all the inspection

129
00:05:25,260 --> 00:05:23,110
activities fly day two as well as late

130
00:05:26,850 --> 00:05:25,270
inspection later on in the mission

131
00:05:28,830 --> 00:05:26,860
during the dock portion I work with my

132
00:05:30,690 --> 00:05:28,840
colleague Emily Nelson to get the crew

133
00:05:34,650 --> 00:05:30,700
out the hatch for all of the all of the

134
00:05:36,540 --> 00:05:34,660
spacewalks overseeing the asset

135
00:05:38,730 --> 00:05:36,550
operation the launch operations on this

136
00:05:41,310 --> 00:05:38,740
mission will be a Richard Jones our

137
00:05:44,340 --> 00:05:41,320
ascent flight director Richard is a

138
00:05:46,590 --> 00:05:44,350

veteran shuttle flight director many of

139
00:05:48,720 --> 00:05:46,600
you may recognize him as the lead of

140
00:05:51,270 --> 00:05:48,730
sts-131 that we just landed a couple of

141
00:05:53,730 --> 00:05:51,280
weeks ago he will oversee the launch

142
00:05:54,870 --> 00:05:53,740
operations in conjunction with our

143
00:05:57,960 --> 00:05:54,880
colleagues out at the Kennedy Space

144
00:05:59,850 --> 00:05:57,970
Center and convert Atlantis from a

145
00:06:02,660 --> 00:05:59,860
launch vehicle to an orbiting spacecraft

146
00:06:05,610 --> 00:06:02,670
this would be Richards third a sent

147
00:06:08,490 --> 00:06:05,620
Chris Edelen is our orbit to flight

148
00:06:11,280 --> 00:06:08,500
director Chris will be supporting the

149
00:06:12,750 --> 00:06:11,290
second half of the cruise day we call it

150
00:06:15,180 --> 00:06:12,760
orbit two from their midday meal until

151
00:06:17,070 --> 00:06:15,190
the start of the sleep phase and this is

152
00:06:19,970 --> 00:06:17,080
chris chris's second mission is a

153
00:06:22,590 --> 00:06:19,980
shuttle flight director ginger Carrick

154
00:06:25,080 --> 00:06:22,600
will be supporting her second mission

155
00:06:28,860 --> 00:06:25,090
and she will be supporting the overnight

156
00:06:31,530 --> 00:06:28,870
shift and replant operations and then

157
00:06:34,380 --> 00:06:31,540
Tony saatchi is our entry flight

158
00:06:36,000 --> 00:06:34,390
director tony is a veteran shuttle

159
00:06:38,670 --> 00:06:36,010
flight director many of you may

160
00:06:41,310 --> 00:06:38,680
recognize him from his lead role during

161
00:06:43,440 --> 00:06:41,320
the last Hubble servicing mission

162
00:06:48,390 --> 00:06:43,450
and this will be his first entry as an

163
00:06:49,860 --> 00:06:48,400

entry flight director so now that we've

164
00:06:52,560 --> 00:06:49,870
overviewed some of the key players on

165
00:06:54,780 --> 00:06:52,570
the flight I'd like to show you the the

166
00:06:56,760 --> 00:06:54,790
payloads and the layout of the payload

167
00:06:59,790 --> 00:06:56,770
Bay of Atlantis if we could roll our

168
00:07:01,980 --> 00:06:59,800
first video will show you the the

169
00:07:06,120 --> 00:07:01,990
payload Bay and all of the items that we

170
00:07:08,220 --> 00:07:06,130
plan to launch on board Atlantis along

171
00:07:09,960 --> 00:07:08,230
the starboard side of the payload Bay we

172
00:07:11,880 --> 00:07:09,970
have the orbiter boom sensor system that

173
00:07:15,540 --> 00:07:11,890
will use to inspect the heat shield on

174
00:07:18,270 --> 00:07:15,550
Atlantis and on the port side opposite

175
00:07:19,710 --> 00:07:18,280
the orbiter boom sensor system we had

176
00:07:22,590 --> 00:07:19,720
the shuttle's robotic arm that will

177
00:07:25,170 --> 00:07:22,600
grapple the boom with to perform the

178
00:07:26,850 --> 00:07:25,180
heat shield inspection in the front of

179
00:07:28,560 --> 00:07:26,860
the payload Bay we have the orbiter

180
00:07:30,450 --> 00:07:28,570
docking system that will serve as our

181
00:07:32,490 --> 00:07:30,460
mating interface to the International

182
00:07:34,500 --> 00:07:32,500
Space Station and provide a pressurized

183
00:07:36,720 --> 00:07:34,510
path to allow astronauts to go from

184
00:07:39,090 --> 00:07:36,730
inside Atlantis to the space station in

185
00:07:40,440 --> 00:07:39,100
the center of the payload Bay is the

186
00:07:42,630 --> 00:07:40,450
integrated cargo carrier that will

187
00:07:44,940 --> 00:07:42,640
provide critical spares to the

188
00:07:46,860 --> 00:07:44,950

International Space Station and then in

189
00:07:48,690 --> 00:07:46,870
the back of the payload Bay we have the

190
00:07:50,010 --> 00:07:48,700
miniature research module number one a

191
00:07:52,740 --> 00:07:50,020
pressurized module that will be

192
00:07:54,450 --> 00:07:52,750
installed on the Russian segment later

193
00:07:56,580 --> 00:07:54,460
on the mission Emily will provide

194
00:07:59,580 --> 00:07:56,590
additional details later on in the

195
00:08:02,910 --> 00:07:59,590
briefing regarding the mrm one as well

196
00:08:05,370 --> 00:08:02,920
as the integrated cargo carrier on

197
00:08:07,080 --> 00:08:05,380
flight day one I'll jump into the

198
00:08:09,720 --> 00:08:07,090
mission timeline now on flight day one

199
00:08:11,460 --> 00:08:09,730
we'll check the weather and the vehicle

200
00:08:14,300 --> 00:08:11,470
systems out at the Kennedy Space Center

201
00:08:16,860 --> 00:08:14,310
with our colleagues and Richard Jones

202
00:08:20,070 --> 00:08:16,870
once we see good conditions in a good

203
00:08:22,590 --> 00:08:20,080
vehicle will launch Atlantis after

204
00:08:24,750 --> 00:08:22,600
launch will convert Atlantis from a

205
00:08:26,280 --> 00:08:24,760
orbiting spacecraft or from a launch

206
00:08:28,590 --> 00:08:26,290
vehicle to an orbiting spacecraft by

207
00:08:30,920 --> 00:08:28,600
opening the payload bay doors deactivate

208
00:08:33,089 --> 00:08:30,930
all of the launch systems and then

209
00:08:36,420 --> 00:08:33,099
activate a lot of the orbital systems

210
00:08:38,100 --> 00:08:36,430
will again break out the shuttle's

211
00:08:39,180 --> 00:08:38,110
robotic arm check it out make sure it's

212
00:08:40,650 --> 00:08:39,190
ready to go for the inspection

213
00:08:42,659 --> 00:08:40,660

activities on the second day of the

214
00:08:45,750 --> 00:08:42,669
mission and the crew will set up the

215
00:08:47,700 --> 00:08:45,760
laptop network onboard the Atlantis so

216
00:08:50,340 --> 00:08:47,710
that we can gather all of the the launch

217
00:08:54,290 --> 00:08:50,350
data launch imagery and download that to

218
00:08:56,120 --> 00:08:54,300
the ground our second day of the mission

219
00:08:58,400 --> 00:08:56,130
consists primarily of the heat shield

220
00:09:01,639 --> 00:08:58,410
inspection if we could roll our second

221
00:09:05,120 --> 00:09:01,649
video will show you the inspection of

222
00:09:07,820 --> 00:09:05,130
the heat shield the day will start off

223
00:09:10,790 --> 00:09:07,830
by the crew pulling the shuttle's

224
00:09:12,259 --> 00:09:10,800
robotic arm out of its what we call pre

225
00:09:14,540 --> 00:09:12,269
cradle position which is an overnight

226
00:09:16,639 --> 00:09:14,550
stow position they'll reach over across

227
00:09:18,860 --> 00:09:16,649
the payload bay to grapple onto the

228
00:09:22,100 --> 00:09:18,870
orbiter boom and then maneuver it into

229
00:09:24,170 --> 00:09:22,110
position to perform a pan and tilt

230
00:09:27,190 --> 00:09:24,180
survey using the camera on the end of

231
00:09:29,660 --> 00:09:27,200
the boom to inspect the aft end of

232
00:09:31,490 --> 00:09:29,670
Atlantis to ensure that there were no

233
00:09:32,960 --> 00:09:31,500
thermal blankets damaged during the

234
00:09:35,840 --> 00:09:32,970
launch phase and that there's no

235
00:09:39,550 --> 00:09:35,850
residual ice on the umbilical area where

236
00:09:43,460 --> 00:09:39,560
we flow cryogenic fluids into into

237
00:09:45,560 --> 00:09:43,470
Atlantis after that pan and tilt survey

238
00:09:49,130 --> 00:09:45,570

is complete the crew will maneuver the

239
00:09:52,430 --> 00:09:49,140
arm over the starboard wing and perform

240
00:09:55,819 --> 00:09:52,440
a series of racetrack scans up and down

241
00:09:57,410 --> 00:09:55,829
the starboard wing and then once they're

242
00:10:00,800 --> 00:09:57,420
done with that go over to the nose cap

243
00:10:02,389 --> 00:10:00,810
and then port wing and basically do a

244
00:10:04,550 --> 00:10:02,399
mirror-image survey of what they did on

245
00:10:06,710 --> 00:10:04,560
the starboard side all toll the

246
00:10:09,199 --> 00:10:06,720
inspection activities takes six hours

247
00:10:11,540 --> 00:10:09,209
it's about two hours for the starboard

248
00:10:15,050 --> 00:10:11,550
wing about two hours for the nose cap

249
00:10:17,720 --> 00:10:15,060
and two hours for the port wing the

250
00:10:20,180 --> 00:10:17,730
activities will be conducted by a pilot

251
00:10:23,449 --> 00:10:20,190
tony antonelli and mission specialists

252
00:10:25,850 --> 00:10:23,459
garrett reisman and Pierce sellers all

253
00:10:29,030 --> 00:10:25,860
of the imagery gathered during the

254
00:10:33,170 --> 00:10:29,040
inspection will allow us to clear the

255
00:10:35,710 --> 00:10:33,180
vehicle from the launch phase and ensure

256
00:10:39,500 --> 00:10:35,720
that Atlantis is ready to come home

257
00:10:41,660 --> 00:10:39,510
following following a scent the imagery

258
00:10:44,870 --> 00:10:41,670
will be reviewed by a ground analysis

259
00:10:47,750 --> 00:10:44,880
team here in Houston the engineers and

260
00:10:50,720 --> 00:10:47,760
imagery analyst will use all of the the

261
00:10:54,139 --> 00:10:50,730
sensor data gathered and over the course

262
00:10:56,150 --> 00:10:54,149
of roughly a day and a half we'll review

263
00:10:58,280 --> 00:10:56,160

that in combination with the rendezvous

264
00:11:03,019 --> 00:10:58,290
pitch maneuver data gathered on flight

265
00:11:05,060 --> 00:11:03,029
day three to clear Atlantis we expect a

266
00:11:07,170 --> 00:11:05,070
decision from the debris assessment team

267
00:11:10,240 --> 00:11:07,180
in those engineers

268
00:11:12,850 --> 00:11:10,250
late on flight day three and they'll

269
00:11:14,769 --> 00:11:12,860
either area identify additional areas of

270
00:11:17,800 --> 00:11:14,779
interest that we need to go off and

271
00:11:20,490 --> 00:11:17,810
gather further imagery on to support a

272
00:11:24,790 --> 00:11:20,500
focus inspection on flight day five or

273
00:11:26,710 --> 00:11:24,800
they'll clear the vehicle with that you

274
00:11:29,500 --> 00:11:26,720
can see here the the nose cap is

275
00:11:32,710 --> 00:11:29,510
complete and the port wing survey is

276
00:11:35,500 --> 00:11:32,720
nearly complete when the crew finishes

277
00:11:37,150 --> 00:11:35,510
surveying all of the areas of the

278
00:11:38,980 --> 00:11:37,160
reinforced carbon-carbon that see the

279
00:11:42,850 --> 00:11:38,990
hottest temperatures during the re-entry

280
00:11:45,220 --> 00:11:42,860
phase as well as survey the port side of

281
00:11:46,900 --> 00:11:45,230
the of the ohms pot in the aft end of

282
00:11:50,050 --> 00:11:46,910
the vehicle but put the orbiter boom

283
00:11:51,970 --> 00:11:50,060
away to support docking operations get

284
00:11:54,370 --> 00:11:51,980
it out of the way the path of the

285
00:11:56,079 --> 00:11:54,380
docking mechanism for the for the final

286
00:11:57,940 --> 00:11:56,089
approach to the International Space

287
00:12:01,329 --> 00:11:57,950
Station and then they'll put the

288
00:12:04,780 --> 00:12:01,339

shuttles arm into a stowage position as

289
00:12:06,610 --> 00:12:04,790
well at the tail end of flight day to

290
00:12:08,800 --> 00:12:06,620
the crew will also check out a number of

291
00:12:11,140 --> 00:12:08,810
systems associated with the rendezvous

292
00:12:13,360 --> 00:12:11,150
and docking they'll install the

293
00:12:15,460 --> 00:12:13,370
centerline camera that is used to

294
00:12:18,010 --> 00:12:15,470
provide a line of sight and verify the

295
00:12:20,890 --> 00:12:18,020
corridor alignment for the final

296
00:12:23,110 --> 00:12:20,900
approach and docking they'll extend the

297
00:12:24,730 --> 00:12:23,120
docking ring and make sure that it is in

298
00:12:27,130 --> 00:12:24,740
a good configuration and ready to

299
00:12:28,870 --> 00:12:27,140
support the docking as well as check out

300
00:12:32,530 --> 00:12:28,880
a number of the rendezvous tools that

301
00:12:34,449 --> 00:12:32,540
will be used to pilot the pilot Atlantis

302
00:12:37,600 --> 00:12:34,459
to the international space station on

303
00:12:40,030 --> 00:12:37,610
the mid-deck steve bowen and garrett

304
00:12:42,730 --> 00:12:40,040
garrett reisman and my goodwill check

305
00:12:44,710 --> 00:12:42,740
out the suits that will be used later on

306
00:12:50,550 --> 00:12:44,720
the mission to support the three planned

307
00:12:52,960 --> 00:12:50,560
spacewalks on flight day 3 our

308
00:12:55,960 --> 00:12:52,970
rendezvous and docking will culminate

309
00:12:58,360 --> 00:12:55,970
midday with the docking to the

310
00:13:00,100 --> 00:12:58,370
International Space Station if we could

311
00:13:01,990 --> 00:13:00,110
roll our third video I'll show you the

312
00:13:03,850 --> 00:13:02,000
final approach to the International

313
00:13:06,150 --> 00:13:03,860

Space Station in the morning the crew

314
00:13:08,470 --> 00:13:06,160
will wake up roughly 40 nautical miles

315
00:13:11,920 --> 00:13:08,480
from station perform a series of

316
00:13:14,170 --> 00:13:11,930
rendezvous burns too close in it a range

317
00:13:16,660 --> 00:13:14,180
of roughly 600 feet directly below the

318
00:13:20,079 --> 00:13:16,670
international space station commander

319
00:13:21,999 --> 00:13:20,089
Ken Ham will stabilize Atlantis as the

320
00:13:24,160 --> 00:13:22,009
astronauts and cosmonauts onboard the

321
00:13:26,559 --> 00:13:24,170
International Space Station take digital

322
00:13:28,989 --> 00:13:26,569
still images out the window of the

323
00:13:32,049 --> 00:13:28,999
Russian segment of the heat shield on

324
00:13:33,759 --> 00:13:32,059
Atlantis using both a 400 millimeter and

325
00:13:36,280 --> 00:13:33,769
an 800 millimeter lens you can see

326
00:13:39,549 --> 00:13:36,290
depicted here by the boxes emanating

327
00:13:41,350 --> 00:13:39,559
from the from the space station all of

328
00:13:44,530 --> 00:13:41,360
the imminent images will be loaded onto

329
00:13:47,230 --> 00:13:44,540
laptops for downlink to the ground here

330
00:13:50,410 --> 00:13:47,240
in Houston again for review by the

331
00:13:52,689 --> 00:13:50,420
imagery analyst and engineers to help

332
00:13:54,160 --> 00:13:52,699
clear the vehicle and ensure that we

333
00:13:56,230 --> 00:13:54,170
have no additional areas of interest

334
00:13:59,920 --> 00:13:56,240
that we need to go review via further

335
00:14:02,049 --> 00:13:59,930
inspection following the rendezvous

336
00:14:05,559 --> 00:14:02,059
pitch maneuver commander Ken Ham will

337
00:14:07,809 --> 00:14:05,569
stabilize Atlantis directly below the

338
00:14:11,790 --> 00:14:07,819

international space station and then

339
00:14:15,819 --> 00:14:11,800
perform a quarter lap fly around to

340
00:14:18,429 --> 00:14:15,829
maneuver Atlantis and align it with the

341
00:14:20,739 --> 00:14:18,439
docking system onboard the International

342
00:14:22,900 --> 00:14:20,749
Space Station from there he'll approach

343
00:14:24,669 --> 00:14:22,910
the International Space Station down a

344
00:14:30,189 --> 00:14:24,679
very narrow two and a half degree

345
00:14:31,989 --> 00:14:30,199
corridor that will allow it to have good

346
00:14:34,150 --> 00:14:31,999
alignment for the final contact

347
00:14:36,819 --> 00:14:34,160
conditions once he verifies final

348
00:14:39,189 --> 00:14:36,829
alignment at 30 feet will press in and

349
00:14:42,730 --> 00:14:39,199
perform the docking to the International

350
00:14:45,730 --> 00:14:42,740
Space Station after a series of leak

351
00:14:48,489 --> 00:14:45,740
checks the hatches will be open the crew

352
00:14:50,619 --> 00:14:48,499
will greet each other perform a safety

353
00:14:52,360 --> 00:14:50,629
briefing transfer a couple of critical

354
00:14:54,249 --> 00:14:52,370
items including the suits used to

355
00:14:56,259 --> 00:14:54,259
perform the spacewalk on the next day of

356
00:14:58,509 --> 00:14:56,269
the mission and the docked mission will

357
00:15:01,389 --> 00:14:58,519
begin and with that I'd like to turn the

358
00:15:03,549 --> 00:15:01,399
the briefing over to Emily Nelson thanks

359
00:15:06,669 --> 00:15:03,559
Mike good morning thanks for being here

360
00:15:08,949 --> 00:15:06,679
the sts-132 you love for mission is a

361
00:15:10,780 --> 00:15:08,959
flight with a real international flavor

362
00:15:12,489 --> 00:15:10,790
to it this will be the first time in

363
00:15:14,139 --> 00:15:12,499

about 15 years we've launched a Russian

364
00:15:17,290 --> 00:15:14,149
module in the shuttle payload Bay that

365
00:15:19,509 --> 00:15:17,300
last time was on sts 74 back in 1995 to

366
00:15:21,369 --> 00:15:19,519
the MIR space station this is the first

367
00:15:23,559 --> 00:15:21,379
time we've taken one of our Russian

368
00:15:26,049 --> 00:15:23,569
modules to ISS in the shuttle payload

369
00:15:27,639 --> 00:15:26,059
Bay and we've been working hard with our

370
00:15:29,259 --> 00:15:27,649
Russian colleagues over the last year to

371
00:15:30,879 --> 00:15:29,269
get both the module and our teams in

372
00:15:33,100 --> 00:15:30,889
both Moscow and Houston ready for this

373
00:15:33,519 --> 00:15:33,110
flight we're also flying the enhanced

374
00:15:34,900 --> 00:15:33,529
our

375
00:15:36,550 --> 00:15:34,910
you temporary platform which is a

376
00:15:38,290 --> 00:15:36,560
Canadian piece of hardware along with

377
00:15:41,290 --> 00:15:38,300
several science experiments from the

378
00:15:42,819 --> 00:15:41,300
Jackson japanese space agency so several

379
00:15:45,639 --> 00:15:42,829
of our partners have significant

380
00:15:47,590 --> 00:15:45,649
participation in this flight in terms of

381
00:15:49,119 --> 00:15:47,600
us hardware our biggest objectives are

382
00:15:52,660 --> 00:15:49,129
to install a backup k you band

383
00:15:54,639 --> 00:15:52,670
communication system and to replace six

384
00:15:56,889 --> 00:15:54,649
of the very large batteries out on the

385
00:15:58,989 --> 00:15:56,899
p6 truss that are a part of the primary

386
00:16:00,999 --> 00:15:58,999
power system those batteries have been

387
00:16:02,290 --> 00:16:01,009
on orbit since november of two thousand

388
00:16:04,119 --> 00:16:02,300

and we're going to take this opportunity

389
00:16:05,739 --> 00:16:04,129
to do some preventive maintenance to

390
00:16:08,499 --> 00:16:05,749
ensure that our primary power system is

391
00:16:10,090 --> 00:16:08,509
good to go for years to come before I

392
00:16:11,710 --> 00:16:10,100
get into a summary of the doct mission

393
00:16:14,110 --> 00:16:11,720
timeline I'd like to introduce our teams

394
00:16:16,059 --> 00:16:14,120
both on the ground and on orbit I'll be

395
00:16:17,710 --> 00:16:16,069
as lead Space Station flight director

396
00:16:20,319 --> 00:16:17,720
I'll be working the orbit two shift

397
00:16:22,119 --> 00:16:20,329
that'll be centered on the crude a

398
00:16:25,929 --> 00:16:22,129
largely centered on the spacewalks

399
00:16:28,480 --> 00:16:25,939
themselves for orbit one we have poly

400
00:16:30,129 --> 00:16:28,490
writings and one of our more experienced

401
00:16:31,780 --> 00:16:30,139
space station flight directors this will

402
00:16:33,819 --> 00:16:31,790
be her fourth mission joint mission

403
00:16:36,579 --> 00:16:33,829
she's also been an expedition lead

404
00:16:38,110 --> 00:16:36,589
flight director her team will be working

405
00:16:40,059 --> 00:16:38,120
in the crew morning timeframe and

406
00:16:42,220 --> 00:16:40,069
they'll be working to get the crew

407
00:16:43,540 --> 00:16:42,230
started on their activities each day and

408
00:16:46,299 --> 00:16:43,550
then on EV a day is getting the crew

409
00:16:48,850 --> 00:16:46,309
suited up and out the door then on orbit

410
00:16:50,619 --> 00:16:48,860
3 the sleep shift we have Scott Stover

411
00:16:52,540 --> 00:16:50,629
this is his first flight as a space

412
00:16:54,100 --> 00:16:52,550
station flight director and his team

413
00:16:56,799 --> 00:16:54,110

will be wrapping up the crews activities

414
00:16:58,269 --> 00:16:56,809
each day and then working to incorporate

415
00:17:00,549 --> 00:16:58,279
any changes that we've encountered over

416
00:17:01,920 --> 00:17:00,559
the course of the day into new plans for

417
00:17:04,179 --> 00:17:01,930
the next day and the rest of the mission

418
00:17:05,770 --> 00:17:04,189
then on call in the event that we run

419
00:17:07,600 --> 00:17:05,780
into technical challenges will be Royce

420
00:17:10,120 --> 00:17:07,610
Renfrew and he'll be leaving our team

421
00:17:12,220 --> 00:17:10,130
for support and finally supporting from

422
00:17:16,750 --> 00:17:12,230
Moscow specifically for mrm one

423
00:17:21,420 --> 00:17:18,400
national partner liaison to help us out

424
00:17:25,120 --> 00:17:21,430
if we run into any trouble with mr m1

425
00:17:28,270 --> 00:17:25,130
and for the ISS crew on orbit today we

426
00:17:30,880 --> 00:17:28,280
have a photo from left to right we have

427
00:17:33,220 --> 00:17:30,890
flight engineer mikhail kornienko flight

428
00:17:36,610 --> 00:17:33,230
engineer Tracy Caldwell Dyson flight

429
00:17:39,820 --> 00:17:36,620
engineer Alexander Skvortsov the ISS

430
00:17:41,650 --> 00:17:39,830
commander Oleg Kotov flight engineer TJ

431
00:17:44,170 --> 00:17:41,660
creamer and flight engineer sweetie

432
00:17:45,610 --> 00:17:44,180
noguchi the ISIS crew we're going to

433
00:17:47,530 --> 00:17:45,620
play several key roles during this

434
00:17:49,870 --> 00:17:47,540
mission with only six shuttle crew

435
00:17:52,060 --> 00:17:49,880
members we are using the ISS crew maybe

436
00:17:53,680 --> 00:17:52,070
more than we have in the past tracy is

437
00:17:55,300 --> 00:17:53,690
trained to be a critical part of several

438
00:17:57,940 --> 00:17:55,310

of our robotic activities throughout the

439
00:18:00,790 --> 00:17:57,950
flight TJ and tracy will both be helping

440
00:18:02,800 --> 00:18:00,800
can get the crew ready for EBA

441
00:18:04,540 --> 00:18:02,810
activities on several of our EBA days

442
00:18:06,130 --> 00:18:04,550
and then Oleg will be working with

443
00:18:10,170 --> 00:18:06,140
Garrett and piers on the emer and one

444
00:18:12,970 --> 00:18:10,180
installation day let's see in addition

445
00:18:14,500 --> 00:18:12,980
ISS has been a very busy spaceport this

446
00:18:17,500 --> 00:18:14,510
spring possibly as busy as we've ever

447
00:18:19,090 --> 00:18:17,510
seen it with not only Atlantis arriving

448
00:18:20,410 --> 00:18:19,100
soon but a number of other vehicles

449
00:18:23,080 --> 00:18:20,420
arriving and departing in the weeks

450
00:18:25,570 --> 00:18:23,090
before and after the flight this past

451
00:18:28,810 --> 00:18:25,580
Saturday on may first we had the arrival

452
00:18:31,090 --> 00:18:28,820
and successful docking of progress 37 to

453
00:18:33,540 --> 00:18:31,100
the Pierce docking module in this

454
00:18:36,100 --> 00:18:33,550
graphic you can see where 37 ended up

455
00:18:38,890 --> 00:18:36,110
then one week from today on May tenth

456
00:18:40,930 --> 00:18:38,900
will have progress 36 departure from the

457
00:18:44,080 --> 00:18:40,940
AFT port of the Zvezda module at the

458
00:18:51,160 --> 00:18:44,090
very back of the ISS I think we have a

459
00:18:53,560 --> 00:18:51,170
graphic of that one as well and then two

460
00:18:56,020 --> 00:18:53,570
days after that will have on March

461
00:18:58,180 --> 00:18:56,030
twelfth so we use 21 which is currently

462
00:19:00,790 --> 00:18:58,190
docked to the nadir or earth-facing port

463
00:19:02,560 --> 00:19:00,800

of the zarya module it'll be relocated

464
00:19:05,020 --> 00:19:02,570
to the aft port of the Zvezda module

465
00:19:07,600 --> 00:19:05,030
which was just vacated by progress 36

466
00:19:09,250 --> 00:19:07,610
this relocation is critical to the

467
00:19:11,350 --> 00:19:09,260
launch of Atlantis because it frees up

468
00:19:13,210 --> 00:19:11,360
the nadir port on zaria for us to

469
00:19:14,830 --> 00:19:13,220
install mrm one there so we need to have

470
00:19:17,650 --> 00:19:14,840
a port for that installation before we

471
00:19:20,350 --> 00:19:17,660
can get off the ground then during the

472
00:19:22,150 --> 00:19:20,360
sts-132 mission itself sweetie Oleg and

473
00:19:24,820 --> 00:19:22,160
TJ will begin preparation for their

474
00:19:27,250 --> 00:19:24,830
return trip Soyuz 21 will undock from

475
00:19:29,110 --> 00:19:27,260
the ISS about nine days after Atlantis

476
00:19:29,990 --> 00:19:29,120
is scheduled for departure and they'll

477
00:19:32,390 --> 00:19:30,000
land in kha'zix

478
00:19:37,250 --> 00:19:32,400
on june first at approximately 10 25

479
00:19:38,570 --> 00:19:37,260
central time let's see if we can review

480
00:19:40,130 --> 00:19:38,580
our payloads in the paler bay in a

481
00:19:42,680 --> 00:19:40,140
little bit more detail we have a video

482
00:19:45,710 --> 00:19:42,690
of our mrm one module called Russ vet or

483
00:19:47,030 --> 00:19:45,720
dawn mrm one was built by the energy a

484
00:19:49,400 --> 00:19:47,040
corporation at their facility on the

485
00:19:52,070 --> 00:19:49,410
outskirts of Moscow delivered to KSC on

486
00:19:53,570 --> 00:19:52,080
December 17th of last year in addition

487
00:19:54,830 --> 00:19:53,580
to the science facilities inside the

488
00:19:57,770 --> 00:19:54,840

module there are a number of important

489
00:19:59,480 --> 00:19:57,780
items on that external of the module you

490
00:20:02,360 --> 00:19:59,490
have the European robotic arm spare

491
00:20:04,430 --> 00:20:02,370
elbow and the grapple fixture that will

492
00:20:07,130 --> 00:20:04,440
be used by the SS RMS to position the

493
00:20:08,960 --> 00:20:07,140
module for installation then on top of

494
00:20:10,910 --> 00:20:08,970
the module in the graphic you have a

495
00:20:12,650 --> 00:20:10,920
radiator and an airlock both of which

496
00:20:14,960 --> 00:20:12,660
will ultimately be installed on the

497
00:20:16,730 --> 00:20:14,970
Russian multi-purpose laboratory module

498
00:20:20,090 --> 00:20:16,740
which is scheduled for launch in early

499
00:20:21,650 --> 00:20:20,100
2012 on top of the airlock you can see

500
00:20:23,060 --> 00:20:21,660
the second grapple fixture this one will

501
00:20:24,500 --> 00:20:23,070
be used by the shuttle robotic arm to

502
00:20:27,230 --> 00:20:24,510
pull the module out of the payload Bay

503
00:20:28,970 --> 00:20:27,240
and then we have a portable work

504
00:20:30,530 --> 00:20:28,980
platform that will ultimately be used by

505
00:20:32,540 --> 00:20:30,540
evie a crew members to control the

506
00:20:35,120 --> 00:20:32,550
European robotic arm from outside the

507
00:20:37,430 --> 00:20:35,130
space station we can go directly into

508
00:20:41,000 --> 00:20:37,440
video we have of em room 1 while it was

509
00:20:43,160 --> 00:20:41,010
being processed at Cape Canaveral here

510
00:20:46,100 --> 00:20:43,170
you see mr m1 outfitted and almost ready

511
00:20:48,170 --> 00:20:46,110
for transfer to the launch pad then we

512
00:20:49,880 --> 00:20:48,180
have the airlock again this one like the

513
00:20:51,710 --> 00:20:49,890

airlock on the Japanese module is sized

514
00:20:54,800 --> 00:20:51,720
for scientific payloads and hardware not

515
00:20:57,620 --> 00:20:54,810
for personnel and then back behind the

516
00:21:00,980 --> 00:20:57,630
airlock you can see the radiator that's

517
00:21:03,920 --> 00:21:00,990
destined for MLM as well as they're

518
00:21:08,840 --> 00:21:03,930
below the airlock the portable work

519
00:21:11,270 --> 00:21:08,850
platform mrm one as Mike mentioned will

520
00:21:14,030 --> 00:21:11,280
be installed on flight day 5 it'll be

521
00:21:16,850 --> 00:21:14,040
attached to the nadir port of the zarya

522
00:21:18,290 --> 00:21:16,860
module that's the earth-facing port here

523
00:21:19,580 --> 00:21:18,300
you see the docking system that will be

524
00:21:21,560 --> 00:21:19,590
so critical to our activation

525
00:21:23,180 --> 00:21:21,570
installation activities as it was

526
00:21:24,770 --> 00:21:23,190
installed by the inner gear personnel

527
00:21:26,390 --> 00:21:24,780
there at the Cape this is the same

528
00:21:29,120 --> 00:21:26,400
docking system that is used on all of

529
00:21:30,530 --> 00:21:29,130
our progress and Soyuz vehicles so we

530
00:21:34,790 --> 00:21:30,540
have a great deal of experience both a

531
00:21:37,550 --> 00:21:34,800
mirror and ISS with this hardware here

532
00:21:40,070 --> 00:21:37,560
you see the opposite end of the module

533
00:21:41,780 --> 00:21:40,080
and this the docking port that will be

534
00:21:44,029 --> 00:21:41,790
used for future so use of progress

535
00:21:45,649 --> 00:21:44,039
flights then as the module spends

536
00:21:47,299 --> 00:21:45,659
can see the spare elbow joint for the

537
00:21:49,129 --> 00:21:47,309
European arm is shrouded there on a

538
00:21:50,869 --> 00:21:49,139

lower part of the module and then you

539
00:21:52,700 --> 00:21:50,879
see the grapple fixture that will be

540
00:21:54,710 --> 00:21:52,710
used by the station arm coming into view

541
00:21:56,570 --> 00:21:54,720
there on the right that grapple fixture

542
00:21:58,609 --> 00:21:56,580
is critical to installation because it's

543
00:22:00,950 --> 00:21:58,619
the path for power and data to and from

544
00:22:03,229 --> 00:22:00,960
the module this is the first time we're

545
00:22:05,719 --> 00:22:03,239
going to install a module on ISS using

546
00:22:07,729 --> 00:22:05,729
the robotic arm to pass data and control

547
00:22:11,389 --> 00:22:07,739
to the active side of the docking

548
00:22:12,950 --> 00:22:11,399
mechanism usually four modules installed

549
00:22:14,869 --> 00:22:12,960
by the arm the active half of the

550
00:22:17,749 --> 00:22:14,879
mechanism is on ISS so that'll be a new

551
00:22:20,029 --> 00:22:17,759
operation for us the model is about 23

552
00:22:21,830 --> 00:22:20,039
feet long weighs a little over 17,000

553
00:22:23,930 --> 00:22:21,840
pounds and here finally you see it

554
00:22:26,599 --> 00:22:23,940
inserted in the payload canister ready

555
00:22:28,129 --> 00:22:26,609
for transport to the launch pad where it

556
00:22:29,719 --> 00:22:28,139
is today and it will be inserted into

557
00:22:32,450 --> 00:22:29,729
the shuttle bay payload bay here sir

558
00:22:39,379 --> 00:22:32,460
shortly then we have another video with

559
00:22:41,060 --> 00:22:39,389
overview of the ICC V LD in the payload

560
00:22:43,219 --> 00:22:41,070
Bay just in front of mr m1 the

561
00:22:46,639 --> 00:22:43,229
integrated cargo carrier vertical light

562
00:22:49,070 --> 00:22:46,649
deployable or I ccv LD for short we'll

563
00:22:51,259 --> 00:22:49,080

start with the space to ground antenna

564
00:22:52,879 --> 00:22:51,269
boom which will be installed on the z1

565
00:22:55,249 --> 00:22:52,889
trust near an existing space to ground

566
00:22:57,200 --> 00:22:55,259
antenna system then the space to ground

567
00:22:59,599 --> 00:22:57,210
antenna itself which we call the dish

568
00:23:01,519 --> 00:22:59,609
for obvious reasons it will be installed

569
00:23:03,469 --> 00:23:01,529
on the boom and will become our backup k

570
00:23:05,239 --> 00:23:03,479
you band communication system then we

571
00:23:07,399 --> 00:23:05,249
have the enhanced oru temporary platform

572
00:23:09,409 --> 00:23:07,409
will be installed on dexter the special

573
00:23:10,879 --> 00:23:09,419
purpose dexterous manipulator and it

574
00:23:12,529 --> 00:23:10,889
will be used as a pallet to house the

575
00:23:14,690 --> 00:23:12,539
spares that dexter will install for us

576
00:23:17,089 --> 00:23:14,700
and we have a couple of grapple fixtures

577
00:23:18,799 --> 00:23:17,099
for moving the pallet around and finally

578
00:23:21,349 --> 00:23:18,809
we have the six batteries that will be

579
00:23:23,509 --> 00:23:21,359
installing out on the p6 truss and we'll

580
00:23:25,279 --> 00:23:23,519
be taking the old batteries from the

581
00:23:27,139 --> 00:23:25,289
trust and reinstalling them on this

582
00:23:31,669 --> 00:23:27,149
carrier where they'll return home in the

583
00:23:33,469 --> 00:23:31,679
payload Bay at the end of the mission so

584
00:23:35,269 --> 00:23:33,479
moving back into the mission chronology

585
00:23:38,149 --> 00:23:35,279
Mike left off with the docking of

586
00:23:39,889 --> 00:23:38,159
Atlantis to ISS as soon as we've had a

587
00:23:41,299 --> 00:23:39,899
chance for everyone to say hello get

588
00:23:43,310 --> 00:23:41,309

gotten the safety briefings the crew

589
00:23:45,710 --> 00:23:43,320
will get immediately back to work they

590
00:23:47,089 --> 00:23:45,720
will Garrett and Steve will be gathering

591
00:23:49,639 --> 00:23:47,099
items that they'll need to prepare the

592
00:23:52,339 --> 00:23:49,649
airlock for the EBA the next day while

593
00:23:53,720 --> 00:23:52,349
Tracy and piers extract the icc BLD from

594
00:23:56,590 --> 00:23:53,730
the payload bay and we have some video

595
00:24:00,950 --> 00:23:59,210
peers will grapple the ICC BLD in the

596
00:24:03,200 --> 00:24:00,960
payload Bay with the station arm pull it

597
00:24:06,080 --> 00:24:03,210
out of the bay and then maneuver it up

598
00:24:07,430 --> 00:24:06,090
to a spot close to the z1 trust where

599
00:24:10,640 --> 00:24:07,440
Garrett and Steve will be doing much of

600
00:24:12,920 --> 00:24:10,650
their work on EBA one next morning it's

601
00:24:15,110 --> 00:24:12,930
of note that this is the first use of

602
00:24:18,980 --> 00:24:15,120
the cupola module which was installed by

603
00:24:20,840 --> 00:24:18,990
the sts-132 back in January we in the

604
00:24:22,610 --> 00:24:20,850
last couple of weeks have relocated one

605
00:24:24,440 --> 00:24:22,620
of our robotic workstations into the

606
00:24:26,240 --> 00:24:24,450
cupola so that it can now be used as a

607
00:24:27,710 --> 00:24:26,250
base for our robotic operate when we

608
00:24:30,530 --> 00:24:27,720
finish with these activities at the end

609
00:24:32,120 --> 00:24:30,540
of the day though this animation doesn't

610
00:24:33,560 --> 00:24:32,130
appear particularly fast this is quite a

611
00:24:39,050 --> 00:24:33,570
bit faster than what we'll see in real

612
00:24:41,720 --> 00:24:39,060
life so to carry on with that operation

613
00:24:43,790 --> 00:24:41,730

piers is going to thread the ICC BLD to

614
00:24:45,470 --> 00:24:43,800
a spot in almost the center of the trust

615
00:24:47,630 --> 00:24:45,480
where will then grapple it with the

616
00:24:50,480 --> 00:24:47,640
mobile base system on what we call the

617
00:24:51,980 --> 00:24:50,490
poet that mobile base can then move from

618
00:24:55,520 --> 00:24:51,990
the center of the trust where we need it

619
00:24:57,170 --> 00:24:55,530
on EBA one near the z1 trust out to the

620
00:24:58,880 --> 00:24:57,180
far port end of the space station for

621
00:25:01,460 --> 00:24:58,890
EPA's two and three for those battery

622
00:25:03,080 --> 00:25:01,470
are NRS on flight day three we'll finish

623
00:25:05,060 --> 00:25:03,090
up by isolating Garrett and Steve in the

624
00:25:07,580 --> 00:25:05,070
airlock as they prepare for EBA one the

625
00:25:10,520 --> 00:25:07,590
next day moving on to flight day four

626
00:25:12,260 --> 00:25:10,530
it's our first EV a day at least ashore

627
00:25:14,750 --> 00:25:12,270
we'll be giving you a detailed EBA

628
00:25:16,100 --> 00:25:14,760
briefing immediately after or shortly

629
00:25:18,020 --> 00:25:16,110
after this briefing so I won't cover

630
00:25:22,370 --> 00:25:18,030
those in detail will just cover them at

631
00:25:24,200 --> 00:25:22,380
a very high level four EV a one-hour EV

632
00:25:26,780 --> 00:25:24,210
crew members are garrett reisman and

633
00:25:30,530 --> 00:25:26,790
steve bowen Garrett will be ev1 and

634
00:25:32,120 --> 00:25:30,540
Steve will be ev2 can Mike and TJ will

635
00:25:34,280 --> 00:25:32,130
be helping them get suited up in the air

636
00:25:35,840 --> 00:25:34,290
lock Tony as Mike mentioned will be our

637
00:25:38,600 --> 00:25:35,850
IV crew member helping them through

638
00:25:40,760 --> 00:25:38,610

their timelines through the EVs peers

639
00:25:43,550 --> 00:25:40,770
and Tracy will be providing SS RMS

640
00:25:45,410 --> 00:25:43,560
support and the SSR ms and EBA

641
00:25:47,420 --> 00:25:45,420
operations for each of the three EPA's

642
00:25:49,910 --> 00:25:47,430
are highly integrated and were highly

643
00:25:53,000 --> 00:25:49,920
dependent on that integrated timeline

644
00:25:54,350 --> 00:25:53,010
going well big picture items for the CVA

645
00:25:56,180 --> 00:25:54,360
are going to be the installation of the

646
00:26:00,050 --> 00:25:56,190
redundant space-to-ground antenna system

647
00:26:02,150 --> 00:26:00,060
and the e OTP then we will send Steve

648
00:26:04,850 --> 00:26:02,160
over to the ICC BLD where he will

649
00:26:07,280 --> 00:26:04,860
release the launch torques that were put

650
00:26:08,400 --> 00:26:07,290
on the ICC VL d batteries which will

651
00:26:11,220 --> 00:26:08,410
save us some time in

652
00:26:12,720 --> 00:26:11,230
two and three we estimate the EBA is

653
00:26:14,640 --> 00:26:12,730
going to take about six hours and 30

654
00:26:16,980 --> 00:26:14,650
minutes and then at the very end of the

655
00:26:19,980 --> 00:26:16,990
day as the EV crew members coming back

656
00:26:22,590 --> 00:26:19,990
inside ken and Tony will be positioning

657
00:26:24,960 --> 00:26:22,600
the shuttle arm immediately over the mrm

658
00:26:27,330 --> 00:26:24,970
one so that we can pull it out of the

659
00:26:29,370 --> 00:26:27,340
bay the next morning the highlight of

660
00:26:31,500 --> 00:26:29,380
flight day 5 then will be the mrm one

661
00:26:34,920 --> 00:26:31,510
installation and we have animation of

662
00:26:37,380 --> 00:26:34,930
that one as well not shown in the video

663
00:26:39,240 --> 00:26:37,390

ken and Tony will grapple mrm one then

664
00:26:41,100 --> 00:26:39,250
piers is going to deactivate the module

665
00:26:42,570 --> 00:26:41,110
in the payload Bay it'll be pulled from

666
00:26:44,460 --> 00:26:42,580
the payload Bay to a position where the

667
00:26:46,350 --> 00:26:44,470
station arm can reach it and then

668
00:26:49,380 --> 00:26:46,360
Garrett and peers will grapple and

669
00:26:51,450 --> 00:26:49,390
reactivate the module on ISS power the

670
00:26:53,370 --> 00:26:51,460
shuttle arm will then ungrateful moved

671
00:26:55,680 --> 00:26:53,380
to a viewing position while mrm one

672
00:26:57,870 --> 00:26:55,690
begins its trip across the space station

673
00:27:00,990 --> 00:26:57,880
over to the nadir port of the zarya

674
00:27:07,440 --> 00:27:01,000
module again I expect these views to be

675
00:27:10,020 --> 00:27:07,450
pretty spectacular piers once the once

676
00:27:11,820 --> 00:27:10,030
mr m1 docking system is aligned with the

677
00:27:15,120 --> 00:27:11,830
zaria docking cone which you'll hear

678
00:27:16,680 --> 00:27:15,130
just see here shortly in the video peers

679
00:27:18,900 --> 00:27:16,690
will initiate an automated docking

680
00:27:20,250 --> 00:27:18,910
sequence that will complete all the

681
00:27:21,960 --> 00:27:20,260
mechanical electrical and data

682
00:27:27,720 --> 00:27:21,970
connections within the interface

683
00:27:29,310 --> 00:27:27,730
automatically again this video is

684
00:27:35,049 --> 00:27:29,320
actually much faster than what we'll see

685
00:27:39,320 --> 00:27:37,399
once in room one installation is

686
00:27:41,029 --> 00:27:39,330
complete we'll use the station arm to

687
00:27:42,529 --> 00:27:41,039
pull opss off the side of the shuttle

688
00:27:44,509 --> 00:27:42,539

payload Bay hand it off to the shuttle

689
00:27:46,129 --> 00:27:44,519
arm then if there are any concerns about

690
00:27:48,019 --> 00:27:46,139
the integrity of the shuttles thermal

691
00:27:51,110 --> 00:27:48,029
protection system will inspect any

692
00:27:53,960 --> 00:27:51,120
trouble spots and if there are no issues

693
00:27:56,509 --> 00:27:53,970
then the OB SS will be positioned for

694
00:27:57,649 --> 00:27:56,519
viewing of epa's two and three well

695
00:27:59,480 --> 00:27:57,659
finish up flight day five with the

696
00:28:01,159 --> 00:27:59,490
review of the EBA two procedures and

697
00:28:02,830 --> 00:28:01,169
then we'll get Steve and Mike in the

698
00:28:04,970 --> 00:28:02,840
airlock to get ready for EBA to

699
00:28:06,799 --> 00:28:04,980
overnight the ground teams are going to

700
00:28:09,169 --> 00:28:06,809
transport translate the mobile

701
00:28:10,970 --> 00:28:09,179
transporter with the ICC BLD on top of

702
00:28:12,799 --> 00:28:10,980
it over to the port side of the vehicle

703
00:28:16,399 --> 00:28:12,809
and preparation for the EBA work the

704
00:28:17,930 --> 00:28:16,409
next day on flight day 6 we'll start the

705
00:28:20,810 --> 00:28:17,940
morning off with Garrett and piers

706
00:28:22,909 --> 00:28:20,820
taking the icc BLD off of that mobile

707
00:28:25,430 --> 00:28:22,919
based system and getting it positioned

708
00:28:28,129 --> 00:28:25,440
for the EBA crew members to have access

709
00:28:32,419 --> 00:28:28,139
to it meanwhile Steve Bowen who will be

710
00:28:35,299 --> 00:28:32,429
our EV one for EV a2 and Mike good rev.2

711
00:28:37,310 --> 00:28:35,309
for my EBA two will be getting ready in

712
00:28:39,499 --> 00:28:37,320
the airlock this time tracy and Ken will

713
00:28:41,119 --> 00:28:39,509

be helping them get suited up Tony will

714
00:28:43,549 --> 00:28:41,129
again be our IV a walking them through

715
00:28:44,990 --> 00:28:43,559
the procedures and garrett and peers

716
00:28:47,360 --> 00:28:45,000
will provide the SSR ms support

717
00:28:49,039 --> 00:28:47,370
throughout the EBA the big picture for

718
00:28:50,539 --> 00:28:49,049
the CVA we're going to do three battery

719
00:28:52,999 --> 00:28:50,549
aren't ours the goal at the end of the

720
00:28:54,649 --> 00:28:53,009
day after about six hours and 30 minutes

721
00:28:56,389 --> 00:28:54,659
is to have taken three batteries from

722
00:28:57,769 --> 00:28:56,399
the palette put them on the trust taking

723
00:29:02,509 --> 00:28:57,779
three batteries from the trust and put

724
00:29:06,110 --> 00:29:02,519
them back on the palate then we move

725
00:29:09,259 --> 00:29:06,120
into flight day seven where we get some

726
00:29:11,990 --> 00:29:09,269
crude off-duty time at last the will be

727
00:29:14,840 --> 00:29:12,000
getting tools configured for our EBA 3

728
00:29:16,340 --> 00:29:14,850
and our Russian colleagues will be doing

729
00:29:18,289 --> 00:29:16,350
the very first steps to get mrm one

730
00:29:20,389 --> 00:29:18,299
opened up and begin filtering the air in

731
00:29:22,580 --> 00:29:20,399
that module we won't do a significant

732
00:29:24,680 --> 00:29:22,590
ingress of that module until after the

733
00:29:26,180 --> 00:29:24,690
doctrine is complete because it's so

734
00:29:28,129 --> 00:29:26,190
full of cargo you just can't get very

735
00:29:29,480 --> 00:29:28,139
far into it without having some space

736
00:29:30,889 --> 00:29:29,490
for that cargo and we just don't have

737
00:29:33,409 --> 00:29:30,899
that space when we've got six visitors

738
00:29:35,090 --> 00:29:33,419

on board station the end of the day will

739
00:29:36,619 --> 00:29:35,100
be doing an EBA three procedure review

740
00:29:38,899 --> 00:29:36,629
and then we'll get Mike and Garrett into

741
00:29:42,169 --> 00:29:38,909
the airlock for camp out in preparation

742
00:29:44,960 --> 00:29:42,179
for flight they ate EBA three this time

743
00:29:47,110 --> 00:29:44,970
Michael good will be our ev1 garrett

744
00:29:50,950 --> 00:29:47,120
reisman will be ev2

745
00:29:53,590 --> 00:29:50,960
Antonia's IV with Steve and Ken helping

746
00:29:55,450 --> 00:29:53,600
them get suited up in the morning piers

747
00:29:58,090 --> 00:29:55,460
and Tracy will provide the SS rms

748
00:30:01,090 --> 00:29:58,100
support will resume our p6 battery are

749
00:30:03,040 --> 00:30:01,100
in our activities replacing the old

750
00:30:05,290 --> 00:30:03,050
batteries on p6 with the new ones on the

751
00:30:06,820 --> 00:30:05,300
pallet again swapping those three out so

752
00:30:08,140 --> 00:30:06,830
that we should have six old batteries on

753
00:30:10,480 --> 00:30:08,150
the palate and six new batteries on the

754
00:30:13,450 --> 00:30:10,490
trust by the end of this six hour and 15

755
00:30:15,310 --> 00:30:13,460
minute EBA we'll do some p6 cleanup at

756
00:30:19,000 --> 00:30:15,320
the very end and then if time allows

757
00:30:20,799 --> 00:30:19,010
there is a grapple fixture attached to

758
00:30:23,260 --> 00:30:20,809
the port side of the shuttle payload Bay

759
00:30:25,450 --> 00:30:23,270
that we would like to have on ISS so we

760
00:30:27,790 --> 00:30:25,460
as time allows will send the crew down

761
00:30:29,290 --> 00:30:27,800
there to retrieve it bring it inside it

762
00:30:32,470 --> 00:30:29,300
will then get some minor modifications

763
00:30:36,400 --> 00:30:32,480

and then be taken back outside on a ISS

764
00:30:39,400 --> 00:30:36,410
stage EBA for installation on the FGB at

765
00:30:42,070 --> 00:30:39,410
the very end of the day we'll have peers

766
00:30:43,600 --> 00:30:42,080
and tracy maneuver the icc back on to

767
00:30:45,430 --> 00:30:43,610
the mobile based system so that

768
00:30:46,780 --> 00:30:45,440
overnight the ground teams can translate

769
00:30:49,150 --> 00:30:46,790
it back to the center of space station

770
00:30:51,010 --> 00:30:49,160
and prepare preparation for it to be

771
00:30:54,280 --> 00:30:51,020
returned to the payload bay on flight

772
00:30:57,280 --> 00:30:54,290
day 9 and speaking of i think we have

773
00:31:02,350 --> 00:30:57,290
video of that activity garritan piers

774
00:31:05,260 --> 00:31:02,360
this time will grapple the icc BLD with

775
00:31:07,620 --> 00:31:05,270
the SS rms and then will unravel it on

776
00:31:12,340 --> 00:31:07,630
the PO a hair on the mobile base system

777
00:31:15,160 --> 00:31:12,350
then swing it around and return it to

778
00:31:16,990 --> 00:31:15,170
the payload bay and at this point the

779
00:31:20,190 --> 00:31:17,000
only hardware left on that pallet should

780
00:31:23,049 --> 00:31:20,200
be our six old batteries returning home

781
00:31:25,330 --> 00:31:23,059
the rest of this day is crew off duty

782
00:31:27,100 --> 00:31:25,340
and we have several science experiments

783
00:31:31,990 --> 00:31:27,110
scheduled for execution on this day as

784
00:31:33,700 --> 00:31:32,000
well as a great deal of our transfer we

785
00:31:35,260 --> 00:31:33,710
don't get as much transfer done as we'd

786
00:31:36,730 --> 00:31:35,270
like while the guys are outside so we're

787
00:31:39,250 --> 00:31:36,740
going to make up some time on flight day

788
00:31:41,230 --> 00:31:39,260

nine with that I'd like to hand it back

789
00:31:43,680 --> 00:31:41,240
over to Mike to brief the undocking and

790
00:31:47,440 --> 00:31:43,690
the remainder of Atlantis's final flight

791
00:31:50,260 --> 00:31:47,450
thanks Emily flight day 10 will wrap up

792
00:31:51,790 --> 00:31:50,270
the joint mission activities between

793
00:31:53,919 --> 00:31:51,800
atlantis and the international space

794
00:31:56,440 --> 00:31:53,929
station crew the crew will check out a

795
00:31:58,360 --> 00:31:56,450
number of the systems required for

796
00:32:00,820 --> 00:31:58,370
undocking and fly around the rendezvous

797
00:32:02,620 --> 00:32:00,830
tools they'll have a press Barry

798
00:32:04,690 --> 00:32:02,630
fing a joint press briefing with the

799
00:32:06,669 --> 00:32:04,700
international space station crew say

800
00:32:09,399 --> 00:32:06,679
their final goodbyes perform the hatch

801
00:32:11,769 --> 00:32:09,409
closure and some leak checks to make

802
00:32:14,110 --> 00:32:11,779
sure that the docking interface is ready

803
00:32:16,450 --> 00:32:14,120
to go for the next space shuttle arrival

804
00:32:19,380 --> 00:32:16,460
and then we'll perform the undocking and

805
00:32:22,509 --> 00:32:19,390
fly around we have a animation of the

806
00:32:26,440 --> 00:32:22,519
undocking that will show you pilot tony

807
00:32:27,850 --> 00:32:26,450
antonelli will back Atlantis away from

808
00:32:29,440 --> 00:32:27,860
the International Space Station at a

809
00:32:31,779 --> 00:32:29,450
range of four to six hundred feet and

810
00:32:35,860 --> 00:32:31,789
then complete a one revolution fly

811
00:32:38,110 --> 00:32:35,870
around again to obtain imagery of the

812
00:32:40,149 --> 00:32:38,120
exterior of the International Space

813
00:32:42,370 --> 00:32:40,159

Station will take digital still images

814
00:32:44,590 --> 00:32:42,380
those will be downloaded to the ground

815
00:32:47,529 --> 00:32:44,600
for review and analysis before

816
00:32:49,899 --> 00:32:47,539
performing a final separation burn the

817
00:32:52,120 --> 00:32:49,909
lap around the international space

818
00:32:53,590 --> 00:32:52,130
station will take about 45 minutes and

819
00:32:58,180 --> 00:32:53,600
it will be conducted during the daylight

820
00:33:00,220 --> 00:32:58,190
portion of the orbit following the fly

821
00:33:02,950 --> 00:33:00,230
round that will wrap up flight day 10

822
00:33:04,960 --> 00:33:02,960
for the crew of Atlantis on flight day

823
00:33:08,019 --> 00:33:04,970
11 they'll start the process of

824
00:33:11,259 --> 00:33:08,029
returning home as part of that to

825
00:33:13,840 --> 00:33:11,269
perform the late inspection and give a

826
00:33:16,299 --> 00:33:13,850
review of the heat shield of Atlantis

827
00:33:18,879 --> 00:33:16,309
one more time we have an animation of

828
00:33:20,620 --> 00:33:18,889
the late inspection process this

829
00:33:21,879 --> 00:33:20,630
inspection is a little bit different

830
00:33:26,560 --> 00:33:21,889
than what we saw in flight day 2 we

831
00:33:27,940 --> 00:33:26,570
don't survey the the tail end of

832
00:33:31,419 --> 00:33:27,950
Atlantis because we're not worried about

833
00:33:33,759 --> 00:33:31,429
ice from the asset loading of the

834
00:33:36,460 --> 00:33:33,769
cryogenic fluids or the asset

835
00:33:38,590 --> 00:33:36,470
environment effects on the thermal

836
00:33:42,580 --> 00:33:38,600
blankets what we're looking for here is

837
00:33:45,610 --> 00:33:42,590
orbital debris or any damage on the

838
00:33:47,080 --> 00:33:45,620

hottest surfaces of Atlantis on the

839
00:33:49,360 --> 00:33:47,090
reinforced carbon-carbon along the

840
00:33:52,480 --> 00:33:49,370
leading edge if we do notice any damage

841
00:33:55,440 --> 00:33:52,490
the team will review that imagery and

842
00:33:59,080 --> 00:33:55,450
determine whether or not it exceeds the

843
00:34:00,700 --> 00:33:59,090
threshold that requires a repair if we

844
00:34:02,580 --> 00:34:00,710
need to repair we've got the tools and

845
00:34:05,590 --> 00:34:02,590
techniques in place to make that happen

846
00:34:07,120 --> 00:34:05,600
the imagery team on the ground will use

847
00:34:09,309 --> 00:34:07,130
a very similar process that what they

848
00:34:11,800 --> 00:34:09,319
did earlier in the mission to review all

849
00:34:14,000 --> 00:34:11,810
of the the inspection data from the boom

850
00:34:16,190 --> 00:34:14,010
after the starboard nose

851
00:34:19,399 --> 00:34:16,200
up in Port wings are surveyed and will

852
00:34:22,270 --> 00:34:19,409
provide a very quick turnaround on all

853
00:34:25,280 --> 00:34:22,280
of that data that that gets reviewed

854
00:34:28,460 --> 00:34:25,290
roughly a day after the the inspection

855
00:34:31,310 --> 00:34:28,470
activity is complete at the tail end of

856
00:34:34,490 --> 00:34:31,320
the inspection will put the robotics

857
00:34:37,220 --> 00:34:34,500
away for the final time on this mission

858
00:34:40,010 --> 00:34:37,230
so this will wrap up all of that man and

859
00:34:42,680 --> 00:34:40,020
machine work that was conducted

860
00:34:46,100 --> 00:34:42,690
throughout the mission the orbiter bloom

861
00:34:48,110 --> 00:34:46,110
sensor system will be cradled on its on

862
00:34:51,409 --> 00:34:48,120
the starboard side of the payload Bay

863
00:34:53,450 --> 00:34:51,419

for its return along with the shuttle's

864
00:34:55,250 --> 00:34:53,460
robotic arm this will allow us to close

865
00:35:03,830 --> 00:34:55,260
the payload bay doors at the tail end of

866
00:35:06,350 --> 00:35:03,840
the mission on the twelfth day of the

867
00:35:08,690 --> 00:35:06,360
mission the crew will basically button

868
00:35:10,820 --> 00:35:08,700
up the cabin in Atlantis make sure all

869
00:35:13,850 --> 00:35:10,830
the stowage is ready for re-entry into

870
00:35:18,320 --> 00:35:13,860
the gravity field back on earth and

871
00:35:20,150 --> 00:35:18,330
check out the entry systems entry flight

872
00:35:23,180 --> 00:35:20,160
director Tony ciccotti will bring in his

873
00:35:25,790 --> 00:35:23,190
entry team and they will fire up one of

874
00:35:28,310 --> 00:35:25,800
the AP auxiliary power units activate

875
00:35:30,320 --> 00:35:28,320
the hydraulic systems and make sure that

876
00:35:32,390 --> 00:35:30,330
all the flight controls as well as the

877
00:35:35,530 --> 00:35:32,400
reaction control jets are ready to

878
00:35:38,030 --> 00:35:35,540
support reentry the following day after

879
00:35:41,060 --> 00:35:38,040
stowing a few more items in doing a

880
00:35:43,250 --> 00:35:41,070
briefing in preparation for deorbit the

881
00:35:46,040 --> 00:35:43,260
crew will come home on flight day 13

882
00:35:48,050 --> 00:35:46,050
again under the leadership of entry

883
00:35:50,420 --> 00:35:48,060
flight director Tony saatchi they'll be

884
00:35:51,920 --> 00:35:50,430
looking at the weather at the Kennedy

885
00:35:53,990 --> 00:35:51,930
Space Center in Florida as well as the

886
00:35:56,270 --> 00:35:54,000
edwards air force base in california and

887
00:35:59,270 --> 00:35:56,280
will decide whether it's appropriate to

888
00:36:01,160 --> 00:35:59,280

come home on flight day 13 or if we

889
00:36:02,990 --> 00:36:01,170
should extend you to weather if all goes

890
00:36:04,790 --> 00:36:03,000
as planned and we launched on the

891
00:36:07,940 --> 00:36:04,800
fourteenth and we fly a 12-day mission

892
00:36:09,830 --> 00:36:07,950
we should come home on May the 26th in

893
00:36:11,930 --> 00:36:09,840
the in the morning at the Kennedy Space

894
00:36:16,340 --> 00:36:11,940
Center at around seven thirty six

895
00:36:18,860 --> 00:36:16,350
central time and with that the mission

896
00:36:21,620 --> 00:36:18,870
of Atlantis and its final flight wool

897
00:36:23,360 --> 00:36:21,630
will be complete and with that I would

898
00:36:25,490 --> 00:36:23,370
like to turn the floor over to Jerry

899
00:36:27,620 --> 00:36:25,500
Ross our most experienced flyer on board

900
00:36:29,150 --> 00:36:27,630
Atlantis thank you Mike

901
00:36:31,370 --> 00:36:29,160
I've been asked to talk to you briefly

902
00:36:34,130 --> 00:36:31,380
this morning about Atlantis obviously it

903
00:36:35,780 --> 00:36:34,140
is my favorite space shuttle as was

904
00:36:38,840 --> 00:36:35,790
already noted five of my seven flights

905
00:36:40,640 --> 00:36:38,850
in the orbit were aboard atlantis that

906
00:36:42,980 --> 00:36:40,650
includes my first three flights as well

907
00:36:44,270 --> 00:36:42,990
as my most recent one which was doing

908
00:36:46,670 --> 00:36:44,280
assembly on the international space

909
00:36:50,180 --> 00:36:46,680
station Atlantis really is a great

910
00:36:52,310 --> 00:36:50,190
flying bird and that mostly go to the

911
00:36:54,230 --> 00:36:52,320
credit of the outstanding team of

912
00:36:55,910 --> 00:36:54,240
engineers and technicians we have at the

913
00:36:57,740 --> 00:36:55,920

Kennedy Space Center that prepare

914
00:37:01,250 --> 00:36:57,750
Atlantis as well as her sister vehicles

915
00:37:03,890 --> 00:37:01,260
for flight into space first of all this

916
00:37:06,140 --> 00:37:03,900
morning I'd like to share a summary of

917
00:37:08,840 --> 00:37:06,150
some interesting facts about Atlantis

918
00:37:11,210 --> 00:37:08,850
and its illustrious history after that

919
00:37:13,550 --> 00:37:11,220
I'll be narrating a brief video summary

920
00:37:15,770 --> 00:37:13,560
of my flights on Atlantis as well as a

921
00:37:17,300 --> 00:37:15,780
couple other noteworthy flights that

922
00:37:20,690 --> 00:37:17,310
video has been prepared for me by the

923
00:37:23,870 --> 00:37:20,700
folks here at public affairs Atlantis

924
00:37:26,540 --> 00:37:23,880
was NASA's fourth space rated space

925
00:37:28,670 --> 00:37:26,550
shuttle it was named for a two-masted

926
00:37:30,980 --> 00:37:28,680
ship that served as a primary research

927
00:37:34,490 --> 00:37:30,990
vessel for the Woods Hole Oceanographic

928
00:37:38,690 --> 00:37:34,500
Institute in Massachusetts it served in

929
00:37:40,880 --> 00:37:38,700
that capacity from 1932 1966 might be

930
00:37:42,530 --> 00:37:40,890
interesting to know that when we flew on

931
00:37:45,710 --> 00:37:42,540
my first space shuttle flight the second

932
00:37:48,350 --> 00:37:45,720
shuttle flight aboard atlantis in 1985

933
00:37:51,170 --> 00:37:48,360
we actually flew a piece of the plank

934
00:37:53,720 --> 00:37:51,180
the decking plank from the atlantis

935
00:37:57,290 --> 00:37:53,730
vessel and after the flight we returned

936
00:38:00,140 --> 00:37:57,300
it back to Woods Hole the construction

937
00:38:02,780 --> 00:38:00,150
Atlantis began on March 30th 1980 just

938
00:38:04,040 --> 00:38:02,790

over 30 years ago now and it was

939
00:38:05,960 --> 00:38:04,050
completed and about half the man-hours

940
00:38:08,620 --> 00:38:05,970
it was required to assemble the first

941
00:38:10,700 --> 00:38:08,630
space rated spacecraft of the Columbia

942
00:38:12,890 --> 00:38:10,710
it weighed a hundred and fifty one

943
00:38:15,380 --> 00:38:12,900
thousand pounds and rolled out of his

944
00:38:18,770 --> 00:38:15,390
assembly facilities there at Palmdale

945
00:38:21,110 --> 00:38:18,780
California in 1985 and that made it

946
00:38:23,660 --> 00:38:21,120
about three and a half tons lighter than

947
00:38:26,510 --> 00:38:23,670
what Columbia had been it was

948
00:38:29,090 --> 00:38:26,520
transported via 747 piggy back to the

949
00:38:31,670 --> 00:38:29,100
Cape it completed his flight RunAs

950
00:38:34,250 --> 00:38:31,680
firing on sep tember fifth of 1985 and

951
00:38:38,750 --> 00:38:34,260
was launched on its first flight in

952
00:38:40,040 --> 00:38:38,760
october october third 1985 some of the

953
00:38:41,180 --> 00:38:40,050
more significant flights that it's

954
00:38:45,319 --> 00:38:41,190
completed

955
00:38:47,960 --> 00:38:45,329
obviously its maiden flight STS 51 J on

956
00:38:50,120 --> 00:38:47,970
STS 30 we launched the first

957
00:38:54,140 --> 00:38:50,130
interplanetary probe from a space

958
00:38:58,400 --> 00:38:54,150
shuttle that was Magellan as TS 34 we

959
00:39:01,160 --> 00:38:58,410
sent Galileo off to explore Jupiter STS

960
00:39:04,970 --> 00:39:01,170
37 one of my flights was a deploy of the

961
00:39:08,210 --> 00:39:04,980
Compton gamma ray observatory on sf's

962
00:39:10,579 --> 00:39:08,220
STS 71 the first docking to a mir space

963
00:39:13,609 --> 00:39:10,589

station was completed it was also the

964
00:39:18,200 --> 00:39:13,619
first time who exchanged us / Russian

965
00:39:21,200 --> 00:39:18,210
crews STS 76 was the first time that we

966
00:39:25,280 --> 00:39:21,210
can performed a u.s. spacewalk on the

967
00:39:27,050 --> 00:39:25,290
exterior mirror rather it was also the

968
00:39:31,940 --> 00:39:27,060
first time that we use the new mission

969
00:39:34,490 --> 00:39:31,950
control center for an entry STS 106 was

970
00:39:36,980 --> 00:39:34,500
the first time that the crew had entered

971
00:39:39,829 --> 00:39:36,990
into the service module and that did the

972
00:39:42,620 --> 00:39:39,839
final preparations of it in advance of

973
00:39:47,720 --> 00:39:42,630
the first long-duration stay of a crew

974
00:39:49,370 --> 00:39:47,730
on board the ISS STS 98 was the

975
00:39:52,400 --> 00:39:49,380
launching of the Destiny laboratory to

976
00:39:54,950 --> 00:39:52,410
the ISS and that flight also included

977
00:40:00,079 --> 00:39:54,960
the 100th EV a performed by the u.s.

978
00:40:01,400 --> 00:40:00,089
inner space flight history STS 98 was

979
00:40:06,410 --> 00:40:01,410
the launching of the Destiny laboratory

980
00:40:10,430 --> 00:40:06,420
to ISS sorry STS 104 was the addition of

981
00:40:12,680 --> 00:40:10,440
the quest airlock to the station STS 110

982
00:40:15,859 --> 00:40:12,690
my most recent flight was the addition

983
00:40:19,849 --> 00:40:15,869
of s02 thee to the trust network on the

984
00:40:22,250 --> 00:40:19,859
station STS 122 is a launch of the

985
00:40:25,870 --> 00:40:22,260
Columbus laboratory for ISA and its

986
00:40:28,099 --> 00:40:25,880
attachment to the station sts-125 was a

987
00:40:32,780 --> 00:40:28,109
last flight to service Hubble Space

988
00:40:34,970 --> 00:40:32,790

Telescope and STS 129 was the last time

989
00:40:40,280 --> 00:40:34,980
we use the shuttle to exchange crew on

990
00:40:44,240 --> 00:40:40,290
the ISS some numbers for you to date 31

991
00:40:46,329 --> 00:40:44,250
flights that includes a total of two

992
00:40:49,490 --> 00:40:46,339
hundred and eighty two days on orbit

993
00:40:53,720 --> 00:40:49,500
during which the Atlantis traveled about

994
00:40:58,580 --> 00:40:53,730
116 million miles during 4406

995
00:41:00,349 --> 00:40:58,590
two orbits of the earth 185 crew members

996
00:41:03,710 --> 00:41:00,359
have participated in those 31 flights

997
00:41:07,480 --> 00:41:03,720
and they included seven dockings to

998
00:41:12,050 --> 00:41:07,490
mirror and ten dockings to the

999
00:41:14,540 --> 00:41:12,060
international space station now next

1000
00:41:17,330 --> 00:41:14,550
comes a snippet of videos that has been

1001
00:41:19,880 --> 00:41:17,340
prepared by the folks here of Atlantis's

1002
00:41:23,450 --> 00:41:19,890
maiden flight its first flight to docked

1003
00:41:25,730 --> 00:41:23,460
to the space station Mir and then a

1004
00:41:31,670 --> 00:41:25,740
quick summary of my flight five flights

1005
00:41:38,690 --> 00:41:31,680
on Atlantis STS 51 Jay Atlanta's first

1006
00:41:40,250 --> 00:41:38,700
launch was in 1985 and this is never

1007
00:41:42,710 --> 00:41:40,260
going to be routine and it's something

1008
00:41:44,270 --> 00:41:42,720
I'm really going to miss seeing four and

1009
00:41:45,920 --> 00:41:44,280
a half million pounds of hardware nearly

1010
00:41:48,590 --> 00:41:45,930
seven million pounds of thrust coming

1011
00:41:53,950 --> 00:41:48,600
off the pad a pretty rocky ride during

1012
00:41:56,120 --> 00:41:53,960
first stage my first flight on was 61 be

1013
00:41:57,560 --> 00:41:56,130

we launched three communication

1014
00:42:00,109 --> 00:41:57,570
satellites and performed two spacewalks

1015
00:42:03,109 --> 00:42:00,119
to investigate base station construction

1016
00:42:06,260 --> 00:42:03,119
techniques ease and access with the two

1017
00:42:07,820 --> 00:42:06,270
experiments we conducted and we we

1018
00:42:11,660 --> 00:42:07,830
thought we did such a good job on this

1019
00:42:13,910 --> 00:42:11,670
that we would go into business we

1020
00:42:16,790 --> 00:42:13,920
decided to ourselves the ACE

1021
00:42:18,680 --> 00:42:16,800
construction company and it's also

1022
00:42:22,720 --> 00:42:18,690
during this timeframe that I was quoted

1023
00:42:30,560 --> 00:42:27,290
sts-27 was my next flight on Atlantis it

1024
00:42:33,050 --> 00:42:30,570
was a classified flight and all we could

1025
00:42:35,720 --> 00:42:33,060
show you is us having some fun with an

1026
00:42:37,280 --> 00:42:35,730
NFL football that we flew on board that

1027
00:42:38,840 --> 00:42:37,290
football was subsequent to the flight

1028
00:42:44,230 --> 00:42:38,850
return to Pete Rozelle the Commissioner

1029
00:42:50,840 --> 00:42:47,570
st s37 we deployed the Compton ray

1030
00:42:53,420 --> 00:42:50,850
observatory and gamma ray observatory

1031
00:42:55,780 --> 00:42:53,430
and we had to go out and manually deploy

1032
00:42:58,190 --> 00:42:55,790
the cube an antenna that you see here

1033
00:43:00,290 --> 00:42:58,200
thus saving that satellite from being

1034
00:43:03,560 --> 00:43:00,300
about a 550 million dollar piece of big

1035
00:43:05,270 --> 00:43:03,570
space junk Jay apt and I after we

1036
00:43:06,010 --> 00:43:05,280
completed that looked inside the windows

1037
00:43:07,900 --> 00:43:06,020
there

1038
00:43:13,060 --> 00:43:07,910

a flight deck and saw the guys inside

1039
00:43:15,640 --> 00:43:13,070
eating our food after we completed our

1040
00:43:17,230 --> 00:43:15,650
check out of the gamma gray we deployed

1041
00:43:19,240 --> 00:43:17,240
it and we were supposed to be inside the

1042
00:43:20,350 --> 00:43:19,250
airlock except I think the only thing

1043
00:43:22,420 --> 00:43:20,360
that was inside the air lock at that

1044
00:43:24,220 --> 00:43:22,430
point was our toes because we wanted to

1045
00:43:28,180 --> 00:43:24,230
have a great view as satellite was

1046
00:43:30,550 --> 00:43:28,190
released and deployed we did a plan

1047
00:43:33,340 --> 00:43:30,560
spacewalk on this flight also to look at

1048
00:43:35,380 --> 00:43:33,350
the prototype Space Station piece of

1049
00:43:36,910 --> 00:43:35,390
hardware called sedum and thus the

1050
00:43:39,310 --> 00:43:36,920
little railroad placard that you sell

1051
00:43:40,750 --> 00:43:39,320
their here we are demonstrating one of

1052
00:43:44,890 --> 00:43:40,760
the three configurations of the seat of

1053
00:43:48,460 --> 00:43:44,900
cart during that flight a couple views

1054
00:43:50,560 --> 00:43:48,470
here of STS 71 the first docking mission

1055
00:43:52,960 --> 00:43:50,570
of a shuttle to the mayor station I

1056
00:43:54,430 --> 00:43:52,970
think you can kind of tell how close the

1057
00:43:57,070 --> 00:43:54,440
shuttle components got to the MIR

1058
00:44:00,280 --> 00:43:57,080
station and one of the reasons that on

1059
00:44:03,010 --> 00:44:00,290
st s 70 for my next flight we added a

1060
00:44:05,770 --> 00:44:03,020
russian-made docking compartment to the

1061
00:44:09,130 --> 00:44:05,780
mirror station and that was then used by

1062
00:44:12,040 --> 00:44:09,140
all subsequent shuttle flights to dock

1063
00:44:15,400 --> 00:44:12,050

to the MIR station it's very similar in

1064
00:44:16,720 --> 00:44:15,410
design and structure and purpose to the

1065
00:44:25,030 --> 00:44:16,730
hardware that we're flying here on

1066
00:44:30,220 --> 00:44:25,040
sts-132 that's called mr m1a view as

1067
00:44:35,650 --> 00:44:30,230
we're docking to the MIR station using

1068
00:44:37,300 --> 00:44:35,660
the docking compartment and another view

1069
00:44:40,300 --> 00:44:37,310
as we leave the docking compartment made

1070
00:44:42,670 --> 00:44:40,310
it to the MIR station you can see that

1071
00:44:47,140 --> 00:44:42,680
they also use that to mount quite a bit

1072
00:44:49,330 --> 00:44:47,150
of hardware and exterior a view of us in

1073
00:44:52,240 --> 00:44:49,340
a flat deck windows looking back to

1074
00:44:56,500 --> 00:44:52,250
mirror as we depart all smiling to the

1075
00:44:58,330 --> 00:44:56,510
crew I don't know what this picture is

1076
00:45:00,820 --> 00:44:58,340
supposed to tell you this is sts 110

1077
00:45:05,020 --> 00:45:00,830
this is when we installed the 43

1078
00:45:06,610 --> 00:45:05,030
footlong s0 segment to the station this

1079
00:45:08,020 --> 00:45:06,620
is the center part of the station to

1080
00:45:10,690 --> 00:45:08,030
which all the other components have been

1081
00:45:14,910 --> 00:45:10,700
attached a great view as we're going

1082
00:45:18,150 --> 00:45:14,920
across the Nile Delta and Red Sea and

1083
00:45:19,950 --> 00:45:18,160
this is the last close-up view I had of

1084
00:45:25,079 --> 00:45:19,960
the ISS as

1085
00:45:27,510 --> 00:45:25,089
departed and did our fly around a very

1086
00:45:30,780 --> 00:45:27,520
beautiful touchdown of sts-1 10 at the

1087
00:45:35,970 --> 00:45:30,790
end of the mission at the Kennedy Space

1088
00:45:39,660 --> 00:45:35,980

Center that's always a great feeling to

1089
00:45:49,339 --> 00:45:39,670
have a nice pretty rollout get back

1090
00:45:53,520 --> 00:45:51,690
take questions from reporters here in

1091
00:45:55,650 --> 00:45:53,530
Houston then go around the horn to KSC

1092
00:45:58,500 --> 00:45:55,660
and NASA headquarters and we'll start

1093
00:46:01,650 --> 00:45:58,510
off in the back marker oh thank you Mark

1094
00:46:04,589 --> 00:46:01,660
kuro representing Aviation Week and my

1095
00:46:06,780 --> 00:46:04,599
question is for Mike this is scheduled

1096
00:46:09,720 --> 00:46:06,790
to be the last mission of Atlantis and I

1097
00:46:15,990 --> 00:46:09,730
just wonder how you'll handle the

1098
00:46:18,150 --> 00:46:16,000
orbiter and and its condition for return

1099
00:46:20,250 --> 00:46:18,160
would you would you're going in

1100
00:46:22,740 --> 00:46:20,260
philosophy and flight rules say you

1101
00:46:27,300 --> 00:46:22,750
don't cut any corners or do you have

1102
00:46:30,210 --> 00:46:27,310
some margin if you needed to to let some

1103
00:46:32,730 --> 00:46:30,220
system go on the orbiter before you

1104
00:46:34,680 --> 00:46:32,740
landed and I guess I'm not really asking

1105
00:46:36,960 --> 00:46:34,690
the question exactly how I mean it but I

1106
00:46:38,790 --> 00:46:36,970
think my thought is there I mean do you

1107
00:46:41,070 --> 00:46:38,800
want to bring the ship back as though it

1108
00:46:43,410 --> 00:46:41,080
were going to fly again someday or do

1109
00:46:46,800 --> 00:46:43,420
you have some leeway and how you would

1110
00:46:51,300 --> 00:46:46,810
handle the anvil the spacecraft that's

1111
00:46:53,040 --> 00:46:51,310
fair ? the flight of Atlantis on sts-132

1112
00:46:55,230 --> 00:46:53,050
is no different than any other mission

1113
00:46:57,810 --> 00:46:55,240

that we're setting up for whether it's

1114
00:47:00,329 --> 00:46:57,820
prior to this or after this we still

1115
00:47:02,730 --> 00:47:00,339
have the same engineering constraints

1116
00:47:05,640 --> 00:47:02,740
and the same physics apply to how the

1117
00:47:07,740 --> 00:47:05,650
vehicle flies and to how the actual

1118
00:47:08,970 --> 00:47:07,750
rendezvous docking and all the critical

1119
00:47:10,500 --> 00:47:08,980
activities are going to be performed

1120
00:47:11,970 --> 00:47:10,510
during the mission so we still need to

1121
00:47:14,250 --> 00:47:11,980
conduct the mission in the same manner

1122
00:47:16,380 --> 00:47:14,260
there is a little bit of reverence that

1123
00:47:17,970 --> 00:47:16,390
the mission will be conducted with given

1124
00:47:20,640 --> 00:47:17,980
that it's the final plan flight of

1125
00:47:22,650 --> 00:47:20,650
Atlantis but in terms of how the overall

1126
00:47:26,579 --> 00:47:22,660
mission is conducted it will be

1127
00:47:29,250 --> 00:47:26,589
identical to previous flights and it had

1128
00:47:31,710 --> 00:47:29,260
a question regarding the batteries that

1129
00:47:32,819 --> 00:47:31,720
come back from the space station can

1130
00:47:36,029 --> 00:47:32,829
these be

1131
00:47:37,769 --> 00:47:36,039
refurbished and potentially reef loan or

1132
00:47:41,370 --> 00:47:37,779
is that a question that hasn't been

1133
00:47:42,690 --> 00:47:41,380
dealt with yeah as I understand it we're

1134
00:47:45,209 --> 00:47:42,700
working on some next generation

1135
00:47:46,620 --> 00:47:45,219
batteries so it's more likely that if we

1136
00:47:49,380 --> 00:47:46,630
were to fly additional batteries we'd

1137
00:47:52,049 --> 00:47:49,390
fly the next generation new technology

1138
00:47:53,759 --> 00:47:52,059

style and then one of the other

1139
00:47:55,499 --> 00:47:53,769
challenges is that these are really big

1140
00:47:57,209 --> 00:47:55,509
and really heavy so once we're not

1141
00:48:00,539 --> 00:47:57,219
flying the shuttle anymore it'll be much

1142
00:48:04,170 --> 00:48:00,549
more difficult to get them to orbit bill

1143
00:48:08,640 --> 00:48:04,180
Harwood cbs4 emily on the mrm one in the

1144
00:48:10,229 --> 00:48:08,650
clearance issue 44 node 1 nadir is their

1145
00:48:12,299 --> 00:48:10,239
physical interference or is this thing

1146
00:48:14,789 --> 00:48:12,309
just giving you a bit of breathing space

1147
00:48:17,279 --> 00:48:14,799
for for dockings I was unclear as to how

1148
00:48:19,739 --> 00:48:17,289
tight tolerances worth you mean in terms

1149
00:48:21,359 --> 00:48:19,749
of being able to dock Russian vehicles

1150
00:48:24,269 --> 00:48:21,369
mahram one was to add additional

1151
00:48:26,069 --> 00:48:24,279
clearance for the node one later I'm

1152
00:48:28,979 --> 00:48:26,079
just trying to understand if you didn't

1153
00:48:30,120 --> 00:48:28,989
have it can you physically do this or is

1154
00:48:33,180 --> 00:48:30,130
it just something to make everybody more

1155
00:48:34,979 --> 00:48:33,190
comfortable we because we have a vehicle

1156
00:48:37,170 --> 00:48:34,989
docked there now we're clearly able to

1157
00:48:39,380 --> 00:48:37,180
dock vehicles to the FGB nadir port

1158
00:48:41,670 --> 00:48:39,390
today it will give us some more

1159
00:48:44,670 --> 00:48:41,680
capability in a little more leeway by

1160
00:48:48,420 --> 00:48:44,680
having lowered that docking interface so

1161
00:48:49,920 --> 00:48:48,430
that there's less likelihood we don't

1162
00:48:52,469 --> 00:48:49,930
have to protect for as many different

1163
00:48:55,890 --> 00:48:52,479

contingencies if it's not as close to

1164
00:48:58,559 --> 00:48:55,900
the structure and nadir of note one and

1165
00:49:00,630 --> 00:48:58,569
one more from me on on the ke bande

1166
00:49:02,069 --> 00:49:00,640
system michael stillness in the previous

1167
00:49:04,289 --> 00:49:02,079
briefing that this is a cold back up

1168
00:49:05,999 --> 00:49:04,299
until 2011 when I guess there's some

1169
00:49:07,650 --> 00:49:06,009
avionics going up can you explain what's

1170
00:49:09,719 --> 00:49:07,660
what that's all about I didn't don't

1171
00:49:11,519 --> 00:49:09,729
know anything about that sure so today

1172
00:49:15,209 --> 00:49:11,529
we do have a ke bande system on orbit

1173
00:49:16,680 --> 00:49:15,219
it's used for our the larger files and

1174
00:49:18,209 --> 00:49:16,690
the larger amount of data that needs to

1175
00:49:19,739 --> 00:49:18,219
go back and forth between the ground and

1176
00:49:21,420 --> 00:49:19,749
the station so we use it for payloads

1177
00:49:22,890 --> 00:49:21,430
because they have quite a bit of data

1178
00:49:25,170 --> 00:49:22,900
that goes back and forth it's used for

1179
00:49:26,489 --> 00:49:25,180
video it's used for all of our timelines

1180
00:49:31,680 --> 00:49:26,499
and our procedures that we give back and

1181
00:49:34,109 --> 00:49:31,690
forth to the crew we are adding when we

1182
00:49:37,079 --> 00:49:34,119
add this system it we can't just

1183
00:49:39,180 --> 00:49:37,089
automatically with software today after

1184
00:49:41,910 --> 00:49:39,190
it's installed just jump right over to

1185
00:49:44,640 --> 00:49:41,920
this new system if the system we have on

1186
00:49:46,170 --> 00:49:44,650
board today were to fail we have not yet

1187
00:49:48,330 --> 00:49:46,180
installed some

1188
00:49:49,740 --> 00:49:48,340

cabling internal to the modules once

1189
00:49:51,590 --> 00:49:49,750
that cabling is installed which will be

1190
00:49:55,620 --> 00:49:51,600
in the weeks following the mission the

1191
00:49:57,330 --> 00:49:55,630
crew will still have to disconnect and

1192
00:50:00,150 --> 00:49:57,340
reconnect some cables inside the module

1193
00:50:01,800 --> 00:50:00,160
in order to disconnect the current k you

1194
00:50:05,190 --> 00:50:01,810
system and connect the one that we're

1195
00:50:07,020 --> 00:50:05,200
about to install but until we fly the

1196
00:50:08,610 --> 00:50:07,030
spare the only way to get another string

1197
00:50:11,490 --> 00:50:08,620
of k you is to go outside and get the

1198
00:50:14,040 --> 00:50:11,500
dish that 127 installed on one of our

1199
00:50:15,840 --> 00:50:14,050
spares pallets last summer so this is a

1200
00:50:17,010 --> 00:50:15,850
huge step forward for us in terms of all

1201
00:50:18,480 --> 00:50:17,020
we have to do is tell the crew to go

1202
00:50:20,040 --> 00:50:18,490
move some jumpers around and then we

1203
00:50:23,940 --> 00:50:20,050
have our second k you system available

1204
00:50:25,800 --> 00:50:23,950
did that answer your question mark mark

1205
00:50:27,330 --> 00:50:25,810
Redman interspace news this questions

1206
00:50:28,770 --> 00:50:27,340
for jerry and i'm afraid you probably

1207
00:50:31,260 --> 00:50:28,780
won't have an answer but i'm gonna ask

1208
00:50:33,500 --> 00:50:31,270
it anyways I realize shuttles don't fly

1209
00:50:36,330 --> 00:50:33,510
that often but in the airplane world

1210
00:50:38,190 --> 00:50:36,340
Flyers generally equate quirks to every

1211
00:50:40,260 --> 00:50:38,200
tale dumper you know every airplane has

1212
00:50:41,910 --> 00:50:40,270
its little little nuances and I was

1213
00:50:43,290 --> 00:50:41,920

wondering if the astronaut office and

1214
00:50:45,360 --> 00:50:43,300
among the crews whether that's the case

1215
00:50:46,590 --> 00:50:45,370
for awareness if you have any anything

1216
00:50:48,630 --> 00:50:46,600
you can tell me about it that's

1217
00:50:51,510 --> 00:50:48,640
different than the other orbiters it

1218
00:50:54,210 --> 00:50:51,520
comes to mind actually Atlantis has felt

1219
00:50:56,460 --> 00:50:54,220
different on different flights which is

1220
00:50:58,410 --> 00:50:56,470
unlike most airplanes that you fly in I

1221
00:51:01,050 --> 00:50:58,420
think if you flew airplanes with

1222
00:51:02,580 --> 00:51:01,060
different types of payloads or loads on

1223
00:51:04,440 --> 00:51:02,590
the outside under the wings or in the

1224
00:51:06,420 --> 00:51:04,450
belly of a Bombay or something like that

1225
00:51:09,030 --> 00:51:06,430
you have different dynamics of the

1226
00:51:10,590 --> 00:51:09,040
airplane most of the differences that I

1227
00:51:11,670 --> 00:51:10,600
think we've all sensed between the

1228
00:51:13,560 --> 00:51:11,680
various different orbiters are the

1229
00:51:15,060 --> 00:51:13,570
various different flights have to do

1230
00:51:17,190 --> 00:51:15,070
primarily with what's in the payload Bay

1231
00:51:18,750 --> 00:51:17,200
of the orbiter because each of those has

1232
00:51:21,060 --> 00:51:18,760
its own unique set of characteristics

1233
00:51:23,810 --> 00:51:21,070
and frequencies natural frequencies and

1234
00:51:25,980 --> 00:51:23,820
we will actually feel a little bit of a

1235
00:51:27,990 --> 00:51:25,990
vibration going uphill depending upon

1236
00:51:32,670 --> 00:51:28,000
what the configuration is out in the

1237
00:51:34,590 --> 00:51:32,680
payload Bay hi Robert Pearlman with

1238
00:51:38,610 --> 00:51:34,600

collectspace.com first with a question

1239
00:51:42,810 --> 00:51:38,620
for Emily how different is the mating of

1240
00:51:46,470 --> 00:51:42,820
the mrm to the station as compared to us

1241
00:51:49,200 --> 00:51:46,480
in regards to arm operations as compared

1242
00:51:50,910 --> 00:51:49,210
to a CBM docking both from the station

1243
00:51:53,880 --> 00:51:50,920
crews perspective and the shuttle crew

1244
00:51:56,070 --> 00:51:53,890
and comparing it to a progress and so

1245
00:51:58,020 --> 00:51:56,080
use automated or even manually

1246
00:51:59,700 --> 00:51:58,030
controlled approach and do you have to

1247
00:52:02,300 --> 00:51:59,710
do that docking wall

1248
00:52:04,079 --> 00:52:02,310
while Moscow Mission Control is within

1249
00:52:09,240 --> 00:52:04,089
communication direct communication with

1250
00:52:11,400 --> 00:52:09,250
the station let's see to start it's very

1251
00:52:13,050 --> 00:52:11,410
different from the way that we would

1252
00:52:15,300 --> 00:52:13,060
normally install a module with the CBM

1253
00:52:16,800 --> 00:52:15,310
and also somewhat different from the way

1254
00:52:21,780 --> 00:52:16,810
that you would dock a progress or so use

1255
00:52:23,640 --> 00:52:21,790
the CBM operations are executed with the

1256
00:52:25,740 --> 00:52:23,650
active portion of the CBM the parts that

1257
00:52:27,180 --> 00:52:25,750
are moving are the side that are on ISS

1258
00:52:28,890 --> 00:52:27,190
so if you run into trouble you can

1259
00:52:31,650 --> 00:52:28,900
always go and change out those parts if

1260
00:52:33,000 --> 00:52:31,660
you had to and get fresh parts installed

1261
00:52:37,410 --> 00:52:33,010
or scavenge them from another location

1262
00:52:38,630 --> 00:52:37,420
gives you a little bit more a little bit

1263
00:52:42,180 --> 00:52:38,640

more leeway if you run into problems

1264
00:52:45,300 --> 00:52:42,190
with mr m one because the docking system

1265
00:52:47,040 --> 00:52:45,310
is exactly the same with one minor delta

1266
00:52:49,400 --> 00:52:47,050
we have added an extra motor to add

1267
00:52:51,720 --> 00:52:49,410
redundancy to this docking system it's

1268
00:52:53,550 --> 00:52:51,730
otherwise exactly the same as progress

1269
00:52:55,800 --> 00:52:53,560
in soil use where you're accustomed to

1270
00:52:59,339 --> 00:52:55,810
having an assault you're accustomed to

1271
00:53:02,400 --> 00:52:59,349
having the crew on the Soyuz side of the

1272
00:53:04,440 --> 00:53:02,410
document ism and it's coming in as a

1273
00:53:09,089 --> 00:53:04,450
free flying vehicle with propulsion and

1274
00:53:11,339 --> 00:53:09,099
and and thrust so there are a couple of

1275
00:53:13,859 --> 00:53:11,349
things that we've had to overcome first

1276
00:53:15,420 --> 00:53:13,869
of all is getting data power

1277
00:53:17,670 --> 00:53:15,430
communication all of that's going

1278
00:53:20,099 --> 00:53:17,680
through the arm but the control goes

1279
00:53:21,680 --> 00:53:20,109
from a laptop at the cupola robotic

1280
00:53:24,720 --> 00:53:21,690
workstation that beers will be running

1281
00:53:26,550 --> 00:53:24,730
that's connected through our Ethernet

1282
00:53:28,890 --> 00:53:26,560
connections on board all the way back to

1283
00:53:32,730 --> 00:53:28,900
the russian central computer and then

1284
00:53:35,210 --> 00:53:32,740
comes back through the same ethernet

1285
00:53:37,410 --> 00:53:35,220
connections over through the arm into

1286
00:53:39,000 --> 00:53:37,420
mm1 so all of that data is going through

1287
00:53:41,040 --> 00:53:39,010
a pretty long path to get to where it's

1288
00:53:42,450 --> 00:53:41,050

headed which is new and different we've

1289
00:53:46,470 --> 00:53:42,460
spent a lot of time testing that to make

1290
00:53:48,420 --> 00:53:46,480
sure that's going to work out ok also I

1291
00:53:49,740 --> 00:53:48,430
don't know how many of you really

1292
00:53:52,109 --> 00:53:49,750
watched progress until you stockings but

1293
00:53:53,250 --> 00:53:52,119
those vehicles don't come in slowly they

1294
00:53:55,770 --> 00:53:53,260
come in with quite a bit of force

1295
00:53:58,380 --> 00:53:55,780
there's a great deal of spring force in

1296
00:53:59,970 --> 00:53:58,390
the probe head of the docking probe that

1297
00:54:01,680 --> 00:53:59,980
has to be overcome and so we've also

1298
00:54:03,480 --> 00:54:01,690
worked hard to ensure that we've got the

1299
00:54:05,520 --> 00:54:03,490
right rates on the arm and that the arm

1300
00:54:07,560 --> 00:54:05,530
is able to provide sufficient rates to

1301
00:54:09,329 --> 00:54:07,570
overcome those spring forces so that we

1302
00:54:13,100 --> 00:54:09,339
can actually get the docking probe into

1303
00:54:15,830 --> 00:54:13,110
the docking cone for the first physical

1304
00:54:18,020 --> 00:54:15,840
aight then you had another question that

1305
00:54:20,060 --> 00:54:18,030
I'm afraid of RT forgotten do you need

1306
00:54:21,730 --> 00:54:20,070
to do that meeting wall moscow's and

1307
00:54:25,910 --> 00:54:21,740
direct connection with the station the

1308
00:54:27,950 --> 00:54:25,920
the ability to see Russian data via

1309
00:54:29,990 --> 00:54:27,960
their ground stations would be helpful

1310
00:54:32,240 --> 00:54:30,000
in a contingency case but for a nominal

1311
00:54:33,830 --> 00:54:32,250
case we don't require it so we are

1312
00:54:36,800 --> 00:54:33,840
scheduling it to occur in the crew

1313
00:54:39,650 --> 00:54:36,810

morning which is when we do have regular

1314
00:54:41,450 --> 00:54:39,660
ground sites and that's simply because

1315
00:54:43,130 --> 00:54:41,460
if we run into trouble we're going to

1316
00:54:44,510 --> 00:54:43,140
want to have access to the additional

1317
00:54:46,940 --> 00:54:44,520
data that's available in those ground

1318
00:54:49,010 --> 00:54:46,950
sites on the FGB side we get all the

1319
00:54:52,190 --> 00:54:49,020
data we need from mrm one through the

1320
00:54:54,080 --> 00:54:52,200
arm but if we need for instance for fgb

1321
00:54:55,880 --> 00:54:54,090
to let go of the probe if it has gotten

1322
00:54:57,530 --> 00:54:55,890
a hold of it then we'd need to get a

1323
00:55:01,790 --> 00:54:57,540
ground site in order to tell the FGB to

1324
00:55:05,090 --> 00:55:01,800
let go of the module thank you and an a

1325
00:55:07,790 --> 00:55:05,100
question for Jerry if do you plan to be

1326
00:55:10,460 --> 00:55:07,800
at the at the launch and and or landing

1327
00:55:12,110 --> 00:55:10,470
to see Atlantis come down for its last

1328
00:55:15,260 --> 00:55:12,120
plan flight and do you know if your if

1329
00:55:17,210 --> 00:55:15,270
your many crew members are planning to

1330
00:55:19,220 --> 00:55:17,220
do the same and what do you think that

1331
00:55:20,780 --> 00:55:19,230
will mean to watch Atlantis fly that

1332
00:55:23,180 --> 00:55:20,790
last light giving you said that your

1333
00:55:24,710 --> 00:55:23,190
favorite orbiter well I first of all I

1334
00:55:27,920 --> 00:55:24,720
will be down there and my current job is

1335
00:55:29,750 --> 00:55:27,930
a vehicle integration test office boss

1336
00:55:31,580 --> 00:55:29,760
I've I'm there for every launch every

1337
00:55:33,740 --> 00:55:31,590
landing every practice countdown so I

1338
00:55:36,680 --> 00:55:33,750

spend a good share of my time with the

1339
00:55:38,900 --> 00:55:36,690
Cape I don't know about any of the other

1340
00:55:41,270 --> 00:55:38,910
crew members who've flown on Atlantis

1341
00:55:42,920 --> 00:55:41,280
I've not heard from any of them I have

1342
00:55:44,990 --> 00:55:42,930
heard that there are quite a few crew

1343
00:55:46,670 --> 00:55:45,000
members former crew members in fact that

1344
00:55:49,280 --> 00:55:46,680
are hoping to try to get down for one of

1345
00:55:51,200 --> 00:55:49,290
these last three flights and there are

1346
00:55:53,390 --> 00:55:51,210
there are some discussions about

1347
00:55:55,430 --> 00:55:53,400
possibly trying to have some type of a

1348
00:55:58,840 --> 00:55:55,440
reunion during one of these last three

1349
00:56:01,400 --> 00:55:58,850
missions as well as far as feelings I

1350
00:56:03,620 --> 00:56:01,410
think we're all have very mixed feelings

1351
00:56:07,160 --> 00:56:03,630
with respect to the termination of the

1352
00:56:09,710 --> 00:56:07,170
program here I'm kind of hoping that we

1353
00:56:12,140 --> 00:56:09,720
will find a way to fly 135 and land also

1354
00:56:16,160 --> 00:56:12,150
get one last hurrah but it's not certain

1355
00:56:18,140 --> 00:56:16,170
I personally feel that it is the proper

1356
00:56:22,820 --> 00:56:18,150
thing to do to stop the shuttle program

1357
00:56:26,390 --> 00:56:22,830
I think it's time I wish we had not had

1358
00:56:29,349 --> 00:56:26,400
the gap developed between the terminate

1359
00:56:32,240 --> 00:56:29,359
this program and the start of the next

1360
00:56:35,240 --> 00:56:32,250
but all that being said I am looking

1361
00:56:38,539 --> 00:56:35,250
forward to seeing it fly like I said it

1362
00:56:42,130 --> 00:56:38,549
is a great flying bird and personally I

1363
00:56:47,630 --> 00:56:44,599

Stephen Clark with spaceflight now for

1364
00:56:50,059 --> 00:56:47,640
Emily do you have any contingency plans

1365
00:56:51,559 --> 00:56:50,069
if you aren't able to get the mini

1366
00:56:54,980 --> 00:56:51,569
research module hooked up during the

1367
00:56:56,510 --> 00:56:54,990
dock phase or can you bump that later

1368
00:56:58,760 --> 00:56:56,520
what was what's your plan if something

1369
00:57:01,630 --> 00:56:58,770
goes wrong yeah we've clearly spent a

1370
00:57:04,339 --> 00:57:01,640
lot of time talking about that

1371
00:57:06,289 --> 00:57:04,349
officially we are on the hook to return

1372
00:57:08,900 --> 00:57:06,299
the module to ground if we're unable to

1373
00:57:11,539 --> 00:57:08,910
get it installed however that hardware

1374
00:57:13,069 --> 00:57:11,549
on the exterior that modulus is very

1375
00:57:14,569 --> 00:57:13,079
important to our Russian partners the

1376
00:57:15,950 --> 00:57:14,579
cargo on the inside of the module is

1377
00:57:17,599 --> 00:57:15,960
very important to us so we're going to

1378
00:57:22,309 --> 00:57:17,609
do absolutely everything we can to get

1379
00:57:24,500 --> 00:57:22,319
the thing attached to station every

1380
00:57:26,450 --> 00:57:24,510
portion of the docking system is fully

1381
00:57:28,130 --> 00:57:26,460
redundant in one way or another either

1382
00:57:29,720 --> 00:57:28,140
because there was redundancy built in

1383
00:57:31,940 --> 00:57:29,730
the emer and one or because there's

1384
00:57:35,329 --> 00:57:31,950
redundancy by nature of the interface

1385
00:57:37,900 --> 00:57:35,339
with fgb the functional cargo block

1386
00:57:40,309 --> 00:57:37,910
module that we're installing it too so

1387
00:57:42,620 --> 00:57:40,319
we have walked through every different

1388
00:57:44,299 --> 00:57:42,630

scenario for if a given system fails and

1389
00:57:47,299 --> 00:57:44,309
how do we engage the backup system how

1390
00:57:50,990 --> 00:57:47,309
do we accommodate that if we absolutely

1391
00:57:52,849 --> 00:57:51,000
were unable to install the module than

1392
00:57:57,049 --> 00:57:52,859
worst case we would return it to the

1393
00:57:58,760 --> 00:57:57,059
payload bay and send it home ok let's go

1394
00:58:02,609 --> 00:57:58,770
down the Kennedy Space Center now for

1395
00:58:05,380 --> 00:58:02,619
questions we'll be back here Jim

1396
00:58:06,910 --> 00:58:05,390
thank you it's irene klotz with Reuters

1397
00:58:08,950 --> 00:58:06,920
I'm just a quick question for Emily

1398
00:58:11,650 --> 00:58:08,960
first what are you said the rates are

1399
00:58:15,279 --> 00:58:11,660
pretty fast for what we normally see on

1400
00:58:17,049 --> 00:58:15,289
us hardware what is it exactly I'm

1401
00:58:22,000 --> 00:58:17,059
afraid I don't have those numbers but we

1402
00:58:25,420 --> 00:58:22,010
can get those for you okay thanks and

1403
00:58:28,380 --> 00:58:25,430
for Jerry thank you for that trip down

1404
00:58:31,539 --> 00:58:28,390
memory lane its covers a lot of years I

1405
00:58:35,710 --> 00:58:31,549
just was wondering what you think about

1406
00:58:38,380 --> 00:58:35,720
the prospect of people flying to the

1407
00:58:41,680 --> 00:58:38,390
station and low Earth orbit without

1408
00:58:43,059 --> 00:58:41,690
having NASA being the entity in charge

1409
00:58:47,740 --> 00:58:43,069
of it all you know going to this

1410
00:58:51,069 --> 00:58:47,750
commercial model my own personal

1411
00:58:52,599 --> 00:58:51,079
opinions here first of all I don't think

1412
00:58:55,569 --> 00:58:52,609
we're doing things right if we don't

1413
00:58:57,640 --> 00:58:55,579

open up more routine and flexible ways

1414
00:59:00,759 --> 00:58:57,650
for anybody who wants to fly in space to

1415
00:59:04,210 --> 00:59:00,769
go there that being said I think that

1416
00:59:08,650 --> 00:59:04,220
the US government has an obligation to

1417
00:59:11,829 --> 00:59:08,660
its flyers to provide a safe and proper

1418
00:59:13,180 --> 00:59:11,839
way for them to fly into space and that

1419
00:59:15,849 --> 00:59:13,190
we ought to be in control of the

1420
00:59:18,910 --> 00:59:15,859
requirements we have to be in control of

1421
00:59:21,640 --> 00:59:18,920
how those vehicles are certified and we

1422
00:59:23,019 --> 00:59:21,650
ought to have our own people that are

1423
00:59:25,480 --> 00:59:23,029
helping us to get trained on those

1424
00:59:27,910 --> 00:59:25,490
vehicles and to help us operate those

1425
00:59:29,589 --> 00:59:27,920
from the ground if we can meet those

1426
00:59:32,170 --> 00:59:29,599
constraints that I'm happy to fly

1427
00:59:33,930 --> 00:59:32,180
whatever vehicle as long as it meets all

1428
00:59:37,450 --> 00:59:33,940
of our requirements are certifications

1429
00:59:42,990 --> 00:59:37,460
it's under our control and our crews are

1430
00:59:47,590 --> 00:59:45,490
this is Marcia Dunn of the Associated

1431
00:59:49,330 --> 00:59:47,600
Press with a few more Atlanta's

1432
00:59:50,590 --> 00:59:49,340
questions please Mike Seraphin you

1433
00:59:52,960 --> 00:59:50,600
mentioned that you're going to be

1434
00:59:54,700 --> 00:59:52,970
looking at this mission with reverence

1435
00:59:56,650 --> 00:59:54,710
treating it with reverence could you

1436
00:59:58,690 --> 00:59:56,660
expand a little and is there anything

1437
01:00:01,150 --> 00:59:58,700
out of the ordinary that your flight

1438
01:00:04,840 --> 01:00:01,160

team will be planning because this is

1439
01:00:07,210 --> 01:00:04,850
the last planned flight yeah the last

1440
01:00:09,580 --> 01:00:07,220
plane flight of Atlantis is going to be

1441
01:00:11,800 --> 01:00:09,590
treated with a bit of reverence I to use

1442
01:00:15,850 --> 01:00:11,810
a sports analogy with liking it to the

1443
01:00:17,500 --> 01:00:15,860
final season of the champion athlete you

1444
01:00:20,230 --> 01:00:17,510
know when when a champion athlete

1445
01:00:22,990 --> 01:00:20,240
announces their retirement folks show up

1446
01:00:26,550 --> 01:00:23,000
in large numbers to show their respect

1447
01:00:28,780 --> 01:00:26,560
for that for that particular athlete

1448
01:00:30,880 --> 01:00:28,790
stadiums around the country will be sold

1449
01:00:32,530 --> 01:00:30,890
out wherever they're appearing and we're

1450
01:00:34,060 --> 01:00:32,540
seeing that right now with the space

1451
01:00:36,220 --> 01:00:34,070
shuttle program we're seeing a lot of

1452
01:00:40,150 --> 01:00:36,230
interest from the public shown up for

1453
01:00:43,000 --> 01:00:40,160
not only the launches but also the other

1454
01:00:46,960 --> 01:00:43,010
events the rollout from the VA be to the

1455
01:00:50,320 --> 01:00:46,970
launch pad the landings and it's just an

1456
01:00:52,330 --> 01:00:50,330
increase in ups well in public interest

1457
01:00:55,090 --> 01:00:52,340
and public support that doesn't take

1458
01:00:56,890 --> 01:00:55,100
away from the fact that we need to

1459
01:00:59,440 --> 01:00:56,900
retire the space shuttle or a space

1460
01:01:01,120 --> 01:00:59,450
shuttle program we are in the 9th inning

1461
01:01:03,940 --> 01:01:01,130
and as Jared mentioned there is a

1462
01:01:07,090 --> 01:01:03,950
possibility that we'll have a launch on

1463
01:01:08,380 --> 01:01:07,100

need flight or an sts-135 Atlantis may

1464
01:01:11,170 --> 01:01:08,390
go into extra innings we don't know

1465
01:01:14,320 --> 01:01:11,180
we'll see how all that plays out as far

1466
01:01:16,510 --> 01:01:14,330
as the the ground team is concerned you

1467
01:01:19,030 --> 01:01:16,520
know right now I'm sure that we'll have

1468
01:01:21,970 --> 01:01:19,040
a few events along the way I don't have

1469
01:01:23,740 --> 01:01:21,980
any in mind at this very instant in time

1470
01:01:26,440 --> 01:01:23,750
but I've got a little more time to think

1471
01:01:28,930 --> 01:01:26,450
about that I'm sure the team being is

1472
01:01:30,820 --> 01:01:28,940
invested in in the flight of Atlantis

1473
01:01:31,990 --> 01:01:30,830
and the space shuttle program as it is

1474
01:01:34,450 --> 01:01:32,000
we'll come up with something creative

1475
01:01:39,250 --> 01:01:34,460
and I will certainly welcome any any

1476
01:01:41,380 --> 01:01:39,260
ideas that they have thank you and for

1477
01:01:43,030 --> 01:01:41,390
Jerry Ross so why is it lantus your

1478
01:01:44,500 --> 01:01:43,040
favorite other than the fact that

1479
01:01:46,030 --> 01:01:44,510
they've flown it so many times is there

1480
01:01:48,640 --> 01:01:46,040
something in particular that makes it

1481
01:01:50,530 --> 01:01:48,650
your favorite and you know you are

1482
01:01:52,090 --> 01:01:50,540
involved with all the cruise going up

1483
01:01:54,880 --> 01:01:52,100
and coming back and I'm wondering if you

1484
01:01:56,260 --> 01:01:54,890
could somehow summarize the rest of the

1485
01:01:59,320 --> 01:01:56,270
astronaut corps is

1486
01:02:00,790 --> 01:01:59,330
feelings as Atlantis gets set to make

1487
01:02:02,740 --> 01:02:00,800
its last flight and there were only

1488
01:02:05,890 --> 01:02:02,750

three plan more flights left to the

1489
01:02:08,980 --> 01:02:05,900
entire program well first of all Marcia

1490
01:02:10,150 --> 01:02:08,990
the primary reason that Atlantis is my

1491
01:02:13,510 --> 01:02:10,160
favorites because the number of times

1492
01:02:15,550 --> 01:02:13,520
I've flown on it also was when I flew

1493
01:02:17,680 --> 01:02:15,560
for my first three times as well as the

1494
01:02:18,700 --> 01:02:17,690
last and the other one was a visit to

1495
01:02:21,310 --> 01:02:18,710
mirror which was a fascinating

1496
01:02:23,260 --> 01:02:21,320
opportunity as well so it would be hard

1497
01:02:24,970 --> 01:02:23,270
when five of your seven are on one

1498
01:02:27,730 --> 01:02:24,980
vehicle to not have that as your

1499
01:02:29,980 --> 01:02:27,740
favorite one besides that I mentioned

1500
01:02:32,710 --> 01:02:29,990
earlier is a great flying vehicle it's a

1501
01:02:34,390 --> 01:02:32,720
it's a testament to the talents of the

1502
01:02:36,760 --> 01:02:34,400
people that design the hardware but also

1503
01:02:39,070 --> 01:02:36,770
to all the folks at the Cape who spend

1504
01:02:41,350 --> 01:02:39,080
countless hours prepping the vehicles to

1505
01:02:44,110 --> 01:02:41,360
go fly and Atlantis has given us

1506
01:02:46,300 --> 01:02:44,120
outstanding support on orbit and I

1507
01:02:49,690 --> 01:02:46,310
expect the two owners here it's its last

1508
01:02:50,980 --> 01:02:49,700
plan flight I think if you talk to the

1509
01:02:52,240 --> 01:02:50,990
folks in the office you get as many

1510
01:02:54,880 --> 01:02:52,250
different opinions and what they're

1511
01:02:57,730 --> 01:02:54,890
feeling right now is as there are people

1512
01:02:59,230 --> 01:02:57,740
and maybe you and you know what the one

1513
01:03:02,050 --> 01:02:59,240

of the common sayings we have any office

1514
01:03:03,610 --> 01:03:02,060
is if you want multiple opinions ask to

1515
01:03:06,420 --> 01:03:03,620
people and you'll get Piper probably

1516
01:03:09,550 --> 01:03:06,430
five or six it's very mixed feelings

1517
01:03:11,950 --> 01:03:09,560
there there is an anticipation of where

1518
01:03:13,960 --> 01:03:11,960
we could go in the future there is a

1519
01:03:16,480 --> 01:03:13,970
frustration with where we are now in

1520
01:03:20,020 --> 01:03:16,490
terms of the mixed messages we seem to

1521
01:03:25,150 --> 01:03:20,030
continue to get from headquarters there

1522
01:03:26,680 --> 01:03:25,160
is and some people's minds a fact that

1523
01:03:27,940 --> 01:03:26,690
we ought to continue to operate the

1524
01:03:29,800 --> 01:03:27,950
vehicle it seems to be flowing the

1525
01:03:32,230 --> 01:03:29,810
vehicles the shuttle seem to be flying

1526
01:03:34,660 --> 01:03:32,240
about as well as they've ever flown with

1527
01:03:36,460 --> 01:03:34,670
flying longer missions and having less

1528
01:03:39,970 --> 01:03:36,470
problems on orbit than we've ever had on

1529
01:03:41,830 --> 01:03:39,980
the vehicles basically the couple of

1530
01:03:44,260 --> 01:03:41,840
hiccups we had a couple years ago with

1531
01:03:46,300 --> 01:03:44,270
low-level cut off sensors and things

1532
01:03:47,860 --> 01:03:46,310
like that are all behind us the

1533
01:03:51,100 --> 01:03:47,870
countdowns have been very smooth and

1534
01:03:52,240 --> 01:03:51,110
very reliable recently the only thing

1535
01:03:55,090 --> 01:03:52,250
that we can't control it seems like

1536
01:03:56,980 --> 01:03:55,100
right now is the weather that all being

1537
01:03:59,050 --> 01:03:56,990
said like I said you're going to get a

1538
01:04:01,720 --> 01:03:59,060

lot of different opinions on what's

1539
01:04:04,420 --> 01:04:01,730
going on as I expressed earlier my own

1540
01:04:06,540 --> 01:04:04,430
private personal opinion is that the

1541
01:04:10,670 --> 01:04:06,550
shuttle has run its course it's time to

1542
01:04:16,079 --> 01:04:13,920
thank you for that answer and you

1543
01:04:18,569 --> 01:04:16,089
mentioned that the brush mojo is going

1544
01:04:20,370 --> 01:04:18,579
to be stuffed with the cargo I'm

1545
01:04:22,410 --> 01:04:20,380
wondering could you sort of summarize

1546
01:04:25,260 --> 01:04:22,420
what what what cargos going up is that

1547
01:04:27,780 --> 01:04:25,270
all Russian or is it a a motley of

1548
01:04:30,810 --> 01:04:27,790
international things and for your flight

1549
01:04:34,920 --> 01:04:30,820
do you get is this a plus one flight or

1550
01:04:39,180 --> 01:04:34,930
is it just straight 12 days into two or

1551
01:04:41,690 --> 01:04:39,190
three wave off days the cargo inside of

1552
01:04:45,180 --> 01:04:41,700
emma room one is all nasa cargo we have

1553
01:04:47,490 --> 01:04:45,190
spare parts some of our we're pre

1554
01:04:49,560 --> 01:04:47,500
positioning items for future station

1555
01:04:52,920 --> 01:04:49,570
crews food clothes those kinds of things

1556
01:04:54,180 --> 01:04:52,930
we have some medical supplies a lot of

1557
01:04:55,890 --> 01:04:54,190
what you would expect in a module that

1558
01:04:57,750 --> 01:04:55,900
doesn't have to be unpacked right away

1559
01:04:59,280 --> 01:04:57,760
all of the stuff that we need more

1560
01:05:04,170 --> 01:04:59,290
quickly we're going to put on the

1561
01:05:06,660 --> 01:05:04,180
shuttle mid deck and in terms of the

1562
01:05:10,560 --> 01:05:06,670
mission duration we are at twelve plus

1563
01:05:13,770 --> 01:05:10,570

zero flight day mission so we don't have

1564
01:05:15,480 --> 01:05:13,780
in the bag at launch an extra day to add

1565
01:05:17,309 --> 01:05:15,490
in so we'll have to juggle our

1566
01:05:21,000 --> 01:05:17,319
priorities as required if we run into

1567
01:05:22,920 --> 01:05:21,010
any contingencies okay time for

1568
01:05:28,620 --> 01:05:22,930
questions from NASA headquarters in

1569
01:05:30,450 --> 01:05:28,630
Washington thank you this is a relic

1570
01:05:35,359 --> 01:05:30,460
from space all common spaces and I have

1571
01:05:39,300 --> 01:05:35,369
a few for each of the presenters for

1572
01:05:42,059 --> 01:05:39,310
Mike and Emily I'm just curious if I

1573
01:05:46,380 --> 01:05:42,069
think that this is a very packed mission

1574
01:05:48,210 --> 01:05:46,390
all around if there's a I guess one

1575
01:05:51,030 --> 01:05:48,220
cheap item that really stands out is the

1576
01:05:52,589 --> 01:05:51,040
maybe the biggest hurdle you see or is

1577
01:05:56,940 --> 01:05:52,599
it pretty much going to be a marathon

1578
01:06:00,210 --> 01:05:56,950
the entire time I can lead this one

1579
01:06:02,430 --> 01:06:00,220
other thing is in terms of just the

1580
01:06:04,710 --> 01:06:02,440
mission in general as I mentioned

1581
01:06:08,760 --> 01:06:04,720
earlier the robotics on this flight is

1582
01:06:11,099 --> 01:06:08,770
probably the single biggest key in being

1583
01:06:13,170 --> 01:06:11,109
able to pull the mission off we've got a

1584
01:06:17,520 --> 01:06:13,180
lot of cereal activities both on the

1585
01:06:20,280 --> 01:06:17,530
shuttle and the station robotics side of

1586
01:06:22,089 --> 01:06:20,290
the house and some of those you know

1587
01:06:24,279 --> 01:06:22,099
just due to the low

1588
01:06:26,289 --> 01:06:24,289

occasion of the robotics activities on

1589
01:06:29,079 --> 01:06:26,299
the on the International Space Station

1590
01:06:31,450 --> 01:06:29,089
and the amount of time available in the

1591
01:06:34,089 --> 01:06:31,460
mission timeline all need to happen

1592
01:06:37,900 --> 01:06:34,099
within a within a fairly narrow window

1593
01:06:39,400 --> 01:06:37,910
and in a serial manner such that if we

1594
01:06:42,249 --> 01:06:39,410
don't get things done they could cascade

1595
01:06:43,690 --> 01:06:42,259
and affect the ability to get all the

1596
01:06:45,880 --> 01:06:43,700
content that we've got planned on this

1597
01:06:48,099 --> 01:06:45,890
mission accomplished having said that

1598
01:06:50,349 --> 01:06:48,109
we've looked at the plan and we've got a

1599
01:06:51,910 --> 01:06:50,359
lot of contingencies available that the

1600
01:06:54,190 --> 01:06:51,920
team has gone off and trained and is

1601
01:06:55,839 --> 01:06:54,200
prepared to execute I have a high level

1602
01:06:57,190 --> 01:06:55,849
of confidence that they will be able to

1603
01:06:59,920 --> 01:06:57,200
handle any problems that come our way

1604
01:07:01,420 --> 01:06:59,930
and whether we've planned it or not

1605
01:07:05,589 --> 01:07:01,430
because of the team in the system that

1606
01:07:07,539 --> 01:07:05,599
we've got place I would add that for me

1607
01:07:10,049 --> 01:07:07,549
emran one is probably the biggest hurdle

1608
01:07:13,630 --> 01:07:10,059
hopefully on flight day five it'll look

1609
01:07:16,630 --> 01:07:13,640
like it was effortless but if anything

1610
01:07:18,819 --> 01:07:16,640
does go awry there as Mike said we have

1611
01:07:20,380 --> 01:07:18,829
a very serial arm plan and and we need

1612
01:07:22,269 --> 01:07:20,390
our arms to be in an entirely different

1613
01:07:23,410 --> 01:07:22,279

place following the environment install

1614
01:07:25,749 --> 01:07:23,420
if we're going to continue with the VA's

1615
01:07:27,549 --> 01:07:25,759
two and three and if we're still

1616
01:07:29,469 --> 01:07:27,559
worrying about mr m 1 then we won't be

1617
01:07:31,479 --> 01:07:29,479
able to proceed into those activities so

1618
01:07:34,859 --> 01:07:31,489
once we get to the afternoon of light

1619
01:07:37,269 --> 01:07:34,869
day 5 successfully I'll feel like we

1620
01:07:45,160 --> 01:07:37,279
will have accomplished our first mission

1621
01:07:47,739 --> 01:07:45,170
objective for sure thank you and for us

1622
01:07:49,569 --> 01:07:47,749
you mentioned earlier that you thought

1623
01:07:51,370 --> 01:07:49,579
you know the view of a shuttle launches

1624
01:07:53,799 --> 01:07:51,380
is spectacular and you're going to miss

1625
01:07:57,039 --> 01:07:53,809
seeing it in the future and I was just

1626
01:07:58,779 --> 01:07:57,049
curious what what your feelings were you

1627
01:08:01,359 --> 01:07:58,789
what you can recall about the first time

1628
01:08:04,239 --> 01:08:01,369
you actually saw Atlantis in person may

1629
01:08:06,039 --> 01:08:04,249
be touched it climbed inside it and got

1630
01:08:08,109 --> 01:08:06,049
that first ride I guess what what that

1631
01:08:11,289 --> 01:08:08,119
moment was like knowing that this could

1632
01:08:13,479 --> 01:08:11,299
be the last slide for well my first

1633
01:08:16,539 --> 01:08:13,489
shuttle flight on Atlantis was the 23rd

1634
01:08:18,550 --> 01:08:16,549
overall shuttle flight so I had listened

1635
01:08:21,189 --> 01:08:18,560
to 22 crews come back and give us very

1636
01:08:22,839 --> 01:08:21,199
excruciating details of what they saw

1637
01:08:25,030 --> 01:08:22,849
what they learned what they felt on each

1638
01:08:27,640 --> 01:08:25,040

of those missions and I put all that

1639
01:08:28,959 --> 01:08:27,650
information into my my think tank and

1640
01:08:30,430 --> 01:08:28,969
every time I'd go out running or

1641
01:08:32,680 --> 01:08:30,440
exercising or something like that I

1642
01:08:34,749 --> 01:08:32,690
would kind of daydream what was going to

1643
01:08:35,019 --> 01:08:34,759
be like to strap that puppy on and go

1644
01:08:37,809 --> 01:08:35,029
for a

1645
01:08:39,970 --> 01:08:37,819
right and I can frankly tell you that

1646
01:08:41,919 --> 01:08:39,980
about 20 seconds after liftoff on my

1647
01:08:44,260 --> 01:08:41,929
first flight I was thinking to myself

1648
01:08:47,439 --> 01:08:44,270
Ross what and the world are you doing

1649
01:08:48,999 --> 01:08:47,449
here as you remember that was back and

1650
01:08:51,910 --> 01:08:49,009
we still are launching in cloth flight

1651
01:08:53,559 --> 01:08:51,920
suits and a motorcycle helmet and t-38

1652
01:08:55,149 --> 01:08:53,569
flight boots we didn't have our launch

1653
01:08:56,919 --> 01:08:55,159
and entry suits we weren't in a

1654
01:08:59,439 --> 01:08:56,929
pressurized environment inside that

1655
01:09:01,749 --> 01:08:59,449
little cocoon that that gives us those

1656
01:09:04,059 --> 01:09:01,759
suits really do muffle out a lot of the

1657
01:09:05,919 --> 01:09:04,069
sounds and a lot of vibrations that the

1658
01:09:08,709 --> 01:09:05,929
vehicle generates during first stage and

1659
01:09:11,140 --> 01:09:08,719
so for me that that first launch was

1660
01:09:14,049 --> 01:09:11,150
pretty exciting right it was a lot of

1661
01:09:16,149 --> 01:09:14,059
rumbling and shaking as I said since

1662
01:09:18,189 --> 01:09:16,159
it's a lot easier to maneuver around the

1663
01:09:19,930 --> 01:09:18,199

seat I was able to turn around on my

1664
01:09:23,109 --> 01:09:19,940
seat I was in the back right seat behind

1665
01:09:24,579 --> 01:09:23,119
the pilot for launch I was able to turn

1666
01:09:26,470 --> 01:09:24,589
around and be looking back at the base

1667
01:09:28,450 --> 01:09:26,480
of the pad and saw the water starting to

1668
01:09:29,799 --> 01:09:28,460
come out for the sound suppression and I

1669
01:09:31,059 --> 01:09:29,809
thought well I guess better turn around

1670
01:09:33,399 --> 01:09:31,069
looks like they're going to do this I

1671
01:09:34,749 --> 01:09:33,409
know more than got turned around and the

1672
01:09:36,999 --> 01:09:34,759
engines were rumbling and then the

1673
01:09:38,319 --> 01:09:37,009
solids hit and the solids hitting is

1674
01:09:39,999 --> 01:09:38,329
kind of like somebody taking a baseball

1675
01:09:42,399 --> 01:09:40,009
bat and swinging it pretty smartly and

1676
01:09:44,260 --> 01:09:42,409
hitting the back of your chair and that

1677
01:09:46,329 --> 01:09:44,270
was the first sensation I had that will

1678
01:09:49,950 --> 01:09:46,339
this is really pretty impressive but

1679
01:09:52,749 --> 01:09:49,960
literally during the first 15 20 seconds

1680
01:09:54,669 --> 01:09:52,759
screeching through the atmosphere the

1681
01:09:56,589 --> 01:09:54,679
the wind noise on the outside the

1682
01:09:59,200 --> 01:09:56,599
vehicle vehicle was just really

1683
01:10:00,669 --> 01:09:59,210
incredible is very impressive much more

1684
01:10:04,180 --> 01:10:00,679
than ever experienced in a jet airplane

1685
01:10:06,490 --> 01:10:04,190
either commercial or military so I was

1686
01:10:07,870 --> 01:10:06,500
pretty impressive and when you throttle

1687
01:10:09,850 --> 01:10:07,880
down you don't really know that you're

1688
01:10:11,680 --> 01:10:09,860

throttling down but when you throttle

1689
01:10:14,080 --> 01:10:11,690
back up it feels like somebody just put

1690
01:10:15,879 --> 01:10:14,090
the afterburner in you're generating a

1691
01:10:17,950 --> 01:10:15,889
lot of thrust but you're adding back

1692
01:10:19,689 --> 01:10:17,960
maybe several hundred thousand pounds of

1693
01:10:24,970 --> 01:10:19,699
thrust but it feels like a lot more so a

1694
01:10:27,970 --> 01:10:24,980
lot of sensations a lot of memories and

1695
01:10:31,689 --> 01:10:27,980
a sensation that Disney's a ticket rides

1696
01:10:32,770 --> 01:10:31,699
would never come close thanks Jerry

1697
01:10:35,500 --> 01:10:32,780
we're back here in Houston for

1698
01:10:37,270 --> 01:10:35,510
follow-ups Jim yeah Jim Oberg with NBC

1699
01:10:39,790 --> 01:10:37,280
for Emily a couple questions on the mrm

1700
01:10:41,350 --> 01:10:39,800
this is this may be a program office

1701
01:10:43,270 --> 01:10:41,360
question but this is the slot that the

1702
01:10:45,250 --> 01:10:43,280
soul that science Power Platform one's

1703
01:10:49,479 --> 01:10:45,260
head so we may have swap about 10 years

1704
01:10:52,149 --> 01:10:49,489
ago yes we're flying in room one as part

1705
01:10:54,310 --> 01:10:52,159
of our long-standing agreements for a

1706
01:10:55,930 --> 01:10:54,320
hardware that we're basically poundage

1707
01:10:57,430 --> 01:10:55,940
that we need to get to orbit and Emma

1708
01:10:58,569 --> 01:10:57,440
and one is actually a piece of the

1709
01:11:02,439 --> 01:10:58,579
science power platform that's been

1710
01:11:04,359 --> 01:11:02,449
repurposed and in terms of the Russians

1711
01:11:07,330 --> 01:11:04,369
as payload owners how many Russians have

1712
01:11:08,770 --> 01:11:07,340
really been to KSC Max and a normal

1713
01:11:10,240 --> 01:11:08,780

Torian processing and how many Russians

1714
01:11:14,560 --> 01:11:10,250
will be here and what kind of office as

1715
01:11:16,540 --> 01:11:14,570
payload operators at the Cape I only

1716
01:11:19,120 --> 01:11:16,550
have ballpark numbers but I know we

1717
01:11:21,970 --> 01:11:19,130
found on the order of 30 of their folks

1718
01:11:23,560 --> 01:11:21,980
of the energy of folks in particular at

1719
01:11:27,339 --> 01:11:23,570
the Cape for processing the payload

1720
01:11:29,709 --> 01:11:27,349
itself Here I am personally aware of

1721
01:11:31,060 --> 01:11:29,719
about a half a dozen of the Russian

1722
01:11:33,490 --> 01:11:31,070
engineers that'll be here with us a

1723
01:11:35,410 --> 01:11:33,500
couple of those are going to be sitting

1724
01:11:36,549 --> 01:11:35,420
with our program integration folks a

1725
01:11:38,260 --> 01:11:36,559
couple of those will be sitting in our

1726
01:11:42,879 --> 01:11:38,270
paler control center talking directly to

1727
01:11:45,100 --> 01:11:42,889
our payloads officers and then the rest

1728
01:11:46,629 --> 01:11:45,110
of the team will be in Moscow and we of

1729
01:11:48,160 --> 01:11:46,639
course will have our standard loop

1730
01:11:49,899 --> 01:11:48,170
communication with those teams our

1731
01:11:53,080 --> 01:11:49,909
day-to-day operations in space station

1732
01:11:54,609 --> 01:11:53,090
have prepared us well for that it's a

1733
01:11:56,560 --> 01:11:54,619
little bit different when the when the

1734
01:11:58,290 --> 01:11:56,570
modules in the payload Bay and that we

1735
01:12:01,149 --> 01:11:58,300
handle things a little bit differently

1736
01:12:02,410 --> 01:12:01,159
passing that communication to to Mike

1737
01:12:05,020 --> 01:12:02,420
over in the shuttle flight control room

1738
01:12:06,850 --> 01:12:05,030

but once we get the payload on the arm

1739
01:12:08,740 --> 01:12:06,860
then it's just as if it were any other

1740
01:12:10,359 --> 01:12:08,750
piece of Russian hardware and I talked

1741
01:12:14,620 --> 01:12:10,369
to sr pay and we talked through whatever

1742
01:12:17,049 --> 01:12:14,630
we need to all right Eric burger with a

1743
01:12:18,760 --> 01:12:17,059
houston chronicle Gerry thank you for um

1744
01:12:22,060 --> 01:12:18,770
for coming out and talking to us this

1745
01:12:22,990 --> 01:12:22,070
morning it's been interesting you asked

1746
01:12:24,970 --> 01:12:23,000
earlier a little bit about the

1747
01:12:27,129 --> 01:12:24,980
differences between each of the shuttles

1748
01:12:28,569 --> 01:12:27,139
and I just I just want to clarify when

1749
01:12:29,830 --> 01:12:28,579
you're in the cabin can you really tell

1750
01:12:32,200 --> 01:12:29,840
the difference between discovery in

1751
01:12:33,939 --> 01:12:32,210
Atlantis endeavour the other vehicles or

1752
01:12:36,129 --> 01:12:33,949
I mean it's are they it's everything the

1753
01:12:37,779 --> 01:12:36,139
same in the same place yeah all the

1754
01:12:39,760 --> 01:12:37,789
vehicles on the inside look pretty much

1755
01:12:41,319 --> 01:12:39,770
the same there are minor differences and

1756
01:12:43,060 --> 01:12:41,329
as we're going through different

1757
01:12:44,620 --> 01:12:43,070
modifications to the vehicles you could

1758
01:12:46,120 --> 01:12:44,630
tell a difference if that one

1759
01:12:48,339 --> 01:12:46,130
modification had or had not been

1760
01:12:50,109 --> 01:12:48,349
completed but you know we have just two

1761
01:12:51,970 --> 01:12:50,119
trainers to most emotion based on a

1762
01:12:54,910 --> 01:12:51,980
fixed based simulator that we train all

1763
01:12:56,609 --> 01:12:54,920

the crews in and so they basically look

1764
01:12:59,229 --> 01:12:56,619
the same no matter which one you're in

1765
01:13:05,020 --> 01:12:59,239
there are minor nuances but not that

1766
01:13:06,549 --> 01:13:05,030
many ok any other follow-ups seeing none

1767
01:13:09,759 --> 01:13:06,559
we'll call it a briefing a couple of

1768
01:13:12,850 --> 01:13:09,769
programming notes will be coming up with

1769
01:13:14,709 --> 01:13:12,860
a recap of all the video b-roll that

1770
01:13:16,779 --> 01:13:14,719
will be fed out on NASA television that

1771
01:13:18,669 --> 01:13:16,789
you've seen during this briefing and the

1772
01:13:21,339 --> 01:13:18,679
prior briefing that will all be coming

1773
01:13:24,160 --> 01:13:21,349
up momentarily on NASA TV the next

1774
01:13:26,200 --> 01:13:24,170
briefing is at 1130am central time lead

1775
01:13:28,779 --> 01:13:26,210
spacewalk officer Lisa shore will be

1776
01:13:30,640 --> 01:13:28,789
here to give a comprehensive rundown on

1777
01:13:33,549 --> 01:13:30,650
all three spacewalks scheduled for

1778
01:13:35,410 --> 01:13:33,559
sts-132 and at one p.m. Central Time

1779
01:13:36,669 --> 01:13:35,420
Atlantis's six astronauts will be here

1780
01:13:38,319 --> 01:13:36,679
for their final pre-launch news

1781
01:13:40,479 --> 01:13:38,329
conference you'll want to be here for