1
00:00:15,910 --> 00:00:13,509
with the launch of sts-129

2
00:00:17,830 --> 00:00:15,920
and its crew of six astronauts space

3
00:00:20,390 --> 00:00:17,840
shuttle atlantis will embark on an

4
00:00:22,870 --> 00:00:20,400
11-day mission as astronauts begin

5
00:00:23,990 --> 00:00:22,880
stocking the station for life after

6
00:00:25,990 --> 00:00:24,000
shuttle

7
00:00:28,390 --> 00:00:26,000
as the number of remaining countdowns

8
00:00:30,070 --> 00:00:28,400
grows smaller nasa has begun the

9
00:00:31,750 --> 00:00:30,080
transition from building the

10
00:00:33,990 --> 00:00:31,760
international space station to

11
00:00:36,470 --> 00:00:34,000
sustaining and utilizing it after the

12
00:00:39,750 --> 00:00:36,480
space shuttle fleet is retired

13
00:00:43,430 --> 00:00:39,760

this 31st mission to the iss marks the

14
00:00:45,350 --> 00:00:43,440
end of another era as the sts-129 crew

15
00:00:47,430 --> 00:00:45,360
picks up the last crew member scheduled

16
00:00:48,709 --> 00:00:47,440
to be brought home from the station on

17
00:00:51,590 --> 00:00:48,719
the shuttle

18
00:00:54,630 --> 00:00:51,600
after atlantis docks with the iss the

19
00:00:56,830 --> 00:00:54,640
crew of sts-129 will transfer two

20
00:01:00,389 --> 00:00:56,840
express logistics carriers to the

21
00:01:03,270 --> 00:01:00,399
station the two elcs hold large orbital

22
00:01:05,509 --> 00:01:03,280
replacement units or orus

23
00:01:07,910 --> 00:01:05,519
some orus will be installed during the

24
00:01:10,390 --> 00:01:07,920
mission's three spacewalks while others

25
00:01:25,990 --> 00:01:10,400
are critical spare parts left behind on

26
00:01:29,749 --> 00:01:27,149
the crew of

27
00:01:32,149 --> 00:01:29,759
sts-129 is an even mix of three

28
00:01:34,550 --> 00:01:32,159
previously flown astronauts and three

29
00:01:36,630 --> 00:01:34,560
first-time space travelers

30
00:01:38,630 --> 00:01:36,640
marine colonel charlie hobaugh will be

31
00:01:41,830 --> 00:01:38,640
making his third space flight as he

32
00:01:44,149 --> 00:01:41,840
commands the sts-129 crew

33
00:01:46,469 --> 00:01:44,159
on his last mission hobart flew as the

34
00:01:48,710 --> 00:01:46,479
pilot of sts-118

35
00:01:51,670 --> 00:01:48,720
i've got a very uh

36
00:01:55,429 --> 00:01:53,749
by the five crew members on the court

37
00:01:57,109 --> 00:01:55,439
group and then of course we pick up

38
00:01:59,510 --> 00:01:57,119

nicole to come home

39
00:02:01,990 --> 00:01:59,520
navy captain barry wilmore will make his

40
00:02:03,350 --> 00:02:02,000
first journey into space as the pilot of

41
00:02:05,590 --> 00:02:03,360
atlantis

42
00:02:07,590 --> 00:02:05,600
wilmore will be responsible for robotic

43
00:02:10,229 --> 00:02:07,600
operations with both the shuttle and

44
00:02:12,390 --> 00:02:10,239
station arms and he will fly the orbiter

45
00:02:13,990 --> 00:02:12,400
as it undocks from station near the end

46
00:02:15,990 --> 00:02:14,000
of the mission

47
00:02:18,070 --> 00:02:16,000
former national football league draft

48
00:02:21,630 --> 00:02:18,080
pick leland melvin will fly with the

49
00:02:24,869 --> 00:02:21,640
atlantis crew as mission specialist one

50
00:02:29,190 --> 00:02:24,879
sts-129 is his second space flight he

51
00:02:31,030 --> 00:02:29,200
first flew aboard sts-122 in 2008.

52
00:02:33,270 --> 00:02:31,040
melvin will serve as this mission's

53
00:02:35,030 --> 00:02:33,280
robotics lead

54
00:02:37,949 --> 00:02:35,040
mission specialist 2 is marine

55
00:02:40,949 --> 00:02:37,959
lieutenant colonel randy bresnik on

56
00:02:43,350 --> 00:02:40,959
sts-129 his first base flight bresnik

57
00:02:45,830 --> 00:02:43,360
will work outside iss during two

58
00:02:48,150 --> 00:02:45,840
different spacewalks

59
00:02:50,390 --> 00:02:48,160
retired navy captain mike foreman

60
00:02:52,710 --> 00:02:50,400
mission specialist 3 will be riding

61
00:02:55,509 --> 00:02:52,720
uphill a second time after first flying

62
00:02:57,350 --> 00:02:55,519
on sts-123

63
00:02:59,589 --> 00:02:57,360

foreman will exit the space station's

64
00:03:01,990 --> 00:02:59,599
hatch for two evas as the lead

65
00:03:04,550 --> 00:03:02,000
spacewalker

66
00:03:05,350 --> 00:03:04,560
dr bobby satcher is mission specialist

67
00:03:10,070 --> 00:03:05,360
for

68
00:03:19,910 --> 00:03:10,080
space walks during this his first space

69
00:03:24,869 --> 00:03:22,949
a key objective during sts-129

70
00:03:26,869 --> 00:03:24,879
the first of six remaining flights

71
00:03:29,509 --> 00:03:26,879
before the shuttle is retired is to

72
00:03:32,229 --> 00:03:29,519
bring home current iss flight engineer

73
00:03:34,470 --> 00:03:32,239
nicole stott stott has been a resident

74
00:03:36,149 --> 00:03:34,480
on station since discovery docked in

75
00:03:38,390 --> 00:03:36,159
late august

76
00:03:41,110 --> 00:03:38,400
of course we're

77
00:03:43,030 --> 00:03:41,120
ending the shuttle rotation crew member

78
00:03:44,869 --> 00:03:43,040
era essentially

79
00:03:46,869 --> 00:03:44,879
when we bring nicole home

80
00:03:49,110 --> 00:03:46,879
we won't be bringing up

81
00:03:50,229 --> 00:03:49,120
a replacement for her so once we bring

82
00:03:51,990 --> 00:03:50,239
her home

83
00:03:54,229 --> 00:03:52,000
all crew members

84
00:03:57,270 --> 00:03:54,239
on station will be up and down on soyuz

85
00:03:59,350 --> 00:03:57,280
so that ends that that rotation as

86
00:04:00,550 --> 00:03:59,360
atlantis reaches orbit and docks with

87
00:04:02,550 --> 00:04:00,560
iss

88
00:04:04,470 --> 00:04:02,560

nasa and its international partners are

89
00:04:06,309 --> 00:04:04,480
nearing the end of the construction

90
00:04:08,229 --> 00:04:06,319
phase of the space station

91
00:04:10,789 --> 00:04:08,239
most of the modules are there

92
00:04:11,750 --> 00:04:10,799
but we need to make sure we have enough

93
00:04:12,830 --> 00:04:11,760
parts

94
00:04:16,069 --> 00:04:12,840
and

95
00:04:18,229 --> 00:04:16,079
bolts batteries everything else that

96
00:04:20,390 --> 00:04:18,239
enables us to continue to operate on the

97
00:04:22,550 --> 00:04:20,400
space station we are taking up

98
00:04:24,390 --> 00:04:22,560
these express logistics carriers elc's

99
00:04:26,469 --> 00:04:24,400
two of them they're upwards almost 14

100
00:04:28,469 --> 00:04:26,479
000 pounds apiece and they are loaded

101
00:04:29,749 --> 00:04:28,479
with replaceable units on both sides we

102
00:04:31,749 --> 00:04:29,759
call them the waffle waffle one and

103
00:04:34,390 --> 00:04:31,759
waffle two one of our main objectives is

104
00:04:36,150 --> 00:04:34,400
to get those attached to stations so

105
00:04:38,710 --> 00:04:36,160
once the heavy lift capability of the

106
00:04:41,749 --> 00:04:38,720
shuttle goes away when it retires we'll

107
00:04:44,950 --> 00:04:41,759
have up a lot of spare parts like

108
00:04:47,909 --> 00:04:44,960
control moment gyros pump pumps nitrogen

109
00:04:50,550 --> 00:04:47,919
tanks ammonia tanks atlantis will also

110
00:04:52,390 --> 00:04:50,560
carry several mid deck payloads these

111
00:04:54,790 --> 00:04:52,400
include the glacier station samples

112
00:04:57,189 --> 00:04:54,800
refrigerator the mice drawer system

113
00:04:59,270 --> 00:04:57,199

returning six rodents from station the

114
00:05:01,350 --> 00:04:59,280
spinal elongation experiment that

115
00:05:03,909 --> 00:05:01,360
measures the crew's seated height and

116
00:05:14,710 --> 00:05:03,919
two japanese experiments called cerise

117
00:05:18,790 --> 00:05:16,029
the schedule for

118
00:05:21,430 --> 00:05:18,800
sts-129 features two days of robotics

119
00:05:23,510 --> 00:05:21,440
work and three spacewalks

120
00:05:25,909 --> 00:05:23,520
on flight day three the day after

121
00:05:28,310 --> 00:05:25,919
docking the logistics carrier known as

122
00:05:30,950 --> 00:05:28,320
waffle one takes center stage as the

123
00:05:32,390 --> 00:05:30,960
opening act for robotics operations

124
00:05:34,150 --> 00:05:32,400
we're going to get our safety briefs on

125
00:05:36,230 --> 00:05:34,160
the station and then we are going to go

126
00:05:38,870 --> 00:05:36,240
ahead and install that first express

127
00:05:40,230 --> 00:05:38,880
logistics care lc1 before the end of

128
00:05:41,510 --> 00:05:40,240
that day and that's taking it out of the

129
00:05:43,270 --> 00:05:41,520
payload bay

130
00:05:45,029 --> 00:05:43,280
with the shuttle arm grabbing it with

131
00:05:47,510 --> 00:05:45,039
the station arm and installing it and

132
00:05:49,990 --> 00:05:47,520
that's that's a full day each express

133
00:05:51,350 --> 00:05:50,000
logistics carrier measures about 20 feet

134
00:05:53,990 --> 00:05:51,360
by 20 feet

135
00:05:56,710 --> 00:05:54,000
elc-1 will be attached to the station's

136
00:05:58,870 --> 00:05:56,720
p3 truss on the nader side

137
00:06:01,510 --> 00:05:58,880
this first logistics carrier is stocked

138
00:06:04,550 --> 00:06:01,520

with an ammonia tank assembly a nitrogen

139
00:06:07,110 --> 00:06:04,560
tank assembly a control moment gyro a

140
00:06:10,629 --> 00:06:07,120
pump module and a latching end effector

141
00:06:12,790 --> 00:06:10,639
for the station's robotic arm

142
00:06:14,950 --> 00:06:12,800
during the first spacewalk on flight day

143
00:06:17,270 --> 00:06:14,960
four foreman and satcher will step

144
00:06:19,830 --> 00:06:17,280
outside with bresnik overseeing their

145
00:06:22,710 --> 00:06:19,840
timeline as the iv intravehicular

146
00:06:24,790 --> 00:06:22,720
officer our first task is to take

147
00:06:27,749 --> 00:06:24,800
another spare part out of the space

148
00:06:30,309 --> 00:06:27,759
shuttle's payload bay the sasa

149
00:06:33,350 --> 00:06:30,319
payload which is the s-band antenna

150
00:06:35,270 --> 00:06:33,360
support assembly it's an antenna that

151
00:06:37,510 --> 00:06:35,280
that failed on orbit they brought it

152
00:06:38,230 --> 00:06:37,520
back refurbished it now it's ready to go

153
00:06:40,390 --> 00:06:38,240
and

154
00:06:42,870 --> 00:06:40,400
put it back into the spare location

155
00:06:45,350 --> 00:06:42,880
melvin and wilmore will fly satcher and

156
00:06:46,469 --> 00:06:45,360
the sassa on the station arm to the z1

157
00:06:48,629 --> 00:06:46,479
truss

158
00:06:51,270 --> 00:06:48,639
after helping satcher transfer the spare

159
00:06:54,390 --> 00:06:51,280
sassa to its stowage location foreman

160
00:06:57,029 --> 00:06:54,400
will re-route wiring on node 1 unity for

161
00:07:00,309 --> 00:06:57,039
node 3 tranquility removing a safety

162
00:07:02,550 --> 00:07:00,319
slide wire and swapping out a handrail

163
00:07:04,550 --> 00:07:02,560

meanwhile as preventive maintenance

164
00:07:06,950 --> 00:07:04,560
satcher will lubricate the end effectors

165
00:07:08,070 --> 00:07:06,960
of the station's arm and the japanese

166
00:07:10,629 --> 00:07:08,080
arm

167
00:07:12,790 --> 00:07:10,639
on flight day six foreman and bresnik

168
00:07:14,790 --> 00:07:12,800
will go outside the orbiting spacecraft

169
00:07:17,029 --> 00:07:14,800
for eda2

170
00:07:19,430 --> 00:07:17,039
station arm operators melvin and

171
00:07:22,710 --> 00:07:19,440
expedition 21 flight engineer jeff

172
00:07:24,710 --> 00:07:22,720
williams will man the robotic systems

173
00:07:27,990 --> 00:07:24,720
they will work together to transfer the

174
00:07:30,550 --> 00:07:28,000
elc-2 logistics carrier to the s-3 truss

175
00:07:31,830 --> 00:07:30,560
on the starboard zenith or top side of

176
00:07:34,230 --> 00:07:31,840
the station

177
00:07:37,110 --> 00:07:34,240
waffle 2 is stocked with an oxygen high

178
00:07:39,029 --> 00:07:37,120
pressure gas tank or hpgt

179
00:07:41,589 --> 00:07:39,039
a trailing umbilical system reel

180
00:07:44,309 --> 00:07:41,599
assembly for the station's rail car a

181
00:07:47,270 --> 00:07:44,319
control moment gyro a nitrogen tank

182
00:07:49,510 --> 00:07:47,280
assembly a pump module and the hardware

183
00:07:51,430 --> 00:07:49,520
needed to attach and expose two missy

184
00:07:54,309 --> 00:07:51,440
seven materials science experiment

185
00:07:56,150 --> 00:07:54,319
containers later on this mission

186
00:07:58,309 --> 00:07:56,160
during this spacewalk foreman and

187
00:08:02,230 --> 00:07:58,319
breznick will relocate two antennas on

188
00:08:03,909 --> 00:08:02,240

the station's european module one

189
00:08:06,390 --> 00:08:03,919
ais antenna they'll be go on the front

190
00:08:07,830 --> 00:08:06,400
side of columbus the other one's a

191
00:08:09,350 --> 00:08:07,840
ham radio essentially a ham radio

192
00:08:11,510 --> 00:08:09,360
antenna will go on the at the bottom

193
00:08:12,629 --> 00:08:11,520
side out on the starboard end of

194
00:08:14,950 --> 00:08:12,639
columbus

195
00:08:17,189 --> 00:08:14,960
after relocating the vissa video

196
00:08:18,950 --> 00:08:17,199
stanchion support assembly foreman and

197
00:08:21,189 --> 00:08:18,960
bresnik will turn their attention to

198
00:08:25,189 --> 00:08:21,199
moving another antenna stanchion the

199
00:08:27,670 --> 00:08:25,199
fpmu floating potential measurement unit

200
00:08:30,230 --> 00:08:27,680
the third and final eva on flight day

201
00:08:33,430 --> 00:08:30,240
eight features satcher and bresnik they

202
00:08:36,070 --> 00:08:33,440
will install the oxygen hp gt the high

203
00:08:38,550 --> 00:08:36,080
pressure gas tank outside of the iss

204
00:08:41,269 --> 00:08:38,560
airlock now before we can install it

205
00:08:44,310 --> 00:08:41,279
there there's some mmod shields which

206
00:08:45,670 --> 00:08:44,320
are micro meteorite debris

207
00:08:47,590 --> 00:08:45,680
shields

208
00:08:49,829 --> 00:08:47,600
that protect the space station from

209
00:08:51,750 --> 00:08:49,839
these strikes that we got to move out of

210
00:08:53,670 --> 00:08:51,760
the way so we'll be detaching those

211
00:08:56,230 --> 00:08:53,680
moving them out of the way

212
00:08:59,030 --> 00:08:56,240
we can install the gas tank melvin and

213
00:09:01,910 --> 00:08:59,040

wilmore will grapple the spare hpgt from

214
00:09:04,150 --> 00:09:01,920
the elc2 with the station arm and will

215
00:09:06,630 --> 00:09:04,160
carefully transfer the oxygen tank to

216
00:09:07,670 --> 00:09:06,640
saturn bresnik for installation on the

217
00:09:08,630 --> 00:09:07,680
airlock

218
00:09:11,110 --> 00:09:08,640
the other

219
00:09:13,430 --> 00:09:11,120
major activity is we'll be

220
00:09:16,389 --> 00:09:13,440
deploying these material science

221
00:09:17,110 --> 00:09:16,399
experiments called missy's

222
00:09:18,550 --> 00:09:17,120
so

223
00:09:20,310 --> 00:09:18,560
we'll be getting those and actually

224
00:09:22,150 --> 00:09:20,320
randy will be getting those out of the

225
00:09:24,870 --> 00:09:22,160
cargo bay of the space shuttle and

226
00:09:29,110 --> 00:09:24,880
bringing those over to elc2

227
00:09:34,230 --> 00:09:31,509
and i'll also be doing some rerouting of

228
00:09:37,190 --> 00:09:34,240
some cables on node 1

229
00:09:39,990 --> 00:09:37,200
for in anticipation of future install of

230
00:09:42,150 --> 00:09:40,000
node 3. after atlantis undocks and

231
00:09:43,910 --> 00:09:42,160
returns to earth workers across the

232
00:09:45,910 --> 00:09:43,920
country and around the world will

233
00:09:48,190 --> 00:09:45,920
continue preparations for the first

234
00:09:51,350 --> 00:09:48,200
shuttle flight of 2010.

235
00:10:03,110 --> 00:09:51,360
sts-130 will install node 3 tranquility

236
00:10:07,030 --> 00:10:04,790
i think history will look very fondly

237
00:10:09,269 --> 00:10:07,040
upon the international space station as

238
00:10:10,710 --> 00:10:09,279

you know the greatest engineering marvel

239
00:10:12,949 --> 00:10:10,720
of its time

240
00:10:15,030 --> 00:10:12,959
you don't look back at the pyramids or

241
00:10:15,910 --> 00:10:15,040
the eiffel tower the empire state

242
00:10:19,190 --> 00:10:15,920
building

243
00:10:20,150 --> 00:10:19,200
nobody talks about their cost um yes um

244
00:10:21,509 --> 00:10:20,160
you know that's certainly a factor

245
00:10:23,670 --> 00:10:21,519
that's important but

246
00:10:26,230 --> 00:10:23,680
when you look back it's it's the

247
00:10:28,710 --> 00:10:26,240
the idea the audacity of the challenge

248
00:10:30,389 --> 00:10:28,720
that you accept to take on as an end

249
00:10:33,030 --> 00:10:30,399
user i get you know i get to sit up on

250
00:10:35,350 --> 00:10:33,040
the point and when this thing blasts off

251
00:10:36,949 --> 00:10:35,360
and and and goes up into orbit to the

252
00:10:38,470 --> 00:10:36,959
international space station and to be

253
00:10:41,829 --> 00:10:38,480
honest with you there's many of those

254
00:10:43,590 --> 00:10:41,839
people that work long hard hours

255
00:10:45,990 --> 00:10:43,600
that have more time

256
00:10:48,550 --> 00:10:46,000
invested than i have these people are

257
00:10:51,110 --> 00:10:48,560
passionate about their jobs and i am

258
00:10:53,030 --> 00:10:51,120
grateful that they are the flight itself

259
00:10:54,710 --> 00:10:53,040
is just a snapshot in time and there's

260
00:10:56,949 --> 00:10:54,720
certainly things i

261
00:10:58,630 --> 00:10:56,959
i i'll always cherish and remember but

262
00:11:00,870 --> 00:10:58,640
quite honestly it's the

263
00:11:03,269 --> 00:11:00,880

not only your crewmates and spouses

264
00:11:05,110 --> 00:11:03,279
friends families that are a direct part

265
00:11:06,870 --> 00:11:05,120
of your crew

266
00:11:08,550 --> 00:11:06,880
but also the uh

267
00:11:11,190 --> 00:11:08,560
the flight directors of flight control

268
00:11:12,470 --> 00:11:11,200
team the people at kennedy that support

269
00:11:15,110 --> 00:11:12,480
the flight

270
00:11:17,590 --> 00:11:15,120
the tens of thousands of people that go

271
00:11:20,310 --> 00:11:17,600
into making a mission happen so

272
00:11:21,110 --> 00:11:20,320
i think i remember the people more than

273
00:11:22,630 --> 00:11:21,120
i do