1
00:01:43,030 --> 00:01:41,109
ready to inject the air core how is the

2
00:01:47,109 --> 00:01:43,040
spacing and pinching look on the drop

3
00:01:47,119 --> 00:01:51,670
you're good to go fred

4
00:01:51,680 --> 00:02:21,430
okay copy that

5
00:02:26,390 --> 00:02:23,190
okay and i guess we're ready for uh

6
00:02:57,670 --> 00:02:26,400
retraction and speaker zone

7
00:03:12,470 --> 00:02:59,110
and fred you might try to control that

8
00:03:16,550 --> 00:03:14,550
a great day for nasa and the shuttle

9
00:03:18,710 --> 00:03:16,560
crew we are fortunate to bring you a

10
00:03:20,630 --> 00:03:18,720
very special interview tonight this

11
00:03:22,550 --> 00:03:20,640
morning we take you now to the space

12
00:03:25,110 --> 00:03:22,560
shuttle columbia where astronaut michael

13
00:03:28,149 --> 00:03:25,120

lopez alegria joins us and good morning

14
00:03:30,149 --> 00:03:28,159
to you and welcome to nbc nightside

15
00:03:32,630 --> 00:03:30,159
can you hear me morning tanya how are

16
00:03:34,789 --> 00:03:32,640
you i'm doing fine how about yourself uh

17
00:03:35,990 --> 00:03:34,799
this is day six up in space how are you

18
00:03:38,789 --> 00:03:36,000
and the other crew members doing

19
00:03:42,710 --> 00:03:40,309
we're doing great physically and we're

20
00:03:44,390 --> 00:03:42,720
having a ball all right having a ball

21
00:03:46,710 --> 00:03:44,400
like to hear that now i want to make

22
00:03:48,789 --> 00:03:46,720
sure i get your title right you are a

23
00:03:50,550 --> 00:03:48,799
mission specialist and flight engineer

24
00:03:52,390 --> 00:03:50,560
in charge of orbiter operations

25
00:03:54,470 --> 00:03:52,400
obviously sounds like a pretty important

26
00:03:55,509 --> 00:03:54,480
job keeping folks rolling around the

27
00:03:57,190 --> 00:03:55,519
earth there what are your

28
00:04:00,390 --> 00:03:57,200
responsibilities on board the space

29
00:04:01,750 --> 00:04:00,400
shuttle columbia

30
00:04:04,070 --> 00:04:01,760
well let me explain a little bit about

31
00:04:05,509 --> 00:04:04,080
the way we're divided up on the crew we

32
00:04:07,910 --> 00:04:05,519
have seven people

33
00:04:09,910 --> 00:04:07,920
uh also a lucky number and uh we're

34
00:04:12,229 --> 00:04:09,920
divided into two shifts a red shift and

35
00:04:14,470 --> 00:04:12,239
a blue shift on each of those shifts we

36
00:04:16,789 --> 00:04:14,480
have an orbiter

37
00:04:19,189 --> 00:04:16,799
an orbiter crew and a payload crew and

38
00:04:20,870 --> 00:04:19,199

on my shift which is a blue shift i am

39
00:04:23,510 --> 00:04:20,880
the orbiter crewman and we have two

40
00:04:25,909 --> 00:04:23,520
payload crewmen i'm uh floating back

41
00:04:28,390 --> 00:04:25,919
here in the space lab module which is

42
00:04:30,550 --> 00:04:28,400
where the payload crewmen conduct most

43
00:04:32,230 --> 00:04:30,560
of the science on the flight

44
00:04:34,150 --> 00:04:32,240
while they're doing that somebody has to

45
00:04:36,070 --> 00:04:34,160
sort of mine the store up front and

46
00:04:37,909 --> 00:04:36,080
that's my job and the other two orbiter

47
00:04:40,550 --> 00:04:37,919
crewmen on the redshift commander ken

48
00:04:42,469 --> 00:04:40,560
bowersox and pilot ken rominger so

49
00:04:44,790 --> 00:04:42,479
basically while they're back here doing

50
00:04:46,790 --> 00:04:44,800
all the hard work we're up there sort of

51
00:04:48,310 --> 00:04:46,800
navigating uh taking care of the orbiter

52
00:04:49,670 --> 00:04:48,320
systems and doing a whole lot of looking

53
00:04:53,590 --> 00:04:49,680
out the windows

54
00:04:57,590 --> 00:04:56,070
uh in another part of the orbiter just

55
00:05:00,310 --> 00:04:57,600
under the cockpit we have what we call

56
00:05:01,670 --> 00:05:00,320
the mid deck and there are four sleep

57
00:05:03,749 --> 00:05:01,680
bunks in there

58
00:05:05,189 --> 00:05:03,759
so only four a maximum of four people

59
00:05:07,749 --> 00:05:05,199
have to sleep at a time and that's where

60
00:05:09,110 --> 00:05:07,759
we sleep they sort of look like uh

61
00:05:10,469 --> 00:05:09,120
actually a little bit like coffins they

62
00:05:12,230 --> 00:05:10,479
have a sliding door

63
00:05:14,070 --> 00:05:12,240

which keeps out the noise and the and

64
00:05:14,870 --> 00:05:14,080
the light pretty well so it's not too

65
00:05:16,550 --> 00:05:14,880
bad

66
00:05:20,710 --> 00:05:16,560
i have to ask you too what do you see

67
00:05:25,350 --> 00:05:23,270
well it's the most incredible view

68
00:05:27,029 --> 00:05:25,360
i can imagine i've

69
00:05:29,110 --> 00:05:27,039
i don't know how many of you seen these

70
00:05:31,110 --> 00:05:29,120
imax movies on the really big screens

71
00:05:32,790 --> 00:05:31,120
and those do a pretty good job

72
00:05:34,710 --> 00:05:32,800
but when you get up here it's at least

73
00:05:36,790 --> 00:05:34,720
10 000 times better it's really

74
00:05:37,990 --> 00:05:36,800
breathtaking it's fantastic

75
00:05:40,150 --> 00:05:38,000
tell us a little bit about the

76
00:05:43,110 --> 00:05:40,160
experiments that we know will be

77
00:05:45,670 --> 00:05:43,120
useful in space station missions and

78
00:05:47,189 --> 00:05:45,680
also for medicinal purposes can you tell

79
00:05:52,230 --> 00:05:47,199
us a little bit about those the oil and

80
00:05:55,830 --> 00:05:53,830
i can tell you a little bit about that

81
00:05:57,590 --> 00:05:55,840
uh let me just give a couple of examples

82
00:05:59,510 --> 00:05:57,600
we have one experiment called zeolite

83
00:06:01,830 --> 00:05:59,520
crystal growth which uh

84
00:06:03,909 --> 00:06:01,840
is a an experiment to be able to try to

85
00:06:05,909 --> 00:06:03,919
grow better zeolite crystals zeolites

86
00:06:09,510 --> 00:06:05,919
are used a lot on earth for uh such

87
00:06:11,830 --> 00:06:09,520
things as chemical sieves and especially

88
00:06:13,909 --> 00:06:11,840

used in the petroleum industry to do uh

89
00:06:15,990 --> 00:06:13,919
refining of petroleum so if we can

90
00:06:17,990 --> 00:06:16,000
develop a better more perfect crystal

91
00:06:20,309 --> 00:06:18,000
and understand how those properties uh

92
00:06:22,390 --> 00:06:20,319
work we can actually gain a lot of

93
00:06:23,990 --> 00:06:22,400
benefits in that regard

94
00:06:25,590 --> 00:06:24,000
secondly another kind of crystal that

95
00:06:26,870 --> 00:06:25,600
we're growing in space is a protein

96
00:06:28,390 --> 00:06:26,880
crystal

97
00:06:31,029 --> 00:06:28,400
when the pharmaceutical companies

98
00:06:32,390 --> 00:06:31,039
manufacture drugs to combat infections

99
00:06:34,550 --> 00:06:32,400
or ailments

100
00:06:36,309 --> 00:06:34,560
they need to know as well as they can to

101
00:06:38,790 --> 00:06:36,319
put the structure of these protein

102
00:06:40,870 --> 00:06:38,800
crystals so they can design the um

103
00:06:43,270 --> 00:06:40,880
the drugs to fit into these sort of

104
00:06:44,950 --> 00:06:43,280
nooks and crannies and in space in the

105
00:06:46,950 --> 00:06:44,960
absence of gravity we can grow these

106
00:06:49,189 --> 00:06:46,960
crystals in a much more perfect sense

107
00:06:51,590 --> 00:06:49,199
that we can on earth so hopefully we'll

108
00:06:54,230 --> 00:06:51,600
be able to use these to uh put put them

109
00:06:56,070 --> 00:06:54,240
to good use with the medical community

110
00:06:58,629 --> 00:06:56,080
i understand that you're divided into

111
00:06:59,909 --> 00:06:58,639
teams a red team and a blue team explain

112
00:07:05,270 --> 00:06:59,919
to us

113
00:07:08,710 --> 00:07:06,469

well there's no significance to the

114
00:07:11,110 --> 00:07:08,720
colors of course it's just a way of

115
00:07:13,029 --> 00:07:11,120
calling ourselves one thing or the other

116
00:07:14,710 --> 00:07:13,039
but we just divide into two teams to be

117
00:07:16,469 --> 00:07:14,720
able to work around the clock basically

118
00:07:19,029 --> 00:07:16,479
so while the blue team is awake the red

119
00:07:21,189 --> 00:07:19,039
team is asleep and vice versa we do have

120
00:07:23,350 --> 00:07:21,199
about a four hour period at the end of

121
00:07:25,110 --> 00:07:23,360
uh and beginning of each day

122
00:07:26,390 --> 00:07:25,120
where we're both awake but the

123
00:07:28,150 --> 00:07:26,400
predominant the

124
00:07:29,990 --> 00:07:28,160
majority of the work that we do in a

125
00:07:32,390 --> 00:07:30,000
laboratory goes on during those eight

126
00:07:34,309 --> 00:07:32,400
hour periods

127
00:07:37,510 --> 00:07:34,319
can you explain for those of us who have

128
00:07:41,510 --> 00:07:37,520
never experienced it what weightlessness

129
00:07:50,950 --> 00:07:43,830
well that's a tough question i i could

130
00:07:50,960 --> 00:07:54,309
oh gosh

131
00:07:59,510 --> 00:07:57,270
a lot of i'll tell you that

132
00:08:02,469 --> 00:07:59,520
the closest experience i can equate it

133
00:08:05,510 --> 00:08:02,479
to is it's sort of like some um scuba

134
00:08:07,909 --> 00:08:05,520
diving only the air is very on viscous

135
00:08:09,510 --> 00:08:07,919
very fluid and you can uh it's

136
00:08:11,430 --> 00:08:09,520
effortless to move around you just put

137
00:08:13,510 --> 00:08:11,440
the slightest force on something and you

138
00:08:15,909 --> 00:08:13,520

find yourself floating across the uh the

139
00:08:18,070 --> 00:08:15,919
laboratory very gracefully it it's

140
00:08:19,270 --> 00:08:18,080
really it's a it's a great experience

141
00:08:21,270 --> 00:08:19,280
and it's hard to describe the feeling

142
00:08:24,390 --> 00:08:21,280
but it's wonderful well i know you're a

143
00:08:27,189 --> 00:08:24,400
rookie is this everything you had hoped

144
00:08:31,270 --> 00:08:27,199
it would be

145
00:08:32,790 --> 00:08:31,280
a hard thing to be able to reach my

146
00:08:35,110 --> 00:08:32,800
expectations because they were pretty

147
00:08:36,709 --> 00:08:35,120
high but this has far exceeded what i

148
00:08:38,550 --> 00:08:36,719
expected it's been a blast and i'm

149
00:08:40,070 --> 00:08:38,560
looking forward to the next few days and

150
00:08:41,190 --> 00:08:40,080
looking forward to doing this many times

151
00:08:43,909 --> 00:08:41,200
again

152
00:08:45,910 --> 00:08:43,919
okay on a personal note i have a little

153
00:08:47,590 --> 00:08:45,920
background information here on you i

154
00:08:49,829 --> 00:08:47,600
understand you're 37 years old you're

155
00:08:52,389 --> 00:08:49,839
the first spanish-born astronaut in

156
00:08:54,710 --> 00:08:52,399
orbit you graduated from mission ville

157
00:08:56,070 --> 00:08:54,720
high school in california so two

158
00:08:57,670 --> 00:08:56,080
questions in regards to this when you

159
00:08:59,350 --> 00:08:57,680
were back in high school in california

160
00:09:01,750 --> 00:08:59,360
did you dream that you would someday be

161
00:09:03,030 --> 00:09:01,760
doing this and for all the youngsters

162
00:09:08,070 --> 00:09:03,040
out there who aspire to become

163
00:09:11,269 --> 00:09:09,750

it's interesting uh i have a lot of

164
00:09:13,670 --> 00:09:11,279
people that i work with a lot of fellow

165
00:09:15,110 --> 00:09:13,680
astronauts who actually did dream on

166
00:09:17,110 --> 00:09:15,120
about doing this since they were you

167
00:09:18,710 --> 00:09:17,120
know small children uh even before high

168
00:09:20,550 --> 00:09:18,720
school

169
00:09:21,990 --> 00:09:20,560
i had a little different circumstance i

170
00:09:24,070 --> 00:09:22,000
want to be an architect when i was in

171
00:09:26,070 --> 00:09:24,080
high school and sometime between then

172
00:09:27,829 --> 00:09:26,080
and the age of 25 which is when i really

173
00:09:29,190 --> 00:09:27,839
set my sights on this is when i got

174
00:09:31,110 --> 00:09:29,200
converted

175
00:09:33,190 --> 00:09:31,120
the way i would do it to all those who

176
00:09:34,389 --> 00:09:33,200
aspire to be like my friends who already

177
00:09:35,750 --> 00:09:34,399
knew what they want to do when they were

178
00:09:37,509 --> 00:09:35,760
very young kids

179
00:09:39,110 --> 00:09:37,519
i would say only do it if it's something

180
00:09:40,790 --> 00:09:39,120
that you really want to do something

181
00:09:43,110 --> 00:09:40,800
you're very good at

182
00:09:44,389 --> 00:09:43,120
it has to be something that you like so

183
00:09:45,190 --> 00:09:44,399
make sure that it's something that you

184
00:09:46,230 --> 00:09:45,200
like

185
00:09:48,070 --> 00:09:46,240
and then

186
00:09:50,949 --> 00:09:48,080
just work your hardest in school do the

187
00:09:53,190 --> 00:09:50,959
best you can and but always try to keep

188
00:09:55,990 --> 00:09:53,200

a perspective on on the fun part of life

189
00:09:57,670 --> 00:09:56,000
and something enjoyable as well

190
00:09:59,350 --> 00:09:57,680
well i think that's a great way to wrap

191
00:10:02,310 --> 00:09:59,360
up this interview and we thank you so

192
00:10:03,750 --> 00:10:02,320
much michael lopez alegria astronaut

193
00:10:06,310 --> 00:10:03,760
aboard the space shuttle columbia

194
00:10:25,509 --> 00:10:06,320
joining us from space here on nbc

195
00:10:28,310 --> 00:10:27,110
this is mission control houston we're

196
00:10:30,470 --> 00:10:28,320
now

197
00:10:35,829 --> 00:10:30,480
looking at live television the module

198
00:10:43,590 --> 00:10:38,230
looking at television from a television

199
00:10:46,870 --> 00:10:45,430
forward portion of columbia's cargo bay

200
00:11:00,150 --> 00:10:46,880
looking back towards the laboratory

201
00:11:00,160 --> 00:11:06,949
below columbia the uh

202
00:11:10,509 --> 00:11:09,030
coast of the mediterranean sea as the

203
00:11:17,430 --> 00:11:10,519
spacecraft is

204
00:11:20,949 --> 00:11:18,870
bad story

205
00:11:24,310 --> 00:11:20,959
next time your panel r2 got a switch

206
00:11:29,670 --> 00:11:26,150
all right stand by

207
00:11:30,710 --> 00:11:29,680
tell you what story i can i can get it

208
00:11:32,630 --> 00:11:30,720
okay

209
00:11:34,790 --> 00:11:32,640
on r2

210
00:11:37,030 --> 00:11:34,800
r2 cert pump

211
00:11:55,829 --> 00:11:37,040
the gpc on

212
00:11:55,839 --> 00:11:59,430
up to our north we can see italy

213
00:11:59,440 --> 00:12:04,790

sardinian lee sardinia and sicily

214
00:12:04,800 --> 00:12:12,230
really a great site today

215
00:12:17,509 --> 00:12:13,590
yeah we're starting to pick it up in the

216
00:12:20,629 --> 00:12:19,030
yeah it's a little hazy and oblique i'm

217
00:12:30,150 --> 00:12:20,639
not sure the cameras are gonna give it

218
00:12:35,190 --> 00:12:32,550
that 39 degrees is really great and it

219
00:12:35,200 --> 00:12:42,550
39 degrees is a great inclination

220
00:12:45,030 --> 00:12:43,670
one of the things that's been really

221
00:12:47,190 --> 00:12:45,040
nice is we've been going to bed at the

222
00:12:52,069 --> 00:12:47,200
same time the last few nights helps you

223
00:13:10,550 --> 00:12:54,230
fox can you expound on how good 39

224
00:13:15,350 --> 00:13:12,710
this view again uh

225
00:13:18,470 --> 00:13:15,360
showing the nile into the red sea is

226
00:13:57,990 --> 00:13:18,480
columbia continues south

227
00:14:00,629 --> 00:13:59,189
welcome aboard the space shuttle

228
00:14:02,230 --> 00:14:00,639
columbia

229
00:14:03,910 --> 00:14:02,240
we've been on orbit since last friday

230
00:14:05,430 --> 00:14:03,920
conducting science experiments as part

231
00:14:06,790 --> 00:14:05,440
of the united states microgravity

232
00:14:08,150 --> 00:14:06,800
laboratory

233
00:14:10,550 --> 00:14:08,160
but tonight our thoughts are with the

234
00:14:12,550 --> 00:14:10,560
national pastime to the blaze and to the

235
00:14:14,069 --> 00:14:12,560
indians good luck in game five of the

236
00:16:32,870 --> 00:14:14,079
world series

237
00:16:39,350 --> 00:16:35,509
with the water from dehumidifiers

238
00:16:39,360 --> 00:16:51,350

the dumps now beginning a report

239
00:16:56,790 --> 00:16:54,069
again no water be dumped from the lab

240
00:16:58,870 --> 00:16:56,800
expected to take about 15 minutes or so

241
00:17:01,269 --> 00:16:58,880
the port or left-hand pedal bay door of

242
00:17:03,110 --> 00:17:01,279
columbia was fully opened for this dump

243
00:17:05,750 --> 00:17:03,120
to allow a better clearance and ensure

244
00:17:07,350 --> 00:17:05,760
that no ice or water collected on the

245
00:17:09,189 --> 00:17:07,360
edge of the door

246
00:17:11,669 --> 00:17:09,199
in its partially closed position that it

247
00:17:13,510 --> 00:17:11,679
occupies for the majority of the flight

248
00:17:15,590 --> 00:17:13,520
that door opening procedure went very

249
00:17:17,270 --> 00:17:15,600
well once the dumps completed the door

250
00:17:19,590 --> 00:17:17,280
will be closed again

251
00:17:21,510 --> 00:17:19,600
to its uh

252
00:17:23,990 --> 00:17:21,520
partially closed position the position

253
00:17:27,350 --> 00:17:24,000
it occupies to help protect against a

254
00:17:29,590 --> 00:17:27,360
space debris impacts on the interior

255
00:17:31,669 --> 00:17:29,600
radiators in a freon cooling loops along

256
00:17:33,350 --> 00:17:31,679
the inside of that left hand door

257
00:17:34,710 --> 00:17:33,360
columbia's orientation during much of

258
00:17:36,470 --> 00:17:34,720
this flight to gravity gradient

259
00:17:38,710 --> 00:17:36,480
orientation one that has a natural

260
00:18:45,190 --> 00:17:38,720
stability to it and it minimizes jet

261
00:18:49,270 --> 00:18:47,029
and so while we bring video to the

262
00:18:52,070 --> 00:18:49,280
ground from the geophysical fluid flow

263
00:18:55,029 --> 00:18:52,080

cell experiment science video for that

264
00:18:57,510 --> 00:18:55,039
team of researchers that are looking at

265
00:19:01,909 --> 00:18:57,520
very complex fluid flows

266
00:19:04,070 --> 00:19:01,919
can see

267
00:19:05,750 --> 00:19:04,080
at the same time we have an opportunity

268
00:19:06,710 --> 00:19:05,760
to take a look inside the space lab

269
00:19:07,990 --> 00:19:06,720
module

270
00:19:09,510 --> 00:19:08,000
with uh

271
00:19:11,750 --> 00:19:09,520
tv coming

272
00:19:14,710 --> 00:19:11,760
from both sources by means of the high

273
00:19:18,390 --> 00:19:14,720
pack digital tv system

274
00:19:18,400 --> 00:19:24,070
cue card number three you said

275
00:19:30,870 --> 00:19:25,669
affirmative al let me try to get a

276
00:19:49,350 --> 00:19:33,270
the only one we have is cc

277
00:19:53,909 --> 00:19:51,270
or gffc

278
00:19:55,510 --> 00:19:53,919
and it has been

279
00:19:58,230 --> 00:19:55,520
over the course of the mission now it

280
00:20:00,870 --> 00:19:58,240
has been running a rather large

281
00:20:03,510 --> 00:20:00,880
variety of

282
00:20:07,270 --> 00:20:03,520
scenarios or

283
00:20:10,230 --> 00:20:07,280
sets of conditions to model particular

284
00:20:14,150 --> 00:20:10,240
phenomena involving fluids

285
00:20:18,789 --> 00:20:16,230
and this video coming down now from

286
00:20:21,350 --> 00:20:18,799
colombia is providing

287
00:20:22,470 --> 00:20:21,360
some of the indications of what's going

288
00:20:24,470 --> 00:20:22,480

on in the

289
00:20:28,950 --> 00:20:24,480
scenario that

290
00:20:36,710 --> 00:20:30,789
the

291
00:20:38,870 --> 00:20:36,720
physics research

292
00:20:41,350 --> 00:20:38,880
but it's also one which

293
00:20:42,870 --> 00:20:41,360
provides insights into specialized

294
00:20:44,310 --> 00:20:42,880
problems of

295
00:20:45,750 --> 00:20:44,320
having to do with

296
00:20:49,029 --> 00:20:45,760
our environment

297
00:20:53,110 --> 00:20:49,039
and having to do with

298
00:20:56,789 --> 00:20:54,789
bodies in heavenly bodies in the

299
00:20:58,230 --> 00:20:56,799
universe such as the sun

300
00:21:12,789 --> 00:20:58,240
and

301
00:21:17,270 --> 00:21:15,190
now uh at the moment we're taking a look

302
00:21:21,110 --> 00:21:17,280
at one of the other

303
00:21:24,470 --> 00:21:21,120
areas of science activity

304
00:21:29,590 --> 00:21:27,350
we're getting some video with the

305
00:21:36,390 --> 00:21:29,600
shuttle's camcorder

306
00:21:37,990 --> 00:21:36,400
this video to take a look at

307
00:21:56,070 --> 00:21:38,000
one of the

308
00:21:56,080 --> 00:22:06,990
hello

309
00:22:14,950 --> 00:22:10,230
287 degrees and that left me at five

310
00:22:14,960 --> 00:22:57,029
copy that kathy

311
00:23:00,870 --> 00:22:58,789
and kathy we've got our video back and