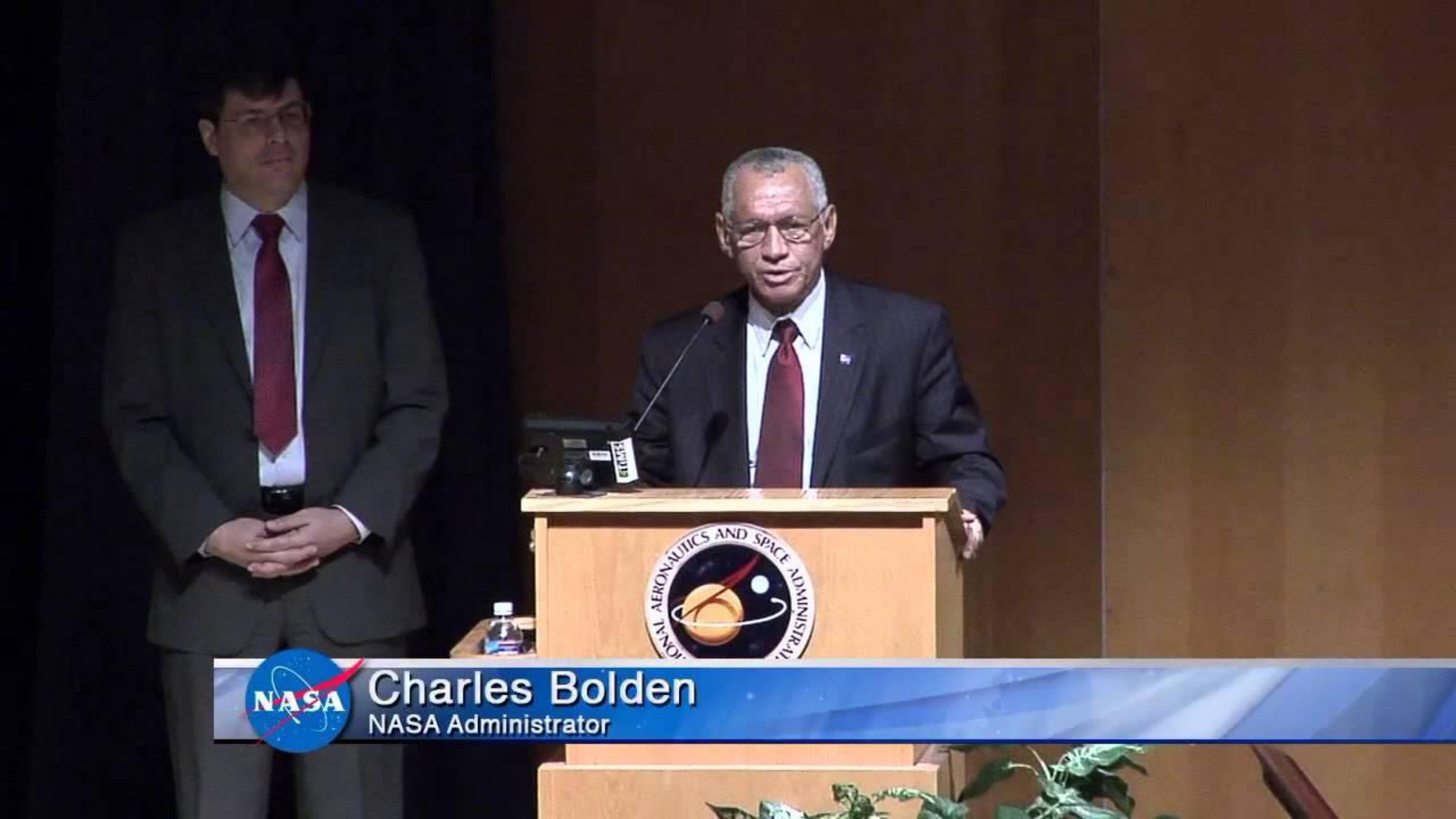
Charles Bolden
NASA Administrator

1
00:00:04,950 --> 00:00:02,629
okay all right we're ready to get

2
00:00:07,670 --> 00:00:04,960
started now so

3
00:00:09,669 --> 00:00:07,680
good morning everybody you know it's uh

4
00:00:12,230 --> 00:00:09,679
it's great as i said earlier it's great

5
00:00:14,950 --> 00:00:12,240
to see all of you here today on on a

6
00:00:17,590 --> 00:00:14,960
rainy day that you all came out uh for

7
00:00:19,029 --> 00:00:17,600
uh for this uh special opportunity and

8
00:00:21,029 --> 00:00:19,039
as you can see we have two special

9
00:00:22,470 --> 00:00:21,039
guests with us senator mikulski and

10
00:00:23,750 --> 00:00:22,480
administrator bolden

11
00:00:26,070 --> 00:00:23,760
they've been

12
00:00:28,630 --> 00:00:26,080
obviously great supporters of

13
00:00:30,550 --> 00:00:28,640

nasa and today we'll be talking about

14
00:00:31,990 --> 00:00:30,560
jwst and they've been great supporters

15
00:00:33,510 --> 00:00:32,000
of the james webb

16
00:00:35,990 --> 00:00:33,520
space telescope

17
00:00:37,350 --> 00:00:36,000
uh before we get into the the james webb

18
00:00:40,069 --> 00:00:37,360
portion though i would like to mention

19
00:00:42,310 --> 00:00:40,079
that you know 2013 was an incredible

20
00:00:43,910 --> 00:00:42,320
year for nasa and the goddard space

21
00:00:46,869 --> 00:00:43,920
flight center

22
00:00:48,389 --> 00:00:46,879
so we're extremely pleased to have

23
00:00:50,950 --> 00:00:48,399
senator mikulski and administrator

24
00:00:52,150 --> 00:00:50,960
bolden here to help acknowledge some of

25
00:00:55,590 --> 00:00:52,160
these

26
00:00:57,510 --> 00:00:55,600
and

27
00:00:59,750 --> 00:00:57,520
already this year we've had

28
00:01:02,470 --> 00:00:59,760
two great accomplishments

29
00:01:04,390 --> 00:01:02,480
we launched tdrs it's on the way to

30
00:01:05,429 --> 00:01:04,400
geosynchronous orbit everything is going

31
00:01:07,990 --> 00:01:05,439
well

32
00:01:09,590 --> 00:01:08,000
we had a sounding rocket launch campaign

33
00:01:11,990 --> 00:01:09,600
at wallops

34
00:01:14,070 --> 00:01:12,000
and i see bill standing in the back and

35
00:01:15,830 --> 00:01:14,080
we're still waiting to launch one from

36
00:01:18,070 --> 00:01:15,840
kodiak to

37
00:01:21,190 --> 00:01:18,080
to look at the aurora borealis

38
00:01:22,789 --> 00:01:21,200

so it's been a very very busy year

39
00:01:24,469 --> 00:01:22,799
already

40
00:01:28,149 --> 00:01:24,479
and later on this month we'll be

41
00:01:30,469 --> 00:01:28,159
launching gpm from tanegashima in japan

42
00:01:32,310 --> 00:01:30,479
however we can't spend all of our time

43
00:01:35,190 --> 00:01:32,320
talking about the outstanding

44
00:01:37,429 --> 00:01:35,200
accomplishments that mark 2013

45
00:01:38,950 --> 00:01:37,439
and the beginning part of this year

46
00:01:41,590 --> 00:01:38,960
we do want to

47
00:01:45,670 --> 00:01:41,600
take this opportunity though to note the

48
00:01:48,550 --> 00:01:45,680
significant year that jwst had in 2013

49
00:01:50,069 --> 00:01:48,560
and the beginning of 2014.

50
00:01:52,469 --> 00:01:50,079
most of the hardware

51
00:01:54,069 --> 00:01:52,479
all the critical hardware is here now

52
00:01:55,350 --> 00:01:54,079
for the james webb space telescope to

53
00:01:57,109 --> 00:01:55,360
begin testing

54
00:01:58,630 --> 00:01:57,119
we just recently completed it northrop

55
00:02:00,469 --> 00:01:58,640
grumman the

56
00:02:02,310 --> 00:02:00,479
critical design review for the

57
00:02:04,069 --> 00:02:02,320
spacecraft

58
00:02:06,870 --> 00:02:04,079
and today you're going to have the

59
00:02:09,109 --> 00:02:06,880
opportunity to see some of that hardware

60
00:02:11,670 --> 00:02:09,119
i'd like to take a moment to acknowledge

61
00:02:13,830 --> 00:02:11,680
some of our special guests that are

62
00:02:15,830 --> 00:02:13,840
sitting in the front row

63
00:02:17,830 --> 00:02:15,840

and i would ask that

64
00:02:19,350 --> 00:02:17,840
you hold your applause until after i've

65
00:02:23,110 --> 00:02:19,360
introduced

66
00:02:23,120 --> 00:02:27,030
okay

67
00:02:30,630 --> 00:02:28,150
all right i don't know how to follow

68
00:02:32,229 --> 00:02:30,640
that but uh

69
00:02:34,229 --> 00:02:32,239
but uh

70
00:02:36,309 --> 00:02:34,239
any rate we'll try

71
00:02:39,430 --> 00:02:36,319
okay sitting right here in the front is

72
00:02:41,030 --> 00:02:39,440
dr john grunsfeld he's the associate

73
00:02:43,990 --> 00:02:41,040
administrator for the science mission

74
00:02:46,550 --> 00:02:44,000
directorate next to him is eric smith

75
00:02:48,309 --> 00:02:46,560
the acting jwst program director and the

76
00:02:50,470 --> 00:02:48,319
program scientist

77
00:02:51,990 --> 00:02:50,480
sitting next to him is john mather the

78
00:02:55,190 --> 00:02:52,000
project scientist senior project

79
00:02:56,070 --> 00:02:55,200
scientist for jwst and our nobel prize

80
00:02:59,190 --> 00:02:56,080
winner

81
00:03:00,949 --> 00:02:59,200
next to him is bill oakes the jwst

82
00:03:03,190 --> 00:03:00,959
project manager

83
00:03:05,030 --> 00:03:03,200
and next to him is matt mountain

84
00:03:07,030 --> 00:03:05,040
the director of the space telescope

85
00:03:09,270 --> 00:03:07,040
science institute

86
00:03:11,030 --> 00:03:09,280
and next to him is bill smith

87
00:03:12,550 --> 00:03:11,040
the

88
00:03:14,790 --> 00:03:12,560

what are you president

89
00:03:16,710 --> 00:03:14,800
of the association for

90
00:03:20,390 --> 00:03:16,720
of university

91
00:03:22,309 --> 00:03:20,400
sorry about that

92
00:03:28,710 --> 00:03:22,319
uh

93
00:03:30,710 --> 00:03:28,720
now so i have rob strain

94
00:03:32,550 --> 00:03:30,720
the president of ball aerospace and many

95
00:03:35,350 --> 00:03:32,560
of you may know him he used to stand up

96
00:03:38,390 --> 00:03:35,360
here where i am

97
00:03:40,149 --> 00:03:38,400
we have wanda segur who is the

98
00:03:42,630 --> 00:03:40,159
vice president and deputy for civil

99
00:03:44,789 --> 00:03:42,640
space at lockheed martin space systems

100
00:03:46,630 --> 00:03:44,799
company we have bill mackey from the

101
00:03:50,309 --> 00:03:46,640
canadian space agency

102
00:03:51,509 --> 00:03:50,319
marco ciriani of the jwst science

103
00:03:53,509 --> 00:03:51,519
operation

104
00:03:55,509 --> 00:03:53,519
development manager of the european

105
00:03:59,750 --> 00:03:55,519
space agency

106
00:04:04,309 --> 00:04:01,910
i apologize

107
00:04:06,550 --> 00:04:04,319
charles atkinson director of the jwst

108
00:04:08,149 --> 00:04:06,560
optical telescope element from northrop

109
00:04:09,429 --> 00:04:08,159
grumman

110
00:04:18,710 --> 00:04:09,439
so if you could give them a round of

111
00:04:25,030 --> 00:04:21,749
trust me without their leadership uh we

112
00:04:27,830 --> 00:04:25,040
uh we wouldn't be here today they

113
00:04:28,710 --> 00:04:27,840

they have taken

114
00:04:33,909 --> 00:04:28,720
from

115
00:04:36,629 --> 00:04:33,919
john and eric and in others since we had

116
00:04:38,790 --> 00:04:36,639
that little hiccup a while back

117
00:04:41,270 --> 00:04:38,800
and brought it to uh to a really great

118
00:04:43,510 --> 00:04:41,280
state that it is today

119
00:04:46,710 --> 00:04:43,520
so now we have a video that

120
00:04:49,189 --> 00:04:46,720
is going to run to give you an idea of

121
00:04:50,390 --> 00:04:49,199
what the james webb space telescope is

122
00:04:51,830 --> 00:04:50,400
is doing

123
00:04:56,230 --> 00:04:51,840
um

124
00:05:02,950 --> 00:04:58,550
the

125
00:05:05,430 --> 00:05:02,960
hubble space telescope it's going to

126
00:05:06,950 --> 00:05:05,440
allow us to see back in time

127
00:05:09,430 --> 00:05:06,960
in the formation of the universe when

128
00:05:11,510 --> 00:05:09,440
the first stars and galaxies begin to

129
00:05:13,990 --> 00:05:11,520
form

130
00:05:15,830 --> 00:05:14,000
it's also an incredibly technical and

131
00:05:18,150 --> 00:05:15,840
complex machine

132
00:05:19,830 --> 00:05:18,160
you can see some of the the hardware as

133
00:05:21,510 --> 00:05:19,840
it's coming in

134
00:05:24,870 --> 00:05:21,520
the instruments

135
00:05:26,390 --> 00:05:24,880
are located behind a tennis court sized

136
00:05:29,029 --> 00:05:26,400
sun shield

137
00:05:30,790 --> 00:05:29,039
that shields the the the instruments

138
00:05:33,670 --> 00:05:30,800

from the sun

139
00:05:36,550 --> 00:05:33,680
and then it operates at 50 kelvin or

140
00:05:38,390 --> 00:05:36,560
minus 390 degrees fahrenheit to give an

141
00:05:39,590 --> 00:05:38,400
idea of that that's colder than the

142
00:05:42,629 --> 00:05:39,600
liquid hydrogen in our most

143
00:05:45,909 --> 00:05:42,639
sophisticated rockets that we use

144
00:05:48,230 --> 00:05:45,919
it has 18 beryllium mirror segments that

145
00:05:50,790 --> 00:05:48,240
work together to form a single mirror

146
00:05:53,590 --> 00:05:50,800
uh six and a half meters in diameter

147
00:05:58,150 --> 00:05:53,600
that's more than seven times the area of

148
00:06:00,790 --> 00:05:58,160
hubble's 2.4 meter diameter mirror

149
00:06:02,550 --> 00:06:00,800
as i mentioned earlier last year marked

150
00:06:04,870 --> 00:06:02,560
an incredible time of progress for the

151
00:06:07,270 --> 00:06:04,880
telescope all four science instruments

152
00:06:08,629 --> 00:06:07,280
are here and their representatives are

153
00:06:12,070 --> 00:06:08,639
here in the front

154
00:06:16,790 --> 00:06:12,080
all of the 18 flight mirrors arrived

155
00:06:22,710 --> 00:06:19,510
instrument module last year and as i

156
00:06:23,749 --> 00:06:22,720
mentioned we completed the

157
00:06:27,670 --> 00:06:23,759
the

158
00:06:31,350 --> 00:06:29,670
it's being

159
00:06:32,150 --> 00:06:31,360
assembled as we speak

160
00:06:35,990 --> 00:06:32,160
and

161
00:06:37,590 --> 00:06:36,000
virtual tour

162
00:06:39,670 --> 00:06:37,600
with paul geithner who's the deputy

163
00:06:41,670 --> 00:06:39,680

project manager uh we'll have an

164
00:06:43,350 --> 00:06:41,680
opportunity for for the people up here

165
00:06:45,110 --> 00:06:43,360
to ask some questions

166
00:06:48,790 --> 00:06:45,120
so paul can you hear me and are you

167
00:06:53,589 --> 00:06:50,469
great everything is working even in the

168
00:06:55,430 --> 00:06:53,599
rain so paul go ahead and uh and take us

169
00:06:57,510 --> 00:06:55,440
on a tour of the uh

170
00:06:59,670 --> 00:06:57,520
of the facility and i might note this is

171
00:07:00,550 --> 00:06:59,680
the same facility that for for many

172
00:07:02,950 --> 00:07:00,560
years

173
00:07:04,870 --> 00:07:02,960
was used to develop the servicing

174
00:07:07,189 --> 00:07:04,880
hardware for the hubble space telescope

175
00:07:08,150 --> 00:07:07,199
so it's moving on to its next generation

176
00:07:14,950 --> 00:07:08,160
paul

177
00:07:14,960 --> 00:07:42,790
in the yours uh

178
00:07:46,869 --> 00:07:45,189
this is the workhorse this will be the

179
00:08:04,390 --> 00:07:46,879
workhorse of the telescope it's going to

180
00:08:08,469 --> 00:08:07,029
even cleaner while it's sitting here

181
00:08:09,909 --> 00:08:08,479
so this is our number one instrument

182
00:08:12,550 --> 00:08:09,919
it's from

183
00:08:13,350 --> 00:08:12,560
the university of arizona and lockheed

184
00:08:15,189 --> 00:08:13,360
and

185
00:08:17,909 --> 00:08:15,199
we'll come over here with mike to look

186
00:08:19,510 --> 00:08:17,919
at the next instrument

187
00:08:20,469 --> 00:08:19,520
which is

188
00:08:24,629 --> 00:08:20,479

from

189
00:08:29,909 --> 00:08:27,589
and it is the near spec which stands for

190
00:08:31,709 --> 00:08:29,919
near infrared spectrometer

191
00:08:35,589 --> 00:08:31,719
this is

192
00:08:37,990 --> 00:08:35,599
a very powerful spectrograph what that

193
00:08:39,670 --> 00:08:38,000
does is it's going to spread light into

194
00:08:42,070 --> 00:08:39,680
its constituent colors kind of like a

195
00:08:43,909 --> 00:08:42,080
prism does with lighter or raindrops do

196
00:08:44,949 --> 00:08:43,919
with light to make a rainbow it's going

197
00:08:47,430 --> 00:08:44,959
to spread

198
00:08:49,750 --> 00:08:47,440
light into its constituent colors and

199
00:08:51,910 --> 00:08:49,760
that way scientists will be able to

200
00:08:55,990 --> 00:08:51,920
determine how fast objects are moving

201
00:08:58,389 --> 00:08:56,000
and also uh tell them what they're made

202
00:09:01,110 --> 00:08:58,399
of their chemical composition so we'll

203
00:09:04,230 --> 00:09:01,120
be able to see what stars and galaxies

204
00:09:06,310 --> 00:09:04,240
are made of and even perhaps detect

205
00:09:08,870 --> 00:09:06,320
the molecules that we know are

206
00:09:11,110 --> 00:09:08,880
associated with life in atmospheres

207
00:09:13,750 --> 00:09:11,120
around other planets orbiting other

208
00:09:16,710 --> 00:09:13,760
stars it's pretty exciting

209
00:09:22,150 --> 00:09:18,710
next we have

210
00:09:25,190 --> 00:09:22,160
inside the instrument module itself

211
00:09:28,470 --> 00:09:25,200
is the mid-infrared instrument or miri

212
00:09:30,150 --> 00:09:28,480
and it's the silver one on the side

213
00:09:31,509 --> 00:09:30,160

this is both an imager and a

214
00:09:34,829 --> 00:09:31,519
spectrograph

215
00:09:37,910 --> 00:09:34,839
and it's unique in that it takes

216
00:09:39,590 --> 00:09:37,920
uh images and spectra at the longest

217
00:09:44,070 --> 00:09:39,600
infrared wavelengths

218
00:09:46,790 --> 00:09:44,080
um this will be a very powerful tool for

219
00:09:48,470 --> 00:09:46,800
confirming if an object is

220
00:09:51,030 --> 00:09:48,480
one of the very first in the universe or

221
00:09:52,230 --> 00:09:51,040
not and it will be very powerful for

222
00:09:54,790 --> 00:09:52,240
doing

223
00:09:56,949 --> 00:09:54,800
studying star and planet formation and

224
00:09:58,310 --> 00:09:56,959
then last among the four instruments is

225
00:10:01,509 --> 00:09:58,320
the

226
00:10:02,949 --> 00:10:01,519
fgs nearest that's fine guidance sensor

227
00:10:05,990 --> 00:10:02,959
near infrared

228
00:10:07,590 --> 00:10:06,000
imaging spectrograph it's a mouthful

229
00:10:08,550 --> 00:10:07,600
that is from

230
00:10:10,470 --> 00:10:08,560
uh

231
00:10:13,030 --> 00:10:10,480
canada from the canadian space agency

232
00:10:16,389 --> 00:10:13,040
our other international partner and it

233
00:10:19,910 --> 00:10:16,399
serves a critical function it will

234
00:10:22,949 --> 00:10:19,920
enable the telescope to point extremely

235
00:10:24,230 --> 00:10:22,959
precisely on its targets again it's from

236
00:10:27,990 --> 00:10:24,240
canada

237
00:10:29,750 --> 00:10:28,000
and i've neglected say miri is from

238
00:10:31,509 --> 00:10:29,760

a partnership of europe and the jet

239
00:10:32,949 --> 00:10:31,519
propulsion laboratory so there are four

240
00:10:35,350 --> 00:10:32,959
instruments

241
00:10:36,630 --> 00:10:35,360
and the science instrument module itself

242
00:10:37,829 --> 00:10:36,640
which was

243
00:10:38,870 --> 00:10:37,839
designed

244
00:10:41,829 --> 00:10:38,880
and

245
00:10:42,949 --> 00:10:41,839
assembled by goddard people here at

246
00:10:44,550 --> 00:10:42,959
goddard

247
00:10:45,910 --> 00:10:44,560
to marvelous

248
00:10:48,230 --> 00:10:45,920
structure it's the heart of the

249
00:10:50,870 --> 00:10:48,240
observatory

250
00:10:52,949 --> 00:10:50,880
so now i'd like to

251
00:10:55,509 --> 00:10:52,959
walk over to

252
00:10:57,590 --> 00:10:55,519
show you a primary mirror segment it's

253
00:11:00,790 --> 00:10:57,600
on the way i want to talk about why

254
00:11:02,389 --> 00:11:00,800
infrared well if you want to see visible

255
00:11:05,030 --> 00:11:02,399
light from the very first stars and

256
00:11:06,710 --> 00:11:05,040
galaxies to illuminate the universe you

257
00:11:08,389 --> 00:11:06,720
actually need an infrared telescope

258
00:11:10,470 --> 00:11:08,399
today to see it

259
00:11:12,150 --> 00:11:10,480
and that's because the ultraviolet and

260
00:11:14,069 --> 00:11:12,160
visible light emitted by those very

261
00:11:15,350 --> 00:11:14,079
first objects has actually been

262
00:11:17,590 --> 00:11:15,360
stretched

263
00:11:18,630 --> 00:11:17,600

into longer wavelengths of infrared

264
00:11:20,630 --> 00:11:18,640
light

265
00:11:22,710 --> 00:11:20,640
by the expansion of space itself since

266
00:11:24,389 --> 00:11:22,720
that early epic

267
00:11:26,550 --> 00:11:24,399
and

268
00:11:34,550 --> 00:11:26,560
so that's why james webb isn't that's

269
00:11:34,560 --> 00:11:38,790
mike's going to follow me up the stairs

270
00:11:43,910 --> 00:11:41,430
so since it's infrared

271
00:11:46,550 --> 00:11:43,920
infrared we can't see with our eyes but

272
00:11:49,190 --> 00:11:46,560
it's heat radiation we feel it as heat

273
00:11:51,030 --> 00:11:49,200
and so for a telescope to be very

274
00:11:52,470 --> 00:11:51,040
sensitive

275
00:11:54,790 --> 00:11:52,480
an infrared telescope to be very

276
00:11:56,629 --> 00:11:54,800
sensitive it has to be extremely cold

277
00:11:58,710 --> 00:11:56,639
so it's not looking at its own infrared

278
00:11:59,430 --> 00:11:58,720
light

279
00:12:00,949 --> 00:11:59,440
so

280
00:12:03,670 --> 00:12:00,959
here

281
00:12:05,829 --> 00:12:03,680
is a mirror segment this is one of the

282
00:12:07,829 --> 00:12:05,839
18 mirror segments

283
00:12:10,310 --> 00:12:07,839
that will make up the primary mirror

284
00:12:12,470 --> 00:12:10,320
this is our ver the first one we made

285
00:12:14,389 --> 00:12:12,480
it's a flight spare and all the flight

286
00:12:16,550 --> 00:12:14,399
ones are just like it

287
00:12:18,949 --> 00:12:16,560
as you can see it's six it's six sided

288
00:12:20,870 --> 00:12:18,959

hexagonal shaped

289
00:12:22,069 --> 00:12:20,880
and it's made of beryllium which is an

290
00:12:24,550 --> 00:12:22,079
extremely

291
00:12:26,110 --> 00:12:24,560
lightweight and stiff metal that is

292
00:12:28,790 --> 00:12:26,120
stable at the

293
00:12:30,150 --> 00:12:28,800
cryogenic temperatures that

294
00:12:32,069 --> 00:12:30,160
the telescope and the instruments will

295
00:12:34,069 --> 00:12:32,079
operate at

296
00:12:36,150 --> 00:12:34,079
it's coated in gold

297
00:12:38,790 --> 00:12:36,160
to optimize its reflectivity in the

298
00:12:41,590 --> 00:12:38,800
infrared

299
00:12:43,350 --> 00:12:41,600
this was made by

300
00:12:45,750 --> 00:12:43,360
or the construction of these mirrors was

301
00:12:49,430 --> 00:12:45,760
led by ball aerospace under subcontract

302
00:12:52,389 --> 00:12:50,870
one thing interesting about these

303
00:12:55,590 --> 00:12:52,399
mirrors

304
00:12:58,389 --> 00:12:55,600
this is about 1.4 meters in diameter

305
00:13:00,629 --> 00:12:58,399
if you scaled this up

306
00:13:02,710 --> 00:13:00,639
by a factor of 2 million

307
00:13:03,990 --> 00:13:02,720
so it's the same size as the continental

308
00:13:06,710 --> 00:13:04,000
united states

309
00:13:08,629 --> 00:13:06,720
this thing's so smooth that the average

310
00:13:09,829 --> 00:13:08,639
uh altitude difference between peaks and

311
00:13:12,150 --> 00:13:09,839
valleys

312
00:13:14,550 --> 00:13:12,160
would be only about two inches

313
00:13:17,670 --> 00:13:14,560

that's how smooth this mirror is

314
00:13:18,829 --> 00:13:17,680
18 of them make up the primary mirror

315
00:13:22,069 --> 00:13:18,839
and over

316
00:13:22,870 --> 00:13:22,079
here is the robot arm that we will use

317
00:13:26,470 --> 00:13:22,880
to

318
00:13:28,150 --> 00:13:26,480
structure

319
00:13:30,550 --> 00:13:28,160
i'm actually standing on what we call

320
00:13:32,150 --> 00:13:30,560
the ambient optical assembly stand

321
00:13:33,269 --> 00:13:32,160
which is a

322
00:13:34,550 --> 00:13:33,279
massive

323
00:13:37,350 --> 00:13:34,560
precision

324
00:13:39,430 --> 00:13:37,360
structure for assembling the telescope

325
00:13:41,910 --> 00:13:39,440
this is a pretty neat robot arm it will

326
00:13:43,670 --> 00:13:41,920
place each of the 18 segments into the

327
00:13:45,670 --> 00:13:43,680
into what we call the back plane it's a

328
00:13:46,949 --> 00:13:45,680
structure that will hold the mirrors and

329
00:13:49,750 --> 00:13:46,959
this is uh

330
00:13:50,949 --> 00:13:49,760
right here is is a an engineering model

331
00:13:53,350 --> 00:13:50,959
we use to

332
00:13:55,990 --> 00:13:53,360
validate our design of the structure it

333
00:13:58,629 --> 00:13:56,000
has three out of the 18 cells on it and

334
00:13:59,990 --> 00:13:58,639
we're we were practicing putting

335
00:14:02,870 --> 00:14:00,000
mirror segments

336
00:14:06,230 --> 00:14:02,880
into this before the flight structure

337
00:14:10,230 --> 00:14:07,829
so that's

338
00:14:12,150 --> 00:14:10,240

what i have to show you right now uh

339
00:14:15,110 --> 00:14:12,160
lastly if you want to see where all the

340
00:14:17,750 --> 00:14:15,120
mirror segments are up on that mezzanine

341
00:14:19,189 --> 00:14:17,760
looks a little bit like the nursery from

342
00:14:21,030 --> 00:14:19,199
the movie alien

343
00:14:23,750 --> 00:14:21,040
that's where

344
00:14:25,910 --> 00:14:23,760
all those cool looking shipping

345
00:14:28,710 --> 00:14:25,920
containers are where the flight mirrors

346
00:14:34,150 --> 00:14:33,189
so you know just in closing the uh

347
00:14:36,710 --> 00:14:34,160
you know some of the greatest

348
00:14:38,710 --> 00:14:36,720
discoveries from hubble were

349
00:14:40,389 --> 00:14:38,720
basically answers to questions no one

350
00:14:41,910 --> 00:14:40,399
even thought to ask

351
00:14:43,990 --> 00:14:41,920
and uh

352
00:14:46,470 --> 00:14:44,000
james webb space telescope with this

353
00:14:47,670 --> 00:14:46,480
tremendous capabilities uh

354
00:14:50,230 --> 00:14:47,680
will really be something you know

355
00:14:52,949 --> 00:14:50,240
whenever we look at nature

356
00:14:55,350 --> 00:14:52,959
with new and powerful capabilities

357
00:14:57,990 --> 00:14:55,360
we always discover amazing things

358
00:15:00,710 --> 00:14:58,000
this is the promise of the james webb

359
00:15:12,550 --> 00:15:00,720
space telescope

360
00:15:15,990 --> 00:15:14,470
you can see hopefully you heard you got

361
00:15:18,550 --> 00:15:16,000
some rounding uh

362
00:15:21,990 --> 00:15:18,560
applause there for uh for a great tour

363
00:15:23,990 --> 00:15:22,000

someday we'll let people see your face

364
00:15:25,670 --> 00:15:24,000
uh and and now i'd like to give senator

365
00:15:27,829 --> 00:15:25,680
mikulski and administrator bolton an

366
00:15:33,829 --> 00:15:27,839
opportunity to ask you some questions

367
00:15:37,269 --> 00:15:35,430
no seriously i'm still i have to teach

368
00:15:42,230 --> 00:15:37,279
you when you're on microphone paul i'm

369
00:15:46,150 --> 00:15:44,470
hey there paul how are you feeling i'm

370
00:15:53,030 --> 00:15:46,160
feeling like kind of the broncos

371
00:15:57,829 --> 00:15:55,829
here's my question paraphrasing over the

372
00:15:59,749 --> 00:15:57,839
ronald reagan quote of

373
00:16:02,550 --> 00:15:59,759
trust but verify

374
00:16:04,790 --> 00:16:02,560
ours is test but verify

375
00:16:07,350 --> 00:16:04,800
we all remember the

376
00:16:09,829 --> 00:16:07,360
white knuckle experience of the hubble

377
00:16:12,470 --> 00:16:09,839
that after it got up it needed to be

378
00:16:15,110 --> 00:16:12,480
repaired the famous mirror the largest

379
00:16:17,990 --> 00:16:15,120
most expensive contact lens in world

380
00:16:21,590 --> 00:16:18,000
history my question to you is we look

381
00:16:23,670 --> 00:16:21,600
forward to the testing and verifying

382
00:16:25,030 --> 00:16:23,680
what lessons learned from the hubble

383
00:16:28,470 --> 00:16:25,040
experience

384
00:16:29,670 --> 00:16:28,480
will be applied here so that when we

385
00:16:33,509 --> 00:16:29,680
launch the

386
00:16:37,269 --> 00:16:33,519
james webb in 2018 it really is

387
00:16:37,279 --> 00:16:41,590
this one is

388
00:16:46,470 --> 00:16:43,509

do you feel like the first 30 seconds of

389
00:16:51,350 --> 00:16:49,269
your audio dropped out oh oh can you

390
00:16:52,710 --> 00:16:51,360
hear me now yeah yeah we can hear you

391
00:16:54,629 --> 00:16:52,720
all right uh

392
00:16:56,710 --> 00:16:54,639
that's a great question of course um

393
00:16:58,310 --> 00:16:56,720
there's really two things one

394
00:17:00,550 --> 00:16:58,320
is uh

395
00:17:03,189 --> 00:17:00,560
we're all our testing is being done

396
00:17:05,350 --> 00:17:03,199
completely independently from

397
00:17:07,990 --> 00:17:05,360
the manufacturing so

398
00:17:08,789 --> 00:17:08,000
the tools we use to test

399
00:17:11,029 --> 00:17:08,799
uh

400
00:17:12,549 --> 00:17:11,039
the instruments the optics

401
00:17:14,470 --> 00:17:12,559
they are completely separate from the

402
00:17:16,309 --> 00:17:14,480
instruments that we're used to and the

403
00:17:18,069 --> 00:17:16,319
tools to use to build them

404
00:17:20,390 --> 00:17:18,079
and uh that was the fatal flaw with

405
00:17:23,110 --> 00:17:20,400
hubble's primary mirror was the same

406
00:17:25,750 --> 00:17:23,120
tool was used to guide its polishing

407
00:17:28,390 --> 00:17:25,760
that it was later used also to to verify

408
00:17:29,830 --> 00:17:28,400
its figure well if you set it up wrong

409
00:17:31,350 --> 00:17:29,840
you're still going to get a right answer

410
00:17:34,710 --> 00:17:31,360
you think you get a right answer so what

411
00:17:36,310 --> 00:17:34,720
we've done here is all our tooling is

412
00:17:37,990 --> 00:17:36,320
for manufacture and our tooling for

413
00:17:39,190 --> 00:17:38,000

verification are separate and then the

414
00:17:40,070 --> 00:17:39,200
second thing

415
00:17:41,510 --> 00:17:40,080
is

416
00:17:42,470 --> 00:17:41,520
independent review

417
00:17:45,590 --> 00:17:42,480
we

418
00:17:47,590 --> 00:17:45,600
have rigorous in an expert independent

419
00:17:50,230 --> 00:17:47,600
review of all our

420
00:17:51,510 --> 00:17:50,240
uh testing procedures uh in particular

421
00:17:52,950 --> 00:17:51,520
our optical

422
00:17:55,510 --> 00:17:52,960
uh work

423
00:17:57,590 --> 00:17:55,520
uh with a panel of extinct esteemed

424
00:17:59,510 --> 00:17:57,600
engineers and scientists and um

425
00:18:01,909 --> 00:17:59,520
that rigorous independent review was

426
00:18:04,470 --> 00:18:01,919
really useful kept us

427
00:18:06,630 --> 00:18:04,480
from making any mistakes so and then

428
00:18:07,750 --> 00:18:06,640
there's really one more thing i guess if

429
00:18:09,669 --> 00:18:07,760
you could add a third thing and that's

430
00:18:12,310 --> 00:18:09,679
adjustability you know the fact that

431
00:18:14,950 --> 00:18:12,320
this telescope is deployable

432
00:18:17,029 --> 00:18:14,960
means we need to be able to adjust it so

433
00:18:18,390 --> 00:18:17,039
we can get it all lined up and uh that

434
00:18:21,830 --> 00:18:18,400
adjustability that we need for

435
00:18:23,430 --> 00:18:21,840
deployment also will help us out in uh

436
00:18:26,150 --> 00:18:23,440
making sure that

437
00:18:32,230 --> 00:18:26,160
we can make the telescope line line it

438
00:18:37,830 --> 00:18:35,110

okay thanks paul and

439
00:18:40,150 --> 00:18:37,840
now it's my privilege to introduce our

440
00:18:42,230 --> 00:18:40,160
administrator charlie bolden

441
00:18:44,789 --> 00:18:42,240
you all know him he's been a great

442
00:18:46,070 --> 00:18:44,799
supporter of the james webb space

443
00:18:48,070 --> 00:18:46,080
telescope

444
00:18:49,830 --> 00:18:48,080
uh through his development

445
00:18:54,310 --> 00:18:49,840
and of course you know

446
00:18:58,390 --> 00:18:54,320
he and and john actually visited hubble

447
00:19:00,470 --> 00:18:58,400
charlie delivered it john fixed it

448
00:19:11,270 --> 00:19:00,480
and improved it

449
00:19:15,909 --> 00:19:14,150
so uh so we have the the trioca that

450
00:19:17,750 --> 00:19:15,919
that made hubble a great success and of

451
00:19:19,510 --> 00:19:17,760
course all of you many of you worked on

452
00:19:26,070 --> 00:19:19,520
hubble as well and now you're making

453
00:19:29,590 --> 00:19:28,070
thanks very much chris and i i will be

454
00:19:31,750 --> 00:19:29,600
very brief because i think everybody

455
00:19:34,070 --> 00:19:31,760
wants to hear from senator mikulski but

456
00:19:35,510 --> 00:19:34,080
um it is a pleasure for me to be here

457
00:19:36,950 --> 00:19:35,520
with senator mikulski this morning

458
00:19:39,909 --> 00:19:36,960
particularly because it gives us an

459
00:19:41,430 --> 00:19:39,919
opportunity to brag if you will about

460
00:19:43,990 --> 00:19:41,440
the progress that has been made with

461
00:19:45,350 --> 00:19:44,000
jwst and that is incredible progress you

462
00:19:48,710 --> 00:19:45,360
know unless you go back to the beginning

463
00:19:50,150 --> 00:19:48,720

of something uh bad days dark days that

464
00:19:53,430 --> 00:19:50,160
senator mikulski

465
00:19:55,590 --> 00:19:53,440
sort of implied um in her comments about

466
00:19:58,070 --> 00:19:55,600
hubble then you don't have a way to

467
00:20:00,070 --> 00:19:58,080
appreciate where you are today

468
00:20:00,870 --> 00:20:00,080
and five years ago senator mikulski and

469
00:20:20,549 --> 00:20:00,880
i

470
00:20:22,470 --> 00:20:20,559
and um one of the reasons you know that

471
00:20:24,630 --> 00:20:22,480
that this team is here today is because

472
00:20:26,870 --> 00:20:24,640
of that promise we made to her

473
00:20:28,950 --> 00:20:26,880
uh on a lighter side eric's sitting down

474
00:20:30,789 --> 00:20:28,960
here people back at nasa headquarters

475
00:20:32,230 --> 00:20:30,799
are relaxing this morning that are in

476
00:20:34,870 --> 00:20:32,240
our morning workout group because if

477
00:20:36,789 --> 00:20:34,880
eric's not there we're not doing t25 or

478
00:20:39,669 --> 00:20:36,799
any of that other crazy stuff so it's

479
00:20:41,350 --> 00:20:39,679
good to be here i i really believe that

480
00:20:42,549 --> 00:20:41,360
like the other great observatories that

481
00:20:45,029 --> 00:20:42,559
are operating today whether you're

482
00:20:47,029 --> 00:20:45,039
talking about hubble chandra or spitzer

483
00:20:48,470 --> 00:20:47,039
jwst will revolutionize our

484
00:20:49,990 --> 00:20:48,480
understanding of the universe and paul

485
00:20:52,390 --> 00:20:50,000
talked about one thing

486
00:20:55,110 --> 00:20:52,400
if i had asked the question

487
00:20:56,789 --> 00:20:55,120
it would have been i i am very very

488
00:20:58,549 --> 00:20:56,799

hopeful that what paul talked about with

489
00:21:00,950 --> 00:20:58,559
nirspec for example

490
00:21:02,710 --> 00:21:00,960
that we can look into the atmosphere of

491
00:21:04,070 --> 00:21:02,720
some of these planets that we are now

492
00:21:06,230 --> 00:21:04,080
discovering

493
00:21:09,190 --> 00:21:06,240
uh you know with with with other

494
00:21:11,909 --> 00:21:09,200
instruments that we call exoplanets uh

495
00:21:14,230 --> 00:21:11,919
particularly those that very seem to be

496
00:21:16,149 --> 00:21:14,240
very similar to earth that we can look

497
00:21:18,630 --> 00:21:16,159
into the end of the atmosphere of these

498
00:21:20,070 --> 00:21:18,640
planets with james webb and just like

499
00:21:21,909 --> 00:21:20,080
you teach a kid today what the

500
00:21:24,149 --> 00:21:21,919
percentage of nitrogen or oxygen or

501
00:21:26,070 --> 00:21:24,159
hydrogen or other gases in our

502
00:21:28,230 --> 00:21:26,080
atmosphere are and why that sustains

503
00:21:29,110 --> 00:21:28,240
life we'll be able to do that with james

504
00:21:30,710 --> 00:21:29,120
webb

505
00:21:33,029 --> 00:21:30,720
in planets that are i mean they're

506
00:21:34,310 --> 00:21:33,039
they're they were inconceivable

507
00:21:37,029 --> 00:21:34,320
10 years ago

508
00:21:39,190 --> 00:21:37,039
i mean just think about it uh millions

509
00:21:41,430 --> 00:21:39,200
of them potentially so that's i think

510
00:21:43,830 --> 00:21:41,440
that's the promise of james webb and i

511
00:21:45,750 --> 00:21:43,840
think that is something that there's

512
00:21:47,990 --> 00:21:45,760
probably not many people who recognize

513
00:21:50,230 --> 00:21:48,000

that outside of this room better than

514
00:21:52,789 --> 00:21:50,240
senator mikulski and i think that's the

515
00:21:55,669 --> 00:21:52,799
reason that she was so tough on us

516
00:21:58,230 --> 00:21:55,679
and so demanding that we get it right

517
00:22:00,549 --> 00:21:58,240
the team has worked through the early

518
00:22:01,669 --> 00:22:00,559
challenges and and as chris said and

519
00:22:03,350 --> 00:22:01,679
paul said

520
00:22:05,190 --> 00:22:03,360
we're now delivering what we think is

521
00:22:07,110 --> 00:22:05,200
the best product possible

522
00:22:08,870 --> 00:22:07,120
you should all be proud of the work that

523
00:22:10,950 --> 00:22:08,880
you continue to do not just the work

524
00:22:13,590 --> 00:22:10,960
that has been done because past this

525
00:22:15,270 --> 00:22:13,600
prologue what counts from here on out is

526
00:22:17,350 --> 00:22:15,280
how we perform

527
00:22:19,510 --> 00:22:17,360
from here till we

528
00:22:21,350 --> 00:22:19,520
we never cross the finish line but until

529
00:22:25,190 --> 00:22:21,360
we get to the first

530
00:22:27,590 --> 00:22:25,200
products from jwst about an exoplanet so

531
00:22:29,510 --> 00:22:27,600
so i am really really proud of this team

532
00:22:30,789 --> 00:22:29,520
and what we've done as chris has said

533
00:22:32,789 --> 00:22:30,799
the four science instruments are

534
00:22:35,190 --> 00:22:32,799
complete they're all here at goddard

535
00:22:36,950 --> 00:22:35,200
right now waiting for assembly all the

536
00:22:39,350 --> 00:22:36,960
mirror segments are also complete and

537
00:22:41,270 --> 00:22:39,360
have been delivered the back plane and i

538
00:22:43,669 --> 00:22:41,280

wish i knew more about it because that

539
00:22:45,830 --> 00:22:43,679
is the that is the consummate

540
00:22:48,149 --> 00:22:45,840
in new technology that that was a

541
00:22:50,630 --> 00:22:48,159
technology that we did not have and

542
00:22:52,549 --> 00:22:50,640
really without it my understanding is

543
00:22:54,310 --> 00:22:52,559
james webb would not be the instrument

544
00:22:56,870 --> 00:22:54,320
that we expect it will be because we

545
00:22:59,510 --> 00:22:56,880
needed a stable back plane on which all

546
00:23:00,789 --> 00:22:59,520
these segments could sit and be adjusted

547
00:23:02,630 --> 00:23:00,799
the way that paul talked about in

548
00:23:04,789 --> 00:23:02,640
response to your question about you know

549
00:23:06,789 --> 00:23:04,799
testing and everything else not only are

550
00:23:09,029 --> 00:23:06,799
we going to test and test hard here on

551
00:23:10,230 --> 00:23:09,039
earth but when we get it in space we can

552
00:23:12,470 --> 00:23:10,240
actually make adjustments with it

553
00:23:14,950 --> 00:23:12,480
because of this new technology backplane

554
00:23:17,430 --> 00:23:14,960
on which these 18 segments sit and we

555
00:23:19,590 --> 00:23:17,440
can adjust it real time if we have to so

556
00:23:21,430 --> 00:23:19,600
that's that's incredible it is an

557
00:23:23,590 --> 00:23:21,440
absolutely

558
00:23:25,270 --> 00:23:23,600
impressive piece of engineering and it

559
00:23:27,750 --> 00:23:25,280
includes new technologies that make this

560
00:23:30,230 --> 00:23:27,760
spacecraft unlike any other we've ever

561
00:23:31,590 --> 00:23:30,240
developed before and the good news the

562
00:23:33,029 --> 00:23:31,600
really good news

563
00:23:34,870 --> 00:23:33,039

is that we're on track for a planned

564
00:23:37,270 --> 00:23:34,880
launch in 2018

565
00:23:39,270 --> 00:23:37,280
and uh and that's great news we've got

566
00:23:41,110 --> 00:23:39,280
cushion in our schedule and we're

567
00:23:43,190 --> 00:23:41,120
hanging in there in cost so we're doing

568
00:23:45,029 --> 00:23:43,200
i think pretty well i want to thank

569
00:23:47,430 --> 00:23:45,039
senator mikulski i want to thank you

570
00:23:50,149 --> 00:23:47,440
personally for being tough on us and for

571
00:23:52,149 --> 00:23:50,159
continuing to be tough because it's sort

572
00:23:54,470 --> 00:23:52,159
of like raising your kids

573
00:23:55,830 --> 00:23:54,480
you know you can um you can give them

574
00:23:57,430 --> 00:23:55,840
everything they want

575
00:23:59,269 --> 00:23:57,440
you can try to be easy on them but there

576
00:24:01,909 --> 00:23:59,279
is nothing like tough love

577
00:24:04,630 --> 00:24:01,919
and i kind of describe that as senator

578
00:24:06,470 --> 00:24:04,640
mccull's approach to us it's been tough

579
00:24:07,909 --> 00:24:06,480
love and she continues to hold our feet

580
00:24:10,630 --> 00:24:07,919
to the fire and i know as long as she

581
00:24:12,470 --> 00:24:10,640
does that we will try not to disappoint

582
00:24:14,470 --> 00:24:12,480
we wouldn't be here today

583
00:24:16,710 --> 00:24:14,480
if she hadn't championed

584
00:24:19,750 --> 00:24:16,720
this critical capability for nasa no

585
00:24:22,230 --> 00:24:19,760
question none whatsoever so anybody who

586
00:24:24,470 --> 00:24:22,240
thinks we would you got another thought

587
00:24:27,110 --> 00:24:24,480
coming we would not be sitting in this

588
00:24:29,750 --> 00:24:27,120

room today talking about jwst had it not

589
00:24:31,510 --> 00:24:29,760
been for her i know she understands just

590
00:24:33,510 --> 00:24:31,520
how important it is to continue to push

591
00:24:34,390 --> 00:24:33,520
the boundaries of what we can do in

592
00:24:36,470 --> 00:24:34,400
space

593
00:24:38,630 --> 00:24:36,480
with her support congress has passed an

594
00:24:40,310 --> 00:24:38,640
appropriations bill that reaffirms

595
00:24:43,029 --> 00:24:40,320
support for the bipartisan space

596
00:24:44,950 --> 00:24:43,039
exploration plan agreed to back in 2010

597
00:24:46,390 --> 00:24:44,960
by the president and congress again

598
00:24:47,909 --> 00:24:46,400
she's holding our feet to the fire she

599
00:24:49,590 --> 00:24:47,919
said okay this is what you said you're

600
00:24:51,430 --> 00:24:49,600
going to do back in 2010 this is what

601
00:24:53,510 --> 00:24:51,440
the president put his signature on and

602
00:24:55,029 --> 00:24:53,520
i'm holding you to it it provides

603
00:24:56,870 --> 00:24:55,039
funding for the president's plan to

604
00:24:57,909 --> 00:24:56,880
return american space launches to the

605
00:24:59,830 --> 00:24:57,919
u.s

606
00:25:02,310 --> 00:24:59,840
as well as groundbreaking scientific

607
00:25:04,230 --> 00:25:02,320
discoveries game-changing technologies

608
00:25:06,149 --> 00:25:04,240
and cutting-edge research into cleaner

609
00:25:07,909 --> 00:25:06,159
and quieter airplanes we're doing all

610
00:25:09,590 --> 00:25:07,919
that and we're doing it because of the

611
00:25:10,230 --> 00:25:09,600
support that she has continued to give

612
00:25:12,070 --> 00:25:10,240
us

613
00:25:14,230 --> 00:25:12,080

the bill keeps nasa's deep space

614
00:25:16,230 --> 00:25:14,240
exploration program on track and will

615
00:25:18,390 --> 00:25:16,240
continue to spur american innovation and

616
00:25:21,269 --> 00:25:18,400
keep the us the world leader in space

617
00:25:22,710 --> 00:25:21,279
exploration as i continually tell people

618
00:25:24,630 --> 00:25:22,720
like frank mooring who's sitting out

619
00:25:26,230 --> 00:25:24,640
here and others and one of these days

620
00:25:28,470 --> 00:25:26,240
they're going to believe me that we are

621
00:25:30,070 --> 00:25:28,480
the world's best and we are still the

622
00:25:32,310 --> 00:25:30,080
world's leader when it comes to space

623
00:25:34,710 --> 00:25:32,320
exploration and scientific discovery and

624
00:25:36,470 --> 00:25:34,720
i i think we owe a lot of that to the to

625
00:25:37,990 --> 00:25:36,480
the lady who's sitting to my right now

626
00:25:39,990 --> 00:25:38,000
and i'm going to now ask to come to the

627
00:25:42,470 --> 00:25:40,000
podium so it gives me great pleasure to

628
00:25:44,230 --> 00:25:42,480
introduce a great friend to nasa

629
00:25:57,590 --> 00:25:44,240
and to the goddard space flight center

630
00:26:03,350 --> 00:26:00,070
thank you director uh bolden and

631
00:26:05,110 --> 00:26:03,360
administrator bolden and to all of you

632
00:26:08,230 --> 00:26:05,120
first of all i'm just glad to be back at

633
00:26:10,549 --> 00:26:08,240
goddard once again and to say hello to

634
00:26:13,909 --> 00:26:10,559
all the wonderful men and women who work

635
00:26:16,710 --> 00:26:13,919
here at uh nasa goddard the civil

636
00:26:19,510 --> 00:26:16,720
servants the contractors

637
00:26:22,710 --> 00:26:19,520
all of the people here over 10 000

638
00:26:25,510 --> 00:26:22,720

people scientists engineers our very own

639
00:26:28,549 --> 00:26:25,520
in-house nobel prize winner i'm so proud

640
00:26:31,029 --> 00:26:28,559
of goddard every day in every way you

641
00:26:34,149 --> 00:26:31,039
lead the way in earth science helping us

642
00:26:37,269 --> 00:26:34,159
understand the earth itself its climate

643
00:26:38,630 --> 00:26:37,279
and all the great science research that

644
00:26:40,710 --> 00:26:38,640
goddard does

645
00:26:43,830 --> 00:26:40,720
and we've had a very successful year

646
00:26:47,190 --> 00:26:43,840
like at wallops where we've actually had

647
00:26:48,390 --> 00:26:47,200
an unmanned crew an unmanned commercial

648
00:26:50,950 --> 00:26:48,400
vehicle go

649
00:26:54,070 --> 00:26:50,960
take cargo up to the space station

650
00:26:56,230 --> 00:26:54,080
and our continued work with hubble space

651
00:26:59,590 --> 00:26:56,240
servicing all the wonderful things you

652
00:27:02,390 --> 00:26:59,600
do and now today the delivery of the

653
00:27:04,310 --> 00:27:02,400
parts all of the component parts

654
00:27:07,590 --> 00:27:04,320
to really actually

655
00:27:09,750 --> 00:27:07,600
build the james webb telescope i see

656
00:27:12,390 --> 00:27:09,760
this as kind of like

657
00:27:14,710 --> 00:27:12,400
lagos meets nasa

658
00:27:17,269 --> 00:27:14,720
uh in all of these parts being put

659
00:27:18,950 --> 00:27:17,279
together but we i have a great deal of

660
00:27:22,389 --> 00:27:18,960
confidence in what's going to happen

661
00:27:23,190 --> 00:27:22,399
here that it will be assembled

662
00:27:31,590 --> 00:27:23,200
then

663
00:27:32,549 --> 00:27:31,600

to french guyana in 2018 for its launch

664
00:27:34,070 --> 00:27:32,559
now

665
00:27:36,389 --> 00:27:34,080
administrator bolden has talked about

666
00:27:38,389 --> 00:27:36,399
how tough i am friends i'm not the one

667
00:27:40,710 --> 00:27:38,399
that's tough on you the tea party's

668
00:27:43,190 --> 00:27:40,720
tough on you i've saved you from the tea

669
00:27:45,430 --> 00:27:43,200
party my firmness

670
00:27:48,789 --> 00:27:45,440
and getting the right information to

671
00:27:51,430 --> 00:27:48,799
keep on budget line saved you it was not

672
00:27:54,870 --> 00:27:51,440
me being tough it was them

673
00:27:57,750 --> 00:27:54,880
seeking quick fixes to cut the budget

674
00:28:00,070 --> 00:27:57,760
and james webb telescope at the cost of

675
00:28:02,470 --> 00:28:00,080
eight billion dollars was standing out

676
00:28:05,990 --> 00:28:02,480
there like in an orange jumpsuit waiting

677
00:28:07,590 --> 00:28:06,000
to be cut because of some

678
00:28:09,990 --> 00:28:07,600
really quite frankly the lack of

679
00:28:12,230 --> 00:28:10,000
stewardship and oversight at nasa but

680
00:28:16,230 --> 00:28:12,240
we've now righted that ship with the

681
00:28:19,750 --> 00:28:16,240
cassini report the fact that we have a a

682
00:28:22,789 --> 00:28:19,760
actual game plan uh for making sure the

683
00:28:24,789 --> 00:28:22,799
project is completed one time

684
00:28:27,269 --> 00:28:24,799
we were able to do that but just

685
00:28:30,310 --> 00:28:27,279
remember it's not me let's not make it

686
00:28:33,510 --> 00:28:30,320
personal the fact is is that me was to

687
00:28:36,549 --> 00:28:33,520
make sure you got to do what you do

688
00:28:40,070 --> 00:28:36,559

my job is to help you be you

689
00:28:44,070 --> 00:28:40,080
my job was also to try to protect the

690
00:28:46,070 --> 00:28:44,080
overall nasa appropriations and i am so

691
00:28:50,310 --> 00:28:46,080
pleased that this year

692
00:28:51,710 --> 00:28:50,320
and when january 20th we found we passed

693
00:28:54,070 --> 00:28:51,720
the fiscal

694
00:28:57,350 --> 00:28:54,080
appropriations for the funding for the

695
00:29:00,470 --> 00:28:57,360
united states government for fiscal 14.

696
00:29:03,029 --> 00:29:00,480
it was bipartisan it was bicameral it

697
00:29:05,350 --> 00:29:03,039
was the first time in several years that

698
00:29:07,430 --> 00:29:05,360
we actually got it done

699
00:29:10,310 --> 00:29:07,440
and that means to everybody here who

700
00:29:12,950 --> 00:29:10,320
works at nasa both at goddard and all of

701
00:29:15,590 --> 00:29:12,960
our wonderful facilities there will be

702
00:29:18,870 --> 00:29:15,600
no more government shutdowns there will

703
00:29:22,389 --> 00:29:18,880
be no more furloughs and for fiscal 14

704
00:29:25,430 --> 00:29:22,399
and 15 we can guarantee that there will

705
00:29:28,070 --> 00:29:25,440
be no more sequesters that's why i was

706
00:29:30,950 --> 00:29:28,080
firm so that i could fight for you and

707
00:29:40,470 --> 00:29:30,960
at the very end we could deliver for you

708
00:29:45,990 --> 00:29:43,029
we worked together and it wasn't easy i

709
00:29:49,110 --> 00:29:46,000
can assure you that you know senator

710
00:29:51,269 --> 00:29:49,120
patty murray and paul ryan did a great

711
00:29:53,990 --> 00:29:51,279
budget showing that you can compromise

712
00:29:56,230 --> 00:29:54,000
without capitulating on principle those

713
00:29:58,789 --> 00:29:56,240

two worked and led the way we in

714
00:30:01,669 --> 00:29:58,799
maryland had the very able help of chris

715
00:30:03,830 --> 00:30:01,679
van hollen who was the vice chair of the

716
00:30:06,070 --> 00:30:03,840
budget committee they gave us the

717
00:30:09,430 --> 00:30:06,080
framework they were able to cancel

718
00:30:12,549 --> 00:30:09,440
sequester then it came to appropriations

719
00:30:15,269 --> 00:30:12,559
senator richard shelby another devoted

720
00:30:17,990 --> 00:30:15,279
advocate of america's space program and

721
00:30:20,149 --> 00:30:18,000
i went to work with the house they said

722
00:30:22,549 --> 00:30:20,159
it couldn't be done we'll pass some

723
00:30:25,990 --> 00:30:22,559
things like defense but the others will

724
00:30:29,430 --> 00:30:26,000
put into a cr a continuing resolution

725
00:30:31,510 --> 00:30:29,440
that would have frozen you at 2013

726
00:30:33,990 --> 00:30:31,520
post sequester levels

727
00:30:36,549 --> 00:30:34,000
that would have been a disaster no

728
00:30:37,909 --> 00:30:36,559
matter how able the administration no

729
00:30:43,350 --> 00:30:37,919
matter how

730
00:30:46,630 --> 00:30:43,360
faithful the employees it still would

731
00:30:48,549 --> 00:30:46,640
have been so spartan and so skimpy that

732
00:30:50,789 --> 00:30:48,559
we would not have been able to do what

733
00:30:53,590 --> 00:30:50,799
we needed to do but we were able to go

734
00:30:55,510 --> 00:30:53,600
to work and we did show that we could

735
00:30:58,070 --> 00:30:55,520
compromise on

736
00:31:02,070 --> 00:30:58,080
certain line items even with certain

737
00:31:04,549 --> 00:31:02,080
riders i faced 134 poison pill riders

738
00:31:07,110 --> 00:31:04,559

when i went into negotiation but at the

739
00:31:09,590 --> 00:31:07,120
end we were able to get it done and what

740
00:31:11,430 --> 00:31:09,600
does getting it done mean

741
00:31:13,630 --> 00:31:11,440
we will fund

742
00:31:16,950 --> 00:31:13,640
nasa at

743
00:31:18,190 --> 00:31:16,960
17.65 billion dollars the james webb

744
00:31:22,310 --> 00:31:18,200
will get

745
00:31:25,990 --> 00:31:22,320
658 million dollars 23 million dollars

746
00:31:27,830 --> 00:31:26,000
more than fiscal 13 but most of all for

747
00:31:31,350 --> 00:31:27,840
the nasa employees and for the

748
00:31:33,509 --> 00:31:31,360
contractors we won't face sequester we

749
00:31:36,789 --> 00:31:33,519
will actually have certainty in the

750
00:31:39,190 --> 00:31:36,799
budget so that we can plan we can test

751
00:31:42,630 --> 00:31:39,200
and we can execute and we did that

752
00:31:46,149 --> 00:31:42,640
because we are so proud of you

753
00:31:49,669 --> 00:31:46,159
for this lack so that for that where we

754
00:31:53,590 --> 00:31:49,679
know that 2013 was indeed a tumultuous

755
00:31:55,830 --> 00:31:53,600
year 97 percent of nasa's workforce went

756
00:31:58,870 --> 00:31:55,840
through furloughs halting research

757
00:32:01,590 --> 00:31:58,880
projects causing delays and testing

758
00:32:03,750 --> 00:32:01,600
now we feel that we are on track we have

759
00:32:06,310 --> 00:32:03,760
so much faith in you and that's how we

760
00:32:08,070 --> 00:32:06,320
would round it we have

761
00:32:10,149 --> 00:32:08,080
the right stuff

762
00:32:13,750 --> 00:32:10,159
so much is said about america's

763
00:32:17,669 --> 00:32:13,760

exceptionalism our exceptionalism lies

764
00:32:20,070 --> 00:32:17,679
in science technology discovery that's

765
00:32:23,029 --> 00:32:20,080
who we are it's in it's not only

766
00:32:25,269 --> 00:32:23,039
financial entrepreneurship which is yes

767
00:32:26,870 --> 00:32:25,279
the hallmark of our country but it's

768
00:32:29,029 --> 00:32:26,880
intellectual

769
00:32:31,430 --> 00:32:29,039
entrepreneurship and working with great

770
00:32:33,110 --> 00:32:31,440
partners like one of the most wonderful

771
00:32:35,669 --> 00:32:33,120
neighbors you could have in the world

772
00:32:40,389 --> 00:32:35,679
the canadians and i think the canadians

773
00:32:45,190 --> 00:32:43,350
so to our space mountain today we say

774
00:32:48,070 --> 00:32:45,200
hello to you

775
00:32:49,990 --> 00:32:48,080
so i'm happy to be here at nasa today

776
00:32:52,149 --> 00:32:50,000
because this is the latest piece of the

777
00:32:55,430 --> 00:32:52,159
puzzle bringing important instruments

778
00:32:57,990 --> 00:32:55,440
and mirrors to goddard when completed

779
00:32:59,509 --> 00:32:58,000
this new telescope will

780
00:33:00,630 --> 00:32:59,519
absolutely

781
00:33:03,509 --> 00:33:00,640
secure

782
00:33:06,950 --> 00:33:03,519
our lead in astronomy i think for the

783
00:33:10,070 --> 00:33:06,960
next 50 years inspiring generations of

784
00:33:12,470 --> 00:33:10,080
star gazers and scientists for all the

785
00:33:14,470 --> 00:33:12,480
groundbreaking that hubble did for the

786
00:33:17,509 --> 00:33:14,480
rewriting of all the scientific

787
00:33:20,310 --> 00:33:17,519
textbooks that hubble did the fact is

788
00:33:22,710 --> 00:33:20,320

that james webb with its 18 high-tech

789
00:33:24,950 --> 00:33:22,720
mirrors and four advanced scientific

790
00:33:28,149 --> 00:33:24,960
instruments will even be far more

791
00:33:31,029 --> 00:33:28,159
superior and even 50 and 100 years from

792
00:33:34,470 --> 00:33:31,039
now they'll be writing books about what

793
00:33:36,870 --> 00:33:34,480
the hubble did and what james webb does

794
00:33:40,230 --> 00:33:36,880
we're very proud of what is going to

795
00:33:42,789 --> 00:33:40,240
happen here so much has happened already

796
00:33:45,269 --> 00:33:42,799
the fact that all the parts are here

797
00:33:48,070 --> 00:33:45,279
that it's actually happening that we

798
00:33:52,549 --> 00:33:48,080
actually saw on our virtual tour

799
00:33:55,669 --> 00:33:52,559
the whole process going the next step is

800
00:33:58,149 --> 00:33:55,679
why we work so hard and i said when i

801
00:34:00,310 --> 00:33:58,159
was at the space telescope institute

802
00:34:02,630 --> 00:34:00,320
what is so phenomenal about what we will

803
00:34:04,470 --> 00:34:02,640
do and working with our international

804
00:34:07,029 --> 00:34:04,480
partners is that a lot of our

805
00:34:10,149 --> 00:34:07,039
information our information and our

806
00:34:13,109 --> 00:34:10,159
knowledge will give away

807
00:34:16,310 --> 00:34:13,119
a big nation

808
00:34:19,190 --> 00:34:16,320
can build a telescope a rich nation can

809
00:34:22,550 --> 00:34:19,200
build a telescope but it's only a great

810
00:34:25,430 --> 00:34:22,560
nation that shares that information that

811
00:34:28,629 --> 00:34:25,440
knowledge that know-how with the world

812
00:34:30,629 --> 00:34:28,639
this is why i'm so proud of what you do

813
00:34:33,190 --> 00:34:30,639

and how united states of america will

814
00:34:35,669 --> 00:34:33,200
lead the way but in leading the way we

815
00:34:38,710 --> 00:34:35,679
do it with others and i believe that

816
00:34:41,349 --> 00:34:38,720
we'll look back on this milestone as one

817
00:34:44,629 --> 00:34:41,359
of the great benchmarks so good luck to

818
00:34:47,270 --> 00:34:44,639
all of you who are going to test verify

819
00:35:03,190 --> 00:34:47,280
and move it on and may the force

820
00:35:07,589 --> 00:35:05,349
well you know it's it's always difficult

821
00:35:09,510 --> 00:35:07,599
to follow charlie but it's impossible to

822
00:35:11,829 --> 00:35:09,520
follow senator mikulski

823
00:35:15,589 --> 00:35:13,750
i'll be closing this out but and give

824
00:35:17,829 --> 00:35:15,599
some logistics in a moment but before i

825
00:35:19,109 --> 00:35:17,839
do that i really want to thank

826
00:35:22,470 --> 00:35:19,119
administrator bolden and senator

827
00:35:25,829 --> 00:35:22,480
mikulski for being with us here today

828
00:35:28,470 --> 00:35:25,839
as you can see and as you heard we have

829
00:35:31,990 --> 00:35:28,480
two fantastic supporters

830
00:35:34,310 --> 00:35:32,000
in the highest places in government and

831
00:35:35,430 --> 00:35:34,320
really we couldn't do it without them uh

832
00:35:37,510 --> 00:35:35,440
you know i

833
00:35:39,190 --> 00:35:37,520
i've been in this job for two years and

834
00:35:41,430 --> 00:35:39,200
and i've been in another job for a

835
00:35:43,349 --> 00:35:41,440
little longer than that with charlie

836
00:35:45,670 --> 00:35:43,359
and have had the opportunity to watch

837
00:35:48,310 --> 00:35:45,680
you know how the government works

838
00:35:49,750 --> 00:35:48,320

and and how this center works and i have

839
00:35:51,990 --> 00:35:49,760
to tell you the center is one of the

840
00:35:54,550 --> 00:35:52,000
best there is i know we can build this

841
00:35:56,390 --> 00:35:54,560
telescope i know we'll do a great job

842
00:35:58,870 --> 00:35:56,400
and i know with the support that we have

843
00:35:59,750 --> 00:35:58,880
from from senator mikulski

844
00:36:05,270 --> 00:35:59,760
that

845
00:36:07,750 --> 00:36:05,280
need to make it happen if we do our job

846
00:36:09,430 --> 00:36:07,760
so we'll continue to do our job senator

847
00:36:10,790 --> 00:36:09,440
and we'll make you a great telescope and

848
00:36:12,310 --> 00:36:10,800
we'll keep that

849
00:36:14,310 --> 00:36:12,320
centuries centuries-long

850
00:36:16,630 --> 00:36:14,320
history of hubble and

851
00:36:18,710 --> 00:36:16,640
jwst to it

852
00:36:19,910 --> 00:36:18,720
so now i have to do logistics and this

853
00:36:21,990 --> 00:36:19,920
is where i have to read again and i'm

854
00:36:23,270 --> 00:36:22,000
not very good at reading okay

855
00:36:25,030 --> 00:36:23,280
so

856
00:36:27,670 --> 00:36:25,040
what we're going to do

857
00:36:29,750 --> 00:36:27,680
is people in the front row will come up

858
00:36:32,950 --> 00:36:29,760
here and we'll do a photo op with the

859
00:36:35,270 --> 00:36:32,960
senator and and the administrator

860
00:36:37,349 --> 00:36:35,280
the press will take you into the back

861
00:36:38,870 --> 00:36:37,359
and uh after the photo op we'll come

862
00:36:40,710 --> 00:36:38,880
back and meet with you

863
00:36:41,589 --> 00:36:40,720

to do uh some

864
00:36:44,230 --> 00:36:41,599
some

865
00:36:45,510 --> 00:36:44,240
opportunities there to ask questions of

866
00:36:47,430 --> 00:36:45,520
of us

867
00:36:48,310 --> 00:36:47,440
so that should take just uh just a few

868
00:36:50,310 --> 00:36:48,320
minutes

869
00:36:52,870 --> 00:36:50,320
so with that thank you all very much for

870
00:36:55,030 --> 00:36:52,880
being here today and

871
00:36:56,950 --> 00:36:55,040
go off and enjoy the day stay as dry as