



1
00:00:07,990 --> 00:00:06,070
good afternoon everyone this is the

2
00:00:10,549 --> 00:00:08,000
pre-launch news conference

3
00:00:13,350 --> 00:00:10,559
for juneau which will be on its way to

4
00:00:15,110 --> 00:00:13,360
jupiter on friday morning aboard

5
00:00:18,150 --> 00:00:15,120
an atlas v rocket

6
00:00:20,070 --> 00:00:18,160
and here to talk about the juno mission

7
00:00:22,550 --> 00:00:20,080
and the atlas launch and our weather

8
00:00:24,470 --> 00:00:22,560
forecast for friday morning

9
00:00:26,550 --> 00:00:24,480
is colleen hartman the assistant

10
00:00:28,070 --> 00:00:26,560
associate administrator from the science

11
00:00:31,669 --> 00:00:28,080
mission directorate

12
00:00:38,470 --> 00:00:34,950
omar baez the nasa launch director from

13
00:00:42,709 --> 00:00:40,549

vernon thorpe the program manager for

14

00:00:46,470 --> 00:00:42,719

nasa missions from the united launch

15

00:00:54,790 --> 00:00:49,590

jan chodas the juno project manager from

16

00:01:03,670 --> 00:00:58,229

tim gasparini the juno program manager

17

00:01:07,590 --> 00:01:05,509

and captain billy wisel the launch

18

00:01:09,670 --> 00:01:07,600

weather officer from the 45th weather

19

00:01:10,950 --> 00:01:09,680

squadron at cape canaveral air force

20

00:01:12,630 --> 00:01:10,960

station

21

00:01:15,109 --> 00:01:12,640

and we'll begin first with opening

22

00:01:16,710 --> 00:01:15,119

comments from colleen hartman colleen

23

00:01:19,510 --> 00:01:16,720

thank you george

24

00:01:20,870 --> 00:01:19,520

we stand today on the edge of a new

25

00:01:27,030 --> 00:01:20,880

frontier

26

00:01:30,069 --> 00:01:27,040

areas of science and space

27

00:01:32,149 --> 00:01:30,079

nasa created the new frontiers program

28

00:01:35,270 --> 00:01:32,159

in order to allow scientists to

29

00:01:36,870 --> 00:01:35,280

investigate those uncharted areas in the

30

00:01:39,190 --> 00:01:36,880

solar system

31

00:01:42,069 --> 00:01:39,200

the juno mission is part of the new

32

00:01:44,870 --> 00:01:42,079

frontiers program and it has been under

33

00:01:46,710 --> 00:01:44,880

development for some years now

34

00:01:48,950 --> 00:01:46,720

over many continents

35

00:01:51,590 --> 00:01:48,960

and the most incredible

36

00:01:55,990 --> 00:01:51,600

thing about it right now is that it has

37

00:01:57,670 --> 00:01:56,000

remained on schedule and within budget

38

00:02:00,149 --> 00:01:57,680

this is a true testament to the

39

00:02:02,870 --> 00:02:00,159
management of the program

40

00:02:05,270 --> 00:02:02,880
and i want to personally congratulate

41

00:02:07,749 --> 00:02:05,280
scott bolton the principal investigator

42

00:02:10,309 --> 00:02:07,759
from southwest research institute

43

00:02:12,949 --> 00:02:10,319
the jet propulsion lab who's responsible

44

00:02:14,949 --> 00:02:12,959
for project management oversight

45

00:02:17,030 --> 00:02:14,959
the lockheed martin corporation that

46

00:02:18,869 --> 00:02:17,040
built the spacecraft bus

47

00:02:20,710 --> 00:02:18,879
and many other contributors including

48

00:02:23,110 --> 00:02:20,720
the goddard space flight center the

49

00:02:24,869 --> 00:02:23,120
applied physics lab several u.s

50

00:02:26,150 --> 00:02:24,879
university and

51

00:02:29,430 --> 00:02:26,160

numerous

52

00:02:31,670 --> 00:02:29,440

international contributions and jan in a

53

00:02:33,309 --> 00:02:31,680

little while will give you the details

54

00:02:36,790 --> 00:02:33,319

about that information but

55

00:02:38,309 --> 00:02:36,800

congratulations to you all now my job

56

00:02:40,630 --> 00:02:38,319

here is to tell you a little bit about

57

00:02:43,430 --> 00:02:40,640

what we're doing this year in space and

58

00:02:46,390 --> 00:02:43,440

earth science at nasa

59

00:02:49,030 --> 00:02:46,400

earlier this year we put a spacecraft

60

00:02:51,030 --> 00:02:49,040

into orbit around messenger that's the

61

00:02:53,830 --> 00:02:51,040

first spacecraft to ever orbit that

62

00:02:59,589 --> 00:02:56,790

we also launched a mission to study sea

63

00:03:01,589 --> 00:02:59,599

surface salinity here on mother earth

64

00:03:03,190 --> 00:03:01,599

and understand its relationship to the

65

00:03:06,149 --> 00:03:03,200

water cycle

66

00:03:08,790 --> 00:03:06,159

we also put into orbit a spacecraft to

67

00:03:10,710 --> 00:03:08,800

orbit a main belt asteroid again all of

68

00:03:12,949 --> 00:03:10,720

these are complete first

69

00:03:14,070 --> 00:03:12,959

the second half of 2011 is no less

70

00:03:16,229 --> 00:03:14,080

exciting

71

00:03:18,869 --> 00:03:16,239

we have nearly twin spacecraft which

72

00:03:20,710 --> 00:03:18,879

will go to the moon we have a space

73

00:03:23,350 --> 00:03:20,720

spacecraft which will launch which will

74

00:03:25,430 --> 00:03:23,360

look at weather prediction here on earth

75

00:03:27,589 --> 00:03:25,440

and last but not least is the mars

76

00:03:30,470 --> 00:03:27,599

science laboratory launch in november of

77

00:03:32,630 --> 00:03:30,480

this year and this behemoth has more

78

00:03:35,110 --> 00:03:32,640

science capacity on it than anything

79

00:03:36,229 --> 00:03:35,120

else we've ever landed on the red planet

80

00:03:38,149 --> 00:03:36,239

regolith

81

00:03:41,110 --> 00:03:38,159

it will help us determine whether there

82

00:03:44,070 --> 00:03:41,120

was is or ever will be perhaps

83

00:03:45,990 --> 00:03:44,080

microbial life on mars

84

00:03:48,070 --> 00:03:46,000

so now that we've looked into the future

85

00:03:51,750 --> 00:03:48,080

i want to take your attention to the

86

00:03:54,070 --> 00:03:51,760

past well 300 or so years into the past

87

00:03:56,869 --> 00:03:54,080

when sir isaac newton used the first

88

00:03:59,750 --> 00:03:56,879

telescope this newfangled gadget that

89

00:04:02,550 --> 00:03:59,760

they had created high tech technology

90

00:04:03,990 --> 00:04:02,560

and he peered up at the giant red spot

91

00:04:05,750 --> 00:04:04,000

of jupiter

92

00:04:08,869 --> 00:04:05,760

afterwards he wrote

93

00:04:11,589 --> 00:04:08,879

if i have seen further than others it is

94

00:04:12,869 --> 00:04:11,599

because i've stood on the shoulders of

95

00:04:15,750 --> 00:04:12,879

giants

96

00:04:19,430 --> 00:04:15,760

right now the juno spacecraft is

97

00:04:22,310 --> 00:04:19,440

standing on the shoulders of the atlas v

98

00:04:25,430 --> 00:04:22,320

and it will be launched into space into

99

00:04:26,950 --> 00:04:25,440

the unknown because of the creativity of

100

00:04:30,310 --> 00:04:26,960

our scientists

101
00:04:32,230 --> 00:04:30,320
because of the tenacity of our engineers

102
00:04:35,270 --> 00:04:32,240
and because of the foresight of the

103
00:04:38,790 --> 00:04:35,280
american people who know that we must

104
00:04:40,070 --> 00:04:38,800
explore the new frontiers of science and

105
00:04:42,790 --> 00:04:40,080
space

106
00:04:44,790 --> 00:04:42,800
go atlas go juno

107
00:04:47,510 --> 00:04:44,800
thank you george thank you colleen

108
00:04:49,110 --> 00:04:47,520
and now to omar baez the nasa launch

109
00:04:51,030 --> 00:04:49,120
director from the kennedy space center

110
00:04:53,110 --> 00:04:51,040
omar thank you george

111
00:04:55,350 --> 00:04:53,120
uh thank you for being here it's a

112
00:04:58,070 --> 00:04:55,360
pleasure uh representing the

113
00:04:59,670 --> 00:04:58,080

hundreds of employees of nasa's launch

114

00:05:02,870 --> 00:04:59,680

services program

115

00:05:04,390 --> 00:05:02,880

and the united launch alliance

116

00:05:07,350 --> 00:05:04,400

team

117

00:05:08,790 --> 00:05:07,360

that made this giant that colleen talked

118

00:05:11,189 --> 00:05:08,800

about possible

119

00:05:14,790 --> 00:05:11,199

it takes people to do that

120

00:05:18,629 --> 00:05:14,800

these rockets are started from scratch

121

00:05:22,150 --> 00:05:18,639

and uh and they're built up here um

122

00:05:24,710 --> 00:05:22,160

and uh hopefully uh on friday morning at

123

00:05:27,749 --> 00:05:24,720

11 34 you'll see what that giant can

124

00:05:31,189 --> 00:05:29,830

let me start with taking you back a

125

00:05:33,990 --> 00:05:31,199

little ways it's

126

00:05:37,189 --> 00:05:34,000

it's the atlas 551 we're flying

127

00:05:40,629 --> 00:05:37,199

that's a an atlas 500 series

128

00:05:42,469 --> 00:05:40,639

with five solid rocket motors on it it

129

00:05:44,790 --> 00:05:42,479

each of those solid rocket motors weigh

130

00:05:46,310 --> 00:05:44,800

about a hundred thousand pounds

131

00:05:48,629 --> 00:05:46,320

they each provide about three hundred

132

00:05:50,469 --> 00:05:48,639

thousand pounds of thrust

133

00:05:52,629 --> 00:05:50,479

that helps us in the first 90 minutes

134

00:05:54,629 --> 00:05:52,639

along with the

135

00:05:57,350 --> 00:05:54,639

first stage booster to to get our

136

00:05:59,909 --> 00:05:57,360

initial velocity we're also flying the

137

00:06:02,070 --> 00:05:59,919

centaur upper stage single engine which

138

00:06:03,670 --> 00:06:02,080

uses liquid hydrogen

139

00:06:05,990 --> 00:06:03,680

and

140

00:06:08,150 --> 00:06:06,000

liquid oxygen

141

00:06:10,309 --> 00:06:08,160

and we have the 5 meter fairing

142

00:06:12,309 --> 00:06:10,319

to accommodate the juno spacecraft which

143

00:06:13,909 --> 00:06:12,319

is a pretty large

144

00:06:16,550 --> 00:06:13,919

spacecraft if you guys have had an

145

00:06:18,950 --> 00:06:16,560

opportunity to see it

146

00:06:21,189 --> 00:06:18,960

if we could roll the little

147

00:06:24,070 --> 00:06:21,199

videotape that we have of

148

00:06:28,710 --> 00:06:26,790

the booster going up into the the fifth

149

00:06:30,469 --> 00:06:28,720

the vif is the vertical integration

150

00:06:32,070 --> 00:06:30,479

facility

151
00:06:35,749 --> 00:06:32,080
where all the

152
00:06:37,749 --> 00:06:35,759
work is done to stack the atlas 5

153
00:06:40,150 --> 00:06:37,759
booster onto the mobile launcher

154
00:06:42,230 --> 00:06:40,160
platform

155
00:06:44,309 --> 00:06:42,240
we did this in early june

156
00:06:46,390 --> 00:06:44,319
we were a little late because

157
00:06:47,990 --> 00:06:46,400
the booster had some trouble getting

158
00:06:49,749 --> 00:06:48,000
here because of these storms that

159
00:06:52,790 --> 00:06:49,759
affected the

160
00:06:55,189 --> 00:06:52,800
the huntsville and decatur alabama area

161
00:06:57,270 --> 00:06:55,199
the tornadoes there

162
00:06:59,270 --> 00:06:57,280
really affected us getting the the

163
00:07:01,270 --> 00:06:59,280

hardware here so we work diligently and

164

00:07:03,510 --> 00:07:01,280

we work some weekends

165

00:07:04,870 --> 00:07:03,520

and here we are

166

00:07:07,830 --> 00:07:04,880

ready to launch

167

00:07:10,710 --> 00:07:07,840

this rocket on friday these are the the

168

00:07:12,629 --> 00:07:10,720

solid rocket motors going up

169

00:07:14,830 --> 00:07:12,639

there is five of them it's an

170

00:07:17,909 --> 00:07:14,840

unsymmetric set in that

171

00:07:20,469 --> 00:07:17,919

uh they're not mounted symmetrically

172

00:07:22,550 --> 00:07:20,479

around the vehicle as two on one side

173

00:07:25,510 --> 00:07:22,560

and three on the other

174

00:07:27,350 --> 00:07:25,520

they're not exactly spaced

175

00:07:29,350 --> 00:07:27,360

proportionally spaced

176

00:07:32,150 --> 00:07:29,360

and the vehicle flies just well with it

177

00:07:34,309 --> 00:07:32,160

this is our second flight

178

00:07:35,589 --> 00:07:34,319

pluto new horizons was our first flight

179

00:07:38,870 --> 00:07:35,599

of this vehicle

180

00:07:40,550 --> 00:07:38,880

it's a rather powerful vehicle for

181

00:07:43,029 --> 00:07:40,560

getting to jupiter

182

00:07:45,909 --> 00:07:43,039

this is the juno spacecraft within the

183

00:07:48,390 --> 00:07:45,919

encapsulated 5-meter fairing

184

00:07:49,749 --> 00:07:48,400

and it's being raised up into the vif

185

00:07:55,189 --> 00:07:49,759

and will be

186

00:07:59,749 --> 00:07:57,749

and that's a beautiful shot there and

187

00:08:02,309 --> 00:07:59,759

hopefully tomorrow you'll see those

188

00:08:04,469 --> 00:08:02,319

doors open to that vif and we'll be

189

00:08:06,629 --> 00:08:04,479

rolling out that activity

190

00:08:07,589 --> 00:08:06,639

is set to start about eight in the

191

00:08:09,350 --> 00:08:07,599

morning

192

00:08:12,710 --> 00:08:09,360

i'll have a

193

00:08:14,309 --> 00:08:12,720

the crew brief and the decision to

194

00:08:15,909 --> 00:08:14,319

roll out

195

00:08:19,350 --> 00:08:15,919

tomorrow morning

196

00:08:21,350 --> 00:08:19,360

at about 6 45

197

00:08:22,869 --> 00:08:21,360

around 8 o'clock we'll start to move we

198

00:08:25,270 --> 00:08:22,879

should be

199

00:08:26,550 --> 00:08:25,280

at the top of the pad apron about 10 in

200

00:08:28,710 --> 00:08:26,560

the morning

201
00:08:30,230 --> 00:08:28,720
we'll hook up the auto coupler which is

202
00:08:31,990 --> 00:08:30,240
our disconnects

203
00:08:34,149 --> 00:08:32,000
to the ground system

204
00:08:35,350 --> 00:08:34,159
we'll power up the vehicle

205
00:08:37,350 --> 00:08:35,360
turn on the

206
00:08:39,750 --> 00:08:37,360
air conditioning systems

207
00:08:42,469 --> 00:08:39,760
and make sure we're getting all the

208
00:08:43,990 --> 00:08:42,479
right commodities to the spacecraft

209
00:08:47,110 --> 00:08:44,000
accommodations

210
00:08:49,590 --> 00:08:47,120
and to the compartments within the atlas

211
00:08:52,870 --> 00:08:49,600
we'll stand down for the day

212
00:08:55,190 --> 00:08:52,880
start bright and early on friday morning

213
00:08:56,310 --> 00:08:55,200

we have a

214

00:09:23,269 --> 00:08:56,320

a

215

00:09:25,750 --> 00:09:23,279

oxygen

216

00:09:27,670 --> 00:09:25,760

and at t minus nine minutes i'll do my

217

00:09:30,389 --> 00:09:27,680

last poll

218

00:09:32,230 --> 00:09:30,399

and we should proceed into the count at

219

00:09:34,710 --> 00:09:32,240

t minus four on time

220

00:09:37,590 --> 00:09:34,720

for an 11 34 in the morning launch we

221

00:09:40,470 --> 00:09:37,600

have approximately 69 minutes

222

00:09:42,949 --> 00:09:40,480

of window tomorrow or friday

223

00:09:45,030 --> 00:09:42,959

and uh that's all i have for the brief

224

00:09:46,949 --> 00:09:45,040

thank you all right thanks omar

225

00:09:49,110 --> 00:09:46,959

and now to vernon thorpe the program

226
00:09:51,590 --> 00:09:49,120
manager for nasa missions from united

227
00:09:53,670 --> 00:09:51,600
launch alliance firm thank you george

228
00:09:56,070 --> 00:09:53,680
i'm here today on behalf of michael gass

229
00:09:58,790 --> 00:09:56,080
our president and ceo and the 3 700

230
00:10:01,829 --> 00:09:58,800
employees of united launch alliance and

231
00:10:04,310 --> 00:10:01,839
ula is proud to be supporting nasa in

232
00:10:06,870 --> 00:10:04,320
the launch of juno this will be ula's

233
00:10:09,350 --> 00:10:06,880
eighth launch of the year and it marks

234
00:10:11,269 --> 00:10:09,360
the second of five nasa missions that

235
00:10:12,949 --> 00:10:11,279
were flying this year in the space of

236
00:10:15,110 --> 00:10:12,959
six months

237
00:10:17,030 --> 00:10:15,120
this six-month campaign for nasa is

238
00:10:19,190 --> 00:10:17,040

unprecedented

239

00:10:20,790 --> 00:10:19,200

both for its reach across the solar

240

00:10:22,389 --> 00:10:20,800

system in terms of the missions that

241

00:10:24,630 --> 00:10:22,399

we're launching and in the the

242

00:10:27,430 --> 00:10:24,640

coordination the tempo and the precision

243

00:10:29,509 --> 00:10:27,440

that all the teams have to execute to

244

00:10:31,110 --> 00:10:29,519

manage these overlap overlapping launch

245

00:10:32,630 --> 00:10:31,120

campaigns

246

00:10:34,630 --> 00:10:32,640

our teams have worked tremendously hard

247

00:10:36,069 --> 00:10:34,640

to get us to this point uh we're all

248

00:10:38,550 --> 00:10:36,079

ready to send

249

00:10:41,030 --> 00:10:38,560

juno on its five-year mission to jupiter

250

00:10:44,150 --> 00:10:41,040

and as omar mentioned we will be using

251

00:10:46,389 --> 00:10:44,160

an atlas v 551 tomorrow

252

00:10:48,790 --> 00:10:46,399

the booster stage of that vehicle is

253

00:10:52,150 --> 00:10:48,800

powered by an rd-180 engine provided by

254

00:10:54,470 --> 00:10:52,160

rd amros the centaur upper stage will be

255

00:10:56,949 --> 00:10:54,480

powered by a single rl10a engine

256

00:10:59,590 --> 00:10:56,959

provided by pratt whitney rocketdyne

257

00:11:01,590 --> 00:10:59,600

and the five solid rocket boosters that

258

00:11:04,310 --> 00:11:01,600

we mentioned previously will be provided

259

00:11:06,710 --> 00:11:04,320

or have been provided by aerojet

260

00:11:08,230 --> 00:11:06,720

i have an animation that i'd like to

261

00:11:10,230 --> 00:11:08,240

roll now that will show you the sequence

262

00:11:12,630 --> 00:11:10,240

of events that we'll experience on

263

00:11:18,230 --> 00:11:14,790

okay we're going to target a lift off at

264

00:11:20,550 --> 00:11:18,240

11 34 a.m on friday local time we'll

265

00:11:23,030 --> 00:11:20,560

lift off with 2.4 million pounds of

266

00:11:25,750 --> 00:11:23,040

thrust that's the total of the srbs and

267

00:11:27,430 --> 00:11:25,760

the the core the first main event that

268

00:11:29,110 --> 00:11:27,440

you'll see is the burnout and jettison

269

00:11:31,829 --> 00:11:29,120

of the srbs about a minute and a half

270

00:11:34,069 --> 00:11:31,839

into flight the vehicle will be about 24

271

00:11:35,750 --> 00:11:34,079

miles high when that happens

272

00:11:37,430 --> 00:11:35,760

the next major event will be payload

273

00:11:39,269 --> 00:11:37,440

fairing jettison roughly three and a

274

00:11:41,509 --> 00:11:39,279

half minutes into flight at an altitude

275

00:11:43,269 --> 00:11:41,519

of 63 nautical miles

276

00:11:45,269 --> 00:11:43,279

and finally a minute later four and a

277

00:11:46,790 --> 00:11:45,279

half minutes in the flight roughly we'll

278

00:11:48,790 --> 00:11:46,800

deplete the propellants in the booster

279

00:11:53,110 --> 00:11:48,800

stage and we'll separate from the

280

00:11:56,629 --> 00:11:54,470

at that point

281

00:11:58,870 --> 00:11:56,639

we'll condition the centaur engine for

282

00:12:01,110 --> 00:11:58,880

the first of two engine burns

283

00:12:03,509 --> 00:12:01,120

and will light it for the first time

284

00:12:05,509 --> 00:12:03,519

that first centaur engine burn will last

285

00:12:07,350 --> 00:12:05,519

approximately six minutes and it will

286

00:12:09,750 --> 00:12:07,360

place juno into a low earth parking

287

00:12:13,829 --> 00:12:11,350

after we shut down the engine for the

288

00:12:16,710 --> 00:12:13,839

first time we'll enter a coast that will

289

00:12:19,110 --> 00:12:16,720

last about 33 minutes

290

00:12:20,470 --> 00:12:19,120

and when we get into the right location

291

00:12:22,069 --> 00:12:20,480

for the second engine burn we'll light

292

00:12:23,910 --> 00:12:22,079

the engine again we'll burn for about

293

00:12:25,190 --> 00:12:23,920

nine minutes on that second engine burn

294

00:12:29,990 --> 00:12:25,200

and that will put

295

00:12:35,030 --> 00:12:32,470

when that second engine burn is complete

296

00:12:37,110 --> 00:12:35,040

we'll orient juno to the proper

297

00:12:38,949 --> 00:12:37,120

attitude for separation we'll initiate

298

00:12:41,590 --> 00:12:38,959

that separation sequence

299

00:12:43,430 --> 00:12:41,600

and juno is on its way and as juno

300

00:12:45,030 --> 00:12:43,440

leaves earth orbit the centaur upper

301
00:12:47,190 --> 00:12:45,040
stage will do a series of collision and

302
00:12:50,389 --> 00:12:47,200
contamination avoidance maneuvers to get

303
00:12:54,470 --> 00:12:51,910
ula ula

304
00:12:57,030 --> 00:12:54,480
is proud to serve a critical role

305
00:12:59,110 --> 00:12:57,040
in delivering these one-of-a-kind nasa

306
00:13:01,030 --> 00:12:59,120
science payloads to support the overall

307
00:13:02,629 --> 00:13:01,040
global science community

308
00:13:04,230 --> 00:13:02,639
and the mission that you'll see us

309
00:13:06,550 --> 00:13:04,240
launch on friday represents the

310
00:13:08,470 --> 00:13:06,560
culmination of years of hard work by

311
00:13:10,550 --> 00:13:08,480
both the spacecraft team and the nasa

312
00:13:13,030 --> 00:13:10,560
and the ula launch teams

313
00:13:15,269 --> 00:13:13,040

we anticipate our atlas 5 will perform

314

00:13:16,870 --> 00:13:15,279

exceptionally well and

315

00:13:18,230 --> 00:13:16,880

we're looking forward to the science

316

00:13:19,750 --> 00:13:18,240

that we get back from juno to help us

317

00:13:21,910 --> 00:13:19,760

learn more about jupiter and about the

318

00:13:24,310 --> 00:13:21,920

evolution of our entire solar system

319

00:13:27,110 --> 00:13:24,320

back to you george thank you

320

00:13:28,949 --> 00:13:27,120

and now to jan chodes the juno project

321

00:13:31,750 --> 00:13:28,959

manager from the jet propulsion

322

00:13:33,350 --> 00:13:31,760

laboratory in pasadena jan

323

00:13:35,030 --> 00:13:33,360

thank you george

324

00:13:36,550 --> 00:13:35,040

i wanted to start off by just letting

325

00:13:38,710 --> 00:13:36,560

you know that we had our launch

326

00:13:40,629 --> 00:13:38,720

readiness review this morning everything

327

00:13:42,629 --> 00:13:40,639

went well at that review

328

00:13:44,870 --> 00:13:42,639

all the systems are ready to proceed

329

00:13:46,389 --> 00:13:44,880

with the last two days of our launch

330

00:13:47,990 --> 00:13:46,399

campaign and

331

00:13:50,230 --> 00:13:48,000

are really looking forward to getting

332

00:13:51,829 --> 00:13:50,240

off the ground on friday

333

00:13:54,230 --> 00:13:51,839

i wanted to build a little on what

334

00:13:58,629 --> 00:13:54,240

colleen said about our extended juno

335

00:14:02,949 --> 00:14:00,310

juno was really a national and

336

00:14:04,550 --> 00:14:02,959

international team scott bolton the

337

00:14:07,670 --> 00:14:04,560

principal investigator comes from

338

00:14:11,110 --> 00:14:07,680

southwest research institute as do the

339

00:14:12,629 --> 00:14:11,120

jade and uvs instruments

340

00:14:14,949 --> 00:14:12,639

jade being the

341

00:14:18,069 --> 00:14:14,959

jovian auroral distributions experiment

342

00:14:21,350 --> 00:14:18,079

and uvs the ultraviolet spectrometer

343

00:14:23,590 --> 00:14:21,360

part of uvs was contributed from belgium

344

00:14:26,230 --> 00:14:23,600

and part of the jade instrument came

345

00:14:27,509 --> 00:14:26,240

from france as a contribution

346

00:14:29,110 --> 00:14:27,519

jpl

347

00:14:31,509 --> 00:14:29,120

was

348

00:14:33,430 --> 00:14:31,519

on board to manage the project we also

349

00:14:36,470 --> 00:14:33,440

contributed part of the

350

00:14:39,269 --> 00:14:36,480

spacecraft systems the telecom system as

351

00:14:42,069 --> 00:14:39,279

well as the microwave radiometer

352

00:14:43,430 --> 00:14:42,079

goddard space flight center contrib is

353

00:14:47,030 --> 00:14:43,440

developed the

354

00:14:49,430 --> 00:14:47,040

magnetometer with um a contribution also

355

00:14:50,870 --> 00:14:49,440

from denmark for the advanced stellar

356

00:14:53,269 --> 00:14:50,880

compass

357

00:14:56,069 --> 00:14:53,279

we also have instruments coming from

358

00:14:58,949 --> 00:14:56,079

university of iowa the waves instrument

359

00:15:02,069 --> 00:14:58,959

we have um

360

00:15:06,949 --> 00:15:04,389

gerum instrument contributed from the

361

00:15:08,470 --> 00:15:06,959

italian space agency as well as the cave

362

00:15:10,470 --> 00:15:08,480

and translator which is part of the

363

00:15:13,269 --> 00:15:10,480

gravity science experiment

364

00:15:15,350 --> 00:15:13,279

we also have junocam on board from male

365

00:15:20,230 --> 00:15:15,360

and space science systems which is an

366

00:15:23,590 --> 00:15:22,230

thank you i knew i knew i was forgetting

367

00:15:27,269 --> 00:15:23,600

one of the instruments that starts with

368

00:15:29,829 --> 00:15:27,279

j so j is the jedi from applied physics

369

00:15:32,790 --> 00:15:29,839

laboratory is the juno energetic

370

00:15:36,550 --> 00:15:34,389

i'd also like to point out that it's not

371

00:15:38,150 --> 00:15:36,560

just the people on the teams that i've

372

00:15:40,470 --> 00:15:38,160

mentioned who

373

00:15:43,030 --> 00:15:40,480

are part of getting juno to

374

00:15:43,749 --> 00:15:43,040

this point in its life cycle and making

375

00:15:45,189 --> 00:15:43,759

us

376

00:15:47,829 --> 00:15:45,199

being able to be ready for launch but

377

00:15:49,350 --> 00:15:47,839

it's also the families that support all

378

00:15:51,749 --> 00:15:49,360

of those folks

379

00:15:53,430 --> 00:15:51,759

across the juno team across the extended

380

00:15:54,710 --> 00:15:53,440

juno team with

381

00:15:56,310 --> 00:15:54,720

the ksc

382

00:15:59,110 --> 00:15:56,320

and ula

383

00:16:01,269 --> 00:15:59,120

fortress participations as well so i i

384

00:16:02,710 --> 00:16:01,279

really wanted to thank and acknowledge

385

00:16:04,470 --> 00:16:02,720

the contributions of all of the team

386

00:16:06,470 --> 00:16:04,480

members as well as the the family

387

00:16:08,470 --> 00:16:06,480

support

388

00:16:09,509 --> 00:16:08,480

now vern showed what's going to happen

389

00:16:10,870 --> 00:16:09,519

for the

390

00:16:12,550 --> 00:16:10,880

rocket i'd like to show you a little

391

00:16:14,790 --> 00:16:12,560

animation that talks about what we do

392

00:16:16,629 --> 00:16:14,800

after we separate from the centaur

393

00:16:18,949 --> 00:16:16,639

could i have the animation so here we

394

00:16:22,069 --> 00:16:18,959

are lifting off and we quickly end up on

395

00:16:26,870 --> 00:16:22,079

the centaur

396

00:16:29,670 --> 00:16:26,880

spinning us up to 1.4 rpm

397

00:16:31,509 --> 00:16:29,680

we separate from the centaur

398

00:16:33,990 --> 00:16:31,519

about five minutes after separation we

399

00:16:35,910 --> 00:16:34,000

deploy the solar arrays

400

00:16:37,910 --> 00:16:35,920

takes a couple minutes to get those

401
00:16:39,910 --> 00:16:37,920
arrays out

402
00:16:42,230 --> 00:16:39,920
we will have acquired our

403
00:16:45,030 --> 00:16:42,240
signal over the canberra deep space

404
00:16:47,509 --> 00:16:45,040
network stations by this point in time

405
00:16:49,509 --> 00:16:47,519
we should be left at an attitude that

406
00:16:51,509 --> 00:16:49,519
points the solar rays at the sun if they

407
00:16:53,829 --> 00:16:51,519
are not already pointing at the sun we

408
00:16:55,829 --> 00:16:53,839
will first spin up to our nominal cruise

409
00:16:58,150 --> 00:16:55,839
spin rate of about 1 rpm and then we

410
00:17:00,550 --> 00:16:58,160
will precess the spacecraft to point the

411
00:17:02,150 --> 00:17:00,560
arrays at the sun so that we can get

412
00:17:04,390 --> 00:17:02,160
sunlight on the solar cells and start

413
00:17:06,710 --> 00:17:04,400

recharging the batteries

414

00:17:09,350 --> 00:17:06,720

we will do a health and status quick

415

00:17:11,029 --> 00:17:09,360

look poll about two hours after launch

416

00:17:13,909 --> 00:17:11,039

that will give us our first indications

417

00:17:15,669 --> 00:17:13,919

of the health of the spacecraft and then

418

00:17:17,669 --> 00:17:15,679

three hours after launch we have a more

419

00:17:19,590 --> 00:17:17,679

in-depth survey of all of the spacecraft

420

00:17:22,150 --> 00:17:19,600

subsystems to understand

421

00:17:24,470 --> 00:17:22,160

how well they're performing and then

422

00:17:25,909 --> 00:17:24,480

about six hours after launch we have a

423

00:17:28,230 --> 00:17:25,919

comprehensive

424

00:17:31,270 --> 00:17:28,240

rundown of all the spacecraft subsystems

425

00:17:33,029 --> 00:17:31,280

and their health and status

426

00:17:35,990 --> 00:17:33,039

uh finally i'd like to show the

427

00:17:37,029 --> 00:17:36,000

trajectory from the earth to jupiter

428

00:17:38,789 --> 00:17:37,039

because we

429

00:17:41,830 --> 00:17:38,799

we don't go straight on that trajectory

430

00:17:44,150 --> 00:17:41,840

let me show the next animation please

431

00:17:46,310 --> 00:17:44,160

here we are launching in august we go

432

00:17:48,390 --> 00:17:46,320

out past the orbit of mars into the

433

00:17:50,150 --> 00:17:48,400

asteroid belt we have two deep space

434

00:17:52,549 --> 00:17:50,160

maneuvers about four days apart each

435

00:17:54,630 --> 00:17:52,559

burns about 30 minutes that targets us

436

00:17:57,430 --> 00:17:54,640

to come back and buy the earth we fly by

437

00:18:00,710 --> 00:17:57,440

at about a 500 kilometer altitude

438

00:18:02,870 --> 00:18:00,720

we swing by that's october 2013. uh that

439

00:18:05,270 --> 00:18:02,880

swings us out to jupiter

440

00:18:07,110 --> 00:18:05,280

we have hopefully a quiet cruise to

441

00:18:09,029 --> 00:18:07,120

breathe for a minute in between there

442

00:18:11,029 --> 00:18:09,039

and then we come up on our jupiter

443

00:18:13,190 --> 00:18:11,039

approach about a year before

444

00:18:15,190 --> 00:18:13,200

we arrive we will start our preparations

445

00:18:17,350 --> 00:18:15,200

for the approach campaign the jupiter

446

00:18:20,710 --> 00:18:17,360

orbit insertion burn which happens on

447

00:18:23,029 --> 00:18:20,720

july 4th eastern daylight time 2016. we

448

00:18:25,669 --> 00:18:23,039

will go into 107 day

449

00:18:27,350 --> 00:18:25,679

capture orbit we will do a period

450

00:18:29,750 --> 00:18:27,360

reduction maneuver another burn with our

451
00:18:32,070 --> 00:18:29,760
main engine to bring our orbit down to

452
00:18:34,710 --> 00:18:32,080
about an eleven day elliptical orbit and

453
00:18:37,830 --> 00:18:34,720
then we will do a couple of setup orbits

454
00:18:40,150 --> 00:18:37,840
and then launch into our 30 elliptical

455
00:18:42,470 --> 00:18:40,160
11-day science orbits to capture our

456
00:18:44,470 --> 00:18:42,480
science data

457
00:18:47,110 --> 00:18:44,480
thanks george

458
00:18:49,270 --> 00:18:47,120
now to tim gasparini the juno program

459
00:18:51,430 --> 00:18:49,280
manager from lockheed martin space

460
00:18:54,070 --> 00:18:51,440
systems the builders of the juno

461
00:18:55,430 --> 00:18:54,080
spacecraft tim thank you george lockheed

462
00:18:57,590 --> 00:18:55,440
martin is thrilled to have had the

463
00:18:59,830 --> 00:18:57,600

opportunity to partner with jpl on the

464

00:19:01,510 --> 00:18:59,840

development of the juno spacecraft

465

00:19:03,350 --> 00:19:01,520

i'd like to summarize for you now some

466

00:19:05,029 --> 00:19:03,360

of the processing we've done in florida

467

00:19:06,710 --> 00:19:05,039

and go over the next few days of

468

00:19:08,789 --> 00:19:06,720

spacecraft activity as we get ready for

469

00:19:12,390 --> 00:19:08,799

launch so if you would roll the

470

00:19:16,150 --> 00:19:14,390

thanks judo was assembled in denver at

471

00:19:19,430 --> 00:19:16,160

our facility there we started assembly

472

00:19:21,430 --> 00:19:19,440

in april of 2010 and the bus and the

473

00:19:23,590 --> 00:19:21,440

high gain were shipped separately

474

00:19:26,390 --> 00:19:23,600

on the c-17 we arrived here on the 8th

475

00:19:28,390 --> 00:19:26,400

of april we transported the spacecraft

476

00:19:30,070 --> 00:19:28,400

over to the facility at astrotech where

477

00:19:32,470 --> 00:19:30,080

we integrated it

478

00:19:34,789 --> 00:19:32,480

once we were at astrotech we removed the

479

00:19:37,350 --> 00:19:34,799

spacecraft from the shipping container

480

00:19:39,350 --> 00:19:37,360

and placed it on the rotation fixture so

481

00:19:41,270 --> 00:19:39,360

that we could have access to all parts

482

00:19:42,789 --> 00:19:41,280

of the large spacecraft

483

00:19:45,029 --> 00:19:42,799

uh one of the first things that we did

484

00:19:46,470 --> 00:19:45,039

was remove the highgate antenna from its

485

00:19:48,230 --> 00:19:46,480

shipping container and place it on the

486

00:19:50,070 --> 00:19:48,240

spacecraft and we ran a series of

487

00:19:52,470 --> 00:19:50,080

electrical and mechanical tests to make

488

00:19:54,630 --> 00:19:52,480

sure that we had properly reinstalled it

489

00:19:56,549 --> 00:19:54,640

to the spacecraft

490

00:19:58,549 --> 00:19:56,559

the solar arrays were shipped about

491

00:20:00,710 --> 00:19:58,559

three weeks prior to the spacecraft by

492

00:20:02,310 --> 00:20:00,720

truck and they arrived here so that we

493

00:20:04,230 --> 00:20:02,320

could do some pre-integration work on

494

00:20:06,070 --> 00:20:04,240

them we checked all of the cells on the

495

00:20:07,830 --> 00:20:06,080

spacecraft and we also installed the

496

00:20:09,510 --> 00:20:07,840

thermal blankets and the some of the

497

00:20:11,909 --> 00:20:09,520

harnessing finished up some of the

498

00:20:14,149 --> 00:20:11,919

harnessing on the on the solar rays

499

00:20:17,029 --> 00:20:14,159

we also put them on their large strong

500

00:20:19,110 --> 00:20:17,039

backs that we use to install them onto

501
00:20:21,830 --> 00:20:19,120
the spacecraft

502
00:20:24,470 --> 00:20:21,840
each of the arrays is retested

503
00:20:26,310 --> 00:20:24,480
after we get them on the spacecraft

504
00:20:29,350 --> 00:20:26,320
this serves two purposes

505
00:20:31,750 --> 00:20:29,360
the first is that we by installing and

506
00:20:33,510 --> 00:20:31,760
firing a set of test separation nuts we

507
00:20:35,510 --> 00:20:33,520
can check out the

508
00:20:38,470 --> 00:20:35,520
pyro system on the spacecraft to make

509
00:20:41,669 --> 00:20:38,480
sure that it is properly configured

510
00:20:43,350 --> 00:20:41,679
after the sept nuts are fired we

511
00:20:45,510 --> 00:20:43,360
will hand deploy

512
00:20:47,029 --> 00:20:45,520
the spacecraft

513
00:20:51,270 --> 00:20:47,039

and

514

00:20:53,669 --> 00:20:51,280

cabling are performing properly

515

00:20:55,750 --> 00:20:53,679

as you can see there's a large the solar

516

00:20:58,310 --> 00:20:55,760

rays are very large that solar array the

517

00:21:00,149 --> 00:20:58,320

wing one is 34 feet long

518

00:21:02,789 --> 00:21:00,159

there's a gravity offload fixture that

519

00:21:04,549 --> 00:21:02,799

is used to support the spacecraft or to

520

00:21:06,230 --> 00:21:04,559

support the solar ray

521

00:21:08,310 --> 00:21:06,240

as part of that installation we also do

522

00:21:10,549 --> 00:21:08,320

electrical checkouts and we illuminate

523

00:21:12,549 --> 00:21:10,559

the so the solar arrays and block

524

00:21:14,070 --> 00:21:12,559

portions of the cells so that we can

525

00:21:15,750 --> 00:21:14,080

verify that the solar arrays are

526
00:21:17,430 --> 00:21:15,760
properly connected and mated to the

527
00:21:19,590 --> 00:21:17,440
spacecraft

528
00:21:21,990 --> 00:21:19,600
after illumination

529
00:21:24,950 --> 00:21:22,000
we all the arrays are finally stowed for

530
00:21:27,190 --> 00:21:24,960
flight and we fuel the spacecraft and

531
00:21:28,630 --> 00:21:27,200
then we take it over to the it's on the

532
00:21:30,230 --> 00:21:28,640
spin balance

533
00:21:32,470 --> 00:21:30,240
fixture right there and we do a spin

534
00:21:34,470 --> 00:21:32,480
test where we determine the mass

535
00:21:35,830 --> 00:21:34,480
properties of the spacecraft and compare

536
00:21:37,350 --> 00:21:35,840
it to our

537
00:21:38,630 --> 00:21:37,360
solid model that we have and make sure

538
00:21:40,070 --> 00:21:38,640

that we've got the proper mass

539

00:21:42,310 --> 00:21:40,080

properties

540

00:21:44,789 --> 00:21:42,320

after the spin test we transfer onto the

541

00:21:47,029 --> 00:21:44,799

launch vehicle adapter and then go over

542

00:21:49,110 --> 00:21:47,039

to the encapsulation area where the ula

543

00:21:51,430 --> 00:21:49,120

has been working on the fairing and we

544

00:21:54,230 --> 00:21:51,440

are then encapsulated and ready to go to

545

00:21:55,750 --> 00:21:54,240

to transport out to the pad

546

00:21:58,870 --> 00:21:55,760

we're then

547

00:22:00,310 --> 00:21:58,880

attached onto the kmag and we are rolled

548

00:22:01,669 --> 00:22:00,320

out to the pad it takes about four or

549

00:22:03,510 --> 00:22:01,679

five hours to get out there and we're

550

00:22:05,190 --> 00:22:03,520

stacked on top of the

551
00:22:07,510 --> 00:22:05,200
on top of the atlas

552
00:22:09,510 --> 00:22:07,520
where we are today is that the

553
00:22:10,950 --> 00:22:09,520
spacecraft has been tested by itself

554
00:22:13,590 --> 00:22:10,960
we've run a series of electrical tests

555
00:22:14,870 --> 00:22:13,600
on the spacecraft and it's fine we've

556
00:22:17,990 --> 00:22:14,880
run some integrated tests with the

557
00:22:19,990 --> 00:22:18,000
launch vehicle and those went very well

558
00:22:21,590 --> 00:22:20,000
we've powered up for the final time and

559
00:22:23,830 --> 00:22:21,600
the spacecraft is sitting quiescent

560
00:22:26,950 --> 00:22:23,840
waiting for the launch what will happen

561
00:22:29,110 --> 00:22:26,960
between now and then is at about 2 hours

562
00:22:30,870 --> 00:22:29,120
and 15 minutes prior to launch we will

563
00:22:32,470 --> 00:22:30,880

open one of our latch valves to prepare

564

00:22:33,590 --> 00:22:32,480

the propulsion system

565

00:22:35,909 --> 00:22:33,600

for launch

566

00:22:37,750 --> 00:22:35,919

and then we'll do a series of sequence

567

00:22:40,070 --> 00:22:37,760

activities where we'll

568

00:22:41,750 --> 00:22:40,080

adjust heaters turn heaters on and get

569

00:22:44,070 --> 00:22:41,760

the spacecraft finally configured for

570

00:22:46,390 --> 00:22:44,080

its launch at nine minutes prior to

571

00:22:48,710 --> 00:22:46,400

launch we'll go on internal power

572

00:22:52,070 --> 00:22:48,720

and we will sit and wait for the uh

573

00:22:55,110 --> 00:22:52,080

hopefully the launch on friday of juneau

574

00:22:58,950 --> 00:22:55,120

uh thank you all right thanks tim

575

00:22:58,960 --> 00:23:01,830

as captivity

576
00:23:05,510 --> 00:23:03,430
captain billy wesley will launch weather

577
00:23:07,270 --> 00:23:05,520
officer from 45th weather squadron on

578
00:23:09,830 --> 00:23:07,280
cape canaveral air force station captain

579
00:23:11,830 --> 00:23:09,840
whistle thank you very much again my

580
00:23:13,909 --> 00:23:11,840
name is billy wisel here representing

581
00:23:15,590 --> 00:23:13,919
the 45th space wing 45th operations

582
00:23:17,669 --> 00:23:15,600
group 45th weather squadron and i'm just

583
00:23:20,230 --> 00:23:17,679
truly excited to be a part of this team

584
00:23:22,390 --> 00:23:20,240
and the mission i find this mission very

585
00:23:24,470 --> 00:23:22,400
interesting but i want to jump right

586
00:23:27,190 --> 00:23:24,480
into the forecast and the official

587
00:23:30,230 --> 00:23:27,200
forecast for day of launch activities

588
00:23:32,149 --> 00:23:30,240

right now we're expecting at t-0 we're

589

00:23:33,350 --> 00:23:32,159

expecting sky conditions to be scattered

590

00:23:35,350 --> 00:23:33,360

3000

591

00:23:37,750 --> 00:23:35,360

and scattered 25 000

592

00:23:40,870 --> 00:23:37,760

visibility unrestricted winds are going

593

00:23:43,590 --> 00:23:40,880

to be from the southwest 12 gusts 16

594

00:23:44,950 --> 00:23:43,600

knots right now and the only weather

595

00:23:46,789 --> 00:23:44,960

that we're expecting in the area is just

596

00:23:48,710 --> 00:23:46,799

isolated showers which we've been seeing

597

00:23:51,110 --> 00:23:48,720

for the past several days right around

598

00:23:53,990 --> 00:23:51,120

sea breeze onset we get the chance for

599

00:23:56,310 --> 00:23:54,000

showers but we only expect a 30 chance

600

00:23:58,950 --> 00:23:56,320

for any of the weather launch constraint

601
00:24:01,350 --> 00:23:58,960
violations at this time primary concern

602
00:24:02,630 --> 00:24:01,360
for a violation would be the cumulus

603
00:24:05,430 --> 00:24:02,640
cloud rule

604
00:24:06,390 --> 00:24:05,440
with a 24-hour delay

605
00:24:07,990 --> 00:24:06,400
uh

606
00:24:09,990 --> 00:24:08,000
weather conditions actually get a little

607
00:24:12,470 --> 00:24:10,000
bit worse uh we're expecting scattered

608
00:24:15,029 --> 00:24:12,480
skies 3000 scattered eight and broken at

609
00:24:17,590 --> 00:24:15,039
25 again however we're expecting winds

610
00:24:19,590 --> 00:24:17,600
to be out of the northeast

611
00:24:21,190 --> 00:24:19,600
15 gusts 20 knots

612
00:24:23,430 --> 00:24:21,200
with again isolated showers and

613
00:24:25,029 --> 00:24:23,440

thunderstorms in the area and we expect

614

00:24:26,870 --> 00:24:25,039

a chance for weather to violate the

615

00:24:30,149 --> 00:24:26,880

launch weather constraints that's set at

616

00:24:31,510 --> 00:24:30,159

60 percent for a 24 hour delay

617

00:24:35,029 --> 00:24:31,520

and

618

00:24:37,590 --> 00:24:35,039

could you cue up the satellite image

619

00:24:39,269 --> 00:24:37,600

just wanted to show you uh right now as

620

00:24:41,909 --> 00:24:39,279

of 11 o'clock

621

00:24:44,470 --> 00:24:41,919

this morning uh latest telemetry for a

622

00:24:46,549 --> 00:24:44,480

tropical storm emily placed the center

623

00:24:48,470 --> 00:24:46,559

of the storm 125 miles

624

00:24:52,470 --> 00:24:48,480

south of santa domingo of the dominican

625

00:24:54,789 --> 00:24:52,480

republic and or 906 miles southeast of

626

00:24:56,710 --> 00:24:54,799

cape canaveral air force station maximum

627

00:24:58,950 --> 00:24:56,720

winds with this storm are 45 knots with

628

00:25:01,510 --> 00:24:58,960

gusts of 55 knots and present movement

629

00:25:03,350 --> 00:25:01,520

is towards the west at 12 knots however

630

00:25:05,590 --> 00:25:03,360

in the north atlantic

631

00:25:07,430 --> 00:25:05,600

we have a high pressure ridge and then

632

00:25:08,710 --> 00:25:07,440

over the eastern half of the united

633

00:25:10,710 --> 00:25:08,720

states we also have another high

634

00:25:13,590 --> 00:25:10,720

pressure ridge between those two we have

635

00:25:15,590 --> 00:25:13,600

a area of troughing which is actually

636

00:25:18,470 --> 00:25:15,600

going to steer tropical storm emily up

637

00:25:20,950 --> 00:25:18,480

towards the northwest and eventually

638

00:25:22,070 --> 00:25:20,960

skirt along the eastern portion of

639

00:25:24,310 --> 00:25:22,080

florida

640

00:25:26,230 --> 00:25:24,320

and right now the forecast tracks have

641

00:25:27,510 --> 00:25:26,240

been pretty consistent from the model

642

00:25:30,870 --> 00:25:27,520

runs

643

00:25:32,470 --> 00:25:30,880

they've been running the tracks have

644

00:25:34,950 --> 00:25:32,480

been slowly working their way towards

645

00:25:36,549 --> 00:25:34,960

the east unfortunately right now it's

646

00:25:38,630 --> 00:25:36,559

too far out to

647

00:25:40,230 --> 00:25:38,640

say with any absolute certainty the

648

00:25:41,669 --> 00:25:40,240

exact center and location where the

649

00:25:44,070 --> 00:25:41,679

storm is going to be and what the exact

650

00:25:46,950 --> 00:25:44,080

intensity and

651
00:25:48,390 --> 00:25:46,960
the distance that the strong winds

652
00:25:49,750 --> 00:25:48,400
particularly 50 knot winds are going to

653
00:25:51,909 --> 00:25:49,760
be out from the center of the storm but

654
00:25:54,070 --> 00:25:51,919
right now we are not forecasting for any

655
00:25:55,990 --> 00:25:54,080
of those winds to impact us

656
00:25:57,990 --> 00:25:56,000
on the plus side anytime you have a

657
00:26:00,070 --> 00:25:58,000
tropical system that's in an area you

658
00:26:01,510 --> 00:26:00,080
get an area of substance sinking air

659
00:26:03,269 --> 00:26:01,520
around the storm which actually brings

660
00:26:04,390 --> 00:26:03,279
you favorable conditions particularly

661
00:26:05,990 --> 00:26:04,400
for our launch

662
00:26:07,909 --> 00:26:06,000
so

663
00:26:08,710 --> 00:26:07,919

that concludes the bulk of my weather

664

00:26:10,630 --> 00:26:08,720

brief

665

00:26:13,029 --> 00:26:10,640

all right thank you captain and we're

666

00:26:14,549 --> 00:26:13,039

ready now to take questions uh please be

667

00:26:16,390 --> 00:26:14,559

sure to give your name an affiliation

668

00:26:18,310 --> 00:26:16,400

when you get the microphone and we'll

669

00:26:20,149 --> 00:26:18,320

start near the front with marcia

670

00:26:23,190 --> 00:26:20,159

marshad an associated press for dr

671

00:26:24,789 --> 00:26:23,200

hartman um this lunch is coming so close

672

00:26:26,230 --> 00:26:24,799

on the heels of the end of the shuttle

673

00:26:28,070 --> 00:26:26,240

program could you just sort of from

674

00:26:30,070 --> 00:26:28,080

nasa's perspective

675

00:26:31,669 --> 00:26:30,080

talk about the end of one era the

676
00:26:32,710 --> 00:26:31,679
opening of a new one perhaps the new

677
00:26:35,190 --> 00:26:32,720
frontier

678
00:26:37,029 --> 00:26:35,200
post you know pre

679
00:26:40,149 --> 00:26:37,039
you know post shuttle and

680
00:26:43,350 --> 00:26:40,950
well

681
00:26:45,990 --> 00:26:43,360
the nasa administrator has laid out i

682
00:26:47,430 --> 00:26:46,000
think a clear plan for the follow-on to

683
00:26:50,310 --> 00:26:47,440
the shuttle

684
00:26:54,230 --> 00:26:50,320
my involvement is deeply into space and

685
00:26:56,950 --> 00:26:54,240
earth science and i think we continue

686
00:26:59,669 --> 00:26:56,960
the vein of success we've had and i

687
00:27:01,029 --> 00:26:59,679
believe 2011 that the list of missions i

688
00:27:03,750 --> 00:27:01,039

gave you

689

00:27:05,510 --> 00:27:03,760

shows that we still continue an exciting

690

00:27:08,230 --> 00:27:05,520

group of missions

691

00:27:10,630 --> 00:27:08,240

space and earth science also have a role

692

00:27:13,350 --> 00:27:10,640

to play in how humans explore the

693

00:27:15,750 --> 00:27:13,360

universe and so it's important that in

694

00:27:19,669 --> 00:27:15,760

fact both these sides of the house do

695

00:27:20,870 --> 00:27:19,679

well in future and i believe they will

696

00:27:26,070 --> 00:27:20,880

jay

697

00:27:29,110 --> 00:27:26,080

george what are we going to see on the

698

00:27:30,789 --> 00:27:29,120

way up for television on staging are we

699

00:27:32,630 --> 00:27:30,799

going to have cameras on board that's

700

00:27:34,789 --> 00:27:32,640

going to show us several we have two but

701

00:27:36,549 --> 00:27:34,799

i think vern can answer that yes that's

702

00:27:38,710 --> 00:27:36,559

correct we have two cameras on this

703

00:27:40,870 --> 00:27:38,720

vehicle we have an aft facing camera on

704

00:27:43,430 --> 00:27:40,880

the booster so we may have an

705

00:27:45,590 --> 00:27:43,440

opportunity to see some video you know

706

00:27:47,909 --> 00:27:45,600

during liftoff and we also have a

707

00:27:49,669 --> 00:27:47,919

forward-facing camera up on centaur it's

708

00:27:52,149 --> 00:27:49,679

primarily there to observe spacecraft

709

00:27:53,909 --> 00:27:52,159

separation uh providing that the link

710

00:27:55,990 --> 00:27:53,919

margins are strong enough

711

00:27:58,149 --> 00:27:56,000

on the australian tracking stations that

712

00:28:00,470 --> 00:27:58,159

will be providing that coverage

713

00:28:03,190 --> 00:28:00,480

okay and the second one

714

00:28:04,950 --> 00:28:03,200

what's the difference between this atlas

715

00:28:06,950 --> 00:28:04,960

that you're flying tomorrow and the one

716

00:28:08,310 --> 00:28:06,960

put john glenn in orbit i'm going back

717

00:28:10,389 --> 00:28:08,320

to the balloon

718

00:28:12,710 --> 00:28:10,399

and i see the lockheed martin guy

719

00:28:15,750 --> 00:28:12,720

smiling here

720

00:28:18,549 --> 00:28:15,760

i'll uh i'll take a shot at that one

721

00:28:21,909 --> 00:28:18,559

well in addition to uh what is it about

722

00:28:23,110 --> 00:28:21,919

about 50 years of experience

723

00:28:24,470 --> 00:28:23,120

you know the

724

00:28:26,070 --> 00:28:24,480

the vehicle

725

00:28:27,909 --> 00:28:26,080

has a heritage of about 50 years a

726
00:28:29,029 --> 00:28:27,919
little bit more than 50 years now as you

727
00:28:31,190 --> 00:28:29,039
know

728
00:28:32,470 --> 00:28:31,200
during that time period the vehicle has

729
00:28:35,190 --> 00:28:32,480
continually

730
00:28:37,750 --> 00:28:35,200
been improved in terms of reliability in

731
00:28:40,470 --> 00:28:37,760
terms of performance capability

732
00:28:41,510 --> 00:28:40,480
so in some ways it's very similar to the

733
00:28:43,830 --> 00:28:41,520
original

734
00:28:45,590 --> 00:28:43,840
vehicle but in many ways it's it's been

735
00:28:47,269 --> 00:28:45,600
improved to maintain it as a

736
00:28:49,430 --> 00:28:47,279
state-of-the-art vehicle

737
00:28:50,870 --> 00:28:49,440
and i think the phrase was used earlier

738
00:28:52,630 --> 00:28:50,880

in the press conference about standing

739

00:28:54,710 --> 00:28:52,640

on the shoulders of giants i know that

740

00:28:56,549 --> 00:28:54,720

that those of us working on the atlas

741

00:28:59,830 --> 00:28:56,559

program today certainly feel that way

742

00:29:02,870 --> 00:28:59,840

there are two generations of

743

00:29:04,470 --> 00:29:02,880

incredible engineers and mechanics and

744

00:29:06,630 --> 00:29:04,480

technicians

745

00:29:08,230 --> 00:29:06,640

that came before us

746

00:29:10,389 --> 00:29:08,240

the most obvious difference is this

747

00:29:11,909 --> 00:29:10,399

rocket is a lot bigger we did a walk

748

00:29:14,230 --> 00:29:11,919

down on the pad this morning and i was

749

00:29:16,149 --> 00:29:14,240

pointing out to a couple of my nasa

750

00:29:18,389 --> 00:29:16,159

colleagues that if you took two

751
00:29:20,710 --> 00:29:18,399
of these solid rocket boosters on this

752
00:29:22,310 --> 00:29:20,720
vehicle and put them side by side

753
00:29:24,070 --> 00:29:22,320
you would have a shape that's about the

754
00:29:26,630 --> 00:29:24,080
same size as the vehicle that launched

755
00:29:28,710 --> 00:29:26,640
john glenn each one of those srbs is 70

756
00:29:30,389 --> 00:29:28,720
feet long and 5 feet across so two of

757
00:29:32,470 --> 00:29:30,399
them side by side it'd be 10 feet across

758
00:29:34,310 --> 00:29:32,480
70 feet high and that's approximately

759
00:29:35,190 --> 00:29:34,320
the size of those early atlases that we

760
00:29:36,789 --> 00:29:35,200
flew

761
00:29:39,269 --> 00:29:36,799
so we're a lot bigger we're a lot more

762
00:29:41,669 --> 00:29:39,279
powerful we're a lot more reliable and

763
00:29:44,149 --> 00:29:41,679

we're continuing to improve

764

00:29:46,310 --> 00:29:44,159

mercury atlas was essentially a balloon

765

00:29:48,470 --> 00:29:46,320

had to be under pressure all the time do

766

00:29:49,990 --> 00:29:48,480

you still have to keep atlas this atlas

767

00:29:52,149 --> 00:29:50,000

you have under

768

00:29:54,310 --> 00:29:52,159

pressure at all times in order to keep

769

00:29:56,230 --> 00:29:54,320

it from collapsing we used that

770

00:29:57,909 --> 00:29:56,240

stainless steel balloon concept up

771

00:29:59,830 --> 00:29:57,919

through the atlas 3 vehicles when we

772

00:30:01,830 --> 00:29:59,840

went to atlas 5

773

00:30:04,710 --> 00:30:01,840

we went to a structurally stabilized

774

00:30:07,350 --> 00:30:04,720

booster the centaur upper stage however

775

00:30:09,510 --> 00:30:07,360

still uses that thin stainless steel

776

00:30:12,470 --> 00:30:09,520

balloon concept so

777

00:30:14,070 --> 00:30:12,480

for the centaur upper stage we maintain

778

00:30:15,669 --> 00:30:14,080

5 psi

779

00:30:17,190 --> 00:30:15,679

pressure to maintain the structural

780

00:30:19,350 --> 00:30:17,200

rigidity of the tank

781

00:30:20,789 --> 00:30:19,360

and we'll also supplement that by always

782

00:30:22,230 --> 00:30:20,799

almost always having the vehicle in

783

00:30:24,870 --> 00:30:22,240

stretch so that if we ever lose the

784

00:30:26,470 --> 00:30:24,880

pressurization it's still safe but we no

785

00:30:28,950 --> 00:30:26,480

longer have to do that on the atlas

786

00:30:30,950 --> 00:30:28,960

booster itself thank you

787

00:30:32,389 --> 00:30:30,960

right here leo enright with irish

788

00:30:34,470 --> 00:30:32,399

television just wondering about the

789

00:30:36,549 --> 00:30:34,480

ground track after launch where it takes

790

00:30:37,830 --> 00:30:36,559

you bringing you into night time of

791

00:30:40,070 --> 00:30:37,840

course so i'm wondering will it be

792

00:30:41,830 --> 00:30:40,080

visible to viewers on the ground and

793

00:30:44,710 --> 00:30:41,840

will the second

794

00:30:47,830 --> 00:30:44,720

centaur burn uh be visible in australia

795

00:30:51,830 --> 00:30:49,590

i'm not sure we have a good answer for

796

00:30:53,669 --> 00:30:51,840

that right now i i don't know

797

00:30:55,590 --> 00:30:53,679

i suppose if you have a powerful enough

798

00:30:56,950 --> 00:30:55,600

telescope or if you're looking in the

799

00:30:59,350 --> 00:30:56,960

right place you might be able to see it

800

00:31:02,630 --> 00:30:59,360

we have had previous

801
00:31:04,549 --> 00:31:02,640
centaurs that you could see

802
00:31:06,549 --> 00:31:04,559
especially if the centaur is still in

803
00:31:07,990 --> 00:31:06,559
sunlight and even though it's dark on

804
00:31:09,669 --> 00:31:08,000
the ground but if the centaur's in total

805
00:31:11,269 --> 00:31:09,679
darkness then it would be tough to see

806
00:31:13,430 --> 00:31:11,279
anything

807
00:31:15,750 --> 00:31:13,440
hi angela swafford with muy interesante

808
00:31:17,269 --> 00:31:15,760
i think maybe for lockheed martin

809
00:31:19,190 --> 00:31:17,279
with juno being

810
00:31:22,870 --> 00:31:19,200
such an interesting spacecraft in terms

811
00:31:27,430 --> 00:31:24,870
cells is this the beginning of a new

812
00:31:30,549 --> 00:31:27,440
trend in nasa is trying to use now solar

813
00:31:33,269 --> 00:31:30,559

power for next vehicles

814

00:31:34,230 --> 00:31:33,279

we've used solar power for all of our um

815

00:31:35,590 --> 00:31:34,240

all of the spacecraft all the

816

00:31:39,509 --> 00:31:35,600

interplanetary spacecraft that we've

817

00:31:40,789 --> 00:31:39,519

done for um dunford for nasa and for jpl

818

00:31:43,029 --> 00:31:40,799

we've launched a number of spacecraft to

819

00:31:46,149 --> 00:31:43,039

mars with these uh similar designs for

820

00:31:49,590 --> 00:31:46,159

our solar panels and um we had the

821

00:31:52,070 --> 00:31:49,600

ability on juno to be able to um to use

822

00:31:53,990 --> 00:31:52,080

solar cells for the specific

823

00:31:56,389 --> 00:31:54,000

mission that we had that we could do on

824

00:31:59,269 --> 00:31:56,399

juno where we were always in sunlight

825

00:32:01,110 --> 00:31:59,279

where we'd have to go back behind the

826

00:32:04,789 --> 00:32:01,120

back behind jupiter and to have an

827

00:32:06,230 --> 00:32:04,799

eclipse jupiter is a big planet and

828

00:32:07,590 --> 00:32:06,240

we probably wouldn't be able to do that

829

00:32:09,269 --> 00:32:07,600

but because of the specific mission

830

00:32:12,830 --> 00:32:09,279

design that we have on juno we're able

831

00:32:18,470 --> 00:32:15,830

ken hi ken kramer for space flight

832

00:32:20,310 --> 00:32:18,480

magazine uh for vernon thirp i think um

833

00:32:21,509 --> 00:32:20,320

can you tell us the differences in this

834

00:32:23,269 --> 00:32:21,519

atlas v

835

00:32:25,509 --> 00:32:23,279

compared to new horizons which i think

836

00:32:27,590 --> 00:32:25,519

was a previous most powerful version and

837

00:32:29,590 --> 00:32:27,600

i'm also wondering about the

838

00:32:31,190 --> 00:32:29,600

weather constraints on on the rollout

839

00:32:34,470 --> 00:32:31,200

tomorrow thank you

840

00:32:36,630 --> 00:32:34,480

okay this vehicle is very similar to the

841

00:32:39,430 --> 00:32:36,640

one that we use for pluto new horizons

842

00:32:42,389 --> 00:32:39,440

they're both 551s in fact pluto new

843

00:32:44,230 --> 00:32:42,399

horizons was the first atlas 5 551

844

00:32:46,389 --> 00:32:44,240

and this will be the second

845

00:32:47,590 --> 00:32:46,399

so we've flown

846

00:32:49,430 --> 00:32:47,600

you're probably aware we have many

847

00:32:51,509 --> 00:32:49,440

different configurations

848

00:32:54,070 --> 00:32:51,519

of the atlas but this is only the second

849

00:32:55,990 --> 00:32:54,080

one that you used all five srbs so in

850

00:32:57,750 --> 00:32:56,000

that sense

851
00:32:59,350 --> 00:32:57,760
for all practical purposes it's almost

852
00:33:00,789 --> 00:32:59,360
identical to the version we use for

853
00:33:02,470 --> 00:33:00,799
pluto new horizons there's minor

854
00:33:03,990 --> 00:33:02,480
differences like

855
00:33:05,590 --> 00:33:04,000
the size of the access doors and the

856
00:33:07,990 --> 00:33:05,600
fairing and things like that but it's

857
00:33:09,269 --> 00:33:08,000
essentially the same vehicle

858
00:33:10,470 --> 00:33:09,279
as far as

859
00:33:12,549 --> 00:33:10,480
could you repeat the question about the

860
00:33:14,470 --> 00:33:12,559
weather constraints trains

861
00:33:16,070 --> 00:33:14,480
for rollout what what are they you know

862
00:33:18,070 --> 00:33:16,080
you're going to make a decision i guess

863
00:33:19,669 --> 00:33:18,080

you said it uh

864

00:33:21,269 --> 00:33:19,679

uh sometime tomorrow morning whether

865

00:33:23,029 --> 00:33:21,279

you'll roll it out you talked about the

866

00:33:25,350 --> 00:33:23,039

launch constraint i'm wondering about

867

00:33:27,029 --> 00:33:25,360

the rollout constraint yeah i think uh

868

00:33:28,630 --> 00:33:27,039

the main thing we'll be focusing on is

869

00:33:30,870 --> 00:33:28,640

wins but i think i'll defer to omar on

870

00:33:33,269 --> 00:33:30,880

that he's more familiar with it okay for

871

00:33:35,350 --> 00:33:33,279

the rollout tomorrow the wind constraint

872

00:33:38,310 --> 00:33:35,360

we're well under the wind constraint uh

873

00:33:40,549 --> 00:33:38,320

it's 42 knots our main concern right now

874

00:33:42,630 --> 00:33:40,559

is if for example

875

00:33:45,190 --> 00:33:42,640

we make an attempt on friday and have to

876
00:33:47,909 --> 00:33:45,200
scrub that attempt and cannot make it

877
00:33:50,310 --> 00:33:47,919
into six in the 69-minute window

878
00:33:52,710 --> 00:33:50,320
and then we have to roll back or

879
00:33:54,789 --> 00:33:52,720
re-attempt on the next day that next day

880
00:33:56,870 --> 00:33:54,799
you notice the weather officer says the

881
00:33:59,269 --> 00:33:56,880
the winds are predicted to come up a

882
00:34:01,669 --> 00:33:59,279
little bit depending on where that storm

883
00:34:03,350 --> 00:34:01,679
emily traces whether it's

884
00:34:04,789 --> 00:34:03,360
a little bit to the west or a little bit

885
00:34:07,590 --> 00:34:04,799
to the east

886
00:34:10,230 --> 00:34:07,600
it makes the conditions

887
00:34:13,270 --> 00:34:10,240
um either better or worse for us if it

888
00:34:15,109 --> 00:34:13,280

stays to the east that's our most

889

00:34:18,230 --> 00:34:15,119

or if it breaks up altogether that's our

890

00:34:20,550 --> 00:34:18,240

best solution if it comes closer to us

891

00:34:22,470 --> 00:34:20,560

we have a concern

892

00:34:25,030 --> 00:34:22,480

we don't want to leave the vehicle and

893

00:34:27,349 --> 00:34:25,040

the spacecraft exposed

894

00:34:29,190 --> 00:34:27,359

to to the winds and and the rainstorm

895

00:34:31,430 --> 00:34:29,200

although structurally it can handle it

896

00:34:32,389 --> 00:34:31,440

it's it's probably not the wise thing to

897

00:34:33,589 --> 00:34:32,399

do

898

00:34:34,869 --> 00:34:33,599

so

899

00:34:37,190 --> 00:34:34,879

one of the things we're looking for

900

00:34:39,510 --> 00:34:37,200

tomorrow is to be able to

901
00:34:41,750 --> 00:34:39,520
see how far out we can

902
00:34:43,510 --> 00:34:41,760
predict what may or may not happen

903
00:34:46,710 --> 00:34:43,520
unfortunately right now this storm is

904
00:34:47,669 --> 00:34:46,720
not cooperating with us in our timelines

905
00:34:49,510 --> 00:34:47,679
and

906
00:34:51,909 --> 00:34:49,520
it's hard to say

907
00:34:53,510 --> 00:34:51,919
what it will be doing tomorrow

908
00:34:55,750 --> 00:34:53,520
morning when we need to make that

909
00:34:57,750 --> 00:34:55,760
decision so it that decision may have to

910
00:34:59,750 --> 00:34:57,760
be delayed or we might have to take a

911
00:35:02,069 --> 00:34:59,760
launch delay

912
00:35:04,710 --> 00:35:02,079
if it doesn't look favorable for us

913
00:35:08,150 --> 00:35:04,720

right now it does look if you if you

914

00:35:10,710 --> 00:35:08,160

have a an optimistic view it looks okay

915

00:35:12,630 --> 00:35:10,720

if you have the pessimistic view

916

00:35:14,470 --> 00:35:12,640

you might not want to roll out tomorrow

917

00:35:16,710 --> 00:35:14,480

because you might be stuck out there and

918

00:35:18,870 --> 00:35:16,720

you don't want to do that

919

00:35:19,910 --> 00:35:18,880

thanks okay

920

00:35:22,230 --> 00:35:19,920

yes

921

00:35:24,069 --> 00:35:22,240

stephanie played then for italian state

922

00:35:25,589 --> 00:35:24,079

radio and tv

923

00:35:26,550 --> 00:35:25,599

a couple of questions concerning the

924

00:35:28,069 --> 00:35:26,560

center

925

00:35:29,349 --> 00:35:28,079

upper stage

926
00:35:31,829 --> 00:35:29,359
one is

927
00:35:34,870 --> 00:35:31,839
how fast is it going to

928
00:35:38,630 --> 00:35:34,880
go when it leaves earth orbit

929
00:35:42,310 --> 00:35:38,640
and how quickly is it going to cross the

930
00:35:44,870 --> 00:35:42,320
lunar orbit in the first place

931
00:35:48,069 --> 00:35:44,880
i can take a stab at

932
00:35:49,589 --> 00:35:48,079
how fast it's going to be going when

933
00:35:51,990 --> 00:35:49,599
um

934
00:35:55,109 --> 00:35:52,000
uh when when we're at tip or when we

935
00:35:57,589 --> 00:35:55,119
separate and that's approximately 22 000

936
00:35:59,589 --> 00:35:57,599
miles per hour

937
00:36:03,670 --> 00:35:59,599
which which is not bad it's not as fast

938
00:36:05,510 --> 00:36:03,680

as pluto new horizons but um it's fast

939

00:36:08,310 --> 00:36:05,520

uh i i can't take a hack at that the

940

00:36:10,310 --> 00:36:08,320

lunar orbit though that okay

941

00:36:11,670 --> 00:36:10,320

what's going to happen to the centaur

942

00:36:14,390 --> 00:36:11,680

stage once it's finished is it going to

943

00:36:15,430 --> 00:36:14,400

go into a solar orbit or fall into the

944

00:36:17,990 --> 00:36:15,440

sun

945

00:36:20,870 --> 00:36:18,000

as vern said there's a c-cam maneuver to

946

00:36:24,150 --> 00:36:20,880

to separate it away from

947

00:36:26,150 --> 00:36:24,160

from the juno spacecraft but but it it's

948

00:36:27,829 --> 00:36:26,160

it's also leaving the planet earth and

949

00:36:33,510 --> 00:36:27,839

and not coming back

950

00:36:38,550 --> 00:36:34,790

okay

951
00:36:52,829 --> 00:36:38,560
back here then to um

952
00:36:58,710 --> 00:36:56,230
here uh todd albertson uh florida today

953
00:37:00,790 --> 00:36:58,720
for whoever really wants to

954
00:37:03,750 --> 00:37:00,800
field it um this of course is going to

955
00:37:07,109 --> 00:37:03,760
be the first solar power uh spacecraft

956
00:37:09,109 --> 00:37:07,119
to fly and operate

957
00:37:11,990 --> 00:37:09,119
around the outer planets around and

958
00:37:14,630 --> 00:37:12,000
outer planet uh previous missions have

959
00:37:17,910 --> 00:37:14,640
uh used a plutonium

960
00:37:22,150 --> 00:37:17,920
electric generator to um operate i'm

961
00:37:25,829 --> 00:37:22,160
wondering if you can uh talk about um

962
00:37:27,750 --> 00:37:25,839
whether or not this is a shift in nasa's

963
00:37:30,390 --> 00:37:27,760

thinking about

964

00:37:32,710 --> 00:37:30,400

how it should power its

965

00:37:34,710 --> 00:37:32,720

missions to the outer planets and could

966

00:37:38,150 --> 00:37:34,720

you talk about the

967

00:37:39,589 --> 00:37:38,160

advances in solar cell technology since

968

00:37:44,470 --> 00:37:39,599

say

969

00:37:46,150 --> 00:37:44,480

galileo launched way back in 1989

970

00:37:48,950 --> 00:37:46,160

so i think maybe we'll take this in two

971

00:37:51,670 --> 00:37:48,960

parts i'll answer the nasa question

972

00:37:55,030 --> 00:37:51,680

there is no shift in power as technology

973

00:37:57,750 --> 00:37:55,040

gets better we use the best capability

974

00:38:00,870 --> 00:37:57,760

for that technology given the particular

975

00:38:03,589 --> 00:38:00,880

circumstances of that mission

976
00:38:05,510 --> 00:38:03,599
and so we are always looking for more

977
00:38:08,790 --> 00:38:05,520
cost effective

978
00:38:10,550 --> 00:38:08,800
assured ways to power our spacecraft and

979
00:38:12,470 --> 00:38:10,560
it is an exciting development that we

980
00:38:14,310 --> 00:38:12,480
can actually go all the way out five a

981
00:38:16,310 --> 00:38:14,320
use with solar power

982
00:38:18,470 --> 00:38:16,320
but there's no need to make a management

983
00:38:20,630 --> 00:38:18,480
decision about it it really is the

984
00:38:23,109 --> 00:38:20,640
advance of technology

985
00:38:24,950 --> 00:38:23,119
and all that um

986
00:38:27,109 --> 00:38:24,960
yeah i'm not exactly sure what the

987
00:38:29,510 --> 00:38:27,119
efficiency for galileo was but our cells

988
00:38:32,310 --> 00:38:29,520

are about 28 efficient

989

00:38:35,270 --> 00:38:32,320

so

990

00:38:37,750 --> 00:38:35,280

um just a quick follow you have a launch

991

00:38:41,109 --> 00:38:37,760

uh period here of august 5th through i

992

00:38:43,109 --> 00:38:41,119

believe the 26th uh when is your next

993

00:38:45,270 --> 00:38:43,119

opportunity to

994

00:38:46,710 --> 00:38:45,280

launch after that

995

00:38:48,150 --> 00:38:46,720

period

996

00:38:50,470 --> 00:38:48,160

the next opportunity to launch to

997

00:38:56,870 --> 00:38:50,480

jupiter is 13 months later so it's the

998

00:38:59,670 --> 00:38:58,390

all right we've uh oh okay marshall's

999

00:39:01,990 --> 00:38:59,680

got to follow up with them yep could i

1000

00:39:03,750 --> 00:39:02,000

have a quick follow-up with miss

1001
00:39:05,670 --> 00:39:03,760
what does it take for you to be able to

1002
00:39:07,829 --> 00:39:05,680
insert on july 4th

1003
00:39:11,270 --> 00:39:07,839
how do you make that happen

1004
00:39:14,550 --> 00:39:11,280
july 4th of next year

1005
00:39:16,390 --> 00:39:14,560
july 1st or august 1st

1006
00:39:18,230 --> 00:39:16,400
why that day in particular i mean i know

1007
00:39:19,829 --> 00:39:18,240
what day well it was not targeted to be

1008
00:39:21,349 --> 00:39:19,839
july 4th

1009
00:39:24,790 --> 00:39:21,359
it was

1010
00:39:26,870 --> 00:39:24,800
given the celestial mechanics of

1011
00:39:28,790 --> 00:39:26,880
where the planets are aligned in order

1012
00:39:31,910 --> 00:39:28,800
to follow

1013
00:39:35,270 --> 00:39:31,920

our trajectory and arrive at jupiter and

1014

00:39:37,589 --> 00:39:35,280

insert ourselves into the type of polar

1015

00:39:40,150 --> 00:39:37,599

elliptical orbit that

1016

00:39:42,069 --> 00:39:40,160

we need for our mission design

1017

00:39:44,710 --> 00:39:42,079

so it just falls out of the math

1018

00:39:46,550 --> 00:39:44,720

so if you delay a day or two does it it

1019

00:39:48,710 --> 00:39:46,560

does not change so for this whole period

1020

00:39:50,790 --> 00:39:48,720

it will remain july 4th okay so you

1021

00:39:53,030 --> 00:39:50,800

didn't have to do anything fancy to to

1022

00:39:54,630 --> 00:39:53,040

achieve that day in particular

1023

00:39:56,550 --> 00:39:54,640

no we did not do anything fancy to

1024

00:39:59,670 --> 00:39:56,560

choose that day we and we did not

1025

00:40:02,069 --> 00:39:59,680

target any specific day it falls out

1026

00:40:03,589 --> 00:40:02,079

of the trajectory analysis

1027

00:40:04,950 --> 00:40:03,599

okay we've got a

1028

00:40:07,030 --> 00:40:04,960

few questions on the phone we're going

1029

00:40:10,150 --> 00:40:07,040

to take those and then come back here

1030

00:40:12,069 --> 00:40:10,160

claire moskowitz

1031

00:40:14,710 --> 00:40:12,079

yes hi this is clara moskowitz with

1032

00:40:16,470 --> 00:40:14,720

space.com and a question i think for jan

1033

00:40:18,790 --> 00:40:16,480

or anyone who wants to answer just

1034

00:40:20,630 --> 00:40:18,800

wondering um what kind of overall

1035

00:40:22,790 --> 00:40:20,640

checkouts do you have to do in the sort

1036

00:40:28,309 --> 00:40:22,800

of days and weeks following launch and

1037

00:40:32,390 --> 00:40:30,309

i would say that

1038

00:40:34,230 --> 00:40:32,400

we launched the spacecraft and the first

1039

00:40:35,670 --> 00:40:34,240

thing we do is

1040

00:40:37,030 --> 00:40:35,680

some engineering

1041

00:40:39,430 --> 00:40:37,040

confirmations that our engineering

1042

00:40:41,910 --> 00:40:39,440

subsystems are working properly

1043

00:40:44,870 --> 00:40:41,920

we have our first trajectory correction

1044

00:40:47,750 --> 00:40:44,880

maneuver targeted for around launch plus

1045

00:40:49,829 --> 00:40:47,760

20 days there's a possibility that we

1046

00:40:51,910 --> 00:40:49,839

will not need that maneuver depending on

1047

00:40:53,510 --> 00:40:51,920

how well the launch vehicle injects us

1048

00:40:55,670 --> 00:40:53,520

into our

1049

00:40:57,270 --> 00:40:55,680

our paths to jupiter so we'll be able to

1050

00:40:59,109 --> 00:40:57,280

make that decision a few days after

1051
00:41:00,870 --> 00:40:59,119
launch we'll know whether or not we need

1052
00:41:02,870 --> 00:41:00,880
to make that correction

1053
00:41:04,790 --> 00:41:02,880
we will start checking out the

1054
00:41:05,829 --> 00:41:04,800
instruments we call it a low voltage

1055
00:41:07,430 --> 00:41:05,839
check

1056
00:41:08,790 --> 00:41:07,440
we have three instruments that operate

1057
00:41:11,030 --> 00:41:08,800
at high voltages but we will check

1058
00:41:13,190 --> 00:41:11,040
everything out at low voltage first in

1059
00:41:15,750 --> 00:41:13,200
around the um

1060
00:41:18,309 --> 00:41:15,760
launch plus 20 to launch plus 50 time

1061
00:41:20,309 --> 00:41:18,319
frame and then we will do the high

1062
00:41:26,630 --> 00:41:20,319
voltage checkouts

1063
00:41:30,150 --> 00:41:28,630

so so that way we will have checked out

1064

00:41:31,829 --> 00:41:30,160

all of the engineering subsystems and

1065

00:41:33,510 --> 00:41:31,839

all of the instruments

1066

00:41:36,069 --> 00:41:33,520

the official science data gathering of

1067

00:41:38,069 --> 00:41:36,079

course is not until we reach jupiter and

1068

00:41:40,470 --> 00:41:38,079

we go into our science orbits there but

1069

00:41:42,230 --> 00:41:40,480

there are certainly observations that we

1070

00:41:43,910 --> 00:41:42,240

could take along the way

1071

00:41:46,630 --> 00:41:43,920

including something that we might be

1072

00:41:49,190 --> 00:41:46,640

able to do at the earth flyby

1073

00:41:50,870 --> 00:41:49,200

okay bill harwood

1074

00:41:52,790 --> 00:41:50,880

thank you uh one quick question i may

1075

00:41:54,550 --> 00:41:52,800

have missed this earlier so i apologize

1076
00:41:55,990 --> 00:41:54,560
um once you guys separate what is the

1077
00:41:58,069 --> 00:41:56,000
time frame for

1078
00:41:59,910 --> 00:41:58,079
uh getting your initial health checks

1079
00:42:01,190 --> 00:41:59,920
done in other words when will we know

1080
00:42:02,790 --> 00:42:01,200
that the arrays are deployed that the

1081
00:42:06,150 --> 00:42:02,800
transmitters are working

1082
00:42:11,910 --> 00:42:08,870
we will in a nominal case

1083
00:42:14,069 --> 00:42:11,920
we will be able to acquire over the

1084
00:42:16,309 --> 00:42:14,079
canberra stations

1085
00:42:18,230 --> 00:42:16,319
approximately within the first five

1086
00:42:21,430 --> 00:42:18,240
minutes after separation

1087
00:42:22,390 --> 00:42:21,440
um we have targeted that so that when we

1088
00:42:26,790 --> 00:42:22,400

first

1089

00:42:29,109 --> 00:42:26,800

nuts uh we want to be able to see that

1090

00:42:31,349 --> 00:42:29,119

in telemetry we fire the second pair of

1091

00:42:33,109 --> 00:42:31,359

sep nuts uh six minutes after separation

1092

00:42:35,670 --> 00:42:33,119

and then the arrays start to deploy so

1093

00:42:37,349 --> 00:42:35,680

ideally we will have acquired uh

1094

00:42:41,190 --> 00:42:37,359

downlink telemetry and be able to see

1095

00:42:42,790 --> 00:42:41,200

that um as it happens um there are many

1096

00:42:44,230 --> 00:42:42,800

reasons why we may not be able to get

1097

00:42:46,630 --> 00:42:44,240

telemetry

1098

00:42:49,030 --> 00:42:46,640

both ground and spacecraft and

1099

00:42:50,790 --> 00:42:49,040

and network uh issues but nominally

1100

00:42:53,990 --> 00:42:50,800

that's what will happen

1101
00:42:56,470 --> 00:42:54,000
we will do our first quick look status

1102
00:42:58,309 --> 00:42:56,480
poll about two hours after launch so

1103
00:42:59,270 --> 00:42:58,319
that's about an hour after separation so

1104
00:43:01,430 --> 00:42:59,280
we will

1105
00:43:02,550 --> 00:43:01,440
have gone through and seen the arrays

1106
00:43:04,870 --> 00:43:02,560
deploy

1107
00:43:07,270 --> 00:43:04,880
we will precess towards the sun if

1108
00:43:09,670 --> 00:43:07,280
needed we will have spun back up after

1109
00:43:11,990 --> 00:43:09,680
the deployment

1110
00:43:13,990 --> 00:43:12,000
we will be turning on our sun sensors

1111
00:43:16,309 --> 00:43:14,000
and other instruments other engineering

1112
00:43:18,390 --> 00:43:16,319
subsystems

1113
00:43:19,589 --> 00:43:18,400

just preparing to check out and go on

1114

00:43:21,829 --> 00:43:19,599

our way

1115

00:43:24,550 --> 00:43:21,839

so really i'm looking forward to the

1116

00:43:27,190 --> 00:43:24,560

launch plus two hour quick look

1117

00:43:29,670 --> 00:43:27,200

status poll and then we follow that an

1118

00:43:31,510 --> 00:43:29,680

hour later with a more in-depth uh

1119

00:43:33,750 --> 00:43:31,520

summary from each of the subsystems as

1120

00:43:35,829 --> 00:43:33,760

to their health and status

1121

00:43:40,870 --> 00:43:35,839

i think we have one more on the phone if

1122

00:43:43,990 --> 00:43:42,309

all right stop all right we're going to

1123

00:43:46,309 --> 00:43:44,000

come back here todd

1124

00:43:47,829 --> 00:43:46,319

todd halverson of florida today again i

1125

00:43:49,829 --> 00:43:47,839

think for uh

1126

00:43:52,790 --> 00:43:49,839

omar um

1127

00:43:56,630 --> 00:43:52,800

how long does it take to roll the atlas

1128

00:43:59,190 --> 00:43:56,640

back to the vehicle integration facility

1129

00:44:02,790 --> 00:43:59,200

if you need to do that for any reason

1130

00:44:04,309 --> 00:44:02,800

and what type of weather would prompt

1131

00:44:05,430 --> 00:44:04,319

you to

1132

00:44:07,510 --> 00:44:05,440

decide

1133

00:44:09,589 --> 00:44:07,520

not to roll back could you give me a

1134

00:44:11,990 --> 00:44:09,599

couple of scenarios or

1135

00:44:13,750 --> 00:44:12,000

conditions that would prompt you not to

1136

00:44:15,990 --> 00:44:13,760

roll back i guess you're thinking about

1137

00:44:17,990 --> 00:44:16,000

the weather on saturday in that case

1138

00:44:19,990 --> 00:44:18,000

right

1139

00:44:21,990 --> 00:44:20,000

some of the

1140

00:44:24,710 --> 00:44:22,000

depending on the situation i get caught

1141

00:44:26,230 --> 00:44:24,720

in for example if i had if we had loaded

1142

00:44:29,430 --> 00:44:26,240

cryogenic fuel

1143

00:44:31,030 --> 00:44:29,440

or cryogenics on board it takes us about

1144

00:44:33,270 --> 00:44:31,040

18 hours

1145

00:44:35,750 --> 00:44:33,280

to warm that system back up so i can't

1146

00:44:36,870 --> 00:44:35,760

move that stack until that process is

1147

00:44:39,510 --> 00:44:36,880

done

1148

00:44:41,109 --> 00:44:39,520

have i if i don't do that i still have

1149

00:44:42,950 --> 00:44:41,119

to shift in

1150

00:44:45,349 --> 00:44:42,960

if i don't get to a cryoload i still

1151

00:44:47,430 --> 00:44:45,359

have to bring in the workforce at a

1152

00:44:50,309 --> 00:44:47,440

certain time the next day to be able to

1153

00:44:52,390 --> 00:44:50,319

roll back that rollback uh can take

1154

00:44:56,230 --> 00:44:52,400

anywhere from four to

1155

00:44:58,390 --> 00:44:56,240

uh six hours eight hours by the time uh

1156

00:45:00,950 --> 00:44:58,400

you're you're safely back in the barn so

1157

00:45:02,870 --> 00:45:00,960

it's it's it's a big it's a it's a full

1158

00:45:06,309 --> 00:45:02,880

day

1159

00:45:08,470 --> 00:45:06,319

you gotta take into account um the local

1160

00:45:10,550 --> 00:45:08,480

weather then uh whether we're in the

1161

00:45:13,270 --> 00:45:10,560

thunderstorms and so forth where we

1162

00:45:15,589 --> 00:45:13,280

can't be out there so

1163

00:45:20,870 --> 00:45:19,190

there there's a lot of factors into that

1164

00:45:21,910 --> 00:45:20,880

okay we'll take one last question from

1165

00:45:28,550 --> 00:45:21,920

jay

1166

00:45:31,829 --> 00:45:28,560

you're explaining juno's mission to mrs

1167

00:45:33,829 --> 00:45:31,839

russell's eighth grade science class

1168

00:45:36,069 --> 00:45:33,839

what would you tell them

1169

00:45:38,309 --> 00:45:36,079

that you hope that juno will find when

1170

00:45:41,030 --> 00:45:38,319

it gets there

1171

00:45:43,670 --> 00:45:41,040

to summarize to an eighth grade class i

1172

00:45:46,470 --> 00:45:43,680

would tell them that jupiter holds the

1173

00:45:47,990 --> 00:45:46,480

secrets of of how our solar system

1174

00:45:53,109 --> 00:45:48,000

formed

1175

00:45:55,910 --> 00:45:53,119

jupiter itself as well as the earth and

1176

00:45:57,109 --> 00:45:55,920

how we got here ourselves so

1177

00:45:58,790 --> 00:45:57,119

really the

1178

00:46:00,230 --> 00:45:58,800

the spark that i would hope interest

1179

00:46:02,150 --> 00:46:00,240

would interest them would be the fact

1180

00:46:05,190 --> 00:46:02,160

that we can learn more about ourselves

1181

00:46:08,470 --> 00:46:06,950

all right that's going to conclude the

1182

00:46:10,390 --> 00:46:08,480

pre-launch news conference we're going

1183

00:46:12,150 --> 00:46:10,400

to pause just long enough to change

1184

00:46:14,390 --> 00:46:12,160

players on the diocese and we will go