1
00:00:20,060 --> 00:00:16,160
15 t minus 10 9 8 7 6 5 4 3 2 1 main

2
00:00:23,300 --> 00:00:20,070
engine start ignition and liftoff of the

3
00:00:25,759 --> 00:00:23,310
Atlas 5 with maven looking for clues

4
00:00:31,330 --> 00:00:25,769
about the evolution of Mars through its

5
00:00:31,340 --> 00:00:34,500
Oh

6
00:00:39,490 --> 00:00:36,599
everything looking good still it 100%

7
00:00:47,140 --> 00:00:39,500
rated thrust on the rd-180

8
00:00:49,210 --> 00:00:47,150
the upgrades are looking good we do and

9
00:00:51,549 --> 00:00:49,220
good afternoon everyone welcome to the

10
00:00:54,430 --> 00:00:51,559
post launch news conference for the

11
00:00:56,799 --> 00:00:54,440
Maven mission here to discuss how the

12
00:00:59,530 --> 00:00:56,809
launch is gone and the state of health

13
00:01:02,259 --> 00:00:59,540

of the MAVEN spacecraft we have David

14
00:01:05,790 --> 00:01:02,269
Mitchell the NASA maven project manager

15
00:01:08,710 --> 00:01:05,800
from the Goddard Space Flight Center

16
00:01:10,750 --> 00:01:08,720
Bruce jakosky the maven principal

17
00:01:12,820 --> 00:01:10,760
investigator from the laboratory for

18
00:01:16,560 --> 00:01:12,830
atmospheric and space physics at the

19
00:01:19,600 --> 00:01:16,570
university of colorado at boulder and

20
00:01:22,030 --> 00:01:19,610
dr. Jim Green the director of the

21
00:01:25,389 --> 00:01:22,040
Planetary Science Division at NASA

22
00:01:29,249 --> 00:01:25,399
headquarters and we'll begin first with

23
00:01:32,020 --> 00:01:29,259
David Mitchell well good afternoon folks

24
00:01:34,440 --> 00:01:32,030
what a monday at the office you know you

25
00:01:37,510 --> 00:01:34,450
you build something to go to Mars and

26
00:01:40,359 --> 00:01:37,520
we're now flying at Mars today so it's

27
00:01:43,630 --> 00:01:40,369
I'm maybe I'm not showing up time you

28
00:01:46,330 --> 00:01:43,640
fork I mean it's it's it's been great

29
00:01:49,539 --> 00:01:46,340
guys so you know what it what an effort

30
00:01:52,330 --> 00:01:49,549
by this team to get to this point and oh

31
00:01:54,760 --> 00:01:52,340
so many years ago we we started actually

32
00:01:57,550 --> 00:01:54,770
Bruce 10 years ago started down this

33
00:01:59,560 --> 00:01:57,560
path and five years ago we put in the

34
00:02:02,950 --> 00:01:59,570
final proposal and we put November 18

35
00:02:06,429 --> 00:02:02,960
2013 as our plan launch date and and we

36
00:02:08,889 --> 00:02:06,439
hit it so and and it's so far i'll talk

37
00:02:11,199 --> 00:02:08,899
about the systems in a minute but so far

38
00:02:14,440 --> 00:02:11,209

so good so I'm really excited about that

39
00:02:17,380 --> 00:02:14,450
so today the countdown went really

40
00:02:19,390 --> 00:02:17,390
smooth you know it was actually very

41
00:02:22,259 --> 00:02:19,400
quiet which is the kind of countdown as

42
00:02:25,020 --> 00:02:22,269
I love so all went well on that front

43
00:02:28,990 --> 00:02:25,030
and we did hit the opening of the window

44
00:02:33,430 --> 00:02:29,000
right at I'm going to I'm going to go

45
00:02:36,870 --> 00:02:33,440
into UTC times so so lift up was right

46
00:02:39,759 --> 00:02:36,880
at 18 28 so that all that all went well

47
00:02:41,800 --> 00:02:39,769
after we lifted off from a spacecraft

48
00:02:43,810 --> 00:02:41,810
standpoint we had a test control center

49
00:02:47,020 --> 00:02:43,820
down here at the Kennedy Space Center

50
00:02:49,150 --> 00:02:47,030
staff by our engineers and they did all

51
00:02:51,280 --> 00:02:49,160
the countdown portion of it and then

52
00:02:55,000 --> 00:02:51,290
after liftoff from a spacecraft

53
00:02:57,729 --> 00:02:55,010
standpoint it was handed over to the the

54
00:02:59,740 --> 00:02:57,739
operation center in denver the lockheed

55
00:03:02,290 --> 00:02:59,750
martin organization out there is is now

56
00:03:03,970 --> 00:03:02,300
flying this mission to mars so so we've

57
00:03:07,000 --> 00:03:03,980
got teams here we got them over over

58
00:03:08,320 --> 00:03:07,010
there in denver and so far so good so

59
00:03:10,540 --> 00:03:08,330
i'm going to read from a script which is

60
00:03:13,750 --> 00:03:10,550
simply the timeline of what happened and

61
00:03:18,220 --> 00:03:13,760
where we are so again liftoff was at 18

62
00:03:21,160 --> 00:03:18,230
28 we separated from the Centaur at 1920

63
00:03:25,720 --> 00:03:21,170

and 44 seconds locked up on the

64
00:03:28,119 --> 00:03:25,730
telemetry at 19 21 and 40 seconds we

65
00:03:30,190 --> 00:03:28,129
confirmed proposition system

66
00:03:33,430 --> 00:03:30,200
initialization and tipoff rates were

67
00:03:35,710 --> 00:03:33,440
damped prior to start to initiating the

68
00:03:38,580 --> 00:03:35,720
solar array deployment so that prop

69
00:03:42,309 --> 00:03:38,590
initialization was confirmed at 1926 and

70
00:03:44,530 --> 00:03:42,319
then we went ahead and and deployed the

71
00:03:47,199 --> 00:03:44,540
solar arrays and there was confirmed

72
00:03:50,580 --> 00:03:47,209
good good collection good good data

73
00:03:54,880 --> 00:03:50,590
confirmation of solar array deploy at

74
00:03:57,550 --> 00:03:54,890
1955 from there where everything looks

75
00:04:00,550 --> 00:03:57,560
good the signals are coming in fine and

76
00:04:04,539 --> 00:04:00,560
so far systems that are on our reporting

77
00:04:06,940 --> 00:04:04,549
back great so we're currently as of five

78
00:04:09,070 --> 00:04:06,950
minutes ago about 14,000 miles away from

79
00:04:11,020 --> 00:04:09,080
Earth and we're heading out to the red

80
00:04:14,350 --> 00:04:11,030
planet right now and will be journeying

81
00:04:18,219 --> 00:04:14,360
for the next ten months or so so so far

82
00:04:20,380 --> 00:04:18,229
so good our next major event will be a

83
00:04:23,490 --> 00:04:20,390
trajectory correction maneuver scheduled

84
00:04:26,320 --> 00:04:23,500
for December third and then in the

85
00:04:28,570 --> 00:04:26,330
shortly after that in the first week or

86
00:04:30,580 --> 00:04:28,580
two of december will start turning on

87
00:04:33,610 --> 00:04:30,590
all our science instruments the eight

88
00:04:35,380 --> 00:04:33,620

instruments so i won't get into any more

89
00:04:37,360 --> 00:04:35,390
detail because we're still going through

90
00:04:39,640 --> 00:04:37,370
a scrub of the data but everything all

91
00:04:42,010 --> 00:04:39,650
the reports are that everything is

92
00:04:44,830 --> 00:04:42,020
nominal at this point and we were able

93
00:04:47,920 --> 00:04:44,840
to send up our first command so so far

94
00:04:51,159 --> 00:04:47,930
so good on that front but again what a

95
00:04:53,020 --> 00:04:51,169
day I will Bruce going to talk more

96
00:04:58,240 --> 00:04:53,030
about the the spacecraft teaming but

97
00:05:00,430 --> 00:04:58,250
from ula and KSC LSP and the US Air

98
00:05:03,879 --> 00:05:00,440
Force supporting us to get us the safe

99
00:05:04,420 --> 00:05:03,889
ride in and drop us off just over 52

100
00:05:06,340 --> 00:05:04,430
minutes

101
00:05:09,040 --> 00:05:06,350
launched you know again after 10 year

102
00:05:11,200 --> 00:05:09,050
ride and then to get to that point what

103
00:05:13,840 --> 00:05:11,210
you know thank the team thank you all

104
00:05:15,390 --> 00:05:13,850
for getting us to this point and first

105
00:05:17,860 --> 00:05:15,400
and I have been saying this for years

106
00:05:19,690 --> 00:05:17,870
will never claim success until we're at

107
00:05:22,330 --> 00:05:19,700
Mars getting the data getting the

108
00:05:23,890 --> 00:05:22,340
science data so we've got this really is

109
00:05:27,850 --> 00:05:23,900
just the beginning of the journey to get

110
00:05:29,770 --> 00:05:27,860
to Mars now but just just so happy about

111
00:05:32,200 --> 00:05:29,780
it and I just want to say safe travels

112
00:05:35,110 --> 00:05:32,210
maven and we're with you all the way so

113
00:05:37,300 --> 00:05:35,120

thank you all thank you David and now to

114
00:05:39,130 --> 00:05:37,310
Bruce jakosky the maven principal

115
00:05:41,290 --> 00:05:39,140
investigator from the laboratory for

116
00:05:43,630 --> 00:05:41,300
atmospheric and space physics at the

117
00:05:47,230 --> 00:05:43,640
University of Colorado at Boulder ruse

118
00:05:50,050 --> 00:05:47,240
thanks George as Dave said after 10

119
00:05:53,020 --> 00:05:50,060
years of doing this I don't have the

120
00:05:55,750 --> 00:05:53,030
words to describe what I'm feeling it's

121
00:05:57,850 --> 00:05:55,760
every possible emotion that they're all

122
00:06:00,100 --> 00:05:57,860
positive this is this is about the most

123
00:06:02,680 --> 00:06:00,110
exciting thing I can happen I can

124
00:06:05,890 --> 00:06:02,690
imagine happening and this day has been

125
00:06:08,680 --> 00:06:05,900
picture-perfect from beginning to end I

126
00:06:11,290 --> 00:06:08,690
I do want to talk about the team because

127
00:06:15,010 --> 00:06:11,300
it's the people who got us here the the

128
00:06:18,040 --> 00:06:15,020
spacecraft science side of the house

129
00:06:21,220 --> 00:06:18,050
includes five major institutions the

130
00:06:23,380 --> 00:06:21,230
university of colorado at boulder NASA's

131
00:06:25,740 --> 00:06:23,390
Goddard Space Flight Center the

132
00:06:28,120 --> 00:06:25,750
University of California at Berkeley

133
00:06:30,910 --> 00:06:28,130
Lockheed Martin who provided the

134
00:06:33,790 --> 00:06:30,920
spacecraft and the ops and NASA's Jet

135
00:06:35,680 --> 00:06:33,800
Propulsion lab and I have to say it's

136
00:06:37,780 --> 00:06:35,690
been an incredible delight working with

137
00:06:40,300 --> 00:06:37,790
each and every person from those

138
00:06:43,060 --> 00:06:40,310

institutions I think that we've managed

139
00:06:44,490 --> 00:06:43,070
to work together as a team in a way that

140
00:06:46,930 --> 00:06:44,500
I never would have imagined possible

141
00:06:49,240 --> 00:06:46,940
especially from some of the stories you

142
00:06:52,630 --> 00:06:49,250
hear told around the water cooler this

143
00:06:57,370 --> 00:06:52,640
has been a wonderful experience I take

144
00:06:59,110 --> 00:06:57,380
tremendous pride in in the team for what

145
00:07:02,470 --> 00:06:59,120
they've been able to do to bring the

146
00:07:05,350 --> 00:07:02,480
instruments the science the spacecraft

147
00:07:09,400 --> 00:07:05,360
together and give us a spacecraft that's

148
00:07:11,290 --> 00:07:09,410
on its way to Mars in addition to to the

149
00:07:13,600 --> 00:07:11,300
pride in the team I also want to take

150
00:07:15,820 --> 00:07:13,610
this opportunity to thank our families

151
00:07:18,010 --> 00:07:15,830
and our friends because they put up with

152
00:07:21,460 --> 00:07:18,020
us for the last 10 years

153
00:07:25,119 --> 00:07:21,470
not showing up at family events having

154
00:07:27,399 --> 00:07:25,129
maven be the first priority much of the

155
00:07:31,540 --> 00:07:27,409
time for a lot of people the team

156
00:07:33,279 --> 00:07:31,550
members are absolutely committed to to

157
00:07:34,930 --> 00:07:33,289
making this work and it's just

158
00:07:38,830 --> 00:07:34,940
incredible to see that level of

159
00:07:41,230 --> 00:07:38,840
commitment and devotion and on behalf of

160
00:07:44,890 --> 00:07:41,240
them we really appreciate what the

161
00:07:47,680 --> 00:07:44,900
families have have let us do in going

162
00:07:51,999 --> 00:07:47,690
ahead and doing this as Dave said this

163
00:07:54,909 --> 00:07:52,009

is a really big milestone in the process

164
00:07:57,189 --> 00:07:54,919
it's really easy to get caught up in the

165
00:07:59,080 --> 00:07:57,199
events surrounding a launch and to think

166
00:08:01,089 --> 00:07:59,090
this is it this is the most important

167
00:08:03,430 --> 00:08:01,099
part of it but it's a milestone along

168
00:08:05,379 --> 00:08:03,440
the way we didn't propose to launch a

169
00:08:07,659 --> 00:08:05,389
spacecraft to Mars we propose to do

170
00:08:09,790 --> 00:08:07,669
science when we got to Mars we have a

171
00:08:12,610 --> 00:08:09,800
10-month cruise then we have another

172
00:08:14,589 --> 00:08:12,620
major event with orbit insertion we have

173
00:08:16,749 --> 00:08:14,599
to at that point commission the

174
00:08:18,550 --> 00:08:16,759
spacecraft check it out and only then

175
00:08:20,980 --> 00:08:18,560
can we start doing the science mission

176
00:08:22,779 --> 00:08:20,990
every step along the way has been

177
00:08:24,189 --> 00:08:22,789
incredibly exciting and it's going to

178
00:08:28,450 --> 00:08:24,199
stay that way I can tell that already

179
00:08:33,100 --> 00:08:28,460
and and the last thing hey guys we're

180
00:08:36,339 --> 00:08:33,110
going to Mars thank you George thanks

181
00:08:39,430 --> 00:08:36,349
Bruce now dr. Jim Green our director of

182
00:08:41,260 --> 00:08:39,440
planetary sciences at headquarters Jimbo

183
00:08:45,699 --> 00:08:41,270
well of course this is one of those days

184
00:08:49,350 --> 00:08:45,709
that you just can't stop smiling and in

185
00:08:52,240 --> 00:08:49,360
true NASA tradition the true

186
00:08:54,750 --> 00:08:52,250
understatement in the word that I love

187
00:08:58,960 --> 00:08:54,760
to hear is that everything is nominal

188
00:09:01,420 --> 00:08:58,970

and it is as as Dave mentioned that is

189
00:09:04,389 --> 00:09:01,430
so exciting for us to take that step and

190
00:09:06,910 --> 00:09:04,399
as Bruce mentioned it is enormous team

191
00:09:09,490 --> 00:09:06,920
effort but I want to mention it a little

192
00:09:13,810 --> 00:09:09,500
bit from a headquarters perspective of

193
00:09:16,030 --> 00:09:13,820
how well this group worked indeed they

194
00:09:18,130 --> 00:09:16,040
had tough proposal competition when

195
00:09:23,829 --> 00:09:18,140
maven was selected to move forward in

196
00:09:27,250 --> 00:09:23,839
our Mars Scout competition the team was

197
00:09:28,900 --> 00:09:27,260
a spectacular and obviously as Bruce

198
00:09:31,329 --> 00:09:28,910
mentioned because of the way they

199
00:09:31,810 --> 00:09:31,339
responded and really stepped up to the

200
00:09:35,200 --> 00:09:31,820
channel

201
00:09:37,410 --> 00:09:35,210
and the challenge of course is our

202
00:09:40,330 --> 00:09:37,420
planetary windows they're a blessing

203
00:09:43,780 --> 00:09:40,340
because I know they have to meet that

204
00:09:46,150 --> 00:09:43,790
but they're also a curse there is an

205
00:09:48,970 --> 00:09:46,160
enormous number of decisions that you

206
00:09:52,390 --> 00:09:48,980
don't see that have to be made along the

207
00:09:56,350 --> 00:09:52,400
way to be able to make that launch

208
00:09:59,890 --> 00:09:56,360
window and this team did that and the

209
00:10:02,380 --> 00:09:59,900
mission is all the better for it in

210
00:10:04,330 --> 00:10:02,390
addition to that another thing that from

211
00:10:06,850 --> 00:10:04,340
a NASA headquarters perspective i'm

212
00:10:12,490 --> 00:10:06,860
incredibly delighted about is that they

213
00:10:16,590 --> 00:10:12,500

did in under budget and so that really

214
00:10:19,570 --> 00:10:16,600
bodes well for the science the team is

215
00:10:22,270 --> 00:10:19,580
going to have an exciting venture as

216
00:10:25,720 --> 00:10:22,280
they go to Mars and and really be able

217
00:10:28,320 --> 00:10:25,730
to make some critical observations

218
00:10:30,450 --> 00:10:28,330
things that we've lacked in our

219
00:10:33,250 --> 00:10:30,460
understanding of the red planet and

220
00:10:35,920 --> 00:10:33,260
that's a step along the way of further

221
00:10:38,350 --> 00:10:35,930
exploration you know as Mars is our

222
00:10:40,450 --> 00:10:38,360
ultimate destination for humans we need

223
00:10:43,720 --> 00:10:40,460
to know everything about Mars that we

224
00:10:46,210 --> 00:10:43,730
can before humans go to Mars whether

225
00:10:48,250 --> 00:10:46,220
they're circling Mars in the tenuous

226
00:10:50,800 --> 00:10:48,260
atmosphere at the high altitudes that

227
00:10:52,450 --> 00:10:50,810
maven will also transition as it goes

228
00:10:54,580 --> 00:10:52,460
then plunging into the atmosphere

229
00:10:56,680 --> 00:10:54,590
through the honest firm back out in the

230
00:10:58,660 --> 00:10:56,690
solar wind and understand what that

231
00:11:01,960 --> 00:10:58,670
environments like but also eventually

232
00:11:04,180 --> 00:11:01,970
down on the ground and understand what's

233
00:11:07,090 --> 00:11:04,190
happened to this planet in terms of of

234
00:11:09,790 --> 00:11:07,100
the climate changes its history and how

235
00:11:12,610 --> 00:11:09,800
it interacts with the solar wind and the

236
00:11:15,220 --> 00:11:12,620
light from the Sun so it's a tremendous

237
00:11:18,310 --> 00:11:15,230
mission it's an important step along the

238
00:11:20,920 --> 00:11:18,320

way not only for science but in a deed

239
00:11:24,820 --> 00:11:20,930
for our long-term destination is boots

240
00:11:31,180 --> 00:11:24,830
on the ground for Mars in in hopefully

241
00:11:33,910 --> 00:11:31,190
our lifetime my lifetime so George now

242
00:11:35,590 --> 00:11:33,920
we're ready now to take questions what

243
00:11:38,260 --> 00:11:35,600
we'll do is take questions here first

244
00:11:40,690 --> 00:11:38,270
then we'll go to the phones if we have

245
00:11:43,480 --> 00:11:40,700
any on the phones and then social media

246
00:11:44,650 --> 00:11:43,490
are also invited to ask questions by

247
00:11:47,410 --> 00:11:44,660
going to hash

248
00:11:52,990 --> 00:11:47,420
a gash NASA so we'll begin first here in

249
00:11:55,090 --> 00:11:53,000
the front with Peter Peter King with CBS

250
00:11:59,379 --> 00:11:55,100
news radio and you're talking about

251
00:12:01,990 --> 00:11:59,389
everything being nominal now so moving

252
00:12:04,480 --> 00:12:02,000
this forward what are the next important

253
00:12:06,579 --> 00:12:04,490
steps in terms of finding out that

254
00:12:08,170 --> 00:12:06,589
everything on board is doing what it's

255
00:12:10,569 --> 00:12:08,180
supposed to do and I know it's a long

256
00:12:13,869 --> 00:12:10,579
shakedown cruise so you know maybe in

257
00:12:15,939 --> 00:12:13,879
the coming days weeks right so again

258
00:12:19,960 --> 00:12:15,949
will be will be turning on instruments

259
00:12:24,160 --> 00:12:19,970
in early early December so that that's

260
00:12:26,199 --> 00:12:24,170
an important point we there are some

261
00:12:28,300 --> 00:12:26,209
aspects that we won't know until we get

262
00:12:29,769 --> 00:12:28,310
to Mars that is the deployments so

263
00:12:31,119 --> 00:12:29,779

there's a lot of deployments that occur

264
00:12:34,150 --> 00:12:31,129
after we get into Mars orbit insertion

265
00:12:37,660 --> 00:12:34,160
so that'll take some time but certainly

266
00:12:40,329 --> 00:12:37,670
will have turned things on and made sure

267
00:12:43,420 --> 00:12:40,339
everything is is nominal are you know

268
00:12:45,129 --> 00:12:43,430
find out the condition so it's going to

269
00:12:47,079 --> 00:12:45,139
be a while but in the weeks to come

270
00:12:49,150 --> 00:12:47,089
we'll be turning on all systems and

271
00:12:55,120 --> 00:12:49,160
checking them all out short of

272
00:12:56,860 --> 00:12:55,130
deployments you do one by one or or do

273
00:12:59,499 --> 00:12:56,870
you turn on a whole bunch of things yeah

274
00:13:01,150 --> 00:12:59,509
we're you know we have ten months and we

275
00:13:03,129 --> 00:13:01,160
want to proceed methodically and if

276
00:13:04,569 --> 00:13:03,139
there's anything that pops up you want

277
00:13:06,990 --> 00:13:04,579
to you want to take them one at a time

278
00:13:09,309 --> 00:13:07,000
and not be working multiple issues so

279
00:13:11,079 --> 00:13:09,319
we've got a plan to approach every step

280
00:13:15,610 --> 00:13:11,089
although every step of the way as we get

281
00:13:17,980 --> 00:13:15,620
to Mars all right Darryl Darryl with Fox

282
00:13:20,620 --> 00:13:17,990
in Orlando how close was the weather

283
00:13:22,059 --> 00:13:20,630
call in this one we heard there was kind

284
00:13:23,769 --> 00:13:22,069
of in and out in terms of the green

285
00:13:26,280 --> 00:13:23,779
light how close together clouds were

286
00:13:29,319 --> 00:13:26,290
kind of approaching to yeah I mentioned

287
00:13:32,100 --> 00:13:29,329
it was a quiet countdown but that made

288
00:13:36,280 --> 00:13:32,110

it a little more interesting so it was

289
00:13:37,900 --> 00:13:36,290
we were we were getting hits along the

290
00:13:42,220 --> 00:13:37,910
way not lightning strikes or anything

291
00:13:43,840 --> 00:13:42,230
like that but the measurement systems at

292
00:13:47,350 --> 00:13:43,850
the base where we're getting certain um

293
00:13:48,400 --> 00:13:47,360
charged levels that would be right for a

294
00:13:51,910 --> 00:13:48,410
condition that we wouldn't want to

295
00:13:53,860 --> 00:13:51,920
launch so they would get a hit per se

296
00:13:55,749 --> 00:13:53,870
and then they would say we're you know

297
00:13:57,170 --> 00:13:55,759
we're read for for the next 10 15

298
00:13:59,690 --> 00:13:57,180
minutes and then

299
00:14:03,170 --> 00:13:59,700
we'd come out of that and we're green so

300
00:14:05,720 --> 00:14:03,180
it happened a couple of times so yeah

301
00:14:07,430 --> 00:14:05,730
that kept me a little bit on my you know

302
00:14:10,190 --> 00:14:07,440
pins and needles a little bit because I

303
00:14:12,440 --> 00:14:10,200
sure hoped as we have really close to

304
00:14:14,840 --> 00:14:12,450
the liftoff that we didn't get a hit and

305
00:14:16,610 --> 00:14:14,850
it worked out it worked out fine but

306
00:14:19,340 --> 00:14:16,620
that was if anything that was the

307
00:14:24,140 --> 00:14:19,350
excitement today for me as far as going

308
00:14:26,240 --> 00:14:24,150
through the countdown Marsha she did

309
00:14:29,720 --> 00:14:26,250
press with two quick questions first for

310
00:14:31,460 --> 00:14:29,730
dr. Czajkowski were you outside watching

311
00:14:33,110 --> 00:14:31,470
this launch or were you inside I saw you

312
00:14:34,850 --> 00:14:33,120
being interviewed so close to lift off

313
00:14:36,890 --> 00:14:34,860

in and talk a little bit about your

314
00:14:40,010 --> 00:14:36,900
feelings like when you saw the rocket

315
00:14:42,500 --> 00:14:40,020
finally fly with your maven I was in the

316
00:14:45,140 --> 00:14:42,510
control room rather than outside I

317
00:14:48,890 --> 00:14:45,150
thought it was more important to be at

318
00:14:50,960 --> 00:14:48,900
the console and sitting next to Dave and

319
00:14:52,970 --> 00:14:50,970
next to our Observatory manager than to

320
00:14:59,030 --> 00:14:52,980
see it with photons going straight into

321
00:15:01,490 --> 00:14:59,040
my own eyeballs I I I will tell you that

322
00:15:03,470 --> 00:15:01,500
in the last I started to get nervous

323
00:15:05,240 --> 00:15:03,480
actually I started to get nervous when I

324
00:15:08,150 --> 00:15:05,250
came back from the interview with George

325
00:15:09,800 --> 00:15:08,160
that's in the he has a little booth in

326
00:15:12,170 --> 00:15:09,810
the control room about 20 feet from

327
00:15:14,000 --> 00:15:12,180
where I was sitting and when I came back

328
00:15:18,230 --> 00:15:14,010
from that and looked at the clock it was

329
00:15:21,530 --> 00:15:18,240
about 45 minutes and I was getting a

330
00:15:24,410 --> 00:15:21,540
little bit well the word anxiety comes

331
00:15:27,080 --> 00:15:24,420
to mind I think in the last 10 seconds

332
00:15:30,830 --> 00:15:27,090
before launch 10 or 15 seconds I was

333
00:15:33,500 --> 00:15:30,840
shaking you know I can describe the

334
00:15:35,000 --> 00:15:33,510
physical symptoms the words on the

335
00:15:37,310 --> 00:15:35,010
emotion just aren't there because it was

336
00:15:40,820 --> 00:15:37,320
all across the board I've been

337
00:15:45,890 --> 00:15:40,830
incredibly nervous for the last 10 years

338
00:15:48,710 --> 00:15:45,900

I know that I know that we do lose

339
00:15:51,860 --> 00:15:48,720
spacecraft on launch not every launch

340
00:15:56,330 --> 00:15:51,870
goes smoothly and in fact that's the

341
00:15:59,510 --> 00:15:56,340
single biggest potential opportunity to

342
00:16:01,850 --> 00:15:59,520
lose the mission so getting past this

343
00:16:03,860 --> 00:16:01,860
hurdle is a really big one now we get to

344
00:16:05,930 --> 00:16:03,870
the next hurdle where we have potential

345
00:16:09,410 --> 00:16:05,940
to lose the mission which will be Mars

346
00:16:10,470 --> 00:16:09,420
orbit insertion in another question for

347
00:16:12,689 --> 00:16:10,480
you I know that the

348
00:16:15,629 --> 00:16:12,699
violet spectrograph is going to want to

349
00:16:18,389 --> 00:16:15,639
take a take a look at the comet ison can

350
00:16:20,370 --> 00:16:18,399
is there any possibility of that going

351
00:16:22,710 --> 00:16:20,380
on early before the other instruments to

352
00:16:25,500 --> 00:16:22,720
see the comet before it goes near the

353
00:16:28,410 --> 00:16:25,510
Sun or no do you have to wait we we have

354
00:16:32,460 --> 00:16:28,420
put plans in place to observe the comet

355
00:16:34,199 --> 00:16:32,470
from the I UVs instrument those depended

356
00:16:37,259 --> 00:16:34,209
on getting off early in our launch

357
00:16:39,180 --> 00:16:37,269
period which we've now done the the next

358
00:16:41,460 --> 00:16:39,190
major steps will be checking out the

359
00:16:43,889 --> 00:16:41,470
spacecraft in doing the first trajectory

360
00:16:47,160 --> 00:16:43,899
change maneuver which i think is

361
00:16:50,069 --> 00:16:47,170
December third now nominally December

362
00:16:51,930 --> 00:16:50,079
third and then we'll begin to turn on

363
00:16:54,420 --> 00:16:51,940

the instrument packages and we've got a

364
00:17:02,480 --> 00:16:54,430
block of time set aside if everything

365
00:17:09,929 --> 00:17:04,380
thanksgiving day is when it's going

366
00:17:13,289 --> 00:17:09,939
close to the Sun so what okay Jim tells

367
00:17:16,460 --> 00:17:13,299
me closest approaches Thanksgiving we're

368
00:17:20,100 --> 00:17:16,470
looking at I think the second week of

369
00:17:21,929 --> 00:17:20,110
December more or less if things go

370
00:17:23,850 --> 00:17:21,939
smoothly it's not a commitment it

371
00:17:27,059 --> 00:17:23,860
depends on how things go over the next

372
00:17:29,610 --> 00:17:27,069
two to three weeks okay additional

373
00:17:34,740 --> 00:17:29,620
questions over here let's go back in the

374
00:17:37,320 --> 00:17:34,750
back here there any green of WM fe in

375
00:17:39,299 --> 00:17:37,330
orlando i was wondering if the mavens

376
00:17:42,860 --> 00:17:39,309
mission is to help us understand

377
00:17:45,630 --> 00:17:42,870
atmospheric and climate changes on Mars

378
00:17:49,320 --> 00:17:45,640
how will this mission help us understand

379
00:17:52,770 --> 00:17:49,330
climate change on earth the process is

380
00:17:54,740 --> 00:17:52,780
the physics is the same how energy from

381
00:17:59,400 --> 00:17:54,750
the Sun interacts with the atmosphere

382
00:18:00,900 --> 00:17:59,410
what it does the the chemical processes

383
00:18:03,180 --> 00:18:00,910
the physical processes but it's

384
00:18:05,549 --> 00:18:03,190
different boundary conditions so by

385
00:18:07,830 --> 00:18:05,559
looking at Mars we do understand the

386
00:18:11,850 --> 00:18:07,840
processes better and we can apply it

387
00:18:14,280 --> 00:18:11,860
back to earth but the the real goal is

388
00:18:18,289 --> 00:18:14,290

to understand Mars if we get benefit

389
00:18:21,270 --> 00:18:18,299
back at the earth all the better James

390
00:18:23,789 --> 00:18:21,280
James Dean Florida today dr. Czajkowski

391
00:18:24,360 --> 00:18:23,799
perhaps just following up your comment a

392
00:18:27,330 --> 00:18:24,370
moment ago

393
00:18:29,250 --> 00:18:27,340
a couple years ago the buzz phrase

394
00:18:32,730 --> 00:18:29,260
around MSL was seven minutes of terror

395
00:18:35,310 --> 00:18:32,740
everyone remembers we don't have that

396
00:18:37,470 --> 00:18:35,320
dramatic landing sequence this time but

397
00:18:39,240 --> 00:18:37,480
I'm sure you don't take orbit insertion

398
00:18:42,570 --> 00:18:39,250
for granted you do to any of you to

399
00:18:45,900 --> 00:18:42,580
discuss how difficult that is is there a

400
00:18:47,220 --> 00:18:45,910
minute or two of terror or something

401
00:18:49,350 --> 00:18:47,230
that you'll kind of trying to focus

402
00:18:54,560 --> 00:18:49,360
people's attention on at that time well

403
00:19:02,280 --> 00:18:59,130
they there is there is no point at which

404
00:19:04,470 --> 00:19:02,290
you know it's occurred safely until it's

405
00:19:06,570 --> 00:19:04,480
occurred safely and we're going to be

406
00:19:08,160 --> 00:19:06,580
spending a lot of time between now and

407
00:19:10,290 --> 00:19:08,170
orbit and search and making sure that

408
00:19:16,230 --> 00:19:10,300
we're ready for it that everything is on

409
00:19:18,090 --> 00:19:16,240
track yeah i Ken Kramer for universe

410
00:19:19,740 --> 00:19:18,100
today in rocket stem I had a similar

411
00:19:21,270 --> 00:19:19,750
question about the orbit insertion if

412
00:19:22,620 --> 00:19:21,280
there's anything you can add about what

413
00:19:24,870 --> 00:19:22,630

you're going to do to prepare and just

414
00:19:28,140 --> 00:19:24,880
described that orbit insertion then I

415
00:19:30,630 --> 00:19:28,150
get a follow-up right so getting back to

416
00:19:33,270 --> 00:19:30,640
to Bruce's common a minute ago there one

417
00:19:37,100 --> 00:19:33,280
thing I've got to say is the team that's

418
00:19:40,320 --> 00:19:37,110
comprises maven has done this before and

419
00:19:41,940 --> 00:19:40,330
we we ever Hurst and rehearsed with this

420
00:19:45,180 --> 00:19:41,950
group that's that's done it before so

421
00:19:47,669 --> 00:19:45,190
there's a for me there's a measure of I

422
00:19:50,580 --> 00:19:47,679
can I can sleep at night you know I mean

423
00:19:52,710 --> 00:19:50,590
you know I worried but I you know I feel

424
00:19:55,410 --> 00:19:52,720
confident in the rigor of testing that's

425
00:19:59,220 --> 00:19:55,420
been done but you know some of the

426
00:20:00,870 --> 00:19:59,230
testing early on will be demonstrating

427
00:20:04,500 --> 00:20:00,880
with some of the same engines will use

428
00:20:07,440 --> 00:20:04,510
for moi we'll be using for the

429
00:20:09,090 --> 00:20:07,450
trajectory correction maneuver so we'll

430
00:20:12,540 --> 00:20:09,100
be able to check those systems out and

431
00:20:15,750 --> 00:20:12,550
then as we're as we're flying to Mars we

432
00:20:17,430 --> 00:20:15,760
have not only the Lockheed Martin ops

433
00:20:19,740 --> 00:20:17,440
group we have the Goddard mission design

434
00:20:21,330 --> 00:20:19,750
group we have the JPL nav team and

435
00:20:24,210 --> 00:20:21,340
they're all checking each other's

436
00:20:25,950 --> 00:20:24,220
numbers so to speak so you you get a

437
00:20:27,390 --> 00:20:25,960
good bead on Mars and you're you're

438
00:20:29,820 --> 00:20:27,400

headed in the right direction and then

439
00:20:33,270 --> 00:20:29,830
you know getting getting close in then

440
00:20:36,430 --> 00:20:33,280
you'll do your your moi burn your Mars

441
00:20:39,790 --> 00:20:36,440
orbit insertion burn a few days out so

442
00:20:43,820 --> 00:20:39,800
there there's opportunity certainly to

443
00:20:45,290 --> 00:20:43,830
correct and deal with situation but I

444
00:20:47,840 --> 00:20:45,300
think with all the checking as we go

445
00:20:49,220 --> 00:20:47,850
along both with hardware with testing

446
00:20:50,690 --> 00:20:49,230
we've done already and then the double

447
00:20:53,810 --> 00:20:50,700
checking that the people are doing now

448
00:20:56,240 --> 00:20:53,820
as we fly to Mars we should be in a good

449
00:20:57,860 --> 00:20:56,250
position here that's what I want to know

450
00:21:00,350 --> 00:20:57,870
about the double check in and for Bruce

451
00:21:02,300 --> 00:21:00,360
now this is your first time as P I if I

452
00:21:03,470 --> 00:21:02,310
remember right before you're a team

453
00:21:06,280 --> 00:21:03,480
member and wonder if you could describe

454
00:21:08,330 --> 00:21:06,290
a little bit the huge difference in your

455
00:21:11,150 --> 00:21:08,340
responsibilities between being a team

456
00:21:17,270 --> 00:21:11,160
member being a PI and would you like to

457
00:21:19,760 --> 00:21:17,280
be a p.i again I i really recommend the

458
00:21:22,790 --> 00:21:19,770
experience it's just incredible the the

459
00:21:25,880 --> 00:21:22,800
ability to shape the mission the way I

460
00:21:28,700 --> 00:21:25,890
think it should be put together in terms

461
00:21:31,820 --> 00:21:28,710
of the science the instruments the team

462
00:21:34,120 --> 00:21:31,830
that's an incredible opportunity but

463
00:21:36,410 --> 00:21:34,130

it's also an incredible responsibility

464
00:21:38,750 --> 00:21:36,420
to make sure that everything fits

465
00:21:40,760 --> 00:21:38,760
together the the biggest role I've

466
00:21:42,890 --> 00:21:40,770
played in the last few years has been to

467
00:21:45,560 --> 00:21:42,900
sit in on every single meeting I could

468
00:21:47,600 --> 00:21:45,570
to make sure that nobody did anything

469
00:21:50,840 --> 00:21:47,610
that would inadvertently affect the

470
00:21:52,700 --> 00:21:50,850
science in a negative way to make sure

471
00:21:54,980 --> 00:21:52,710
that we're on track and we stay on track

472
00:21:56,630 --> 00:21:54,990
it's it's been the experience of a

473
00:22:00,730 --> 00:21:56,640
lifetime and there's no way I'll do it

474
00:22:04,580 --> 00:22:03,110
this is Frank morning with aviation we

475
00:22:07,370 --> 00:22:04,590
just to follow up on that a little bit

476
00:22:09,320 --> 00:22:07,380
Bruce Jim Green said that you came in

477
00:22:10,810 --> 00:22:09,330
under budget I wonder if you could tell

478
00:22:14,450 --> 00:22:10,820
us how you did that if you have any

479
00:22:16,160 --> 00:22:14,460
lessons learned or guidance for future p

480
00:22:22,010 --> 00:22:16,170
eyes into how to bring in a science

481
00:22:24,740 --> 00:22:22,020
mission that way I've got a four page

482
00:22:27,710 --> 00:22:24,750
list that I've been compiling of what I

483
00:22:29,930 --> 00:22:27,720
think we did right and the hard part is

484
00:22:32,870 --> 00:22:29,940
knowing which one of those really were

485
00:22:35,210 --> 00:22:32,880
the things that let us come in with full

486
00:22:37,160 --> 00:22:35,220
functionality on schedule on budget and

487
00:22:38,990 --> 00:22:37,170
which ones were the things that I just

488
00:22:41,390 --> 00:22:39,000

think we're important it's really hard

489
00:22:44,150 --> 00:22:41,400
to know what what actually was important

490
00:22:47,300 --> 00:22:44,160
but let me call out a few things the

491
00:22:50,480 --> 00:22:47,310
first is putting together a focused

492
00:22:55,820 --> 00:22:50,490
science mission and minimizing science

493
00:22:57,620 --> 00:22:55,830
creep and engineering creep the the the

494
00:22:59,840 --> 00:22:57,630
the potential to make it bigger because

495
00:23:01,730 --> 00:22:59,850
o we can just add this we can just add

496
00:23:05,180 --> 00:23:01,740
this let's make this a little bit better

497
00:23:08,390 --> 00:23:05,190
we stuck with the mission we propose the

498
00:23:12,050 --> 00:23:08,400
second is we went with teams that are

499
00:23:15,080 --> 00:23:12,060
very experienced at doing this Lockheed

500
00:23:18,140 --> 00:23:15,090
Martin on the spacecraft side has a

501
00:23:22,310 --> 00:23:18,150
tremendous heritage they have flown

502
00:23:23,870 --> 00:23:22,320
spacecraft at Mars and missions phases

503
00:23:26,510 --> 00:23:23,880
of missions that look a lot like what

504
00:23:29,090 --> 00:23:26,520
maven will be doing the science teams

505
00:23:31,550 --> 00:23:29,100
the instrument teams have all built

506
00:23:33,910 --> 00:23:31,560
instruments some of which are in fact

507
00:23:37,370 --> 00:23:33,920
identical to what we're flying on maven

508
00:23:42,920 --> 00:23:37,380
some of which are very strongly based on

509
00:23:45,260 --> 00:23:42,930
on clothes instruments the the nav team

510
00:23:47,050 --> 00:23:45,270
at JPL everybody's been through this and

511
00:23:52,280 --> 00:23:47,060
everybody works really well together

512
00:23:54,770 --> 00:23:52,290
these things help an awful lot okay

513
00:23:57,240 --> 00:23:54,780

further questions over here yes we have

514
00:24:00,370 --> 00:23:57,250
one right here

515
00:24:01,840 --> 00:24:00,380
jeff foust space review for Jim Green

516
00:24:04,300 --> 00:24:01,850
you mentioned they came in under budget

517
00:24:06,250 --> 00:24:04,310
you give miss about how much they came

518
00:24:07,960 --> 00:24:06,260
in under budget and does the project get

519
00:24:11,500 --> 00:24:07,970
to keep the youth use that money for

520
00:24:13,390 --> 00:24:11,510
science or other work well it's my

521
00:24:14,950 --> 00:24:13,400
projection that they'll be under we

522
00:24:17,440 --> 00:24:14,960
haven't paid all the bills you know it

523
00:24:20,590 --> 00:24:17,450
you know the the window had a

524
00:24:23,230 --> 00:24:20,600
contingency for which we had budgeted

525
00:24:28,240 --> 00:24:23,240
the entire window we use the earlier

526
00:24:30,010 --> 00:24:28,250
part of the window so in the long run we

527
00:24:31,960 --> 00:24:30,020
do anticipate that they'll be under

528
00:24:35,950 --> 00:24:31,970
budget they certainly will not exceed

529
00:24:38,860 --> 00:24:35,960
their 671 million dollar cap and and for

530
00:24:43,960 --> 00:24:38,870
that we're grateful for what will happen

531
00:24:46,030 --> 00:24:43,970
next of course is how that funding if

532
00:24:47,950 --> 00:24:46,040
there is any that's left will be used

533
00:24:52,090 --> 00:24:47,960
within the program itself it's part of

534
00:24:56,350 --> 00:24:52,100
the Mars program there's opportunities

535
00:24:58,420 --> 00:24:56,360
to enhance the science by as the data

536
00:24:59,920 --> 00:24:58,430
comes into the archive ensure that other

537
00:25:02,590 --> 00:24:59,930
scientists also join and have

538
00:25:04,360 --> 00:25:02,600

opportunities to analyze that data so

539
00:25:10,620 --> 00:25:04,370
there's just a variety of things for

540
00:25:18,490 --> 00:25:15,070
notes com how important is it to NASA's

541
00:25:21,310 --> 00:25:18,500
funding to go to a place as exciting as

542
00:25:23,650 --> 00:25:21,320
Mars as opposed to looking at maybe a

543
00:25:28,260 --> 00:25:23,660
comic coming by because of the culture

544
00:25:33,610 --> 00:25:31,420
well from my perspective you know we

545
00:25:36,430 --> 00:25:33,620
provide a variety of opportunities for

546
00:25:39,760 --> 00:25:36,440
our instrumentals to propose our

547
00:25:43,210 --> 00:25:39,770
principal investigators and of course

548
00:25:47,830 --> 00:25:43,220
when when we developed our last call we

549
00:25:50,860 --> 00:25:47,840
had no idea that a comet ison coming

550
00:25:54,400 --> 00:25:50,870
from the or cloud you know traveling a

551
00:25:58,000 --> 00:25:54,410
you know a a million years to get here

552
00:26:00,160 --> 00:25:58,010
was on its way so what we're doing of

553
00:26:04,270 --> 00:26:00,170
course is we're leveraging the assets

554
00:26:07,740 --> 00:26:04,280
that we have so ice on is probably the

555
00:26:09,250 --> 00:26:07,750
most examined comment from a NASA

556
00:26:12,010 --> 00:26:09,260
perspective than we

557
00:26:14,290 --> 00:26:12,020
ever done and the reason for that is

558
00:26:17,500 --> 00:26:14,300
we've used our assets at Mars to look at

559
00:26:20,020 --> 00:26:17,510
it it says it's past the earth and even

560
00:26:23,230 --> 00:26:20,030
before then we've used our telescopes at

561
00:26:27,550 --> 00:26:23,240
Earth will be you know like Hubble and

562
00:26:29,680 --> 00:26:27,560
Chandra and in Spitzer all all taking

563
00:26:31,930 --> 00:26:29,690

observations at wavelengths you can't

564
00:26:34,150 --> 00:26:31,940
get from the ground and then of course

565
00:26:36,490 --> 00:26:34,160
now is it's going closer and closer to

566
00:26:39,010 --> 00:26:36,500
the Sun it will be passing by mercury

567
00:26:41,350 --> 00:26:39,020
and we have messenger their messenger

568
00:26:43,720 --> 00:26:41,360
will take observations of it comets

569
00:26:46,180 --> 00:26:43,730
evolved from the time they start

570
00:26:48,610 --> 00:26:46,190
brightening until they go all the way

571
00:26:51,280 --> 00:26:48,620
around the Sun and go back out and and

572
00:26:53,500 --> 00:26:51,290
by having an leveraging these assets it

573
00:26:56,160 --> 00:26:53,510
really gives us that view that unique

574
00:26:59,440 --> 00:26:56,170
view that we couldn't get otherwise

575
00:27:01,930 --> 00:26:59,450
because of that we couldn't possibly put

576
00:27:04,750 --> 00:27:01,940
together a comma mission this one in

577
00:27:06,430 --> 00:27:04,760
particular this or cloud comment because

578
00:27:10,300 --> 00:27:06,440
we just didn't have enough time to do

579
00:27:12,790 --> 00:27:10,310
that but it is important for us to study

580
00:27:17,080 --> 00:27:12,800
it in many different ways and and as

581
00:27:18,880 --> 00:27:17,090
Bruce mentioned hopefully that will have

582
00:27:20,320 --> 00:27:18,890
a null have an opportunity to take a

583
00:27:22,600 --> 00:27:20,330
look at it and it will make unique

584
00:27:25,750 --> 00:27:22,610
measurements and and perhaps aid them in

585
00:27:29,110 --> 00:27:25,760
their calibration even as they as they

586
00:27:31,390 --> 00:27:29,120
make those measurements and and and and

587
00:27:34,720 --> 00:27:31,400
put them also in the archive for all the

588
00:27:38,140 --> 00:27:34,730

other scientists analyzed I also would

589
00:27:41,770 --> 00:27:38,150
like to do a quick go back if I made a

590
00:27:43,810 --> 00:27:41,780
Frank's question because in in running

591
00:27:47,020 --> 00:27:43,820
through my list of institutions I left

592
00:27:49,630 --> 00:27:47,030
off a really important one that they

593
00:27:51,580 --> 00:27:49,640
contributed in a significant way to the

594
00:27:54,400 --> 00:27:51,590
success and that's Goddard Space Flight

595
00:27:57,010 --> 00:27:54,410
Center we had incredible support from

596
00:27:59,620 --> 00:27:57,020
them top to bottom from the center

597
00:28:02,410 --> 00:27:59,630
director down through all the the

598
00:28:05,980 --> 00:28:02,420
individuals we had outstanding people

599
00:28:07,630 --> 00:28:05,990
working in the project office and again

600
00:28:10,330 --> 00:28:07,640
it was just a delight working with them

601
00:28:13,660 --> 00:28:10,340
and that's a significant part of how he

602
00:28:15,880 --> 00:28:13,670
came in where we did let's take a

603
00:28:18,130 --> 00:28:15,890
question right here Jason Ryan with

604
00:28:19,510 --> 00:28:18,140
Space Flight insider.com as David

605
00:28:22,180 --> 00:28:19,520
mentioned earlier it's been a long road

606
00:28:23,000 --> 00:28:22,190
it's been ten years he had NASA's Mars

607
00:28:25,520 --> 00:28:23,010
Scout Program

608
00:28:26,840 --> 00:28:25,530
had 17 other missions that were proposed

609
00:28:28,670 --> 00:28:26,850
and then of course Phoenix was another

610
00:28:30,290 --> 00:28:28,680
one that was selected under that and so

611
00:28:34,280 --> 00:28:30,300
you got selected under that and then we

612
00:28:36,050 --> 00:28:34,290
had the government shutdown so I guess

613
00:28:38,900 --> 00:28:36,060

this is emu either goes to David or

614
00:28:40,310 --> 00:28:38,910
Bruce you know when you saw the Atlas

615
00:28:41,840 --> 00:28:40,320
thundering off into the heavens you hear

616
00:28:44,570 --> 00:28:41,850
the car alarms going off around you know

617
00:28:46,760 --> 00:28:44,580
that you're on your way what did it feel

618
00:28:48,110 --> 00:28:46,770
like to have all that stuff you had to

619
00:28:49,730 --> 00:28:48,120
put it with over the past ten years off

620
00:28:51,560 --> 00:28:49,740
your shoulders in a way where they're

621
00:28:54,940 --> 00:28:51,570
just well it was it just one stress went

622
00:29:00,470 --> 00:28:54,950
to another stress what was like you try

623
00:29:03,860 --> 00:29:00,480
cloudy the government shutdown I mean

624
00:29:06,470 --> 00:29:03,870
that that was just one one thing yeah

625
00:29:09,620 --> 00:29:06,480
along the whole stretch there was many

626
00:29:11,120 --> 00:29:09,630
stressing points i'll say but it's it

627
00:29:13,480 --> 00:29:11,130
really was that's just the latest

628
00:29:15,860 --> 00:29:13,490
example of the resiliency of this team

629
00:29:18,620 --> 00:29:15,870
to overcome these kind of challenges

630
00:29:20,060 --> 00:29:18,630
it's been incredible so we were we were

631
00:29:23,390 --> 00:29:20,070
fortunately only shut down for two and a

632
00:29:27,320 --> 00:29:23,400
half days or so and we were brought back

633
00:29:29,360 --> 00:29:27,330
and so people just responded and and you

634
00:29:31,700 --> 00:29:29,370
know we added shifts it was kind of

635
00:29:34,130 --> 00:29:31,710
funny because you'd come to work whether

636
00:29:36,110 --> 00:29:34,140
it was that kennedy or a Goddard and a

637
00:29:37,910 --> 00:29:36,120
lot of the the rest of the center's were

638
00:29:41,210 --> 00:29:37,920

we're still shuddered in terms of the

639
00:29:43,190 --> 00:29:41,220
staffing so you were you're completely

640
00:29:45,650 --> 00:29:43,200
focused on maven and getting it to the

641
00:29:47,600 --> 00:29:45,660
launch pad you know there wasn't a lot

642
00:29:50,450 --> 00:29:47,610
of other you know meetings to go to or

643
00:29:52,880 --> 00:29:50,460
anything like that so it was but it

644
00:29:55,280 --> 00:29:52,890
really did show that the resiliency of

645
00:29:56,810 --> 00:29:55,290
this team and you know next you know

646
00:29:57,950 --> 00:29:56,820
here's the next challenge okay how are

647
00:29:59,930 --> 00:29:57,960
we going to do it how we going to deal

648
00:30:02,960 --> 00:29:59,940
with it and work through it so to your

649
00:30:07,340 --> 00:30:02,970
question about you know the feeling at

650
00:30:11,150 --> 00:30:07,350
launch I guess personally it's more I'm

651
00:30:13,160 --> 00:30:11,160
locked in and what you know AI was

652
00:30:15,260 --> 00:30:13,170
really locked in on the countdown and

653
00:30:17,480 --> 00:30:15,270
making sure you know everything I did

654
00:30:19,790 --> 00:30:17,490
that I was responsible for I did execute

655
00:30:21,620 --> 00:30:19,800
the right way and then I'm thinking

656
00:30:23,210 --> 00:30:21,630
about okay what's the next steps and

657
00:30:25,430 --> 00:30:23,220
what if there's a contingency or

658
00:30:28,190 --> 00:30:25,440
anything like that after separation and

659
00:30:29,900 --> 00:30:28,200
so far it's been clean but you know I do

660
00:30:32,360 --> 00:30:29,910
have a lot of comfort in that the team

661
00:30:35,030 --> 00:30:32,370
and the system that's been tested wrung

662
00:30:35,930 --> 00:30:35,040
out like you can't believe and the team

663
00:30:40,759 --> 00:30:35,940

that's

664
00:30:43,039 --> 00:30:40,769
know I felt good about that so I was

665
00:30:45,080 --> 00:30:43,049
okay and you know that I'm speaking from

666
00:30:47,720 --> 00:30:45,090
a spacecraft standpoint but the track

667
00:30:50,570 --> 00:30:47,730
record of the Atlas 5 gave me some

668
00:30:52,639 --> 00:30:50,580
confidence too so I was real happy that

669
00:30:55,369 --> 00:30:52,649
they had another string in their line of

670
00:30:58,639 --> 00:30:55,379
successes and and let me add something

671
00:31:00,440 --> 00:30:58,649
on top of that that when you sit and you

672
00:31:02,539 --> 00:31:00,450
rattle off all the different things

673
00:31:05,119 --> 00:31:02,549
we've faced over the last 10 years it

674
00:31:08,539 --> 00:31:05,129
sounds incredibly daunting but one of

675
00:31:10,639 --> 00:31:08,549
the the hallmarks of of this team really

676
00:31:12,830 --> 00:31:10,649
of any team that gets here is you have

677
00:31:15,590 --> 00:31:12,840
to do them one at a time you can't look

678
00:31:17,450 --> 00:31:15,600
ahead to the next challenge and forget

679
00:31:19,220 --> 00:31:17,460
the one you're working on but at the

680
00:31:21,639 --> 00:31:19,230
same time you can't focus so much on

681
00:31:26,990 --> 00:31:21,649
this one that you forget the next one

682
00:31:29,930 --> 00:31:27,000
but we faced it 11 milestone at a time

683
00:31:31,940 --> 00:31:29,940
one problem at a time and the team has

684
00:31:37,360 --> 00:31:31,950
been focused on each one all along that

685
00:31:45,379 --> 00:31:37,370
really helped questions now they asked

686
00:31:47,330 --> 00:31:45,389
hashtag ask NASA Mikaella horga the

687
00:31:51,169 --> 00:31:47,340
effects of solar winds on our own

688
00:31:53,509 --> 00:31:51,179

atmosphere over time I think we're

689
00:31:57,190 --> 00:31:53,519
seeing the same physical processes at

690
00:31:59,720 --> 00:31:57,200
the earth that operate at Mars and the

691
00:32:01,310 --> 00:31:59,730
escape that is happening at Mars some of

692
00:32:03,350 --> 00:32:01,320
that does happen at Earth and we'll be

693
00:32:06,350 --> 00:32:03,360
able to understand it so I'm hoping

694
00:32:08,419 --> 00:32:06,360
there will be some crossover but our

695
00:32:10,970 --> 00:32:08,429
first priority is really understanding

696
00:32:12,799 --> 00:32:10,980
Mars and we'll let some of the people on

697
00:32:15,680 --> 00:32:12,809
our team who crossover between the

698
00:32:19,700 --> 00:32:15,690
planets try to apply it to the earth I'm

699
00:32:21,440 --> 00:32:19,710
a Martian and that's quick next question

700
00:32:23,680 --> 00:32:21,450
also comes from Twitter it's the lone

701
00:32:26,600 --> 00:32:23,690
wanderer what kind of visual

702
00:32:29,869 --> 00:32:26,610
visualization of Mars ionosphere will we

703
00:32:32,450 --> 00:32:29,879
get through the data maven gathers we we

704
00:32:35,360 --> 00:32:32,460
have a significant effort going on in

705
00:32:37,009 --> 00:32:35,370
data visualization because as you might

706
00:32:39,139 --> 00:32:37,019
imagine when you're dealing with this

707
00:32:41,240 --> 00:32:39,149
type of data it's not images that come

708
00:32:43,909 --> 00:32:41,250
straight out of a camera so it's very

709
00:32:46,399 --> 00:32:43,919
hard to represent in a way that that

710
00:32:48,649 --> 00:32:46,409
even the science team can understand and

711
00:32:49,340 --> 00:32:48,659
we require bringing all the data from

712
00:32:52,070 --> 00:32:49,350
all the ins

713
00:32:54,770 --> 00:32:52,080

struments together really to get at our

714
00:32:57,260 --> 00:32:54,780
science results so visualization is an

715
00:32:59,450 --> 00:32:57,270
important part of it what I will say is

716
00:33:01,700 --> 00:32:59,460
that very early on will be using the

717
00:33:04,669 --> 00:33:01,710
imaging ultraviolet spectrograph which

718
00:33:06,650 --> 00:33:04,679
has the word imaging in its title to

719
00:33:08,659 --> 00:33:06,660
provide images of the planet there'll be

720
00:33:11,060 --> 00:33:08,669
images of the composition of the

721
00:33:14,960 --> 00:33:11,070
atmosphere so it's very different from

722
00:33:17,419 --> 00:33:14,970
how you would interpret images of the

723
00:33:19,070 --> 00:33:17,429
geology of the surface but we hope to

724
00:33:23,810 --> 00:33:19,080
make that as exciting to everyone else

725
00:33:26,450 --> 00:33:23,820
as it is to us next one comes from Tyler

726
00:33:28,520 --> 00:33:26,460
Waldrop do you expect any further course

727
00:33:30,770 --> 00:33:28,530
correction is well in route to Mars

728
00:33:35,390 --> 00:33:30,780
orbit if so can you please elaborate

729
00:33:40,490 --> 00:33:35,400
sure we will definitely do well as a

730
00:33:43,010 --> 00:33:40,500
minimum will do for so it's it's a

731
00:33:45,440 --> 00:33:43,020
matter of we're not aiming directly at

732
00:33:48,169 --> 00:33:45,450
Mars for planetary protection purposes

733
00:33:50,899 --> 00:33:48,179
particularly with the Centaur stage and

734
00:33:53,750 --> 00:33:50,909
so we're slightly off of that so we'll

735
00:33:57,020 --> 00:33:53,760
do for the spacecraft not the Centaur

736
00:33:59,779 --> 00:33:57,030
will do an initial trajectory correction

737
00:34:02,510 --> 00:33:59,789
maneuver in in early December and then

738
00:34:04,159 --> 00:34:02,520

we'll keep you know we'll look at that

739
00:34:07,130 --> 00:34:04,169
data as we're flying in the very last

740
00:34:10,040 --> 00:34:07,140
one non contingency type one is in

741
00:34:12,710 --> 00:34:10,050
September the fourth one so as we are

742
00:34:15,349 --> 00:34:12,720
flying there as I mentioned of the folks

743
00:34:17,180 --> 00:34:15,359
in lucky Martin Denver the folks at

744
00:34:21,320 --> 00:34:17,190
Goddard we mission design and folks at

745
00:34:23,629 --> 00:34:21,330
the nav Center at JPL are checking

746
00:34:25,460 --> 00:34:23,639
checking the data and seeing you know

747
00:34:27,889 --> 00:34:25,470
how much more is the next correction

748
00:34:29,450 --> 00:34:27,899
need to what do we need to do with the

749
00:34:33,830 --> 00:34:29,460
next correction so there'll be a series

750
00:34:38,840 --> 00:34:33,840
we were very methodical careful and do

751
00:34:41,570 --> 00:34:38,850
it over time get another one from the

752
00:34:45,970 --> 00:34:41,580
physics story how it may even enhanced

753
00:34:51,320 --> 00:34:49,070
well named in a course is going to make

754
00:34:53,419 --> 00:34:51,330
some fabulous measurements at the top of

755
00:34:55,940 --> 00:34:53,429
the atmosphere and when you look at what

756
00:34:57,829 --> 00:34:55,950
happens with curiosity sitting on the

757
00:35:00,320 --> 00:34:57,839
surface it's making measurements of the

758
00:35:02,060 --> 00:35:00,330
atmosphere at the bottom and so the

759
00:35:02,620 --> 00:35:02,070
correlation will be spectacular I

760
00:35:05,320 --> 00:35:02,630
believe

761
00:35:08,290 --> 00:35:05,330
we'll talk about the mixing and and the

762
00:35:11,890 --> 00:35:08,300
composition and and so there's a there's

763
00:35:15,390 --> 00:35:11,900

a rich set of information scientifically

764
00:35:18,340 --> 00:35:15,400
that I know will be pursued and in fact

765
00:35:21,450 --> 00:35:18,350
some of the same members are on both

766
00:35:23,860 --> 00:35:21,460
teams and it will which will naturally

767
00:35:27,790 --> 00:35:23,870
unlit self weld to make those

768
00:35:30,340 --> 00:35:27,800
correlations we got two more questions

769
00:35:32,830 --> 00:35:30,350
another one comes from Doug Foster how

770
00:35:36,060 --> 00:35:32,840
much power do the going solar panels

771
00:35:39,160 --> 00:35:36,070
produce let's see I want to say it out

772
00:35:42,550 --> 00:35:39,170
what is it 1200 yeah I was going to say

773
00:35:45,100 --> 00:35:42,560
a thousand it's about 1200 watts and our

774
00:35:46,720 --> 00:35:45,110
final question comes from Doug pool did

775
00:35:49,540 --> 00:35:46,730
the crew of the ISS watch the launch

776
00:35:54,370 --> 00:35:49,550
could they see it was it recorded and

777
00:35:57,340 --> 00:35:54,380
that's it so so I heard something about

778
00:35:59,800 --> 00:35:57,350
that in in the countdown I heard I heard

779
00:36:01,630 --> 00:35:59,810
something about it but I I don't know if

780
00:36:04,690 --> 00:36:01,640
anybody else on I don't know the answer

781
00:36:07,930 --> 00:36:04,700
to that you know yeah i heard they

782
00:36:12,990 --> 00:36:07,940
wished us well but i don't know if what

783
00:36:18,640 --> 00:36:15,910
all right we'll come back here for any

784
00:36:26,740 --> 00:36:18,650
last questions before we close out we're

785
00:36:29,020 --> 00:36:26,750
going to question in the back hey there

786
00:36:30,550 --> 00:36:29,030
afternoon guys congratulations Andy

787
00:36:32,140 --> 00:36:30,560
liechtenstein at the Avion newspaper at

788
00:36:34,270 --> 00:36:32,150

embry-riddle my question can be

789
00:36:35,560 --> 00:36:34,280
addressed to any of you three a lot of

790
00:36:37,270 --> 00:36:35,570
people I don't want to speak for anybody

791
00:36:38,800 --> 00:36:37,280
in particular of course but many people

792
00:36:40,870 --> 00:36:38,810
my generation are very excited about

793
00:36:42,400 --> 00:36:40,880
space travel obviously however there's

794
00:36:43,660 --> 00:36:42,410
an equal number that simply don't know

795
00:36:45,820 --> 00:36:43,670
what's out there and what you guys are

796
00:36:48,310 --> 00:36:45,830
up to so what's your message to the

797
00:36:52,110 --> 00:36:48,320
general public and why is this important

798
00:36:58,300 --> 00:36:56,080
in terms of a what we're doing to get

799
00:37:00,700 --> 00:36:58,310
the word out we were trying to have a

800
00:37:04,300 --> 00:37:00,710
vigorous program of outreach to the

801
00:37:07,600 --> 00:37:04,310
public we've we've done the usual things

802
00:37:09,850 --> 00:37:07,610
of having a very vigorous facebook and

803
00:37:11,200 --> 00:37:09,860
twitter presence we hope that we're

804
00:37:13,780 --> 00:37:11,210
getting the word out and the people are

805
00:37:15,520 --> 00:37:13,790
hearing about it for example we had over

806
00:37:18,640 --> 00:37:15,530
a hundred thousand people submit their

807
00:37:21,330 --> 00:37:18,650
names to go on a DVD that is on the

808
00:37:24,760 --> 00:37:21,340
spacecraft and route to Mars we had

809
00:37:27,610 --> 00:37:24,770
15,000 people submit entries to our

810
00:37:30,160 --> 00:37:27,620
haiku contest on a message to Mars and

811
00:37:32,920 --> 00:37:30,170
the winners of that contest are on the

812
00:37:37,630 --> 00:37:32,930
the same DVD not the winners the haikus

813
00:37:41,050 --> 00:37:37,640

are on the the are on the DVD headed to

814
00:37:44,740 --> 00:37:41,060
Mars we're trying to get the word out as

815
00:37:47,380 --> 00:37:44,750
much as possible in terms of a message

816
00:37:50,580 --> 00:37:47,390
to people we think this is exciting we

817
00:37:54,340 --> 00:37:50,590
think it's a valuable enterprise for

818
00:37:56,290 --> 00:37:54,350
NASA for the country and for society as

819
00:37:59,440 --> 00:37:56,300
a whole and we hope people are excited

820
00:38:01,270 --> 00:37:59,450
by it and if we're not able to get the

821
00:38:07,420 --> 00:38:01,280
word out please tell us how we can do

822
00:38:09,310 --> 00:38:07,430
better any further questions all right

823
00:38:11,110 --> 00:38:09,320
in that event that will conclude this

824
00:38:20,390 --> 00:38:11,120
briefing and conclude our launch