1
00:00:08,120 --> 00:00:06,980
good afternoon or good evening and

2
00:00:10,640 --> 00:00:08,130
welcome to NASA's Jet Propulsion

3
00:00:12,169 --> 00:00:10,650
Laboratory in Pasadena California we're

4
00:00:14,980 --> 00:00:12,179
very excited to give you yet another

5
00:00:18,170 --> 00:00:14,990
report of the Mars Curiosity rover and

6
00:00:19,849 --> 00:00:18,180
its activities for saw one let me

7
00:00:21,890 --> 00:00:19,859
introduce the panel that will talk to

8
00:00:24,170 --> 00:00:21,900
you today we have first of all Jennifer

9
00:00:26,420 --> 00:00:24,180
Trosper she's a Mars Science Laboratory

10
00:00:30,230 --> 00:00:26,430
mission manager she's with the Jet

11
00:00:31,970 --> 00:00:30,240
Propulsion Laboratory Michael Mahlon the

12
00:00:34,069 --> 00:00:31,980
principal investigator for the Mars

13
00:00:38,720 --> 00:00:34,079

descent imager and he's with male and

14
00:00:40,940 --> 00:00:38,730
space science systems in San Diego enjoy

15
00:00:42,319 --> 00:00:40,950
crisp the deputy project scientist for

16
00:00:43,670 --> 00:00:42,329
the Mars Science Laboratory mission

17
00:00:45,470 --> 00:00:43,680
she's also with the Jet Propulsion

18
00:00:49,760 --> 00:00:45,480
Laboratory and we will begin with

19
00:00:52,549 --> 00:00:49,770
Jennifer good morning it's morning on

20
00:00:55,430 --> 00:00:52,559
Mars it's all one and it's about 8am

21
00:00:58,430 --> 00:00:55,440
local solar time and the rover is just

22
00:01:01,520 --> 00:00:58,440
getting ready to wake up for its first

23
00:01:03,110 --> 00:01:01,530
day on a new place and before I talk

24
00:01:04,549 --> 00:01:03,120
about what the rover's doing today I

25
00:01:06,649 --> 00:01:04,559
actually want to give you a little

26
00:01:08,890 --> 00:01:06,659
insight into what the team is doing

27
00:01:12,440 --> 00:01:08,900
because I am just a representative of

28
00:01:15,440 --> 00:01:12,450
lots and lots of incredibly talented

29
00:01:17,480 --> 00:01:15,450
people who are busy doing a variety of

30
00:01:20,240 --> 00:01:17,490
things there's a group of people who is

31
00:01:23,149 --> 00:01:20,250
currently they're building the sequences

32
00:01:25,490 --> 00:01:23,159
that we're going to send to the rover in

33
00:01:28,310 --> 00:01:25,500
about two hours to tell it to execute

34
00:01:30,530 --> 00:01:28,320
our pre-planned saw one activities so

35
00:01:32,030 --> 00:01:30,540
they're busily looking at the times and

36
00:01:34,399 --> 00:01:32,040
making sure that we're uplinking the

37
00:01:36,740 --> 00:01:34,409
data at the right time we also have a

38
00:01:39,350 --> 00:01:36,750

team of people who've been busy in the

39
00:01:42,200 --> 00:01:39,360
surface MSA where we all of our downlink

40
00:01:44,060 --> 00:01:42,210
data comes down and the last time we

41
00:01:46,219 --> 00:01:44,070
talked to you we had about five megabits

42
00:01:48,859 --> 00:01:46,229
of data on the ground now we have about

43
00:01:50,749 --> 00:01:48,869
40 mega bits of data on the ground so we

44
00:01:52,639 --> 00:01:50,759
have some extraordinary stuff to talk

45
00:01:56,120 --> 00:01:52,649
about today that we got down from the

46
00:01:57,889 --> 00:01:56,130
rover's this morning pacific time so

47
00:02:01,039 --> 00:01:57,899
there are lots of people working hard

48
00:02:05,480 --> 00:02:01,049
and i think what's what's extremely

49
00:02:08,449 --> 00:02:05,490
exciting is that the rover is in this

50
00:02:12,020 --> 00:02:08,459
new place and is going to teach us about

51
00:02:13,400 --> 00:02:12,030
this new landing site and even though

52
00:02:15,950 --> 00:02:13,410
it's cool

53
00:02:19,040 --> 00:02:15,960
and crisp and earth has already risen

54
00:02:21,380 --> 00:02:19,050
like a star in the sky there at Mars the

55
00:02:23,120 --> 00:02:21,390
Sun is starting to rise and about 9 45

56
00:02:26,900 --> 00:02:23,130
local solar the rover is going to wake

57
00:02:28,640 --> 00:02:26,910
up which is about 5 45 p.m. today when

58
00:02:30,800 --> 00:02:28,650
the rover wakes up we're going to do to

59
00:02:32,870 --> 00:02:30,810
kind of two critical things today we're

60
00:02:35,360 --> 00:02:32,880
going to check out the high-gain antenna

61
00:02:37,070 --> 00:02:35,370
and i'll talk to you about that a little

62
00:02:39,290 --> 00:02:37,080
bit and we're also going to do some

63
00:02:41,060 --> 00:02:39,300

instrument health checks now the reason

64
00:02:43,220 --> 00:02:41,070
we want to check out the high-gain

65
00:02:46,100 --> 00:02:43,230
antenna is because we want to make sure

66
00:02:48,890 --> 00:02:46,110
we have as many communication links as

67
00:02:51,260 --> 00:02:48,900
possible and I want to start with a

68
00:02:53,270 --> 00:02:51,270
video that shows the deployment of the

69
00:02:56,960 --> 00:02:53,280
HDA so can you go ahead and roll that

70
00:02:59,180 --> 00:02:56,970
video and then I'll talk to the model so

71
00:03:00,950 --> 00:02:59,190
here you see the rover actually you see

72
00:03:02,870 --> 00:03:00,960
that the remote sensing mass is deployed

73
00:03:04,310 --> 00:03:02,880
which is not the current state of the

74
00:03:06,830 --> 00:03:04,320
vehicle but here you'll see when the

75
00:03:09,140 --> 00:03:06,840
pyro fires there's a spring release

76
00:03:11,210 --> 00:03:09,150
mechanism that goes which happened

77
00:03:15,230 --> 00:03:11,220
yesterday on Saul zero and then the HDA

78
00:03:17,180 --> 00:03:15,240
deploys and moves and points towards

79
00:03:19,790 --> 00:03:17,190
Earth so that's what we're doing this

80
00:03:21,949 --> 00:03:19,800
morning the if you go into the next

81
00:03:24,680 --> 00:03:21,959
slide I want to talk a little bit about

82
00:03:27,170 --> 00:03:24,690
the communications links that we have so

83
00:03:29,360 --> 00:03:27,180
there you can see earth and you can see

84
00:03:32,240 --> 00:03:29,370
the rover there on Mars and it's kind of

85
00:03:33,620 --> 00:03:32,250
like like when my husband and I lived in

86
00:03:35,840 --> 00:03:33,630
the Mojave Desert we like to have

87
00:03:37,760 --> 00:03:35,850
different cell phone carriers on each of

88
00:03:39,620 --> 00:03:37,770

our phones just in case somebody didn't

89
00:03:42,680 --> 00:03:39,630
have a tower in the area so it's sort of

90
00:03:44,780 --> 00:03:42,690
like how we have curiosity on Mars where

91
00:03:46,220 --> 00:03:44,790
we have a relay if you look you can see

92
00:03:49,250 --> 00:03:46,230
that we relay through the Odyssey

93
00:03:51,440 --> 00:03:49,260
orbiter and last night saw 0 in the

94
00:03:53,390 --> 00:03:51,450
afternoon we relayed through the Odyssey

95
00:03:55,190 --> 00:03:53,400
orbiter and we've also received another

96
00:03:57,890 --> 00:03:55,200
relay through the Odyssey orbiter early

97
00:04:00,500 --> 00:03:57,900
this morning Mars time we did receive a

98
00:04:02,810 --> 00:04:00,510
relay through the MRO orbiter early this

99
00:04:04,910 --> 00:04:02,820
morning Mars time and what we're still

100
00:04:08,000 --> 00:04:04,920
checking out is this direct to earth

101
00:04:10,190 --> 00:04:08,010
link on the rover that can be through

102
00:04:15,530 --> 00:04:10,200
one of two antennas so let me show you

103
00:04:17,870 --> 00:04:15,540
on the on the model we have a low gain

104
00:04:20,390 --> 00:04:17,880
antenna right here it's just a post and

105
00:04:23,150 --> 00:04:20,400
it's an omnidirectional antenna and as

106
00:04:25,219 --> 00:04:23,160
long as we have enough of a strong

107
00:04:27,020 --> 00:04:25,229
signal from the ground so we use the 70

108
00:04:28,970 --> 00:04:27,030
the 70 meter dishes with the

109
00:04:31,550 --> 00:04:28,980
strong transmitters we actually can up

110
00:04:33,890 --> 00:04:31,560
link to this antenna regardless of the

111
00:04:36,140 --> 00:04:33,900
orientation of the rover as long as

112
00:04:38,270 --> 00:04:36,150
Earth is above the horizon so this

113
00:04:40,790 --> 00:04:38,280

morning on saw one will send a command

114
00:04:42,320 --> 00:04:40,800
into the low gain antenna that command

115
00:04:45,260 --> 00:04:42,330
is going to start the activities for the

116
00:04:47,420 --> 00:04:45,270
day and one of the activities is going

117
00:04:50,870 --> 00:04:47,430
to be to deploy this high gain antenna

118
00:04:53,840 --> 00:04:50,880
and then as Earth Rises the high gain

119
00:04:56,360 --> 00:04:53,850
antenna based on our information about

120
00:04:58,640 --> 00:04:56,370
the clock angle of the rover which we

121
00:05:01,720 --> 00:04:58,650
believe to be about 112 degrees from

122
00:05:07,220 --> 00:05:01,730
north which is why i put the rover here

123
00:05:08,900 --> 00:05:07,230
if you assume that is north then this is

124
00:05:10,730 --> 00:05:08,910
this is about the orientation we think

125
00:05:13,220 --> 00:05:10,740
the rover is that the earth will rise

126
00:05:16,970 --> 00:05:13,230
the high gain antenna will track the

127
00:05:20,390 --> 00:05:16,980
earth from about 11 45 local solar today

128
00:05:22,190 --> 00:05:20,400
for about 75 minutes and if that all

129
00:05:24,380 --> 00:05:22,200
goes well then we will have established

130
00:05:27,350 --> 00:05:24,390
that we can send commands on our low

131
00:05:29,480 --> 00:05:27,360
gain antenna and that we can receive

132
00:05:30,860 --> 00:05:29,490
commands and also send data on our high

133
00:05:33,230 --> 00:05:30,870
gain antenna and so we will have

134
00:05:36,020 --> 00:05:33,240
confirmed that all of our communications

135
00:05:37,969 --> 00:05:36,030
links links work perfectly and that

136
00:05:40,070 --> 00:05:37,979
would be fantastic that's one of the

137
00:05:42,680 --> 00:05:40,080
main engineering objectives that we're

138
00:05:48,380 --> 00:05:42,690

trying out on the first few cells so if

139
00:05:50,480 --> 00:05:48,390
you go to the next slide um this is the

140
00:05:52,250 --> 00:05:50,490
front has cam image of Mount sharp and I

141
00:05:54,320 --> 00:05:52,260
believe joy is going to talk about this

142
00:05:57,170 --> 00:05:54,330
more so I'm not going to steal her

143
00:05:58,520 --> 00:05:57,180
thunder um but we'll talk about that a

144
00:06:03,170 --> 00:05:58,530
little bit more so go on to the next

145
00:06:05,180 --> 00:06:03,180
slide okay so I want to talk about the

146
00:06:08,029 --> 00:06:05,190
specific things today I talked will do

147
00:06:10,190 --> 00:06:08,039
the HDA deploy will track earth we're

148
00:06:12,620 --> 00:06:10,200
also going to exercise the red and the

149
00:06:15,620 --> 00:06:12,630
REMS instruments so as far as instrument

150
00:06:17,900 --> 00:06:15,630
health checks go we've we've used the

151
00:06:21,350 --> 00:06:17,910
Marty you saw the you'll see so Marty

152
00:06:23,090 --> 00:06:21,360
thumbnails we have also used the chemcam

153
00:06:26,779 --> 00:06:23,100
because we wanted to put it in its

154
00:06:29,450 --> 00:06:26,789
unsafe position on Sol 0 on saw one we

155
00:06:31,130 --> 00:06:29,460
will use the red and the rims and do

156
00:06:33,200 --> 00:06:31,140
their checkouts and then through the

157
00:06:37,490 --> 00:06:33,210
next few songs will we'll finish with

158
00:06:40,250 --> 00:06:37,500
the mastcam will also do the nav cam we

159
00:06:40,640 --> 00:06:40,260
will take an image of Molly and I want

160
00:06:43,580 --> 00:06:40,650
to talk

161
00:06:46,550 --> 00:06:43,590
the Selwyn Molly image today and then we

162
00:06:48,860 --> 00:06:46,560
will do Sam in a couple sauce so we'll

163
00:06:50,719 --> 00:06:48,870

talk about that but let's go to the next

164
00:06:52,969 --> 00:06:50,729
slide to talk about the Molly saw one

165
00:06:54,890 --> 00:06:52,979
image so another reason i put the rover

166
00:06:57,650 --> 00:06:54,900
in this configuration is because the

167
00:06:59,689 --> 00:06:57,660
robotic arm is still stowed but we are

168
00:07:02,150 --> 00:06:59,699
going to take an image with the Molly

169
00:07:04,640 --> 00:07:02,160
while the arm is stowed and what you see

170
00:07:07,249 --> 00:07:04,650
there is the field of view of the Molly

171
00:07:09,230 --> 00:07:07,259
while the arm is stowed and if you look

172
00:07:10,580 --> 00:07:09,240
at the orientation the clock angle of

173
00:07:13,370 --> 00:07:10,590
the rover at about a hundred and eleven

174
00:07:16,730 --> 00:07:13,380
hundred twelve degrees the molly is

175
00:07:19,279 --> 00:07:16,740
about 110 degrees facing this way so

176
00:07:21,800 --> 00:07:19,289
we're going to get an image almost

177
00:07:23,180 --> 00:07:21,810
directly north with a 15 degree field of

178
00:07:25,490 --> 00:07:23,190
view of the Molly image and we would

179
00:07:27,620 --> 00:07:25,500
expect that to come down in the saw 1pm

180
00:07:30,320 --> 00:07:27,630
pass this evening which will receive the

181
00:07:33,200 --> 00:07:30,330
data about midnight tonight so that's

182
00:07:37,250 --> 00:07:33,210
the exciting stuff for today if you go

183
00:07:39,409 --> 00:07:37,260
to the next image now you saw this this

184
00:07:42,740 --> 00:07:39,419
morning and we're gonna scroll down a

185
00:07:46,400 --> 00:07:42,750
little bit because we saw something else

186
00:07:49,129 --> 00:07:46,410
in this high-rise image later which we

187
00:07:52,310 --> 00:07:49,139
believe to be the heat shield which then

188
00:07:53,600 --> 00:07:52,320

leads me to introduce Mike Malin who's

189
00:07:55,390 --> 00:07:53,610
going to talk a little bit more about

190
00:07:59,960 --> 00:07:55,400
some other images of the heat shield

191
00:08:03,439 --> 00:07:59,970
Thank You Jennifer first of all I I feel

192
00:08:05,870 --> 00:08:03,449
sort of compelled to point out that this

193
00:08:08,149 --> 00:08:05,880
press conference is occurring 12 years

194
00:08:09,770 --> 00:08:08,159
and eight months after when I originally

195
00:08:12,469 --> 00:08:09,780
thought I'd be telling you about these

196
00:08:15,680 --> 00:08:12,479
types of images I had I had a camera

197
00:08:17,899 --> 00:08:15,690
that was going to do this then and this

198
00:08:21,529 --> 00:08:17,909
is the first time I have a chance to

199
00:08:24,500 --> 00:08:21,539
tell you about those images also 11

200
00:08:27,379 --> 00:08:24,510
years and eight months from today in the

201
00:08:30,439 --> 00:08:27,389
past ken agent and I were on this podium

202
00:08:32,540 --> 00:08:30,449
telling you about Gale Crater and why it

203
00:08:35,870 --> 00:08:32,550
would be a great place to go examine

204
00:08:40,010 --> 00:08:35,880
sedimentary rock on Mars so I'm very

205
00:08:42,529 --> 00:08:40,020
excited about being here with the here

206
00:08:45,590 --> 00:08:42,539
being unveil cuz you know I project

207
00:08:48,350 --> 00:08:45,600
myself out to the to the vehicle I think

208
00:08:49,819 --> 00:08:48,360
of myself as it's my surrogate but it's

209
00:08:52,790 --> 00:08:49,829
sort of like my student I've got to tell

210
00:08:54,290 --> 00:08:52,800
it what to do so I'm going to tell you a

211
00:08:58,040 --> 00:08:54,300
little bit about the Marty

212
00:09:00,170 --> 00:08:58,050
sent sequence you you may remember for

213
00:09:02,150 --> 00:09:00,180

those of you saw the briefing a couple

214
00:09:06,230 --> 00:09:02,160
days ago about the descent imaging

215
00:09:09,530 --> 00:09:06,240
system we take images for a very long

216
00:09:12,560 --> 00:09:09,540
period of time the edl took much shorter

217
00:09:16,040 --> 00:09:12,570
than had been the longest it could have

218
00:09:18,699 --> 00:09:16,050
taken it was only one hundred and well

219
00:09:21,230 --> 00:09:18,709
we took images for a hundred and

220
00:09:24,889 --> 00:09:21,240
fifty-eight seconds hundred fifty nine

221
00:09:27,220 --> 00:09:24,899
seconds and we take frames at about four

222
00:09:30,050 --> 00:09:27,230
frames a second so there are about 600

223
00:09:33,319 --> 00:09:30,060
660 images that we acquired while the

224
00:09:35,360 --> 00:09:33,329
vehicle was in the air and then we have

225
00:09:38,810 --> 00:09:35,370
a whole bunch of images that were taken

226
00:09:43,340 --> 00:09:38,820
after vehicle landed we were we sample

227
00:09:45,139 --> 00:09:43,350
those in a very widely separated time

228
00:09:47,540 --> 00:09:45,149
frame in order to to make sure we got

229
00:09:51,800 --> 00:09:47,550
everything so we got something like 12

230
00:09:54,440 --> 00:09:51,810
or 14 frames initially that were in the

231
00:09:56,990 --> 00:09:54,450
air and six frames thereafter then we

232
00:10:01,790 --> 00:09:57,000
started having the times and we ended up

233
00:10:06,350 --> 00:10:01,800
with about 220 ish frames that I'll show

234
00:10:09,380 --> 00:10:06,360
you in a in an animation later so the

235
00:10:13,400 --> 00:10:09,390
the sequence began with the camera

236
00:10:15,949 --> 00:10:13,410
turning on about six seconds before the

237
00:10:18,199 --> 00:10:15,959
heat shield jettison those images will

238
00:10:21,170 --> 00:10:18,209

be black but then we'll watch the heat

239
00:10:22,819 --> 00:10:21,180
shield fall away at four frames per

240
00:10:24,889 --> 00:10:22,829
second so we'll we'll see it in a very

241
00:10:26,630 --> 00:10:24,899
nice engine it's an engineering

242
00:10:28,730 --> 00:10:26,640
experiment just to watch it but the

243
00:10:31,250 --> 00:10:28,740
pictures are very pretty and so if I can

244
00:10:33,590 --> 00:10:31,260
have the first slide that's the heat

245
00:10:36,860 --> 00:10:33,600
shield looking as you look down at Mars

246
00:10:39,319 --> 00:10:36,870
and those are you see the big white

247
00:10:42,819 --> 00:10:39,329
patch is our calibration target which

248
00:10:46,250 --> 00:10:42,829
allows us to adjust the brightnesses

249
00:10:48,319 --> 00:10:46,260
it's a shame that we really can't

250
00:10:51,829 --> 00:10:48,329
reproduce the color for you really well

251
00:10:54,199 --> 00:10:51,839
right now but on these thumbnails there

252
00:10:57,040 --> 00:10:54,209
they're pretty highly compressed and

253
00:11:01,340 --> 00:10:57,050
they're very small the images are only a

254
00:11:03,319 --> 00:11:01,350
192 by 144 pixels across jpg compressed

255
00:11:06,110 --> 00:11:03,329
those of you are familiar with JPEG know

256
00:11:07,639 --> 00:11:06,120
you can really do pretty much damage to

257
00:11:09,920 --> 00:11:07,649
your pictures by doing two

258
00:11:11,749 --> 00:11:09,930
to kev aleikum press but we have a large

259
00:11:13,160 --> 00:11:11,759
we have a sequence of these images and

260
00:11:16,309 --> 00:11:13,170
you'll see those in the animation a

261
00:11:17,869 --> 00:11:16,319
little later but there you see the dune

262
00:11:19,309 --> 00:11:17,879
field and when the high-rent when the

263
00:11:21,799 --> 00:11:19,319

full resolution image comes back

264
00:11:24,410 --> 00:11:21,809
obviously up to the upper right corner

265
00:11:26,869 --> 00:11:24,420
of this image you will see the mound as

266
00:11:29,869 --> 00:11:26,879
you saw in the india in the has cam

267
00:11:31,749 --> 00:11:29,879
image so this image was taken about two

268
00:11:36,619 --> 00:11:31,759
minutes and 30 seconds from touchdown

269
00:11:39,139 --> 00:11:36,629
the the the heat shield was about 15

270
00:11:41,960 --> 00:11:39,149
meters away just a little over 50 feet

271
00:11:44,749 --> 00:11:41,970
and he killed about four and a half

272
00:11:46,220 --> 00:11:44,759
meters across to remind you so this is

273
00:11:48,109 --> 00:11:46,230
what it looked like as it was falling

274
00:11:50,660 --> 00:11:48,119
away and you can see that the highrise

275
00:11:52,309 --> 00:11:50,670
images certainly looks like this too so

276
00:11:55,850 --> 00:11:52,319
so clearly they capture the heat shield

277
00:11:57,769 --> 00:11:55,860
falling away the next single frame this

278
00:12:00,889 --> 00:11:57,779
is basically is sort of a mid altitude

279
00:12:03,559 --> 00:12:00,899
image and we don't have the exact height

280
00:12:05,629 --> 00:12:03,569
yet because we have yet to correlate our

281
00:12:08,900 --> 00:12:05,639
observations with the edl team's

282
00:12:11,749 --> 00:12:08,910
observations with the radar but as

283
00:12:14,900 --> 00:12:11,759
you'll see in the in the animation when

284
00:12:17,090 --> 00:12:14,910
I get to it we will see the vehicle sort

285
00:12:19,189 --> 00:12:17,100
of nodding up and down from the palace

286
00:12:23,689 --> 00:12:19,199
on the parachute and you'll see it makes

287
00:12:27,499 --> 00:12:23,699
some fairly major turns as it powers on

288
00:12:29,480 --> 00:12:27,509

the the main rocket main landing engines

289
00:12:31,249 --> 00:12:29,490
and this is just one we took sort of

290
00:12:33,439 --> 00:12:31,259
randomly in that sequence that showed

291
00:12:35,960 --> 00:12:33,449
craters shows the sand dunes so we're

292
00:12:38,619 --> 00:12:35,970
sort of in a position here of turning

293
00:12:41,509 --> 00:12:38,629
around and heading down for the landing

294
00:12:44,030 --> 00:12:41,519
this was taken about a minute 16 seconds

295
00:12:47,509 --> 00:12:44,040
into from descent from touchdown the

296
00:12:50,660 --> 00:12:47,519
next one is shows that we picked up some

297
00:12:52,819 --> 00:12:50,670
dust and when I'm narrating the

298
00:12:56,090 --> 00:12:52,829
animation and I'll use I'll try to

299
00:12:59,419 --> 00:12:56,100
reproduce the buzz aldrin comments from

300
00:13:01,100 --> 00:12:59,429
a lunar from Paul 11 but we picked up

301
00:13:03,590 --> 00:13:01,110
dust and this is the only one you're

302
00:13:05,359 --> 00:13:03,600
going to see really clearly so I so you

303
00:13:09,590 --> 00:13:05,369
can see this is the first image that

304
00:13:11,840 --> 00:13:09,600
showed us an image to taken the one half

305
00:13:14,179 --> 00:13:11,850
second earlier than this was not showing

306
00:13:15,679 --> 00:13:14,189
any dust movement and so the engines

307
00:13:20,500 --> 00:13:15,689
impinged on the surface at a very

308
00:13:23,500 --> 00:13:20,510
specific time this is about 20 meters

309
00:13:26,830 --> 00:13:23,510
above the surface probably and you can

310
00:13:29,620 --> 00:13:26,840
see it's it's it's elliptical it's not a

311
00:13:31,000 --> 00:13:29,630
it's not circular that's because the

312
00:13:35,340 --> 00:13:31,010
shape of the engines where the image

313
00:13:37,870 --> 00:13:35,350

engines are around the vehicle gave it a

314
00:13:40,990 --> 00:13:37,880
wider dispersion in one direction than

315
00:13:42,850 --> 00:13:41,000
another the next slide I think is just

316
00:13:46,570 --> 00:13:42,860
going to be a pictures that we took on

317
00:13:49,530 --> 00:13:46,580
the surface the exposure time for our

318
00:13:54,190 --> 00:13:49,540
images was very short nine tenths a

319
00:13:58,120 --> 00:13:54,200
point nine milliseconds so that's nine

320
00:13:59,620 --> 00:13:58,130
one nine ten thousandths of a second we

321
00:14:01,120 --> 00:13:59,630
did that because we were afraid that the

322
00:14:03,220 --> 00:14:01,130
vehicle would be vibrating and

323
00:14:06,160 --> 00:14:03,230
oscillating we need to stop the action

324
00:14:08,530 --> 00:14:06,170
and when we got on the surface we were

325
00:14:12,370 --> 00:14:08,540
in shadow you can see a strip of light

326
00:14:14,140 --> 00:14:12,380
which is shining through some materials

327
00:14:16,210 --> 00:14:14,150
you know the vehicle has a certain shape

328
00:14:18,220 --> 00:14:16,220
light was shining through that shape

329
00:14:20,560 --> 00:14:18,230
illuminating the surface so we do see

330
00:14:21,790 --> 00:14:20,570
lots of rocks on the surface that we can

331
00:14:24,540 --> 00:14:21,800
correlate with things and I'll talk a

332
00:14:26,740 --> 00:14:24,550
little bit about the correlation

333
00:14:27,670 --> 00:14:26,750
actually I should do it now because i'm

334
00:14:30,010 --> 00:14:27,680
going to show the video i'll probably

335
00:14:31,810 --> 00:14:30,020
stop with the video we actually know

336
00:14:33,910 --> 00:14:31,820
where the vehicle landed by matching

337
00:14:36,550 --> 00:14:33,920
features that we saw in the descent

338
00:14:41,380 --> 00:14:36,560

images to the high-rise mosaics that we

339
00:14:47,290 --> 00:14:41,390
had so landed it minus 4.5 8 95 degrees

340
00:14:53,680 --> 00:14:47,300
as 4.58 95 south 137 point 4 for 17 East

341
00:14:56,320 --> 00:14:53,690
it's oriented at North 114 East so we

342
00:15:00,120 --> 00:14:56,330
able to do that by matching features

343
00:15:02,680 --> 00:15:00,130
that we saw in the in the hazard cam

344
00:15:04,690 --> 00:15:02,690
tascam images with the features that we

345
00:15:07,050 --> 00:15:04,700
were seeing and also knowing the laser

346
00:15:10,600 --> 00:15:07,060
altimeter from Mars Global Surveyor

347
00:15:12,670 --> 00:15:10,610
geodetic network so we really have we

348
00:15:15,190 --> 00:15:12,680
pinned it down in these extremely low

349
00:15:18,160 --> 00:15:15,200
resolution images probably to about a

350
00:15:20,620 --> 00:15:18,170
meter which is much higher resolution

351
00:15:24,190 --> 00:15:20,630
that we can do with the with the with

352
00:15:28,000 --> 00:15:24,200
the overall network with the Mars for

353
00:15:29,740 --> 00:15:28,010
longitude latitude add in when we get

354
00:15:31,840 --> 00:15:29,750
the high resolution or the full frames

355
00:15:34,090 --> 00:15:31,850
back we should be able to tell where the

356
00:15:35,949 --> 00:15:34,100
vehicle is to within centimeters we

357
00:15:37,240 --> 00:15:35,959
really need to know it that well but we

358
00:15:39,639 --> 00:15:37,250
should be able we should be able to do

359
00:15:42,100 --> 00:15:39,649
that so I believe the next thing that

360
00:15:46,120 --> 00:15:42,110
should be queued up is the is the video

361
00:15:48,160 --> 00:15:46,130
I don't know what that was that looks

362
00:15:49,600 --> 00:15:48,170
just like dust blue or oh that's the

363
00:15:51,639 --> 00:15:49,610

wheel that's actually an engineering

364
00:15:52,960 --> 00:15:51,649
also that's the first image that the

365
00:15:56,290 --> 00:15:52,970
wheel showed up and so you see in the

366
00:15:58,329 --> 00:15:56,300
lower right corner that that's actually

367
00:16:00,160 --> 00:15:58,339
that's image is actually upside down you

368
00:16:03,040 --> 00:16:00,170
can't really tell that it is upside down

369
00:16:05,139 --> 00:16:03,050
because the wheels as we take the image

370
00:16:07,300 --> 00:16:05,149
is in the lower right corner so I

371
00:16:09,280 --> 00:16:07,310
usually flip everything so that the top

372
00:16:12,280 --> 00:16:09,290
of the camera is in the direction that

373
00:16:15,910 --> 00:16:12,290
the vehicle is facing so that's we watch

374
00:16:18,280 --> 00:16:15,920
the the wheels deploy it came in very

375
00:16:20,410 --> 00:16:18,290
quickly it came in very quickly when we

376
00:16:22,689 --> 00:16:20,420
touched out it moves a little bit out of

377
00:16:25,269 --> 00:16:22,699
the field of view because the weight of

378
00:16:27,999 --> 00:16:25,279
the vehicle on the wheel pushes it out a

379
00:16:29,650 --> 00:16:28,009
little so and it's a mark it's a

380
00:16:31,660 --> 00:16:29,660
yardstick we can use to measure where we

381
00:16:33,759 --> 00:16:31,670
are and obviously on the surface we

382
00:16:35,980 --> 00:16:33,769
could watch the tracks and do some

383
00:16:38,259 --> 00:16:35,990
science with that so I guess now we're

384
00:16:40,780 --> 00:16:38,269
ready to go with the video and it'll

385
00:16:42,610 --> 00:16:40,790
start with a stop on the on the heat

386
00:16:44,379 --> 00:16:42,620
shield and then I'll start moving so

387
00:16:46,929 --> 00:16:44,389
there they are moving away I call this

388
00:16:50,160 --> 00:16:46,939

stop action because it's a it's really

389
00:16:53,410 --> 00:16:50,170
individual frames we've done no no

390
00:16:55,809 --> 00:16:53,420
modification of the of the frames to get

391
00:16:57,579 --> 00:16:55,819
them to line up or anything you can see

392
00:17:01,240 --> 00:16:57,589
that it's it's basically facing to the

393
00:17:04,299 --> 00:17:01,250
top is to the east and the dunes have

394
00:17:08,770 --> 00:17:04,309
left the upper right part of it we're

395
00:17:11,049 --> 00:17:08,780
zooming around turning the sum of that

396
00:17:14,409 --> 00:17:11,059
large motion you just saw was probably

397
00:17:16,120 --> 00:17:14,419
the divert maneuver and now we're coming

398
00:17:20,079 --> 00:17:16,130
close to the surface there is a dust

399
00:17:23,939 --> 00:17:20,089
down at the surface and lots of us

400
00:17:26,319 --> 00:17:23,949
picking up a lot of dust Houston and

401
00:17:28,240 --> 00:17:26,329
it'll stop pretty much when we get to

402
00:17:30,060 --> 00:17:28,250
the surface see the wheels in the upper

403
00:17:43,370 --> 00:17:30,070
left there because it's the front left

404
00:17:49,740 --> 00:17:47,669
thank you very much I idea we I really

405
00:17:52,039 --> 00:17:49,750
hope you'll see the stick around at some

406
00:17:54,720 --> 00:17:52,049
point we'll get the full frames back and

407
00:17:57,120 --> 00:17:54,730
that will that's that video just be

408
00:17:59,220 --> 00:17:57,130
exquisite at full frame towards the end

409
00:18:03,029 --> 00:17:59,230
we'll be seeing things only a millimeter

410
00:18:05,549 --> 00:18:03,039
to across in the file frames and we'll

411
00:18:07,470 --> 00:18:05,559
be able to track the dust and get some

412
00:18:09,320 --> 00:18:07,480
idea of the velocity the impingement

413
00:18:12,029 --> 00:18:09,330

force of the plumes there's a lot of

414
00:18:14,930 --> 00:18:12,039
sort of exciting engineering and science

415
00:18:17,220 --> 00:18:14,940
we can pull out of the Marty and

416
00:18:22,769 --> 00:18:17,230
hopefully we'll get those bout out to

417
00:18:25,919 --> 00:18:22,779
you in the near future joy so I'm going

418
00:18:30,510 --> 00:18:25,929
to start with a video this is a video

419
00:18:32,639 --> 00:18:30,520
that was put together by Doug Ellison he

420
00:18:34,950 --> 00:18:32,649
used elevation data from high-resolution

421
00:18:37,350 --> 00:18:34,960
stereo camera that's on Mars Express

422
00:18:39,029 --> 00:18:37,360
together with image data from the

423
00:18:42,330 --> 00:18:39,039
context camera on Mars Reconnaissance

424
00:18:44,700 --> 00:18:42,340
Orbiter and color info from Viking and

425
00:18:46,560 --> 00:18:44,710
so you get to see where the ellipse is

426
00:18:48,750 --> 00:18:46,570
where we landed and if you were standing

427
00:18:51,659 --> 00:18:48,760
there looking around getting a nice

428
00:18:53,220 --> 00:18:51,669
panoramic view just all animated but it

429
00:18:57,000 --> 00:18:53,230
just nicely shows you going from Mount

430
00:18:59,610 --> 00:18:57,010
sharp and now looking at the rim as if

431
00:19:01,320 --> 00:18:59,620
you could pan around so eventually we'll

432
00:19:05,909 --> 00:19:01,330
get to do this with our own cameras but

433
00:19:08,220 --> 00:19:05,919
for now this is a very helpful tool to

434
00:19:10,860 --> 00:19:08,230
for scientists to get a feel for where

435
00:19:13,049 --> 00:19:10,870
they are and and what it is around them

436
00:19:15,539 --> 00:19:13,059
and then we put that into context now

437
00:19:18,600 --> 00:19:15,549
having just gotten this full resolution

438
00:19:20,760 --> 00:19:18,610

hazard camera which so fortunately is

439
00:19:23,789 --> 00:19:20,770
pointed right at Mount sharp so we can

440
00:19:25,889 --> 00:19:23,799
see that the top of it once again to

441
00:19:30,149 --> 00:19:25,899
remind you this is taller than any

442
00:19:31,740 --> 00:19:30,159
mountain in the lower 48 states so it's

443
00:19:35,460 --> 00:19:31,750
it's pretty spectacular we're currently

444
00:19:39,269 --> 00:19:35,470
when we look at Mount sharp that is 22

445
00:19:40,889 --> 00:19:39,279
kilometers away are actually it's 28

446
00:19:45,029 --> 00:19:40,899
kilometers in the direction of this

447
00:19:47,370 --> 00:19:45,039
camera and it's get that number wrong

448
00:19:47,869 --> 00:19:47,380
it's six and a half kilometers to Mount

449
00:19:51,589 --> 00:19:47,879
sharp

450
00:19:54,919 --> 00:19:51,599
it's will have a later view of the rim

451
00:19:59,719 --> 00:19:54,929
that's what's 22 kilometers directly

452
00:20:01,249 --> 00:19:59,729
away from us this is geometrically

453
00:20:03,499 --> 00:20:01,259
corrected so you've seen a lot of

454
00:20:04,879 --> 00:20:03,509
fisheye camera views from the hazard

455
00:20:08,359 --> 00:20:04,889
cameras and this one's straightened out

456
00:20:10,519 --> 00:20:08,369
so this has been corrected I we can see

457
00:20:13,399 --> 00:20:10,529
more clearly these little pebbles all

458
00:20:15,949 --> 00:20:13,409
over the ground we can see a little bit

459
00:20:19,789 --> 00:20:15,959
better than when we saw yesterday that

460
00:20:21,469 --> 00:20:19,799
it's very flat there we're not sure how

461
00:20:23,539 --> 00:20:21,479
easy it is going to be to scoop this

462
00:20:26,119 --> 00:20:23,549
this kind of material if we do end up

463
00:20:29,959 --> 00:20:26,129

trying to scoop it you can see that the

464
00:20:33,409 --> 00:20:29,969
wheels have not sunk into it and we were

465
00:20:36,259 --> 00:20:33,419
struck by how the size distribution of

466
00:20:38,359 --> 00:20:36,269
these pebbles is relatively in a

467
00:20:42,499 --> 00:20:38,369
restricted range about up to a few

468
00:20:44,809 --> 00:20:42,509
centimeters so with what catches your

469
00:20:48,199 --> 00:20:44,819
eye are the dark dunes that are piled up

470
00:20:50,599 --> 00:20:48,209
along the base of Mount sharp we have

471
00:20:52,759 --> 00:20:50,609
seen more detail in Mount sharp itself

472
00:20:55,069 --> 00:20:52,769
from the orbital images and so we we are

473
00:20:57,349 --> 00:20:55,079
looking forward to getting some other

474
00:20:59,209 --> 00:20:57,359
images like Molly and mastcam and

475
00:21:02,269 --> 00:20:59,219
driving over and getting a closer look

476
00:21:06,019 --> 00:21:02,279
but for now it's just very reassuring

477
00:21:08,599 --> 00:21:06,029
that we have in front of us we can drive

478
00:21:13,039 --> 00:21:08,609
there no obstacles for driving and we

479
00:21:17,629 --> 00:21:13,049
have the ultimate goal of the mission to

480
00:21:19,549 --> 00:21:17,639
eventually get over to Mount sharp also

481
00:21:21,289 --> 00:21:19,559
I think it's fun to see that you can see

482
00:21:22,909 --> 00:21:21,299
the silhouette the shadow of the rover

483
00:21:27,589 --> 00:21:22,919
in much sharper detail then you could

484
00:21:29,509 --> 00:21:27,599
yesterday and the next image first we

485
00:21:32,329 --> 00:21:29,519
have an animation of just showing you

486
00:21:37,099 --> 00:21:32,339
where the rear has cams are the field of

487
00:21:38,959 --> 00:21:37,109
view that they can see and then thank

488
00:21:40,789 --> 00:21:38,969

goodness we had dust covers which

489
00:21:42,769 --> 00:21:40,799
deployed because now we know there

490
00:21:45,889 --> 00:21:42,779
definitely was a lot of dust kicked up

491
00:21:49,909 --> 00:21:45,899
and so this is the full res view from

492
00:21:52,009 --> 00:21:49,919
the left rear has cam now with the dust

493
00:21:54,469 --> 00:21:52,019
cover removed and you can see the wheel

494
00:21:57,019 --> 00:21:54,479
of the rover and again very flat with

495
00:21:59,479 --> 00:21:57,029
these pebbles and no obstacles for

496
00:22:01,010 --> 00:21:59,489
driving so we'll be able to drive front

497
00:22:04,370 --> 00:22:01,020
or rear words

498
00:22:07,340 --> 00:22:04,380
and this from this vantage point looking

499
00:22:09,410 --> 00:22:07,350
to the rim of Gail it's the northwest

500
00:22:11,300 --> 00:22:09,420
rim that we're looking at and it's 28

501
00:22:13,940 --> 00:22:11,310
kilometers away from us in this

502
00:22:18,740 --> 00:22:13,950
direction so that's all I wanted to

503
00:22:21,590 --> 00:22:18,750
share all right we'll open it up to

504
00:22:23,570 --> 00:22:21,600
questions here at JPL and just wait for

505
00:22:24,860 --> 00:22:23,580
a microphone to come to you we're going

506
00:22:29,330 --> 00:22:24,870
to start over here and then go on that

507
00:22:30,770 --> 00:22:29,340
side right over here in the middle quick

508
00:22:33,020 --> 00:22:30,780
is it the front has cam it showed the

509
00:22:37,610 --> 00:22:33,030
picture of Mount sharp that's correct

510
00:22:41,660 --> 00:22:37,620
okay so it's facing mouth sharp yes okay

511
00:22:44,870 --> 00:22:41,670
then let's go to this side uh yeah wait

512
00:22:46,280 --> 00:22:44,880
for the okay go ahead Eric hi-yah Eric

513
00:22:47,690 --> 00:22:46,290

hang with nature quick question about

514
00:22:51,740 --> 00:22:47,700
this image right here it looks like

515
00:22:53,540 --> 00:22:51,750
there's a line below the crater rim is

516
00:22:55,400 --> 00:22:53,550
that an intermediate feature of some

517
00:23:00,020 --> 00:22:55,410
sort here I believe that's just the

518
00:23:02,330 --> 00:23:00,030
local horizon um Tim you want to chime

519
00:23:04,070 --> 00:23:02,340
in or am I gonna add to that I mean it's

520
00:23:06,260 --> 00:23:04,080
just it's the local arising that we're

521
00:23:08,870 --> 00:23:06,270
seeing then what's above it then then

522
00:23:11,750 --> 00:23:08,880
that's the rim of the crater that the

523
00:23:15,550 --> 00:23:11,760
wall of the crater behind it so you're

524
00:23:20,510 --> 00:23:15,560
seeing Tapani and you're just seeing

525
00:23:22,790 --> 00:23:20,520
this is a 120-degree fisheye view and

526
00:23:26,360 --> 00:23:22,800
you're seeing that the edge of the

527
00:23:28,430 --> 00:23:26,370
horizon is the first line that you see

528
00:23:30,680 --> 00:23:28,440
there but beyond that it's probably only

529
00:23:32,300 --> 00:23:30,690
a few hundred meters or closer but then

530
00:23:40,739 --> 00:23:32,310
way beyond that you're seeing the wall

531
00:23:46,690 --> 00:23:44,169
kelly BTW sky and telescope joy do you

532
00:23:50,009 --> 00:23:46,700
expect the hematite concretions the

533
00:23:53,200 --> 00:23:50,019
blueberries to be on this surface and

534
00:23:55,330 --> 00:23:53,210
does their presence or lack thereof tell

535
00:23:57,759 --> 00:23:55,340
you anything about how the deposition

536
00:24:00,549 --> 00:23:57,769
might have taken place inside Gale well

537
00:24:03,249 --> 00:24:00,559
from our orbital imagery on orbital data

538
00:24:06,849 --> 00:24:03,259

sets we're not expecting to find

539
00:24:08,919 --> 00:24:06,859
hematite berries they could be present

540
00:24:11,680 --> 00:24:08,929
at an abundance that we can't detect

541
00:24:14,649 --> 00:24:11,690
from orbit but basically you know

542
00:24:16,659 --> 00:24:14,659
meridiani was an unusual location on

543
00:24:20,889 --> 00:24:16,669
Mars where this hematite signature was

544
00:24:23,019 --> 00:24:20,899
seen from orbit and this is we weren't

545
00:24:28,239 --> 00:24:23,029
expecting to see that here we don't see

546
00:24:32,619 --> 00:24:28,249
highly rounded grains that we like we've

547
00:24:34,479 --> 00:24:32,629
seen with opportunity so we'll we'll

548
00:24:36,909 --> 00:24:34,489
find out when especially when we finally

549
00:24:38,200 --> 00:24:36,919
get a sample into chem in as to whether

550
00:24:39,789 --> 00:24:38,210
there's hematite now there could be

551
00:24:43,149 --> 00:24:39,799
hematite in the soil that's not in the

552
00:24:44,440 --> 00:24:43,159
same concretions forms so actually I'm

553
00:24:46,539 --> 00:24:44,450
going to take back a little bit of what

554
00:24:48,970 --> 00:24:46,549
I said there we would expect some

555
00:24:51,340 --> 00:24:48,980
hematite in the soil but not the hammock

556
00:24:57,129 --> 00:24:51,350
right hematite concretions necessarily

557
00:24:59,349 --> 00:24:57,139
or high abundances go ahead John John

558
00:25:00,849 --> 00:24:59,359
Johnson um I don't want to be a wet

559
00:25:03,430 --> 00:25:00,859
blanket or anything but I mean

560
00:25:05,169 --> 00:25:03,440
everything seems to have gone so perfect

561
00:25:06,849 --> 00:25:05,179
on this is there anything that hasn't

562
00:25:16,239 --> 00:25:06,859
gone right anything you're worried about

563
00:25:18,759 --> 00:25:16,249

right now no thank you I I'll add to

564
00:25:21,279 --> 00:25:18,769
that there are certainly a lot of things

565
00:25:23,649 --> 00:25:21,289
that have to continue to go right we

566
00:25:26,919 --> 00:25:23,659
have a fairly complicated transition

567
00:25:28,720 --> 00:25:26,929
from our what we call the r9 version of

568
00:25:30,999 --> 00:25:28,730
flight software to the new version that

569
00:25:32,830 --> 00:25:31,009
has some more surface capabilities as

570
00:25:34,840 --> 00:25:32,840
soon as we get our communications links

571
00:25:37,720 --> 00:25:34,850
checked out and all of the instruments

572
00:25:39,789 --> 00:25:37,730
to be just aliveness checks we're going

573
00:25:41,470 --> 00:25:39,799
to start on that transition around saw

574
00:25:43,720 --> 00:25:41,480
five and we're going to do that on both

575
00:25:45,639 --> 00:25:43,730
our CES and that's going to take about

576
00:25:47,499 --> 00:25:45,649
four Sol's in it and there's a lot of

577
00:25:50,589 --> 00:25:47,509
interaction between the ground and the

578
00:25:53,229 --> 00:25:50,599
vehicle during that and it's a fairly

579
00:25:53,950 --> 00:25:53,239
complicated activity so we have things

580
00:25:56,440 --> 00:25:53,960
and

581
00:25:59,500 --> 00:25:56,450
you'll note that we still haven't unced

582
00:26:01,120 --> 00:25:59,510
owed and deployed the arm and several

583
00:26:03,789 --> 00:26:01,130
things like that so there's a lot ahead

584
00:26:05,880 --> 00:26:03,799
of us but so far we are just ecstatic

585
00:26:07,720 --> 00:26:05,890
about the performance of the vehicle

586
00:26:09,700 --> 00:26:07,730
Jennifer could you tell us what the

587
00:26:13,690 --> 00:26:09,710
acronym rce is I don't know if you so

588
00:26:16,269 --> 00:26:13,700

that's the computer don't ask about our

589
00:26:20,440 --> 00:26:16,279
siiii just it's the computer okay okay

590
00:26:22,029 --> 00:26:20,450
hello you don't work yes okay sorry or

591
00:26:24,850 --> 00:26:22,039
you just lucky from Android space.com

592
00:26:26,529 --> 00:26:24,860
friends I would like to know a lot of

593
00:26:28,779 --> 00:26:26,539
been said about the dest on the solar

594
00:26:30,760 --> 00:26:28,789
panels of course curiosity that does not

595
00:26:34,049 --> 00:26:30,770
have this problem but dust can be a

596
00:26:36,519 --> 00:26:34,059
problem for the cameras could it be

597
00:26:39,340 --> 00:26:36,529
lowering the performances for example

598
00:26:41,769 --> 00:26:39,350
having destined the optics with wind

599
00:26:45,070 --> 00:26:41,779
blowing except around moss sure and we

600
00:26:47,649 --> 00:26:45,080
have experience with cameras went on

601
00:26:50,680 --> 00:26:47,659
like Spirit and Opportunity right which

602
00:26:52,539 --> 00:26:50,690
were even lower to the ground so our

603
00:26:54,820 --> 00:26:52,549
biggest fear was the dust kicked up

604
00:26:57,970 --> 00:26:54,830
during entry descent and landing that

605
00:27:00,430 --> 00:26:57,980
that would be a problem so we did

606
00:27:02,139 --> 00:27:00,440
install these covers on the hazard

607
00:27:07,299 --> 00:27:02,149
cameras which are the lowest to the

608
00:27:10,240 --> 00:27:07,309
ground with when with spirit an

609
00:27:13,659 --> 00:27:10,250
opportunity as time goes along the wind

610
00:27:17,320 --> 00:27:13,669
blows electrostatic charging conditions

611
00:27:19,149 --> 00:27:17,330
change so we've seen dust come and go

612
00:27:22,779 --> 00:27:19,159
and not just build up thicker and

613
00:27:25,659 --> 00:27:22,789

thicker so we expect to have similar

614
00:27:27,490 --> 00:27:25,669
behavior and hopefully better luck

615
00:27:30,399 --> 00:27:27,500
having the cameras higher up off the

616
00:27:34,930 --> 00:27:30,409
ground but it remains to be seen it it

617
00:27:36,610 --> 00:27:34,940
can be a concern okay we're going to the

618
00:27:39,340 --> 00:27:36,620
back of the room here gates there's the

619
00:27:42,730 --> 00:27:39,350
microphone thank you what can you tell

620
00:27:48,000 --> 00:27:42,740
us about the temperature and what the

621
00:27:54,610 --> 00:27:52,090
don't have any numbers from from do we

622
00:27:56,889 --> 00:27:54,620
have data from rims at this point we

623
00:28:00,580 --> 00:27:56,899
don't have data from the meteorological

624
00:28:03,730 --> 00:28:00,590
station the REMS station yet so all we

625
00:28:04,850 --> 00:28:03,740
would have would be predictions and I

626
00:28:07,760 --> 00:28:04,860
don't have those numbers

627
00:28:09,830 --> 00:28:07,770
we will get the REMS data tomorrow we'll

628
00:28:12,230 --> 00:28:09,840
get it early in the day and then I'll

629
00:28:14,030 --> 00:28:12,240
also get it at the landing time so that

630
00:28:22,580 --> 00:28:14,040
we can correlate with some of the solid

631
00:28:25,039 --> 00:28:22,590
0 information ok here in the middle so

632
00:28:26,870 --> 00:28:25,049
this might be a silly question but fruit

633
00:28:29,390 --> 00:28:26,880
I'm covering the the spirit opportunity

634
00:28:31,340 --> 00:28:29,400
when we wake up one of those Rovers back

635
00:28:33,169 --> 00:28:31,350
in two thousand four it would wake it up

636
00:28:34,520 --> 00:28:33,179
because it had to wait for the for the

637
00:28:36,650 --> 00:28:34,530
Sun to rise because those were solar

638
00:28:39,530 --> 00:28:36,660

powered right so and this is a nuclear

639
00:28:40,820 --> 00:28:39,540
powered Rover I thought so what's why is

640
00:28:41,870 --> 00:28:40,830
it why we just waking up like it

641
00:28:45,950 --> 00:28:41,880
shouldn't thing be running kind of

642
00:28:47,960 --> 00:28:45,960
around the clock or yeah um so yes we

643
00:28:50,390 --> 00:28:47,970
had a bit of a radioisotope

644
00:28:52,070 --> 00:28:50,400
thermoelectric generator the RTG which

645
00:28:54,500 --> 00:28:52,080
you can see here puts out about a

646
00:28:58,330 --> 00:28:54,510
hundred watts we also have a battery 80

647
00:29:01,610 --> 00:28:58,340
amp hours ish that stores energy however

648
00:29:04,250 --> 00:29:01,620
when we want to operate the vehicle it's

649
00:29:06,350 --> 00:29:04,260
a 135 watts or so so we can't actually

650
00:29:10,340 --> 00:29:06,360
operate the vehicle simply on the

651
00:29:13,070 --> 00:29:10,350
hundred Watts from the RTG so we when we

652
00:29:15,740 --> 00:29:13,080
power on the vehicle we start to deplete

653
00:29:17,539 --> 00:29:15,750
take energy from the battery and so we

654
00:29:20,590 --> 00:29:17,549
actually have to manage the batter in

655
00:29:22,940 --> 00:29:20,600
battery energy fairly well and and

656
00:29:25,130 --> 00:29:22,950
sleeping at night helps us do that we

657
00:29:27,140 --> 00:29:25,140
have survival heaters and additionally

658
00:29:28,760 --> 00:29:27,150
it's so cold at night there aren't that

659
00:29:31,480 --> 00:29:28,770
many things we can do without heating up

660
00:29:34,610 --> 00:29:31,490
actuators and using a lot of energy so

661
00:29:36,440 --> 00:29:34,620
the the RTG certainly helps but it

662
00:29:41,539 --> 00:29:36,450
doesn't keep us from having to manage

663
00:29:44,330 --> 00:29:41,549

the energy balance every saw Oh a

664
00:29:46,010 --> 00:29:44,340
nuclear power to go and the best

665
00:29:46,519 --> 00:29:46,020
explored during the room nighttime

666
00:29:49,799 --> 00:29:46,529
that's not

667
00:29:52,619 --> 00:29:49,809
we we still have to have and we have

668
00:29:54,960 --> 00:29:52,629
about 2000 and 80 watt hours that we can

669
00:29:57,450 --> 00:29:54,970
use every saw when you combine what the

670
00:29:59,519 --> 00:29:57,460
RTG puts out and kind of an energy

671
00:30:01,859 --> 00:29:59,529
balance with depleting the battery and

672
00:30:04,080 --> 00:30:01,869
recharging it completely now once we

673
00:30:06,779 --> 00:30:04,090
start to characterize the system we will

674
00:30:08,369 --> 00:30:06,789
potentially you know move that number up

675
00:30:09,930 --> 00:30:08,379
a little bit but but that's our

676
00:30:11,820 --> 00:30:09,940
constraint and so you have to plan

677
00:30:14,430 --> 00:30:11,830
things so you can stay up in the middle

678
00:30:16,739 --> 00:30:14,440
of the night and you can be up for a few

679
00:30:20,940 --> 00:30:16,749
hours but you still have to stay within

680
00:30:24,210 --> 00:30:20,950
your 2000 watt our constraint yeah okay

681
00:30:27,119 --> 00:30:24,220
Craig you had a question and then we're

682
00:30:31,049 --> 00:30:27,129
going across the aisle yep hi Craig

683
00:30:34,039 --> 00:30:31,059
covault with America space I think for

684
00:30:37,769 --> 00:30:34,049
joy the picture there of the Mount sharp

685
00:30:41,180 --> 00:30:37,779
the the tone of the mountain was quite

686
00:30:43,919 --> 00:30:41,190
light or whitish and I don't mean to

687
00:30:47,129 --> 00:30:43,929
describe it as snow but is that an

688
00:30:48,889 --> 00:30:47,139

accurate characterization of this stage

689
00:30:51,690 --> 00:30:48,899
and if so what would that mean I

690
00:30:53,639 --> 00:30:51,700
actually don't know the funny thing was

691
00:30:56,639 --> 00:30:53,649
I got to work and almost all the

692
00:30:59,039 --> 00:30:56,649
scientists had gone to sleep so I was

693
00:31:02,159 --> 00:30:59,049
scrambling to work on this myself had

694
00:31:03,720 --> 00:31:02,169
some help from image processors and they

695
00:31:05,099 --> 00:31:03,730
had to they were trying to do a lot of

696
00:31:07,560 --> 00:31:05,109
stretching and i believe it was

697
00:31:10,619 --> 00:31:07,570
stretched so that you could see a lot in

698
00:31:13,590 --> 00:31:10,629
the foreground and so i wouldn't put a

699
00:31:15,720 --> 00:31:13,600
lot of weight yet on on the the

700
00:31:18,690 --> 00:31:15,730
lightness the tone of the of the

701
00:31:21,629 --> 00:31:18,700
mountain until can get some info from

702
00:31:24,299 --> 00:31:21,639
the experts so i'd be hesitant to say

703
00:31:28,529 --> 00:31:24,309
yes it looks like snow i am not sure so

704
00:31:30,869 --> 00:31:28,539
it probably was stretched that way okay

705
00:31:33,180 --> 00:31:30,879
good afternoon good day in Mars and

706
00:31:35,940 --> 00:31:33,190
Fernando from tensor millennion Mexico

707
00:31:38,489 --> 00:31:35,950
then if everything is fine in the

708
00:31:40,799 --> 00:31:38,499
curiosity when will the start the first

709
00:31:43,680 --> 00:31:40,809
experiments the use of the drill the

710
00:31:46,620 --> 00:31:43,690
lesser the mass spectrometer the search

711
00:31:52,920 --> 00:31:46,630
of the life when

712
00:31:54,450 --> 00:31:52,930
soon we we really need to get to our new

713
00:31:56,190 --> 00:31:54,460

version of flight software first so I

714
00:31:59,010 --> 00:31:56,200
would say that's the main constraint we

715
00:32:01,500 --> 00:31:59,020
have right now and we it looks like

716
00:32:04,200 --> 00:32:01,510
we're on the path to starting that on

717
00:32:06,450 --> 00:32:04,210
Sol 5 it takes to saul's so it's all

718
00:32:09,240 --> 00:32:06,460
five and six to do the primary computer

719
00:32:12,900 --> 00:32:09,250
and then it takes to saul's to do the

720
00:32:14,430 --> 00:32:12,910
backup computer so by Sol nine will

721
00:32:16,350 --> 00:32:14,440
begin II will begin doing the

722
00:32:18,930 --> 00:32:16,360
higher-level characterizations required

723
00:32:22,320 --> 00:32:18,940
to do some of the more exciting science

724
00:32:23,340 --> 00:32:22,330
that you're talking about thank you okay

725
00:32:26,370 --> 00:32:23,350
we're go on the other side of the aisle

726
00:32:28,680 --> 00:32:26,380
here I'm Evan Ackerman without Tripoli

727
00:32:30,330 --> 00:32:28,690
spectrum what is going to happen to the

728
00:32:31,770 --> 00:32:30,340
Marty descent imager now is it

729
00:32:36,000 --> 00:32:31,780
completely finished or is there anything

730
00:32:39,540 --> 00:32:36,010
else you can do with it we have plans to

731
00:32:42,690 --> 00:32:39,550
try to use it on the surface obviously

732
00:32:47,760 --> 00:32:42,700
we can't point it it goes wherever the

733
00:32:50,850 --> 00:32:47,770
rover goes so and it points down we we

734
00:32:52,890 --> 00:32:50,860
have a plan to try to collect a sidewalk

735
00:32:56,100 --> 00:32:52,900
side feel the views about the size of a

736
00:32:59,190 --> 00:32:56,110
sidewalk on the and basically drive a

737
00:33:03,810 --> 00:32:59,200
sidewalk view of this surface as we

738
00:33:06,090 --> 00:33:03,820

drive towards the amount harp it's a

739
00:33:08,760 --> 00:33:06,100
little difficult to do that because it

740
00:33:10,650 --> 00:33:08,770
has to be coordinated with the drive and

741
00:33:14,580 --> 00:33:10,660
the drive is a very complicated thing

742
00:33:15,840 --> 00:33:14,590
has a very exotic cadence it drives a

743
00:33:18,510 --> 00:33:15,850
little it stops a little drives a little

744
00:33:20,490 --> 00:33:18,520
bit more commanding the camera to do

745
00:33:23,490 --> 00:33:20,500
that is very difficult so we can either

746
00:33:25,800 --> 00:33:23,500
have the drive commanded to do that or

747
00:33:27,840 --> 00:33:25,810
we could start the camera and then take

748
00:33:29,790 --> 00:33:27,850
pictures while it's driving for the

749
00:33:31,470 --> 00:33:29,800
whole amount of time the problem there

750
00:33:34,530 --> 00:33:31,480
is that most of the images won't show

751
00:33:37,740 --> 00:33:34,540
any changes because it drives in this

752
00:33:39,240 --> 00:33:37,750
sort of stop-start manner we'd never be

753
00:33:41,160 --> 00:33:39,250
able to get all the thumbnails back let

754
00:33:44,400 --> 00:33:41,170
alone full frames but the intent is to

755
00:33:46,860 --> 00:33:44,410
use it it's got probably it's nowhere

756
00:33:48,810 --> 00:33:46,870
near as high resolution as the molly is

757
00:33:50,940 --> 00:33:48,820
but then the mollys on the arm it

758
00:33:52,860 --> 00:33:50,950
doesn't actually look all the time it's

759
00:33:55,440 --> 00:33:52,870
probably comparable to what we could do

760
00:33:57,630 --> 00:33:55,450
with the mask am but you don't really

761
00:33:59,820 --> 00:33:57,640
want to run the mastcam while their

762
00:34:00,540 --> 00:33:59,830
vehicles driving because the focus

763
00:34:03,030 --> 00:34:00,550

mechanism

764
00:34:05,640 --> 00:34:03,040
you might damage it so you want to stow

765
00:34:08,340 --> 00:34:05,650
the focus mechanism so all we could take

766
00:34:11,280 --> 00:34:08,350
would be out of focus cat images so

767
00:34:13,680 --> 00:34:11,290
Martin Marty has a role and we're still

768
00:34:15,210 --> 00:34:13,690
exploring that kept her going to Irene

769
00:34:16,500 --> 00:34:15,220
next and then you and then we're going

770
00:34:19,260 --> 00:34:16,510
to the other side of the room go ahead

771
00:34:22,980 --> 00:34:19,270
Irene Klotz with Reuters for dr. crisp

772
00:34:27,780 --> 00:34:22,990
on earth typically what is responsible

773
00:34:32,030 --> 00:34:27,790
for forming little uniform pebbles and

774
00:34:37,050 --> 00:34:32,040
gravel like what you see in this picture

775
00:34:39,660 --> 00:34:37,060
good question uh I'm gonna take a stab

776
00:34:43,950 --> 00:34:39,670
at it and I'm gonna let Mike help me I

777
00:34:47,760 --> 00:34:43,960
would say it was did he okay so a

778
00:34:51,169 --> 00:34:47,770
question was on the earth what would be

779
00:34:53,970 --> 00:34:51,179
a typical way to form this pebble II

780
00:34:56,430 --> 00:34:53,980
surface and I would i'm gonna make a

781
00:34:58,320 --> 00:34:56,440
guess out in here and just say we

782
00:35:00,960 --> 00:34:58,330
know that Gale Crater was filled in with

783
00:35:04,260 --> 00:35:00,970
sediments and then a large quantity of

784
00:35:06,780 --> 00:35:04,270
material has been eroded away so you're

785
00:35:11,160 --> 00:35:06,790
seeing what what's left after a lot of

786
00:35:13,080 --> 00:35:11,170
erosion and rock that was once there has

787
00:35:15,510 --> 00:35:13,090
been broken up by physical processes

788
00:35:16,950 --> 00:35:15,520

freezing and thawing and wind and other

789
00:35:19,500 --> 00:35:16,960
ways that it can break it down into

790
00:35:23,010 --> 00:35:19,510
little pieces now why it's all these

791
00:35:24,480 --> 00:35:23,020
small pieces i don't know i think the

792
00:35:26,310 --> 00:35:24,490
science team has a lot of work to do to

793
00:35:29,400 --> 00:35:26,320
figure out how how were these materials

794
00:35:32,670 --> 00:35:29,410
put there you know was was water

795
00:35:34,710 --> 00:35:32,680
involved we don't know yet Mike you want

796
00:35:38,850 --> 00:35:34,720
to take a shot yeah this is obviously a

797
00:35:40,890 --> 00:35:38,860
lag deposit that means it came in with a

798
00:35:43,350 --> 00:35:40,900
bunch of other stuff but this stuff is

799
00:35:44,850 --> 00:35:43,360
not able to be taken away the finer

800
00:35:47,040 --> 00:35:44,860
materials have been removed from this

801
00:35:48,690 --> 00:35:47,050
area the fact that there are a large

802
00:35:50,280 --> 00:35:48,700
number of bigger things is more

803
00:35:52,080 --> 00:35:50,290
interesting to me than the fact that

804
00:35:54,330 --> 00:35:52,090
there is a la small thing small things

805
00:35:56,220 --> 00:35:54,340
winds can transport big things you have

806
00:36:01,170 --> 00:35:56,230
to break them down to get them small and

807
00:36:03,180 --> 00:36:01,180
and this is probably potentially impact

808
00:36:05,700 --> 00:36:03,190
ejecta but I'm surprised there aren't

809
00:36:07,980 --> 00:36:05,710
larger fragments and this is actually

810
00:36:10,080 --> 00:36:07,990
something that me and my team are very

811
00:36:12,390 --> 00:36:10,090
interested in trying to understand what

812
00:36:13,130 --> 00:36:12,400
causes this type of surface to develop

813
00:36:16,920 --> 00:36:13,140

on mar

814
00:36:19,079 --> 00:36:16,930
there is a possibility probably pretty

815
00:36:21,239 --> 00:36:19,089
remote that it's not unlike the

816
00:36:24,210 --> 00:36:21,249
materials concentrated at the meridiani

817
00:36:26,730 --> 00:36:24,220
site in that these may be fragments that

818
00:36:28,230 --> 00:36:26,740
were in a material above this surface

819
00:36:31,890 --> 00:36:28,240
and have been lowered down as that

820
00:36:35,009 --> 00:36:31,900
surface was eroded away and joy was also

821
00:36:37,259 --> 00:36:35,019
alluding to that so this type of surface

822
00:36:42,390 --> 00:36:37,269
is a very familiar to people work in

823
00:36:43,440 --> 00:36:42,400
deserts people go off road biking and

824
00:36:48,120 --> 00:36:43,450
things like that to this should look

825
00:36:49,470 --> 00:36:48,130
pretty familiar to them so actually just

826
00:36:51,569 --> 00:36:49,480
on another note I wanted to clarify

827
00:36:53,069 --> 00:36:51,579
something I said about how soon we're

828
00:36:55,980 --> 00:36:53,079
going to do things because I was

829
00:37:00,239 --> 00:36:55,990
actually speaking to firing the libs and

830
00:37:01,650 --> 00:37:00,249
the rmi in the Sol tenish timeframe we

831
00:37:03,150 --> 00:37:01,660
were speaking earlier about how

832
00:37:06,150 --> 00:37:03,160
curiosities middle name might be

833
00:37:08,759 --> 00:37:06,160
patience because it does take time to

834
00:37:10,559 --> 00:37:08,769
check out the vehicle and so drilling is

835
00:37:13,049 --> 00:37:10,569
not something that we're going to do

836
00:37:14,609 --> 00:37:13,059
until it maybe a month before we're able

837
00:37:16,140 --> 00:37:14,619
to drill because we have to set up the

838
00:37:18,989 --> 00:37:16,150

parameters on the arm we have to deploy

839
00:37:20,609 --> 00:37:18,999
the arm we have six Sol's of check out

840
00:37:22,950 --> 00:37:20,619
of the arm to make sure that we

841
00:37:24,690 --> 00:37:22,960
understand how it's behaving in this

842
00:37:26,609 --> 00:37:24,700
environment how it survived the landing

843
00:37:28,650 --> 00:37:26,619
so just didn't want to give you the

844
00:37:32,640 --> 00:37:28,660
wrong impression it's going to take a

845
00:37:36,210 --> 00:37:32,650
while before we're ready to drill okay

846
00:37:38,130 --> 00:37:36,220
we'll go ahead over here new hi um Nadia

847
00:37:40,170 --> 00:37:38,140
Drake with science news and this is for

848
00:37:42,870 --> 00:37:40,180
Mike Mahlon um you might have mentioned

849
00:37:45,839 --> 00:37:42,880
this but I might have missed it but when

850
00:37:48,390 --> 00:37:45,849
are you expecting the hi-res video to be

851
00:37:50,519 --> 00:37:48,400
ready and is the thumbnail version

852
00:37:53,819 --> 00:37:50,529
posted somewhere that we can still know

853
00:37:55,529 --> 00:37:53,829
what is the thumbnail version posted and

854
00:37:58,499 --> 00:37:55,539
when are you expecting the high-res

855
00:38:00,930 --> 00:37:58,509
video to be right the images that I

856
00:38:04,380 --> 00:38:00,940
showed will be posted on the JPL website

857
00:38:07,160 --> 00:38:04,390
I believe also the animation will be the

858
00:38:10,109 --> 00:38:07,170
animation itself is actually I believe a

859
00:38:12,870 --> 00:38:10,119
motion jpeg so you'll actually be have

860
00:38:15,900 --> 00:38:12,880
the all the frames or complain are

861
00:38:18,120 --> 00:38:15,910
combined in that animation we will get

862
00:38:20,910 --> 00:38:18,130
around to doing the raw frames but we've

863
00:38:23,220 --> 00:38:20,920

been going back and forth with JPL about

864
00:38:25,430 --> 00:38:23,230
how to get stuff on their cloud servers

865
00:38:27,740 --> 00:38:25,440
so so that's been an issue for us

866
00:38:29,900 --> 00:38:27,750
they'll be available pretty soon now

867
00:38:31,400 --> 00:38:29,910
your earlier question was when is the

868
00:38:35,359 --> 00:38:31,410
full resolution video going to be

869
00:38:38,240 --> 00:38:35,369
available I don't know with a right now

870
00:38:41,390 --> 00:38:38,250
we're not really planned to see many of

871
00:38:43,849 --> 00:38:41,400
the full frame images till a couple

872
00:38:46,790 --> 00:38:43,859
weeks from now at the end when we start

873
00:38:49,250 --> 00:38:46,800
seeing them we will get a few full read

874
00:38:53,540 --> 00:38:49,260
full frame images over the next week

875
00:38:56,300 --> 00:38:53,550
there should be one cued up for coming

876
00:39:01,309 --> 00:38:56,310
down I guess tomorrow morning tomorrow

877
00:39:03,680 --> 00:39:01,319
morning will be the remember the image

878
00:39:05,480 --> 00:39:03,690
in the movie there's a full up close up

879
00:39:07,160 --> 00:39:05,490
view of the heat shield and then the

880
00:39:09,440 --> 00:39:07,170
very first frame after that was a little

881
00:39:12,890 --> 00:39:09,450
heat shield that image should be queued

882
00:39:16,640 --> 00:39:12,900
up to be coming down first in the in the

883
00:39:19,359 --> 00:39:16,650
of the full frame images then over the

884
00:39:23,900 --> 00:39:19,369
course I think sometime around solve for

885
00:39:30,440 --> 00:39:23,910
wee wee reprioritize the the remaining

886
00:39:32,930 --> 00:39:30,450
17 of the first 18 and so I expects all

887
00:39:35,059 --> 00:39:32,940
fives all six we might see those I don't

888
00:39:41,240 --> 00:39:35,069

know much about what the downlink for

889
00:39:43,010 --> 00:39:41,250
the software transload whatever the

890
00:39:44,930 --> 00:39:43,020
reloaded that the new loan for the

891
00:39:47,150 --> 00:39:44,940
soffit I don't know exactly what the the

892
00:39:48,109 --> 00:39:47,160
downlink part of that Sol is going to

893
00:39:49,940 --> 00:39:48,119
look those solves are going to look like

894
00:39:52,099 --> 00:39:49,950
but it's in that time frame will start

895
00:39:55,160 --> 00:39:52,109
getting individual full resolution

896
00:39:57,200 --> 00:39:55,170
images and one could make a an animation

897
00:39:59,150 --> 00:39:57,210
probably a much better resolution than

898
00:40:00,770 --> 00:39:59,160
this one just from a few separate

899
00:40:02,839 --> 00:40:00,780
full-frame images because they're eight

900
00:40:04,910 --> 00:40:02,849
times higher spatial resolution than

901
00:40:06,800 --> 00:40:04,920
that thing so it's going to be a couple

902
00:40:11,000 --> 00:40:06,810
of weeks before we really start having

903
00:40:13,339 --> 00:40:11,010
the pieces for it Leo Enright with Irish

904
00:40:15,890 --> 00:40:13,349
television curiosity is a word which

905
00:40:20,809 --> 00:40:15,900
news reporters understand but we don't

906
00:40:23,180 --> 00:40:20,819
understand patients so I was just

907
00:40:25,940 --> 00:40:23,190
wondering there was a lot of talk at one

908
00:40:27,680 --> 00:40:25,950
stage about an intermission which seemed

909
00:40:30,530 --> 00:40:27,690
to be some sort of a period when you'd

910
00:40:34,430 --> 00:40:30,540
actually do some stuff and then get back

911
00:40:35,690 --> 00:40:34,440
to doing some you know engineering so I

912
00:40:38,120 --> 00:40:35,700
just wondered if you could talk to that

913
00:40:38,800 --> 00:40:38,130

and also just briefly more I think maybe

914
00:40:41,830 --> 00:40:38,810
for Verona

915
00:40:46,090 --> 00:40:41,840
but the there's a lot happening tonight

916
00:40:48,760 --> 00:40:46,100
particularly the LGA expands a 1050 mars

917
00:40:51,640 --> 00:40:48,770
local and then about an hour later the

918
00:40:53,380 --> 00:40:51,650
hga deploy and a signal from that i mean

919
00:40:55,240 --> 00:40:53,390
is that are we going to have live feed

920
00:40:57,670 --> 00:40:55,250
out of the control room for that or not

921
00:40:59,620 --> 00:40:57,680
i can answer that and say no we aren't

922
00:41:01,030 --> 00:40:59,630
going to have a live feed tonight but we

923
00:41:03,580 --> 00:41:01,040
are planning to be back here tomorrow

924
00:41:04,600 --> 00:41:03,590
morning at ten a.m. pacific time and for

925
00:41:07,390 --> 00:41:04,610
the rest of this week at ten a.m.

926
00:41:09,550 --> 00:41:07,400
pacific time with updates and there was

927
00:41:11,050 --> 00:41:09,560
another part of it intermission let me

928
00:41:14,650 --> 00:41:11,060
take a crack at the intermission because

929
00:41:18,790 --> 00:41:14,660
i'm one of the big pushers for that the

930
00:41:21,910 --> 00:41:18,800
mastcam has a lot of idiosyncrasies that

931
00:41:24,730 --> 00:41:21,920
we were not really able to test on the

932
00:41:27,340 --> 00:41:24,740
ground the vehicle itself creates an

933
00:41:31,150 --> 00:41:27,350
environment for us and appointing and

934
00:41:33,190 --> 00:41:31,160
things like that so we asked for the

935
00:41:35,920 --> 00:41:33,200
intermission and we asked to do a number

936
00:41:38,830 --> 00:41:35,930
of very specific things including taking

937
00:41:41,530 --> 00:41:38,840
extremely high quality images none of

938
00:41:43,240 --> 00:41:41,540

this JPEG compression really losslessly

939
00:41:46,140 --> 00:41:43,250
compressed high resolution things

940
00:41:49,090 --> 00:41:46,150
following the the effect of sunlight and

941
00:41:52,840 --> 00:41:49,100
shooting high resolution with the narrow

942
00:41:55,870 --> 00:41:52,850
angle camera mosaics at distant objects

943
00:41:57,910 --> 00:41:55,880
to do long-distance lines stereo

944
00:41:59,920 --> 00:41:57,920
observation things of that nature these

945
00:42:01,720 --> 00:41:59,930
are things we've never been able to test

946
00:42:04,960 --> 00:42:01,730
yet when I've ensure our software is

947
00:42:08,380 --> 00:42:04,970
going to work so in in the framework of

948
00:42:11,560 --> 00:42:08,390
a an intermission that was oriented

949
00:42:12,820 --> 00:42:11,570
towards trying to acquire stuff that

950
00:42:15,520 --> 00:42:12,830
would be of interest science

951
00:42:17,950 --> 00:42:15,530
scientifically but also addressing the

952
00:42:21,550 --> 00:42:17,960
engineering concerns that we had for the

953
00:42:24,010 --> 00:42:21,560
instruments the the the concept of the

954
00:42:25,270 --> 00:42:24,020
intermission came up and and for the

955
00:42:27,550 --> 00:42:25,280
mask am that's what we're going to do

956
00:42:30,400 --> 00:42:27,560
that I believe chemcam is also doing

957
00:42:33,540 --> 00:42:30,410
some some similar tests of checking

958
00:42:36,310 --> 00:42:33,550
Kings I forget they're there to other

959
00:42:38,590 --> 00:42:36,320
say oh the salmon Sam is going i think

960
00:42:39,940 --> 00:42:38,600
is that when it snows its atmosphere sam

961
00:42:42,640 --> 00:42:39,950
i think is going to make an atmospheric

962
00:42:46,720 --> 00:42:42,650
measure which will be very exciting so

963
00:42:48,580 --> 00:42:46,730

so those are basically characterizing

964
00:42:51,010 --> 00:42:48,590
the engineering of these instruments

965
00:42:52,570 --> 00:42:51,020
while acquiring something that's

966
00:42:56,510 --> 00:42:52,580
scientifically valuable

967
00:43:02,090 --> 00:42:56,520
now that's Saul tennis starts yeah it's

968
00:43:03,820 --> 00:43:02,100
a couple weeks it'll be 15 ish Sophia ok

969
00:43:07,190 --> 00:43:03,830
I don't forget the mastcam takes a

970
00:43:10,760 --> 00:43:07,200
35-millimeter mask and takes a 360 in

971
00:43:12,290 --> 00:43:10,770
color on solve for will I think we see

972
00:43:15,380 --> 00:43:12,300
the thumbnails are scheduled to come

973
00:43:18,440 --> 00:43:15,390
down lates off for ya and and keep in

974
00:43:20,330 --> 00:43:18,450
mind I think this all three mastcam and

975
00:43:21,800 --> 00:43:20,340
the solve for chem can images are going

976
00:43:23,990 --> 00:43:21,810
to be coming down during the flight

977
00:43:27,230 --> 00:43:24,000
software transition on five six seven

978
00:43:29,690 --> 00:43:27,240
and eight and then we're doing science

979
00:43:32,320 --> 00:43:29,700
after that we're doing all of the higher

980
00:43:35,900 --> 00:43:32,330
level science check out and experiments

981
00:43:37,580 --> 00:43:35,910
we just aren't fully completely checked

982
00:43:39,410 --> 00:43:37,590
out on the vehicle because the arm isn't

983
00:43:43,910 --> 00:43:39,420
deployed and we haven't characterized it

984
00:43:45,890 --> 00:43:43,920
fully uh Jonathan imos BBC you teased us

985
00:43:49,430 --> 00:43:45,900
with a picture at the beginning showing

986
00:43:51,440 --> 00:43:49,440
us a little impact side and then you

987
00:43:53,690 --> 00:43:51,450
said nothing so I was just wondering

988
00:43:54,680 --> 00:43:53,700

what was what was going on there he

989
00:43:56,210 --> 00:43:54,690
thought you might have found the heat

990
00:43:57,830 --> 00:43:56,220
shield or something there was some other

991
00:44:00,560 --> 00:43:57,840
item at the bottom of the picture that

992
00:44:02,570 --> 00:44:00,570
you scroll down yes it was the heat

993
00:44:04,220 --> 00:44:02,580
shield and then I wanted Mike to talk

994
00:44:06,980 --> 00:44:04,230
about that in more detail because he had

995
00:44:08,990 --> 00:44:06,990
better images from the Marty of the heat

996
00:44:11,150 --> 00:44:09,000
shield deployment so that that was okay

997
00:44:12,830 --> 00:44:11,160
that exactly shows the fact that you saw

998
00:44:16,480 --> 00:44:12,840
the heat shield way off to the other

999
00:44:19,400 --> 00:44:16,490
side of that image shows you how high

1000
00:44:22,130 --> 00:44:19,410
the vehicle was at the time the

1001
00:44:23,960 --> 00:44:22,140
high-rise image was taken and and you

1002
00:44:26,540 --> 00:44:23,970
know presumably the heat shields falling

1003
00:44:28,580 --> 00:44:26,550
pretty vertically but you saw where the

1004
00:44:30,890 --> 00:44:28,590
you know the separation that you saw in

1005
00:44:33,110 --> 00:44:30,900
the high-rise image was in fact an

1006
00:44:35,330 --> 00:44:33,120
attribute of the of the angle at which

1007
00:44:38,390 --> 00:44:35,340
high-rise was observing and the altitude

1008
00:44:39,920 --> 00:44:38,400
at which the vehicle was so that's why

1009
00:44:43,940 --> 00:44:39,930
it was off at the bottom line I

1010
00:44:46,970 --> 00:44:43,950
understand them now I believe sometime

1011
00:44:50,930 --> 00:44:46,980
in the next few Sol's mro is going to

1012
00:44:53,840 --> 00:44:50,940
try to reimage the landing site and both

1013
00:44:56,660 --> 00:44:53,850

the high rise and the context camera

1014
00:44:58,640 --> 00:44:56,670
which is my camera on mro will will

1015
00:45:01,190 --> 00:44:58,650
reimage the site you will look around

1016
00:45:03,320 --> 00:45:01,200
for all the hardware that was a part of

1017
00:45:05,570 --> 00:45:03,330
the vehicle as it was descending it

1018
00:45:07,980 --> 00:45:05,580
should be pretty close

1019
00:45:09,420 --> 00:45:07,990
hi bill Harwood CBS News with a very

1020
00:45:12,600 --> 00:45:09,430
very quick nuts and bolts question for

1021
00:45:14,460 --> 00:45:12,610
Jennifer are all six wheels oriented

1022
00:45:16,290 --> 00:45:14,470
parallel to the long axis of the body I

1023
00:45:18,150 --> 00:45:16,300
was one picture I confused myself it

1024
00:45:19,950 --> 00:45:18,160
looked like they want here either clock

1025
00:45:20,940 --> 00:45:19,960
the way I wasn't expecting I just I just

1026
00:45:23,400 --> 00:45:20,950
want make sure I understand where

1027
00:45:26,250 --> 00:45:23,410
everything's pointed yeah they're all

1028
00:45:30,390 --> 00:45:26,260
oriented in the again it it may have

1029
00:45:33,900 --> 00:45:30,400
just looked different do we have any

1030
00:45:35,520 --> 00:45:33,910
more questions it looks like we're we're

1031
00:45:37,620 --> 00:45:35,530
done with questions so we will wrap this

1032
00:45:39,840 --> 00:45:37,630
up for today I do want to say though

1033
00:45:43,410 --> 00:45:39,850
that all of the images and the animation

1034
00:45:45,960 --> 00:45:43,420
are available on nasa.gov as well as JPL

1035
00:45:50,070 --> 00:45:45,970
nasa gov and i'll also give you the URL

1036
00:45:53,490 --> 00:45:50,080
for the mission page is Mars JPL nasa

1037
00:45:55,410 --> 00:45:53,500
gov / MSL any of those locations will

1038
00:45:57,570 --> 00:45:55,420

take you to all the images that you've

1039
00:45:59,760 --> 00:45:57,580
seen today and we will be back again

1040
00:46:01,950 --> 00:45:59,770
tomorrow at ten a.m. pacific time and

1041
00:46:03,930 --> 00:46:01,960
broadcasters stand by for a replay of

1042
00:48:06,040 --> 00:46:03,940
all of the images thank you so much for