



Next Generation of Astronomy

1
00:00:05,920 --> 00:00:09,270
this week at nasa

2
00:00:14,910 --> 00:00:13,350
we have the first roving astrobiology

3
00:00:17,430 --> 00:00:14,920
rover on

4
00:00:20,230 --> 00:00:17,440
mars and we have truly extended our

5
00:00:22,790 --> 00:00:20,240
reach and touched another planet nasa's

6
00:00:24,630 --> 00:00:22,800
mars curiosity rover has made its first

7
00:00:26,950 --> 00:00:24,640
footprints on mars

8
00:00:28,470 --> 00:00:26,960
curiosity completed a short drive during

9
00:00:30,310 --> 00:00:28,480
which rover drivers at the jet

10
00:00:32,870 --> 00:00:30,320
propulsion laboratory commanded

11
00:00:35,910 --> 00:00:32,880
curiosity to move forward perform a

12
00:00:38,069 --> 00:00:35,920
series of turns and move in reverse

13
00:00:40,069 --> 00:00:38,079

the six-wheeled one-ton rover traveled

14

00:00:42,549 --> 00:00:40,079

roughly 20 feet from the spot where it

15

00:00:44,310 --> 00:00:42,559

made its landing in early august

16

00:00:45,910 --> 00:00:44,320

the key things about the drive today

17

00:00:47,670 --> 00:00:45,920

were that we were able to do one full

18

00:00:50,229 --> 00:00:47,680

revolution of the drive actuators in the

19

00:00:51,750 --> 00:00:50,239

forward direction we were able to turn

20

00:00:53,510 --> 00:00:51,760

and see that the inertial measurement

21

00:00:54,950 --> 00:00:53,520

unit telling the rover

22

00:00:56,709 --> 00:00:54,960

how its heading is changing is working

23

00:00:58,630 --> 00:00:56,719

properly and we were able to back up

24

00:01:00,790 --> 00:00:58,640

another full revolution of the drive

25

00:01:02,709 --> 00:01:00,800

actuators so we were able to see motor

26

00:01:04,710 --> 00:01:02,719

currents we were able to get the data

27

00:01:06,870 --> 00:01:04,720

and everything looks perfectly nominal

28

00:01:08,710 --> 00:01:06,880

curiosity's first driving destination

29

00:01:11,910 --> 00:01:08,720

beyond its immediate position is

30

00:01:14,950 --> 00:01:11,920

expected to be an area named glen elk

31

00:01:17,590 --> 00:01:14,960

located about 300 feet east southeast of

32

00:01:19,990 --> 00:01:17,600

its landing site meanwhile the curiosity

33

00:01:22,469 --> 00:01:20,000

science team has named the landing site

34

00:01:24,789 --> 00:01:22,479

after the late ray bradbury an

35

00:01:26,870 --> 00:01:24,799

influential author and a huge proponent

36

00:01:28,870 --> 00:01:26,880

of mars exploration

37

00:01:31,030 --> 00:01:28,880

bradbury who passed away earlier this

38

00:01:33,190 --> 00:01:31,040

year would have been 92 on the day of

39

00:01:35,749 --> 00:01:33,200

the announcement his books have truly

40

00:01:38,310 --> 00:01:35,759

inspired us the marching chronicles have

41

00:01:40,149 --> 00:01:38,320

inspired our curiosity

42

00:01:42,710 --> 00:01:40,159

and opened our minds to the possibility

43

00:01:45,830 --> 00:01:42,720

of life on mars

44

00:01:48,550 --> 00:01:45,840

in his honor we declared the place that

45

00:01:52,149 --> 00:01:48,560

that curiosity touched down

46

00:01:54,789 --> 00:01:52,159

to be forever known as bradbury landing

47

00:01:57,350 --> 00:01:54,799

the jpl team was also paid a visit by

48

00:01:59,749 --> 00:01:57,360

california governor jerry brown who met

49

00:02:02,630 --> 00:01:59,759

members of the surface operation team in

50

00:02:04,630 --> 00:02:02,640

charge of sending commands to curiosity

51
00:02:07,429 --> 00:02:04,640
the governor was also treated to an

52
00:02:10,309 --> 00:02:07,439
up-close peak at curiosity's stunt devil

53
00:02:12,630 --> 00:02:10,319
during a tour of the rover test bed area

54
00:02:14,150 --> 00:02:12,640
and he spoke to jp ellers about the

55
00:02:16,710 --> 00:02:14,160
importance of the aerospace and

56
00:02:19,110 --> 00:02:16,720
high-tech industries in california other

57
00:02:21,589 --> 00:02:19,120
recent highlights for the curiosity team

58
00:02:23,910 --> 00:02:21,599
include the flexing of a rover's robotic

59
00:02:26,229 --> 00:02:23,920
arm for the first time since before its

60
00:02:29,030 --> 00:02:26,239
launch in november 2011

61
00:02:31,509 --> 00:02:29,040
and curiosity also fired the laser from

62
00:02:34,150 --> 00:02:31,519
its chemistry and camera instrument or

63
00:02:36,390 --> 00:02:34,160

chemcam for the first time on mars

64

00:02:39,110 --> 00:02:36,400

hitting a fist sized rock called

65

00:02:40,550 --> 00:02:39,120

coronation with 30 pulses during a 10

66

00:02:42,710 --> 00:02:40,560

second period

67

00:02:45,110 --> 00:02:42,720

chemcam is equipped with a spectrometer

68

00:02:47,270 --> 00:02:45,120

to analyze rock samples for clues about

69

00:02:49,750 --> 00:02:47,280

the elements in those samples

70

00:02:52,070 --> 00:02:49,760

curiosity is on a two-year prime mission

71

00:02:54,550 --> 00:02:52,080

to assess whether the gale crater area

72

00:02:59,910 --> 00:02:54,560

of mars has ever offered environmental

73

00:03:05,030 --> 00:03:02,309

nasa has selected a new mission set to

74

00:03:07,990 --> 00:03:05,040

launch in 2016 that will take the first

75

00:03:09,990 --> 00:03:08,000

look into the deep interior of mars to

76

00:03:11,750 --> 00:03:10,000

see why the red planet evolved so

77

00:03:14,070 --> 00:03:11,760

differently from earth as one of the

78

00:03:15,990 --> 00:03:14,080

solar system's rocky planets

79

00:03:17,910 --> 00:03:16,000

the insight mission will place

80

00:03:20,149 --> 00:03:17,920

instruments on the martian surface to

81

00:03:22,710 --> 00:03:20,159

investigate whether the core of mars is

82

00:03:25,350 --> 00:03:22,720

solid or liquid like earth's

83

00:03:27,190 --> 00:03:25,360

understanding the the interior structure

84

00:03:29,190 --> 00:03:27,200

the interior processes and history of

85

00:03:31,589 --> 00:03:29,200

mars is really fundamental to

86

00:03:34,070 --> 00:03:31,599

understanding the history and and the

87

00:03:36,390 --> 00:03:34,080

formation of the solar system and of our

88

00:03:38,470 --> 00:03:36,400

of our own planet as well insight is the

89

00:03:41,990 --> 00:03:38,480

12th selection of nasa's series of

90

00:03:44,630 --> 00:03:42,000

discovery class missions created in 1992

91

00:03:46,869 --> 00:03:44,640

the discovery program sponsors frequent

92

00:03:49,270 --> 00:03:46,879

cost-capped solar system exploration

93

00:03:51,990 --> 00:03:49,280

missions with highly focused scientific

94

00:03:56,630 --> 00:03:53,990

engineers using marshall space flight

95

00:03:59,190 --> 00:03:56,640

center's trisonic wind tunnel have spent

96

00:04:01,990 --> 00:03:59,200

the past four months testing early scale

97

00:04:04,229 --> 00:04:02,000

models of nasa's space launch system

98

00:04:06,710 --> 00:04:04,239

more than 900 tests have been performed

99

00:04:09,110 --> 00:04:06,720

on various crew and cargo configurations

100

00:04:10,229 --> 00:04:09,120

of the sls at the start of every launch

101
00:04:12,070 --> 00:04:10,239
vehicle program one of the most

102
00:04:13,190 --> 00:04:12,080
important things is aerodynamics because

103
00:04:14,710 --> 00:04:13,200
you need to understand if you can

104
00:04:16,229 --> 00:04:14,720
control the vehicle if it's going to do

105
00:04:17,270 --> 00:04:16,239
what you want it to do and you need to

106
00:04:18,629 --> 00:04:17,280
know how much payload you're going to

107
00:04:20,710 --> 00:04:18,639
get to orbit

108
00:04:22,790 --> 00:04:20,720
data from the test at marshall will be

109
00:04:25,189 --> 00:04:22,800
merged with information collected from

110
00:04:26,469 --> 00:04:25,199
testing at langley's unitary planned

111
00:04:28,469 --> 00:04:26,479
wind tunnel

112
00:04:30,469 --> 00:04:28,479
analysis of this data will help

113
00:04:32,790 --> 00:04:30,479

determine the best configuration and

114

00:04:34,790 --> 00:04:32,800

help refine the design of the vehicle

115

00:04:43,990 --> 00:04:34,800

that will take humans farther into space

116

00:04:47,990 --> 00:04:45,749

the team of engineers working on

117

00:04:49,749 --> 00:04:48,000

development of the orion multipurpose

118

00:04:51,909 --> 00:04:49,759

crew vehicle and its components

119

00:04:54,550 --> 00:04:51,919

conducted the first vertical drop test

120

00:04:59,510 --> 00:04:54,560

of the 18 000 pound capsule at langley

121

00:05:03,430 --> 00:05:01,830

swing drop testing during which orion

122

00:05:05,510 --> 00:05:03,440

entered the water at an angle was

123

00:05:07,270 --> 00:05:05,520

conducted last summer to certify it

124

00:05:09,270 --> 00:05:07,280

through water landings

125

00:05:11,830 --> 00:05:09,280

changing the angle of the drop test to

126
00:05:14,550 --> 00:05:11,840
vertical will help nasa more accurately

127
00:05:17,830 --> 00:05:14,560
predict orion's landing loads

128
00:05:19,350 --> 00:05:17,840
in 2014 orion will launch on exploration

129
00:05:21,510 --> 00:05:19,360
flight test 1

130
00:05:23,029 --> 00:05:21,520
traveling 15 times farther from the

131
00:05:25,350 --> 00:05:23,039
earth than the international space

132
00:05:27,590 --> 00:05:25,360
station before making a high energy

133
00:05:31,029 --> 00:05:27,600
re-entry into the atmosphere followed by

134
00:05:35,189 --> 00:05:33,270
the discovery of a dinosaur track on the

135
00:05:37,510 --> 00:05:35,199
campus of goddard space flight center

136
00:05:40,230 --> 00:05:37,520
has scientists abuzz about the area's

137
00:05:42,310 --> 00:05:40,240
ancient past noted dinosaur hunter ray

138
00:05:45,110 --> 00:05:42,320

stanford spotted the unusual rock

139

00:05:46,950 --> 00:05:45,120

formation jutting up ever so slightly

140

00:05:49,110 --> 00:05:46,960

from the earth around it he's found

141

00:05:51,510 --> 00:05:49,120

prehistoric tracks and fossils before

142

00:05:54,550 --> 00:05:51,520

but says he is especially thrilled about

143

00:05:57,110 --> 00:05:54,560

this one and i love the paradox here

144

00:05:59,909 --> 00:05:57,120

space scientists may walk along here

145

00:06:02,790 --> 00:05:59,919

and they're walking exactly where this

146

00:06:06,070 --> 00:06:02,800

big bungling heavy armored dinosaur

147

00:06:08,150 --> 00:06:06,080

walked maybe 110 112 million years ago

148

00:06:10,710 --> 00:06:08,160

though it will require further study it

149

00:06:12,710 --> 00:06:10,720

appears the track was made by a nodosaur

150

00:06:14,710 --> 00:06:12,720

a large plant-eating dinosaur that

151
00:06:17,430 --> 00:06:14,720
roamed the area during the cretaceous

152
00:06:19,590 --> 00:06:17,440
period with a footprint that's 12 inches

153
00:06:22,870 --> 00:06:19,600
across it's estimated this creature was

154
00:06:24,309 --> 00:06:22,880
between 15 and 20 feet long and weighed

155
00:06:26,390 --> 00:06:24,319
more than a ton

156
00:06:27,990 --> 00:06:26,400
stanford says he hopes this discovery

157
00:06:30,469 --> 00:06:28,000
will encourage people to be more

158
00:06:32,230 --> 00:06:30,479
observant and if you find something

159
00:06:34,469 --> 00:06:32,240
stanford stressed the importance of

160
00:06:38,070 --> 00:06:34,479
notifying the appropriate authorities so

161
00:06:42,629 --> 00:06:40,070
a recent science showcase event in

162
00:06:45,749 --> 00:06:42,639
boulder colorado provided an opportunity

163
00:06:47,909 --> 00:06:45,759

for nasa and ball aerospace corporation

164

00:06:50,309 --> 00:06:47,919

to celebrate among other things the

165

00:06:52,309 --> 00:06:50,319

completion by ball of the lightweight

166

00:06:54,230 --> 00:06:52,319

mirror system to be used in the james

167

00:06:56,950 --> 00:06:54,240

webb space telescope

168

00:06:58,710 --> 00:06:56,960

nasa chief scientist walid abdallati

169

00:07:01,189 --> 00:06:58,720

says it's an extremely exciting

170

00:07:03,189 --> 00:07:01,199

milestone one that like the recent

171

00:07:05,670 --> 00:07:03,199

landing of the mars curiosity rover

172

00:07:07,589 --> 00:07:05,680

touchdown confirmed

173

00:07:09,830 --> 00:07:07,599

gives us another unprecedented

174

00:07:12,150 --> 00:07:09,840

opportunity to explore

175

00:07:14,710 --> 00:07:12,160

this is about our identity as human

176

00:07:16,629 --> 00:07:14,720

beings understanding the universe

177

00:07:22,309 --> 00:07:16,639

and understanding our place in it and

178

00:07:27,830 --> 00:07:25,350

three two one should be flying

179

00:07:30,710 --> 00:07:27,840

the mighty eagle a nasa robotic

180

00:07:32,710 --> 00:07:30,720

prototype lander is soaring high again

181

00:07:35,029 --> 00:07:32,720

for another series of tests at marshall

182

00:07:37,909 --> 00:07:35,039

space flight center since the last round

183

00:07:39,830 --> 00:07:37,919

of tests in 2011 the mighty eagle team

184

00:07:42,230 --> 00:07:39,840

has made significant updates to the

185

00:07:45,110 --> 00:07:42,240

guidance control on the lander's camera

186

00:07:47,189 --> 00:07:45,120

furthering its autonomous capabilities

187

00:07:49,589 --> 00:07:47,199

nasa will use the mighty eagle to mature

188

00:07:51,909 --> 00:07:49,599

the technology needed to develop a new

189

00:07:53,510 --> 00:07:51,919

generation of small smart versatile

190

00:07:55,350 --> 00:07:53,520

robotic landers

191

00:07:57,270 --> 00:07:55,360

capable of achieving scientific and

192

00:08:03,510 --> 00:07:57,280

exploration goals throughout the solar

193

00:08:07,589 --> 00:08:05,749

nearly 300 of the world's top chemistry

194

00:08:10,070 --> 00:08:07,599

students visited nasa's goddard space

195

00:08:15,749 --> 00:08:10,080

flight center recently as part of the

196

00:08:19,589 --> 00:08:17,589

the competition provides an opportunity

197

00:08:21,749 --> 00:08:19,599

for the young scientists to demonstrate

198

00:08:26,150 --> 00:08:21,759

their ability to solve chemistry

199

00:08:27,670 --> 00:08:26,160

problems independently and creatively

200

00:08:30,710 --> 00:08:27,680

at goddard they heard from nobel

201
00:08:32,230 --> 00:08:30,720
prize-winning nasa scientist john mather

202
00:08:33,990 --> 00:08:32,240
about the role of chemistry and

203
00:08:35,990 --> 00:08:34,000
scientific discovery

204
00:08:37,990 --> 00:08:36,000
they were also regaled with stories from

205
00:08:40,630 --> 00:08:38,000
the stars courtesy of space flight

206
00:08:42,790 --> 00:08:40,640
veteran piers sellers currently serving

207
00:08:47,030 --> 00:08:42,800
as goddard's deputy director of science

208
00:08:51,030 --> 00:08:48,949
ames research center recently hosted

209
00:08:53,750 --> 00:08:51,040
several special events for the center's

210
00:08:55,269 --> 00:08:53,760
annual diversity day celebration

211
00:08:57,990 --> 00:08:55,279
there was a panel discussion during

212
00:08:59,670 --> 00:08:58,000
which past and present ames interns

213
00:09:01,509 --> 00:08:59,680

stressed the importance of the student

214

00:09:03,190 --> 00:09:01,519

internship experience

215

00:09:05,509 --> 00:09:03,200

information booths were available for

216

00:09:08,630 --> 00:09:05,519

those interested in learning more about

217

00:09:10,070 --> 00:09:08,640

various cultures regions and countries

218

00:09:12,550 --> 00:09:10,080

and employees were treated to a

219

00:09:14,949 --> 00:09:12,560

center-wide picnic there was also an

220

00:09:17,350 --> 00:09:14,959

intern poster session attended by ames

221

00:09:19,190 --> 00:09:17,360

center director pete worden and others

222

00:09:23,350 --> 00:09:19,200

the events capped off the end of summer

223

00:09:30,310 --> 00:09:25,190

mariner 2 was the world's first

224

00:09:35,110 --> 00:09:33,670

launched august 27 1962 on an atlas

225

00:09:37,670 --> 00:09:35,120

agena rocket

226

00:09:39,110 --> 00:09:37,680

mariner 2 passed within about 21 000

227

00:09:40,949 --> 00:09:39,120

miles of venus

228

00:09:43,030 --> 00:09:40,959

sending back valuable new information

229

00:09:45,030 --> 00:09:43,040

about interplanetary space and the

230

00:09:46,550 --> 00:09:45,040

venusian atmosphere

231

00:09:48,949 --> 00:09:46,560

mariner 2 recorded the planet's

232

00:09:51,829 --> 00:09:48,959

temperature for the first time revealing

233

00:09:53,590 --> 00:09:51,839

its very hot atmosphere of about 900

234

00:09:56,070 --> 00:09:53,600

degrees fahrenheit

235

00:09:58,310 --> 00:09:56,080

the spacecraft's solar wind experiment

236

00:10:01,110 --> 00:09:58,320

was the first to measure the density

237

00:10:03,670 --> 00:10:01,120

velocity composition and variation over

238

00:10:06,630 --> 00:10:03,680

time of the solar wind

239

00:10:08,550 --> 00:10:06,640

and that's this week at nasa for more on

240

00:10:10,550 --> 00:10:08,560

these and other stories or to follow us