
NASA
801

1
00:00:07,040 --> 00:00:13,030
this week at nasa

2
00:00:17,029 --> 00:00:15,110
the final rollout of the space shuttle

3
00:00:19,510 --> 00:00:17,039
program has brought atlantis from the

4
00:00:22,470 --> 00:00:19,520
vehicle assembly building to launch pad

5
00:00:25,670 --> 00:00:22,480
39a at the kennedy space center for the

6
00:00:27,670 --> 00:00:25,680
liftoff of sts-135

7
00:00:30,070 --> 00:00:27,680
mated to its external tank and solid

8
00:00:33,670 --> 00:00:30,080
rocket boosters the orbiter travels to

9
00:00:37,709 --> 00:00:33,680
3.4 miles atop a crawler transporter at

10
00:00:40,389 --> 00:00:37,719
a top speed of less than a mile an hour

11
00:00:42,709 --> 00:00:40,399
sts-135 is the final mission of the

12
00:00:44,950 --> 00:00:42,719
30-year-old shuttle program

13
00:00:47,270 --> 00:00:44,960

commander chris ferguson pilot doug

14
00:00:49,830 --> 00:00:47,280
hurley and mission specialists sandy

15
00:00:51,670 --> 00:00:49,840
magnus and rex walheim will crew the

16
00:00:54,229 --> 00:00:51,680
12-day journey to the international

17
00:00:56,790 --> 00:00:54,239
space station and deliver the rafaello

18
00:01:00,150 --> 00:00:56,800
multi-purpose logistics module laden

19
00:01:02,470 --> 00:01:00,160
with supplies logistics and spare parts

20
00:01:05,109 --> 00:01:02,480
the mission also will fly a system to

21
00:01:06,390 --> 00:01:05,119
investigate using robots to refuel

22
00:01:08,710 --> 00:01:06,400
spacecraft

23
00:01:13,270 --> 00:01:08,720
atlantis is targeted to lift off on july

24
00:01:15,670 --> 00:01:13,280
8th at 11 40 a.m eastern

25
00:01:18,390 --> 00:01:15,680
more than 70 years after it landed on

26
00:01:21,510 --> 00:01:18,400
the surface of the red planet the longed

27
00:01:23,990 --> 00:01:21,520
lived mars exploration rover spirit has

28
00:01:26,469 --> 00:01:24,000
officially had its last conversation

29
00:01:28,789 --> 00:01:26,479
with his friends back on earth

30
00:01:31,350 --> 00:01:28,799
the jet propulsion lab has sent its

31
00:01:33,429 --> 00:01:31,360
final transmission to spirit which last

32
00:01:35,910 --> 00:01:33,439
communicated with the rover team on

33
00:01:37,990 --> 00:01:35,920
march 22 2010

34
00:01:40,469 --> 00:01:38,000
with inadequate energy to run its

35
00:01:42,789 --> 00:01:40,479
survival heaters the rover likely

36
00:01:45,190 --> 00:01:42,799
suffered irreparable damage due to

37
00:01:47,350 --> 00:01:45,200
colder internal temperatures last year

38
00:01:48,389 --> 00:01:47,360

than in any of its prior six years on

39
00:01:50,710 --> 00:01:48,399
mars

40
00:01:52,710 --> 00:01:50,720
it was hoped that spirit might reawaken

41
00:01:55,510 --> 00:01:52,720
with the help of martian spring and

42
00:01:57,109 --> 00:01:55,520
summer's increase in solar energy but to

43
00:02:00,630 --> 00:01:57,119
no avail

44
00:02:02,630 --> 00:02:00,640
spirit landed on mars on january 3 2004

45
00:02:03,510 --> 00:02:02,640
for a mission designed to last three

46
00:02:06,469 --> 00:02:03,520
months

47
00:02:11,029 --> 00:02:06,479
its twin opportunity continues actively

48
00:02:11,039 --> 00:02:15,670
and now centerpieces

49
00:02:19,350 --> 00:02:17,510
space researchers consider the most

50
00:02:21,670 --> 00:02:19,360
likely location for discovering

51
00:02:25,110 --> 00:02:21,680
potential primitive life forms on mars

52
00:02:26,470 --> 00:02:25,120
to be in caves but how do they find them

53
00:02:28,470 --> 00:02:26,480
that was the goal of a recent

54
00:02:30,150 --> 00:02:28,480
nasa-funded airborne and ground study

55
00:02:33,509 --> 00:02:30,160
designed to aid in the detection of

56
00:02:35,270 --> 00:02:33,519
caves on the earth the moon and mars

57
00:02:38,710 --> 00:02:35,280
the purpose of this study

58
00:02:40,309 --> 00:02:38,720
is to learn how to detect caves on earth

59
00:02:41,910 --> 00:02:40,319
and then apply the techniques we develop

60
00:02:44,550 --> 00:02:41,920
for detecting caves on earth to looking

61
00:02:46,790 --> 00:02:44,560
for caves on mars wynn a doctoral

62
00:02:49,030 --> 00:02:46,800
candidate at northern arizona university

63
00:02:51,430 --> 00:02:49,040

in flagstaff and a researcher at the

64
00:02:53,509 --> 00:02:51,440
seti institute flew two missions aboard

65
00:02:55,270 --> 00:02:53,519
a nasa king air research aircraft in

66
00:02:56,949 --> 00:02:55,280
april 2011.

67
00:02:59,030 --> 00:02:56,959
the flights over lava fields in

68
00:03:01,430 --> 00:02:59,040
california's mojave desert collected

69
00:03:03,190 --> 00:03:01,440
both thermal and visual imagery to aid

70
00:03:06,229 --> 00:03:03,200
in detection of caves

71
00:03:07,509 --> 00:03:06,239
we are basically coupling those

72
00:03:09,030 --> 00:03:07,519
ground-based measurements that we're

73
00:03:09,830 --> 00:03:09,040
currently collecting

74
00:03:12,470 --> 00:03:09,840
with

75
00:03:14,070 --> 00:03:12,480
the thermal imaging data and the vis

76
00:03:15,270 --> 00:03:14,080
data that we're collecting as well

77
00:03:17,670 --> 00:03:15,280
through developing techniques for

78
00:03:20,550 --> 00:03:17,680
detecting caves on earth we can then

79
00:03:22,949 --> 00:03:20,560
take those techniques and use them to

80
00:03:25,430 --> 00:03:22,959
look for caves on mars

81
00:03:27,750 --> 00:03:25,440
nasa goddard engineer mercy javala

82
00:03:29,589 --> 00:03:27,760
operated a nasa photodetector that

83
00:03:31,990 --> 00:03:29,599
imaged the temperature variations of the

84
00:03:33,670 --> 00:03:32,000
caves and surrounding surface that occur

85
00:03:34,789 --> 00:03:33,680
as a result of the heating effects of

86
00:03:36,710 --> 00:03:34,799
the sun

87
00:03:39,110 --> 00:03:36,720
this thermal data will be compared with

88
00:03:40,869 --> 00:03:39,120

similar ground-based measurements

89
00:03:42,789 --> 00:03:40,879
wind noted that there's a secondary

90
00:03:45,509 --> 00:03:42,799
reason for developing cave detection

91
00:03:47,030 --> 00:03:45,519
technology another important aspect of

92
00:03:49,670 --> 00:03:47,040
the study as it relates to the

93
00:03:52,070 --> 00:03:49,680
importance of martian caves is that

94
00:03:55,830 --> 00:03:52,080
these caves could also serve as

95
00:03:58,949 --> 00:03:57,509
wynn envisions this research will

96
00:04:01,110 --> 00:03:58,959
contribute to the development of

97
00:04:03,589 --> 00:04:01,120
selection criteria that could identify

98
00:04:07,110 --> 00:04:03,599
suitable cave targets for future robotic

99
00:04:08,229 --> 00:04:07,120
exploration if life ever existed on mars

100
00:04:14,309 --> 00:04:08,239
we're going to find that evidence

101
00:04:18,629 --> 00:04:16,229
college students from across the country

102
00:04:21,110 --> 00:04:18,639
and around the globe impressed judges

103
00:04:23,749 --> 00:04:21,120
and spectators during the second annual

104
00:04:26,469 --> 00:04:23,759
lunabotic mining competition held may

105
00:04:29,270 --> 00:04:26,479
23rd through 28th at the kennedy space

106
00:04:31,110 --> 00:04:29,280
center visitor complex in florida

107
00:04:33,670 --> 00:04:31,120
the competition highlights student

108
00:04:36,710 --> 00:04:33,680
proficiency in science technology

109
00:04:38,870 --> 00:04:36,720
engineering and mathematics or stem the

110
00:04:41,189 --> 00:04:38,880
challenge is for students to design and

111
00:04:43,909 --> 00:04:41,199
build a remote control excavator called

112
00:04:46,390 --> 00:04:43,919
the lunabot that can collect and deposit

113
00:04:49,990 --> 00:04:46,400

a minimum of 10 kilograms of lunar

114
00:04:51,990 --> 00:04:50,000
simulant or moon dust within 15 minutes

115
00:04:57,430 --> 00:04:52,000
the winning achievements may result in

116
00:04:59,749 --> 00:04:57,440
ideas that will one day be used by nasa

117
00:05:02,390 --> 00:04:59,759
world war ii aircraft paid a memorial

118
00:05:04,550 --> 00:05:02,400
day visit to the ames research center

119
00:05:09,029 --> 00:05:04,560
flown by the collings foundation the

120
00:05:11,510 --> 00:05:09,039
p-51 b-17 and b-24 aircraft regularly

121
00:05:14,310 --> 00:05:11,520
tour the country allowing the public not

122
00:05:16,469 --> 00:05:14,320
only a close-up look but also a chance

123
00:05:18,550 --> 00:05:16,479
to relive the wartime experience of

124
00:05:20,629 --> 00:05:18,560
flying in the aircraft on short

125
00:05:23,029 --> 00:05:20,639
demonstration flights

126
00:05:25,189 --> 00:05:23,039
although the tour makes dozens of stops

127
00:05:27,189 --> 00:05:25,199
the visit to ames recalls a special

128
00:05:29,830 --> 00:05:27,199
relationship with these particular

129
00:05:32,310 --> 00:05:29,840
aircraft models the chief aerodynamicist

130
00:05:35,909 --> 00:05:32,320
of north american aviation decided to

131
00:05:38,950 --> 00:05:35,919
contact the ames aeronautical laboratory

132
00:05:42,629 --> 00:05:38,960
here at moffett field and they

133
00:05:43,830 --> 00:05:42,639
suggested to basically take an entire

134
00:05:46,550 --> 00:05:43,840
airframe

135
00:05:48,629 --> 00:05:46,560
put it into a wind tunnel and see if

136
00:05:51,029 --> 00:05:48,639
they could reproduce

137
00:05:53,670 --> 00:05:51,039
the duct rumbling that the test pilot

138
00:05:55,990 --> 00:05:53,680

had noticed during the flight test ames

139
00:05:58,629 --> 00:05:56,000
did some important wartime wind tunnel

140
00:06:01,110 --> 00:05:58,639
work to fine-tune the performance of the

141
00:06:03,350 --> 00:06:01,120
air scoop on the p-51

142
00:06:05,430 --> 00:06:03,360
other research and development at ames

143
00:06:07,830 --> 00:06:05,440
included wing and propeller de-icing

144
00:06:11,590 --> 00:06:07,840
systems incorporated into production

145
00:06:13,909 --> 00:06:11,600
models of the b-17 and b-24 bombers

146
00:06:16,150 --> 00:06:13,919
these aircraft went on to fly crucial

147
00:06:19,670 --> 00:06:16,160
high-altitude missions over europe

148
00:06:22,469 --> 00:06:19,680
without falling victim to icing problems

149
00:06:25,029 --> 00:06:22,479
and that's this week at nasa for more on