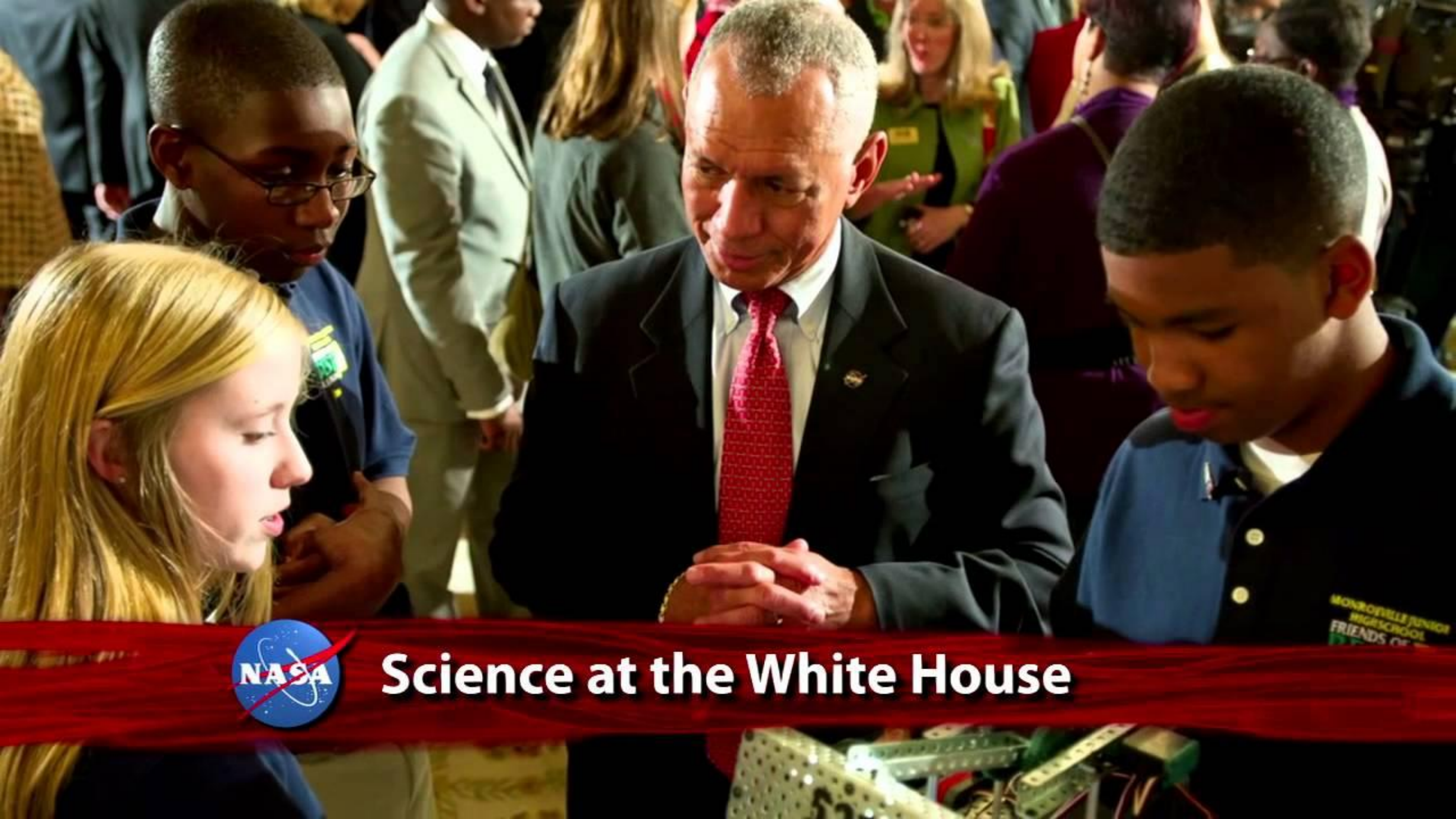
NASA
Science at the White House

1
00:00:07,020 --> 00:00:13,040
This Week at NASA…

2
00:00:13,040 --> 00:00:17,840
A full-scale test version of the Orion spacecraft
got the once-over from visitors to

3
00:00:17,840 --> 00:00:20,160
Huntsville’s U.S. Space & Rocket Center.

4
00:00:20,160 --> 00:00:23,270
It was Orion’s third scheduled stopover
on its

5
00:00:23,270 --> 00:00:27,680
cross-country journey from White Sands, New
Mexico after similar stops in Oklahoma

6
00:00:27,680 --> 00:00:29,410
City and Dallas.

7
00:00:29,410 --> 00:00:32,689
Not only were museum guests able to meet Orion
and Space Launch

8
00:00:32,689 --> 00:00:37,570
System team members – they also could sign
their names to a piece of flight hardware.

9
00:00:37,570 --> 00:00:42,290
“It’s a very unique opportunity for the
folks here in Huntsville to see the program

10
00:00:42,290 --> 00:00:46,050
that
we’re off and developing for the next generation

11
00:00:46,050 --> 00:00:51,970
of space exploration that NASA is

working on.”

12
00:00:51,970 --> 00:00:56,860
The Orion model’s final destination was
the Kennedy Space Center; there, it’ll be

13
00:00:56,860 --> 00:00:59,530
one
of several used by NASA to test and develop

14
00:00:59,530 --> 00:01:01,329
the future spacecraft.

15
00:01:01,329 --> 00:01:04,820
This multi-purpose
crew capsule and the SLSs heavy-lift launch

16
00:01:04,820 --> 00:01:10,280
vehicle will enable deep-space human
exploration missions beyond low-Earth orbit.

17
00:01:10,280 --> 00:01:17,270
Orion's first orbital flight test is scheduled
for 2014.

18
00:01:17,270 --> 00:01:22,700
Responding to public demand, NASA has created
a companion image to its new “Blue

19
00:01:22,700 --> 00:01:25,719
Marble” picture of Earth in stunning High
Definition.

20
00:01:25,719 --> 00:01:31,240
“Blue Marble 20-12” is a
composite image captured during six separate

21
00:01:31,240 --> 00:01:37,829
orbits by the Suomi National Polar-
orbiting Partnership satellite, or Suomi NPP.

22
00:01:37,829 --> 00:01:42,789
The separate swaths stitched together to
form both of the new Blue Marble images were

23
00:01:42,789 --> 00:01:48,310
taken by the satellite’s Visible Infrared
Imaging Radiometer Suite, or VIIRS instrument,

24
00:01:48,310 --> 00:01:51,810
over an eight-hour period on January
23.

25
00:01:51,810 --> 00:01:56,859
The original “Blue Marble” was photographed
by the crew of Apollo 17 as they traveled

26
00:01:56,859 --> 00:02:02,479
to the moon in 19-72.

27
00:02:02,479 --> 00:02:06,229
Some more eye-catching imagery from another
NASA science mission.

28
00:02:06,229 --> 00:02:09,840
The
MoonKAM camera aboard “Ebb”, one of NASA's

29
00:02:09,840 --> 00:02:15,550
twin Gravity Recovery and Interior
Laboratory, or GRAIL spacecraft, has returned

30
00:02:15,550 --> 00:02:19,780
its first unique view of the far side of the
lunar surface.

31
00:02:19,780 --> 00:02:24,360
MoonKAM, for Moon Knowledge Acquired by Middle
school students,

32
00:02:24,360 --> 00:02:28,550
will be used by students nationwide to study
lunar images.

33
00:02:28,550 --> 00:02:33,060
In lunar orbit together since
New Year’s Day, “Ebb” and its twin,

34
00:02:33,060 --> 00:02:36,000
“Flow,” have been collecting data to create
a gravity

35
00:02:36,000 --> 00:02:39,780
map of the moon.

36
00:02:39,780 --> 00:02:45,280
At least one object rover Curiosity is slated
to photograph on Mars later this year will

37
00:02:45,280 --> 00:02:49,010
be
immediately recognizable to most, if not all

38
00:02:49,010 --> 00:02:51,760
Americans… a Lincoln penny.

39
00:02:51,760 --> 00:02:56,630
This one-cent piece, struck in 19-09 when
the coin was first issued to commemorate

40
00:02:56,630 --> 00:03:02,680
Lincoln’s 100th birthday, is on a smart
phone-sized plaque attached to the rover.

41
00:03:02,680 --> 00:03:05,230
When
the Mars Science Laboratory lands in early

42
00:03:05,230 --> 00:03:10,260

August, a camera at the end of the rover's
robotic arm will use the penny to help its

43
00:03:10,260 --> 00:03:11,650
calibration.

44
00:03:11,650 --> 00:03:17,150
The Mars Hand Lens Imager or
MAHLI will show details of Martian rocks and

45
00:03:17,150 --> 00:03:23,160
soil so tiny that the calibration target
includes reference lines finer than a human

46
00:03:23,160 --> 00:03:24,160
hair.

47
00:03:24,160 --> 00:03:28,760
"We can position that camera up next to
a rock or some soil and we can take pictures

48
00:03:28,760 --> 00:03:32,010
of
it like close-up or we can pull it back and

49
00:03:32,010 --> 00:03:35,710
we can take pictures of a broader scene of
the

50
00:03:35,710 --> 00:03:36,710
landscape.

51
00:03:36,710 --> 00:03:38,440
We can even look back down at the rover itself."

52
00:03:38,440 --> 00:03:43,180
Curiosity also carries four other science
cameras, a dozen black-and-white

53

00:03:43,180 --> 00:03:46,740
engineering cameras and other research instruments.

54
00:03:46,740 --> 00:03:51,590
MSL will deliver Curiosity to a
landing site on Mars known as Gale Crater

55
00:03:51,590 --> 00:03:56,070
where the rover will conduct a two-year
investigation of whether that area of the

56
00:03:56,070 --> 00:04:01,600
Red Planet may have ever sustained
microbial life.

57
00:04:01,600 --> 00:04:05,680
Administrator Charlie Bolden headed a NASA
delegation visiting this year's White

58
00:04:05,680 --> 00:04:07,209
House Science Fair.

59
00:04:07,209 --> 00:04:10,540
The annual event held in the East Wing highlights
and applauds

60
00:04:10,540 --> 00:04:15,400
student excellence in science, technology,
engineering and mathematics, the STEM

61
00:04:15,400 --> 00:04:16,690
disciplines.

62
00:04:16,690 --> 00:04:21,459
NASA has developed a wide variety of STEM
education programs in support of the

63
00:04:21,459 --> 00:04:29,710
president's Educate to Innovate campaign.

64
00:04:29,710 --> 00:04:34,240
Aligned with NASA’s STEM education mission
is a newly-released game app with an

65
00:04:34,240 --> 00:04:41,870
air traffic control theme developed for Apple
iPhone and iPad devices.

66
00:04:41,870 --> 00:04:44,979
The “Sector 33”
application challenges students in middle

67
00:04:44,979 --> 00:04:49,699
school and above to use basic math and
problem-solving skills.

68
00:04:49,699 --> 00:04:53,210
The player acts as an air traffic controller
of a portion of Nevada

69
00:04:53,210 --> 00:04:59,569
and California, guiding airplanes’ paths
and speed to safely reach specific spots in

70
00:04:59,569 --> 00:05:02,080
the
sky in the fastest time possible.

71
00:05:02,080 --> 00:05:06,120
“What’s been fun about working on this
project is not only exploring the world of

72
00:05:06,120 --> 00:05:10,180
mobile
apps, but tying education into the game.

73
00:05:10,180 --> 00:05:13,509
Students can’t just video game their way
through these problems and solve them correctly.

74
00:05:13,509 --> 00:05:18,020
They actually have to understand the
mathematics."

75
00:05:18,020 --> 00:05:21,610
The latest edition of NASA's "Spinoff"
is now available.

76
00:05:21,610 --> 00:05:26,800
The annual publication follows
the journeys of 44 innovative technologies,

77
00:05:26,800 --> 00:05:32,180
from their origins in NASA missions and
programs, to use in commercial products and

78
00:05:32,180 --> 00:05:34,069
practical benefits to society.

79
00:05:34,069 --> 00:05:37,889
"Over the years NASA Spinoffs have generated
billions of dollars of revenue for our

80
00:05:37,889 --> 00:05:42,229
partner companies, created tens of thousands
of jobs and saved hundreds of thousands

81
00:05:42,229 --> 00:05:43,229
of lives."

82
00:05:43,229 --> 00:05:53,169
Your "Spinoff" is available online, at
http://spinoff.nasa.gov

83
00:05:53,169 --> 00:05:57,099
Ever dream of sending a satellite into space?

84
00:05:57,099 --> 00:06:02,250
NASA is seeking proposals for flight demonstrations

of small satellite technologies in

85
00:06:02,250 --> 00:06:07,719
hopes of increasing the technical capabilities
and uses for this emerging category of

86
00:06:07,719 --> 00:06:08,900
spacecraft.

87
00:06:08,900 --> 00:06:13,259
Small satellites typically weigh less than
400 pounds and are generally launched as

88
00:06:13,259 --> 00:06:16,759
secondary payloads on rockets carrying larger
spacecraft.

89
00:06:16,759 --> 00:06:20,759
They include the softball-
sized “CubeSats”, which can carry small

90
00:06:20,759 --> 00:06:25,620
payloads, and even smaller experimental
spacecraft.

91
00:06:25,620 --> 00:06:34,069
Explore the possibilities at www.nasa.gov/oct

92
00:06:34,069 --> 00:06:38,240
In recognition of the contributions by African-Americans
to the cause of space

93
00:06:38,240 --> 00:06:44,969
exploration, This Week @NASA profiles Larry
Cliatt, aerospace engineer at the Dryden

94
00:06:44,969 --> 00:06:46,960
Flight Research Center.

95

00:06:46,960 --> 00:06:52,349
“Aerodynamics is fascinating to me; just
the philosophy of aerodynamics and that led

96
00:06:52,349 --> 00:06:53,819
me to aeronautics.

97
00:06:53,819 --> 00:06:57,580
And, of course, the faster things go, the
cooler it is.

98
00:06:57,580 --> 00:06:58,790
My name is Larry
Cliatt.

99
00:06:58,790 --> 00:07:02,509
I’m an Aerospace Engineer at NASA Dryden
Flight Research Center.”

100
00:07:02,509 --> 00:07:08,770
“I work in the research aerodynamics branch
doing mostly supersonic research in

101
00:07:08,770 --> 00:07:12,150
supersonic flight and specifically sonic boom
research.”

102
00:07:12,150 --> 00:07:17,270
“Sonic boom research is towards the ongoing
effort to mitigate the sonic boom to allow

103
00:07:17,270 --> 00:07:20,789
over the land supersonic transportation for
civilians.

104
00:07:20,789 --> 00:07:25,180
Both of my parents were in the Air
Force and as far as I can remember, the day

105
00:07:25,180 --> 00:07:30,129

my Mom and Dad brought me home a
model toy replica of a B-2 bomber was the

106
00:07:30,129 --> 00:07:33,300
day I first got any interest in aeronautics
of

107
00:07:33,300 --> 00:07:34,300
aerospace period.

108
00:07:34,300 --> 00:07:38,330
I became a graduate student at Georgia Tech
and there, decided to

109
00:07:38,330 --> 00:07:40,210
do a Co-op rotation somewhere.

110
00:07:40,210 --> 00:07:43,009
The first place on my list, of course, was
NASA."

111
00:07:43,009 --> 00:07:49,169
"Everybody knows about these big centers
– Johnsons, Kennedys and everything and

112
00:07:49,169 --> 00:07:52,909
found out that there was a center that actually,
specifically did what I was wanting to do.

113
00:07:52,909 --> 00:07:58,639
My focus, at the time was high speed aerodynamics,
which is aeronautics and Dryden

114
00:07:58,639 --> 00:07:59,639
did just that."

115
00:07:59,639 --> 00:08:00,860
"NASA Dryden, this is NASA ground.

116

00:08:00,860 --> 00:08:03,279
I'd like to know whether you had any fuel
left for

117
00:08:03,279 --> 00:08:04,279
perhaps a Fox Trot run?"

118
00:08:04,279 --> 00:08:11,469
"Just this past year, I was the principal
investigator for the Whisper Project (WSPR)

119
00:08:11,469 --> 00:08:14,319
on a
community response test for sonic booms."

120
00:08:14,319 --> 00:08:19,840
"In that time frame we tried to do a range
of sonic booms.

121
00:08:19,840 --> 00:08:22,460
Not only in that range but we
also tried to startle you a little bit with

122
00:08:22,460 --> 00:08:23,509
some louder sonic booms."

123
00:08:23,509 --> 00:08:27,830
"NASA-2 this is NASA-ground, heard boom
on the ground."

124
00:08:27,830 --> 00:08:31,000
"So it was really fulfilling to see it out.

125
00:08:31,000 --> 00:08:33,849
To see it to its end and to see how successful
it

126
00:08:33,849 --> 00:08:34,849
was.

127
00:08:34,849 --> 00:08:37,120
One of the things that brought me here is
that I wanted to be an innovator and I think

128
00:08:37,120 --> 00:08:42,130
that nearly anybody that works at NASA kind
of keeps their mind open to pursue goals

129
00:08:42,130 --> 00:08:46,430
and tasks that no other company is doing,
no other agency is doing.

130
00:08:46,430 --> 00:08:51,260
So if you keep an
open mind and if you have the desire to work

131
00:08:51,260 --> 00:08:52,720
outside of the box, not just think outside
of

132
00:08:52,720 --> 00:09:01,920
the box but to do things that, literally,
no one else is doing, I think that's important."

133
00:09:01,920 --> 00:09:08,560
"3-2-1 ignition and liftoff Discovery now
on its way to service NASA's Hubble Space

134
00:09:08,560 --> 00:09:09,560
Telescope."

135
00:09:09,560 --> 00:09:16,310
Fifteen years ago, on February 11, 1997, Space
Shuttle Discovery lit up the pre-dawn

136
00:09:16,310 --> 00:09:22,340
sky at the Kennedy Space Center to begin STS-82,
the second planned servicing

137

00:09:22,340 --> 00:09:25,320
mission to the Hubble Space Telescope.

138
00:09:25,320 --> 00:09:31,280
During the almost 10-day mission, astronauts
Ken Bowersox, Scott Horowitz, Mark Lee, Steve

139
00:09:31,280 --> 00:09:37,240
Hawley, Greg Harbaugh, Steve Smith,
and Joe Tanner upgraded Hubble with new imaging

140
00:09:37,240 --> 00:09:42,580
devices – including the Space
Telescope Imaging Spectrograph, or STIS – an

141
00:09:42,580 --> 00:09:48,940
instrument designed to seek out super-
massive black holes, and NICMOS, The Near

142
00:09:48,940 --> 00:09:53,430
Infrared Camera and Multi-Object
Spectrometer, which astronomers would use

143
00:09:53,430 --> 00:09:57,270
to capture near-infrared views of the
universe.

144
00:09:57,270 --> 00:10:03,210
Discovery and crew landed safely at KSC on
February 21.

145
00:10:03,210 --> 00:10:05,150
And that’s This Week @ NASA!

146
00:10:05,150 --> 00:10:10,150
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