1
00:00:07,040 --> 00:00:12,760
This Week at NASA…

2
00:00:12,760 --> 00:00:19,000
At the Baikonur Cosmodrome in Kazakhstan,
Expedition 31 Soyuz Commander Gennady Padalka,

3
00:00:19,000 --> 00:00:22,930
NASA Flight Engineer Joe Acaba and Flight
Engineer Sergei Revin

4
00:00:22,930 --> 00:00:28,070
continued their preparations for their upcoming
launch to the International Space Station.

5
00:00:28,070 --> 00:00:33,700
The crew conducted suited fit checks in the
Soyuz capsule in which they'll travel to

6
00:00:33,700 --> 00:00:35,500
the orbiting laboratory.

7
00:00:35,500 --> 00:00:41,960
The trio is scheduled to begin its journey
May 15, local time.

8
00:00:41,960 --> 00:00:46,840
SpaceX continues its preparations for the
launch of Falcon 9 at Florida's Cape Canaveral

9
00:00:46,840 --> 00:00:48,400
Air Force Station.

10
00:00:48,400 --> 00:00:53,370
The Falcon 9 rocket will send aloft the unmanned
Dragon spacecraft to the International Space

11
00:00:53,370 --> 00:00:58,579
Station, where it will be grappled remotely

by the Expedition 31 crew.

12
00:00:58,579 --> 00:01:03,829
The SpaceX mission, now scheduled to launch
on the morning of May 19, will be the first

13
00:01:03,829 --> 00:01:08,530
commercial venture to the ISS.

14
00:01:08,530 --> 00:01:13,780
Administrator Charlie Bolden headed a delegation
of senior NASA leadership that met with Japanese

15
00:01:13,780 --> 00:01:19,390
Prime Minister Yoshihiko Noda to discuss international
cooperation in space.

16
00:01:19,390 --> 00:01:25,100
Presented by Bolden with a montage of mementos
flown on STS-135, the final space shuttle

17
00:01:25,100 --> 00:01:30,530
mission, Prime Minister Noda said he wants
to excite young people about careers exploring

18
00:01:30,530 --> 00:01:36,780
space, noting his envy of five meeting attendees
who’d actually done that.

19
00:01:36,780 --> 00:01:40,479
“Which is also telling us something fundamental…”

20
00:01:40,479 --> 00:01:46,210
The first global analysis by the Dawn spacecraft
of Vesta has uncovered some interesting new

21
00:01:46,210 --> 00:01:48,240
findings about the giant asteroid.

22

00:01:48,240 --> 00:01:54,360
“We now know that Vesta is the only intact
layered planetary building block surviving

23
00:01:54,360 --> 00:01:56,790
from the very earliest days of the solar system.

24
00:01:56,790 --> 00:02:03,350
Vesta exhibits many characteristics that define
it more as a body that is transitional between

25
00:02:03,350 --> 00:02:09,229
asteroids and planets than being more like
your garden variety asteroid.

26
00:02:09,229 --> 00:02:14,349
Vesta is special because it survived the intense
collisional environment of the main asteroid

27
00:02:14,349 --> 00:02:20,099
belt for billions of years allowing us to
interrogate a key witness to the events at

28
00:02:20,099 --> 00:02:22,189
the very beginning of the solar system.”

29
00:02:22,189 --> 00:02:27,689
Dawn has also confirmed that a certain class
of meteorites found here on Earth originally

30
00:02:27,689 --> 00:02:33,780
came from Vesta, making Dawn the first "reverse"
sample return mission in space exploration

31
00:02:33,780 --> 00:02:35,680
history.

32
00:02:35,680 --> 00:02:42,049
NASA’s Solar Dynamics Observatory captured
these photos of a powerfully active region

33
00:02:42,049 --> 00:02:47,659
of the Sun called 1476 that’s more than
60,000 miles across.

34
00:02:47,659 --> 00:02:52,689
This so-called Monster sunspot has released
multiple large flares.

35
00:02:52,689 --> 00:02:56,930
Sunspots occur where the magnetic field lines
emerge from the inside of the Sun to form

36
00:02:56,930 --> 00:02:58,980
expanding loops above its surface.

37
00:02:58,980 --> 00:03:04,370
They appear dark because temperatures are
considerably lower than in surrounding areas.

38
00:03:04,370 --> 00:03:10,129
SDO is the first launched mission in NASA's
Living With a Star Program designed to understand

39
00:03:10,129 --> 00:03:14,419
the causes of solar variability and its impacts
on Earth.

40
00:03:14,419 --> 00:03:19,159
“Save at the innovative process and government’s
role in it.”

41
00:03:19,159 --> 00:03:22,499
“That’s a great way to frame the problem
because I think that’s exactly the question.”

42
00:03:22,499 --> 00:03:28,299
NASA Chief Technologist Mason Peck offered
his take on the role of research and development

43
00:03:28,299 --> 00:03:34,000
in revitalizing the nation's economic future
in a special innovation summit held at Washington's

44
00:03:34,000 --> 00:03:36,189
Reagan National Airport.

45
00:03:36,189 --> 00:03:40,859
Sponsored by the Atlantic Monthly magazine,
Peck's panel discussed how investment in

46
00:03:40,859 --> 00:03:44,670
American R&D and manufacturing benefits our
economy.

47
00:03:44,670 --> 00:03:50,150
"When you pose difficult problems such as
sending humans to Mars, which is on NASA's

48
00:03:50,150 --> 00:03:54,819
plate right now – when you pose those kinds
of problems and you put American industry

49
00:03:54,819 --> 00:04:04,620
to work and academia to work on those problems,
you get innovation."

50
00:04:04,620 --> 00:04:09,339
Researchers with the Mars Science Laboratory
Project at the Jet Propulsion Laboratory recently

51
00:04:09,339 --> 00:04:15,049
took science journalists on a two-day field
trip and workshop to California's Mojave

52
00:04:15,049 --> 00:04:16,269
Desert.

53
00:04:16,269 --> 00:04:22,960

The journalists were shown sedimentary rock exposures that, like those the Curiosity rover

54
00:04:22,960 --> 00:04:28,010
will study on Mars, reveal to scientists the history of their environment.

55
00:04:28,010 --> 00:04:31,790
The hard part is how to extract the information in the rock, so that’s what everybody is

56
00:04:31,790 --> 00:04:34,470
learning to do here, is how to make measurements.

57
00:04:34,470 --> 00:04:39,400
We measure the thickness of the beds, we measure the grain size, we look at the mineralogy

58
00:04:39,400 --> 00:04:44,780
as best as we can understand it and we record all of this information and then from that,

59
00:04:44,780 --> 00:04:49,150
it will eventually allow us to reconstruct what kind of environment was here.”

60
00:04:49,150 --> 00:04:56,190
“Liftoff of the Atlas V with Curiosity – seeking clues to the planetary puzzle about life on

61
00:04:56,190 --> 00:04:57,260
Mars.”

62
00:04:57,260 --> 00:05:03,600
The MSL spacecraft, carrying Curiosity, was launched Nov. 26, 2011 and is scheduled for

63
00:05:03,600 --> 00:05:09,630
an August 2012 landing on Mars at a site known as Gale Crater.

64
00:05:09,630 --> 00:05:14,700
A full-scale test version of NASA’s Orion
spacecraft has arrived at the Virginia Air

65
00:05:14,700 --> 00:05:19,460
& Space Center in Hampton, where it will be
on display through the summer.

66
00:05:19,460 --> 00:05:24,160
The 18-thousand pound test vehicle, built
at the nearby Langley Research Center, was

67
00:05:24,160 --> 00:05:29,730
used in the successful Pad Abort 1test of
Orion’s launch abort system in May 2010.

68
00:05:29,730 --> 00:05:36,520
NASA’s first space-bound Orion capsule will
undergo an un-crewed Exploration Flight Test-1

69
00:05:36,520 --> 00:05:38,620
planned for 2014.

70
00:05:38,620 --> 00:05:45,060
EFT-1 will see Orion travel farther into space
than any human-rated spacecraft has gone in

71
00:05:45,060 --> 00:05:47,800
more than 40 years.

72
00:05:47,800 --> 00:05:54,270
Recently, a team of scientists and volunteers
from NASA Ames Research Center searched for

73
00:05:54,270 --> 00:05:58,830
debris left in the wake of a large meteor
that plummeted into Northern California on

74

00:05:58,830 --> 00:05:59,840
April 22, 2012.

75
00:05:59,840 --> 00:06:06,800
To expedite their search, researchers enlisted
the services of an airship called “Eureka”

76
00:06:06,800 --> 00:06:10,370
for an airborne survey of the debris field.

77
00:06:10,370 --> 00:06:14,030
During a five hour flight, they searched a
300-square mile area.

78
00:06:14,030 --> 00:06:20,910
They used a sophisticated video camera system
that is commonly used to cover sporting events.

79
00:06:20,910 --> 00:06:25,220
Researchers were also conducting ground surveys
to look for fragments.

80
00:06:25,220 --> 00:06:30,640
Within days, a NASA team was able to find
and identify a fragment as a type of meteorite

81
00:06:30,640 --> 00:06:32,730
known as a carbonaceous chondrite.

82
00:06:32,730 --> 00:06:41,450
“It is a really special meteorite because
this particular one contains the goodies that

83
00:06:41,450 --> 00:06:45,560
scientists are interested in – the amino
acids – all of the compounds that could

84
00:06:45,560 --> 00:06:50,330
have made life possible on our planet.”

85
00:06:50,330 --> 00:06:54,630
Because meteorite fragments will quickly degrade
when exposed to the elements, the rush to

86
00:06:54,630 --> 00:06:57,360
find them as soon as possible began.

87
00:06:57,360 --> 00:07:00,800
One of the larger fragments was discovered
in the de Hass family pasture.

88
00:07:00,800 --> 00:07:06,790
“I’m glad you found it there and I’m
glad it’s a piece that’s going to be valuable

89
00:07:06,790 --> 00:07:11,990
to science and I’m looking forward to hearing
some of the results from it.”

90
00:07:11,990 --> 00:07:16,360
Along with the de Haas fragment, over 20 specimens
have been recovered.

91
00:07:16,360 --> 00:07:21,340
Some of the largest are now undergoing tests
in a lab at Ames Research Center.

92
00:07:21,340 --> 00:07:26,200
This discovery could provide clues as to what
our planet may have been made from and how

93
00:07:26,200 --> 00:07:29,840
life could have begun on Earth.

94
00:07:29,840 --> 00:07:37,110
About 50 followers of NASA's social media
websites got an up-close-and-personal, behind-the-scenes

95
00:07:37,110 --> 00:07:42,470

look at NASA's Dryden Flight Research Center during a "NASA Social" on May 4.

96
00:07:42,470 --> 00:07:46,730
The social media visitors, along with several news media representatives, were briefed on

97
00:07:46,730 --> 00:07:51,190
what Dryden is and does by center management, project engineers and technicians.

98
00:07:51,190 --> 00:07:56,620
“We’re responsible for that collision avoidance stewardship throughout aviation.”

99
00:07:56,620 --> 00:08:01,450
They also toured various facilities, viewed research and support aircraft, had their photos

100
00:08:01,450 --> 00:08:11,030
taken in the cockpit of a NASA F/A-18, and were even regaled by a low-level flyover…

101
00:08:11,030 --> 00:08:16,010
and a sonic boom…

102
00:08:16,010 --> 00:08:19,040
during the day-long event.

103
00:08:19,040 --> 00:08:23,610
The NASA Social attendees responded by posting hundreds of "tweets" and comments about their

104
00:08:23,610 --> 00:08:32,010
experience on their Twitter, Facebook and Google-Plus accounts.

105
00:08:32,010 --> 00:08:36,300
National Take Our Children to Work Day was upbeat and full of energy for students and

106
00:08:36,300 --> 00:08:38,720
children of Marshall Space Flight Center employees.

107
00:08:38,720 --> 00:08:41,725
“Alright now as you can see filling the
rocket with air pressure – and that’s

108
00:08:41,725 --> 00:08:46,220
the action – all of the pressure builds
(launch sound) – there it goes!

109
00:08:46,220 --> 00:08:47,939
Liftoff is the reaction.”

110
00:08:47,939 --> 00:08:51,210
Performers in the educational show FMA Live!

111
00:08:51,210 --> 00:08:55,759
brought Sir Isaac Newton's laws of motion
to life for the potential future scientists

112
00:08:55,759 --> 00:08:56,759
and engineers!

113
00:08:56,759 --> 00:08:57,950
FMA Live!

114
00:08:57,950 --> 00:09:03,120
-- created by NASA and Honeywell International
-- is an award-winning, traveling hip-hop

115
00:09:03,120 --> 00:09:08,589
science program designed to inspire elementary
and middle school students to pursue studies

116
00:09:08,589 --> 00:09:16,580
in science, technology, engineering and math
by using interactive demonstrations in an

117
00:09:16,580 --> 00:09:21,899
entertaining way.

118
00:09:21,899 --> 00:09:34,699
“I’m Allen Chen; I’m the operations
lead on the Entry, Descent and Landing team

119
00:09:34,699 --> 00:09:37,139
for the Mars Science Laboratory project.

120
00:09:37,139 --> 00:09:41,750
“Right now I’m coordinating our preparations
for entry, descent and landing.

121
00:09:41,750 --> 00:09:45,610
We land in August, a few months from now and
we’re still hurrying to get all our stuff

122
00:09:45,610 --> 00:09:48,890
ready to make sure that we’re ready to take
the plunge.

123
00:09:48,890 --> 00:09:51,779
I’ll be telling people exactly what the
spacecraft is doing, you know roughly where

124
00:09:51,779 --> 00:09:58,149
it is and what it’s telling us is going
on during EDL.

125
00:09:58,149 --> 00:10:03,459
“My parents always displayed an example
that education never stops.

126
00:10:03,459 --> 00:10:07,079
You always want to learn as much as you can
and it doesn’t stop when you leave the classroom.

127

00:10:07,079 --> 00:10:11,800
My parents added new skills while I was still
in high school and you know they got other

128
00:10:11,800 --> 00:10:45,639
degrees and a lot of the times it was just
for fun.

129
00:10:45,639 --> 00:10:50,540
“This is a type of mission and type of project
and type of thing that we do here that no

130
00:10:50,540 --> 00:10:51,899
one person can do by themselves.

131
00:10:51,899 --> 00:10:56,730
So you got to work with a lot people and learning
how to work with those people is just as important

132
00:10:56,730 --> 00:10:59,200
as learning those basics in science and math.

133
00:10:59,200 --> 00:11:02,800
That’s kind of the starting point but to
grow beyond that you need to be able to work

134
00:11:02,800 --> 00:11:03,800
with people.

135
00:11:03,800 --> 00:11:07,070
“There’s a kind of exploration that we
do here that can’t be done anywhere else.

136
00:11:07,070 --> 00:11:11,279
There’s certainly other places where you’re
doing things to make money or you’re doing

137
00:11:11,279 --> 00:11:17,370
things related to exploration, but here the
entire point of the place is about exploration.

138
00:11:17,370 --> 00:11:20,970
So I think I finally came to that realization
sometime in late high school or early college

139
00:11:20,970 --> 00:11:34,619
that this is the type of place I want to be
at."

140
00:11:34,619 --> 00:11:40,949
Fifteen years ago, on May 15, 1997, Space
Shuttle Atlantis launched from the Kennedy

141
00:11:40,949 --> 00:11:42,430
Space Center on STS-84.

142
00:11:42,430 --> 00:11:48,949
The mission was the sixth shuttle docking
to the Russian Mir space station, exchanging

143
00:11:48,949 --> 00:11:55,749
astronaut Mike Foale for U.S. crew member
Jerry Linenger, who'd spent 123 days there.

144
00:11:55,749 --> 00:12:01,029
Rounding out the Atlantis crew were commander
Charlie Precourt, a 2012 inductee into the

145
00:12:01,029 --> 00:12:07,179
U.S. Astronaut Hall of Fame, Pilot Eileen
Collins and Mission Specialists Carlos Noriega,

146
00:12:07,179 --> 00:12:17,709
Ed Lu, Jean-Francois Clervoy of the European
Space Agency and Elena Kondakova of Russia.

147
00:12:17,709 --> 00:12:28,619
And, May 16 marks the one-year anniversary
of the launch of STS-134 – the final spaceflight

148
00:12:28,619 --> 00:12:32,089
of Space Shuttle Endeavour.

149
00:12:32,089 --> 00:12:38,449
NASA's youngest orbiter lifted off from
the Kennedy Space Center at 8:56 a.m. EDT

150
00:12:38,449 --> 00:12:43,429
to the International Space Station, carrying
with it the six-person crew of Commander Mark

151
00:12:43,429 --> 00:12:49,980
Kelly, Pilot Greg Johnson, and Mission Specialists
Mike Fincke, Drew Feustel, Greg Chamitoff

152
00:12:49,980 --> 00:12:51,680
and Roberto Vittori.

153
00:12:51,680 --> 00:12:58,639
The 14-day mission delivered the Alpha Magnetic
Spectrometer (AMS), the Express Logistics

154
00:12:58,639 --> 00:13:04,860
Carrier-3, a high-pressure gas tank and spare
parts for other station hardware.

155
00:13:04,860 --> 00:13:13,069
STS-134 was the 36th, and next-to-last shuttle
mission to the International Space Station.

156
00:13:13,069 --> 00:13:15,249
And that's This Week @ NASA!

157
00:13:15,249 --> 00:13:20,600
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