1
00:00:07,100 --> 00:00:14,750
This Week at NASA…

2
00:00:14,750 --> 00:00:20,590
After handing over the reins of the International
Space Station to NASA astronaut Kevin Ford,

3
00:00:20,590 --> 00:00:26,750
Expedition 33 Commander Suni Williams of NASA,
Soyuz Commander Yuri Malenchenko and Flight

4
00:00:26,750 --> 00:00:32,529
Engineer Aki Hoshide of the Japan Aerospace
Exploration Agency, all of whom have been

5
00:00:32,529 --> 00:00:37,780
on the station since July 17, made a safe
parachute-assisted landing in their Soyuz

6
00:00:37,780 --> 00:00:42,239
spacecraft in Kazakhstan on Nov. 19 local
time.

7
00:00:42,239 --> 00:00:47,570
Expedition 34 crewmembers Ford, Oleg Novitskiy
and Evgeny Tarelkin will be joined onboard

8
00:00:47,570 --> 00:00:54,280
the station by Russian cosmonaut Roman Romanenko,
NASA’s Tom Marshburn and Chris Hadfield

9
00:00:54,280 --> 00:00:56,760
of the Canadian Space Agency.

10
00:00:56,760 --> 00:01:04,449
Their arrival Dec. 21 will restore to six
the number of people aboard the orbiting laboratory.

11
00:01:04,449 --> 00:01:08,210

“We hear you loud and clear aboard the International Space Station.

12
00:01:08,210 --> 00:01:09,210
Welcome aboard!”

13
00:01:09,210 --> 00:01:15,321
The Smithsonian National Air and Space Museum’s Moving Beyond Earth gallery was among 25 North

14
00:01:15,321 --> 00:01:20,210
American locations at which participants of the Student Spaceflight Experiments Program

15
00:01:20,210 --> 00:01:26,810
(SSEP) plugged into life onboard the International Space Station during a live video-conference

16
00:01:26,810 --> 00:01:28,229
with the ISS.

17
00:01:28,229 --> 00:01:33,670
The event gave U.S. and Canadian students an opportunity to ask station crew members

18
00:01:33,670 --> 00:01:36,670
about daily activities onboard the orbiting laboratory.

19
00:01:36,670 --> 00:01:42,179
“What advice can you give young kids like me about pursuing our dreams?”

20
00:01:42,179 --> 00:01:46,071
“Just have your eyes wide open and get ready for all of those challenges – because they’ll

21
00:01:46,071 --> 00:01:51,000
be out there but they’ll be fun and the rewards are great if you try hard, work hard

22
00:01:51,000 --> 00:01:52,249
and do your best.”

23
00:01:52,249 --> 00:01:57,039
A panel of spaceflight and science experts
also fielded questions -- including astronaut

24
00:01:57,039 --> 00:02:01,499
Leland Melvin – NASA’s Associate Administrator
for Education.

25
00:02:01,499 --> 00:02:06,499
The SSEP program is a joint venture between
the Smithsonian National Air and Space Museum,

26
00:02:06,499 --> 00:02:12,210
the National Center for Earth and Space Science
Education (NCESSE), NASA, and the U.S. Department

27
00:02:12,210 --> 00:02:13,930
of Education.

28
00:02:13,930 --> 00:02:17,930
“One, two three … space!”

29
00:02:17,930 --> 00:02:23,050
A new NASA service will help sky watchers
pinpoint where and when the International

30
00:02:23,050 --> 00:02:26,160
Space Station will make an appearance in the
skies above them.

31
00:02:26,160 --> 00:02:31,630
NASA’s “Spot the Station” service sends
a text or email to anyone with an email account

32
00:02:31,630 --> 00:02:38,070

or an SMS-enabled phone to alert them when
the ISS is scheduled for a flyover in the

33
00:02:38,070 --> 00:02:39,070
area.

34
00:02:39,070 --> 00:02:43,540
Mission Control at the Johnson Space Center
compiles sighting opportunities for 4,600

35
00:02:43,540 --> 00:02:44,830
locations worldwide.

36
00:02:44,830 --> 00:02:48,760
To sign up, visit spotthestation.nasa.gov.

37
00:02:48,760 --> 00:02:54,590
If your city or town isn't listed, just
pick one that's close by!

38
00:02:54,590 --> 00:03:00,730
Hi, I'm Ashwin Vasavada, the deputy project
scientist for the Curiosity rover and this

39
00:03:00,730 --> 00:03:03,400
is your Curiosity rover update.

40
00:03:03,400 --> 00:03:07,820
A lot of what this mission is about is figuring
out the possibility that ancient Mars was

41
00:03:07,820 --> 00:03:09,100
a habitable environment.

42
00:03:09,100 --> 00:03:11,650
But we're also studying the present environment.

43
00:03:11,650 --> 00:03:15,740
Two instruments that help with that are the

RAD instrument and the REMS instrument.

44
00:03:15,740 --> 00:03:18,480
The RAD instrument is a radiation assessment
detector.

45
00:03:18,480 --> 00:03:24,100
It measures the high-energy radiation coming
up from the cosmic rays and the sun.

46
00:03:24,100 --> 00:03:32,420
That radiation is changed as it goes through
Mars' atmosphere to where we detect it on

47
00:03:32,420 --> 00:03:33,420
the surface.

48
00:03:33,420 --> 00:03:38,640
By measuring the radiation at Mars' surface
Curiosity is helping prepare for human missions

49
00:03:38,640 --> 00:03:39,640
to Mars.

50
00:03:39,640 --> 00:03:43,890
Another instrument that Curiosity has that
measures the modern environment is called

51
00:03:43,890 --> 00:03:46,340
the rover environmental monitoring station.

52
00:03:46,340 --> 00:03:48,180
It's basically our weather station.

53
00:03:48,180 --> 00:03:52,850
We measure a lot of things including pressure,
and humidity, temperature and wind.

54
00:03:52,850 --> 00:03:58,070

It’s been seeing little dips in pressure
around noon that seemed like the signature

55
00:03:58,070 --> 00:03:59,430
of dust devils.

56
00:03:59,430 --> 00:04:02,930
Only thing is our pictures haven’t turned
up any dust devils.

57
00:04:02,930 --> 00:04:06,650
Spirit and Opportunity saw lots of dust devils
moving across the horizon.

58
00:04:06,650 --> 00:04:11,340
Our best guess at what’s going on is that
Curiosity is seeing dust devils go right over

59
00:04:11,340 --> 00:04:12,340
it, only thing is we’re not seeing the dust
devils.

60
00:04:12,340 --> 00:04:16,840
So what we think is happening is the same
sorts of vortexes, driven by convection are

61
00:04:16,840 --> 00:04:21,120
occurring on Mars at the Curiosity’s site
but just not picking up dust.

62
00:04:21,120 --> 00:04:23,980
Another thing that REMS has been measuring
is winds.

63
00:04:23,980 --> 00:04:26,810
Turns out we’re in a pretty interesting
place inside of Gale Crater.

64
00:04:26,810 --> 00:04:31,050
We’re right at the base of a 5-kilometer

high mountain to the south of us and then

65
00:04:31,050 --> 00:04:34,351
there’s a pretty tall crater rim to the
north of us and we’re sitting in kind of

66
00:04:34,351 --> 00:04:36,750
a flat depression between the two.

67
00:04:36,750 --> 00:04:41,010
The winds blow up and down the mountain as
the temperature changes during the day and

68
00:04:41,010 --> 00:04:45,260
up and down the crater slopes and then along
the depression where we’re at.

69
00:04:45,260 --> 00:04:48,490
So right now we’re trying to figure out
from the REMS data exactly which parts of

70
00:04:48,490 --> 00:04:51,060
that wind field we’re measuring.

71
00:04:51,060 --> 00:04:54,851
With Thanksgiving coming up we’ve been preparing
a few days worth of commands to send up to

72
00:04:54,851 --> 00:04:58,780
the rover to keep it busy while people here
take some much needed time off.

73
00:04:58,780 --> 00:05:02,800
The rover will be acquiring a big panorama
of our surroundings while we’re away.

74
00:05:02,800 --> 00:05:09,090
I’m Ashwin Vasavada and this has been your
Curiosity rover update.

75
00:05:09,090 --> 00:05:14,150
NASA has announced the successful completion
of the Kepler space telescope's baseline

76
00:05:14,150 --> 00:05:17,600
mission to search for planets in other solar
systems.

77
00:05:17,600 --> 00:05:24,180
Since its launch in 2009, scientists using
Kepler have identified more than 100 exoplanets

78
00:05:24,180 --> 00:05:26,540
and another 23-hundred-plus candidates.

79
00:05:26,540 --> 00:05:29,790
"The tapestry of everything that goes on
in the Kepler.

80
00:05:29,790 --> 00:05:31,550
It's really a team mission.

81
00:05:31,550 --> 00:05:35,780
It's an enormous number of people who come
together to make this kind of mission happen."

82
00:05:35,780 --> 00:05:41,480
In April of this year, NASA awarded the Kepler
mission up to four more years of funding,

83
00:05:41,480 --> 00:05:47,389
allowing the telescope to continue its planetary
census and to help scientists better understand

84
00:05:47,389 --> 00:05:52,770
solar system and planetary formation.

85
00:05:52,770 --> 00:05:58,090
Engineers at the Marshall Space Flight Center

are using a new, cost-saving method to create

86
00:05:58,090 --> 00:06:02,270
intricate metal parts for America’s next
heavy-lift rocket.

87
00:06:02,270 --> 00:06:08,360
Called “Selective Laser Melting” the process
uses a high-energy laser to melt a fine metal

88
00:06:08,360 --> 00:06:11,460
powder into a computer-aided designed pattern.

89
00:06:11,460 --> 00:06:17,690
A hybrid of 3-D printing and artistic welding,
SLM creates intricately-designed parts with

90
00:06:17,690 --> 00:06:24,639
complex geometries that are more strong and
safe in less time, saving millions in manufacturing

91
00:06:24,639 --> 00:06:25,639
costs.

92
00:06:25,639 --> 00:06:35,050
These new, SLM-created parts will be on the
first SLS test flight in 2017.

93
00:06:35,050 --> 00:06:40,380
The Goddard Space Flight Center hosted a 2012
Veterans Day Recognition Program, with former

94
00:06:40,380 --> 00:06:46,030
NASA astronaut and retired Navy captain Scott
Altman serving as featured speaker.

95
00:06:46,030 --> 00:06:53,570
Altman, who flew four space shuttle missions
and commanded STS-125, the final Hubble servicing

96
00:06:53,570 --> 00:07:03,010
mission, praised those who've defended and upheld those freedoms upon which our nation

97
00:07:03,010 --> 00:07:05,360
stands.

98
00:07:05,360 --> 00:07:10,310
Hundreds of students celebrated the 20th annual Young Astronauts Day at the Glenn Research

99
00:07:10,310 --> 00:07:11,310
Center.

100
00:07:11,310 --> 00:07:16,210
They competed in a variety of activities testing their skills in science and engineering.

101
00:07:16,210 --> 00:07:21,370
Meeting with the students was Center Director Ray Lugo, and NASA astronaut and Ohio native,

102
00:07:21,370 --> 00:07:26,810
Greg Johnson, who serves as Associate Director of External Programs at Glenn.

103
00:07:26,810 --> 00:07:30,770
This year's event was sponsored by Glenn's Exploration Flight and Development Project

104
00:07:30,770 --> 00:07:36,840
Office and the Northern Ohio Section of the American Institute of Aeronautics and Astronautics.

105
00:07:36,840 --> 00:07:41,730
Providing support was the center's Educational Programs Office.

106
00:07:41,730 --> 00:07:49,690

At the fifth annual Wernher von Braun Memorial Symposium in Huntsville, Marshall Space Flight

107
00:07:49,690 --> 00:07:56,639
Center personnel and guests discussed a wide range of topics, including human space exploration,

108
00:07:56,639 --> 00:08:03,020
space commerce, national space security and policy, and trends in engineering education.

109
00:08:03,020 --> 00:08:07,840
The von Braun Symposium, organized by the American Astronautical Society in conjunction

110
00:08:07,840 --> 00:08:13,620
with UA - Huntsville, the National Space Club of Huntsville and NASA strives for the advancement

111
00:08:13,620 --> 00:08:21,300
of astronautics in the Unites States.

112
00:08:21,300 --> 00:08:27,160
Registration is now open for the 20th annual Great Moonbuggy Race, scheduled for next April

113
00:08:27,160 --> 00:08:31,650
25 thru 27 at the U.S. Space and Rocket Center in Huntsville.

114
00:08:31,650 --> 00:08:36,370
The Marshall-sponsored event provides high school, college and university students from

115
00:08:36,370 --> 00:08:42,300
around the world with real-world engineering experience, and inspiration to pursue careers

116
00:08:42,300 --> 00:08:45,529
in science, technology, engineering and math.

117
00:08:45,529 --> 00:08:50,820
For details, go to moonbuggy.msfc.nasa.gov/.

118
00:08:50,820 --> 00:09:02,850
I'm Jeanne Lynch and I'm Chief of the Flight
Dynamics Division in the Mission Operations

119
00:09:02,850 --> 00:09:03,850
Directorate.

120
00:09:03,850 --> 00:09:08,079
The Flight Dynamics Division is responsible
for the trajectory of the International Space

121
00:09:08,079 --> 00:09:14,600
Station so that includes the visiting vehicles
and how they fly to the ISS, as well as where

122
00:09:14,600 --> 00:09:19,019
the ISS is located; basically the altitude
of how far it is from the Earth.

123
00:09:19,019 --> 00:09:21,670
My grandmother’s grandmother was Cherokee.

124
00:09:21,670 --> 00:09:26,010
We moved to Florida next to my grandmother
and my mother started getting more involved

125
00:09:26,010 --> 00:09:29,920
in the genealogy and our culture.

126
00:09:29,920 --> 00:09:34,910
So when I was in high school and even in college
before I moved away, I participated in a number

127
00:09:34,910 --> 00:09:40,019
of the local Pow-Wows and other Native American

Functions.

128
00:09:40,019 --> 00:09:44,569
When I started for NASA, I was actually a
new hire right out of college so I wasn't

129
00:09:44,569 --> 00:09:50,959
a Co-Op, but I did do my senior project when
I was in engineering school that was a NASA

130
00:09:50,959 --> 00:09:56,339
funded project through my university where
we essentially built a little kind of lunar

131
00:09:56,339 --> 00:09:59,220
servicing station for a lunar lander.\h

132
00:09:59,220 --> 00:10:02,439
And it was amazing and a lot of fun.\h

133
00:10:02,439 --> 00:10:07,329
In any job you have, you need to give it your
all; you need to take personal responsibility

134
00:10:07,329 --> 00:10:12,819
for the quality of your work, getting it done,
and really being passionate about what you

135
00:10:12,819 --> 00:10:13,819
do.\h

136
00:10:13,819 --> 00:10:18,209
And I know if you do that, then it gets noticed
and everyone appreciates it and then your

137
00:10:18,209 --> 00:10:28,370
career will just continue to grow.

138
00:10:28,370 --> 00:10:35,100

Fourteen years ago, on Nov. 20, 1998, Zarya,
the first component of the new International

139
00:10:35,100 --> 00:10:39,980
Space Station was launched atop a Russian
Proton rocket from the Baikonur Cosmodrome

140
00:10:39,980 --> 00:10:41,649
in Kazakhstan.

141
00:10:41,649 --> 00:10:46,839
During the initial assembly stage of the ISS
Zarya provided the station with propulsion,

142
00:10:46,839 --> 00:10:52,720
guidance, battery power, fuel storage, and
rendezvous and docking capability for Soyuz

143
00:10:52,720 --> 00:10:54,939
and Progress space vehicles.

144
00:10:54,939 --> 00:11:00,089
Now that specialized components handle those
chores for the station, Zarya is primarily

145
00:11:00,089 --> 00:11:08,920
used for storage.

146
00:11:08,920 --> 00:11:19,779
Three years ago on November 16, 2009 Space
Shuttle Atlantis rose skyward from the Kennedy

147
00:11:19,779 --> 00:11:26,019
Space Center on STS-129 – an assembly flight
to the International Space Station.

148
00:11:26,019 --> 00:11:32,190
Atlantis' crew consisted of Commander Charlie
Hobaugh, Pilot Barry Wilmore and Mission specialists

149
00:11:32,190 --> 00:11:37,410
Bobby Satcher, Mike Foreman, Randy Bresnik
and Leland Melvin.

150
00:11:37,410 --> 00:11:43,259
Atlantis delivered parts to the space station,
including a spare gyroscope and a UHF communications

151
00:11:43,259 --> 00:11:47,889
unit to be used for future station flights
by SpaceX.

152
00:11:47,889 --> 00:11:52,779
The mission, the final space shuttle crew
rotation flight to or from the space station,

153
00:11:52,779 --> 00:11:58,740
also returned to Earth NASA astronaut and
station crew member Nicole Stott.

154
00:11:58,740 --> 00:12:00,279
And that’s This Week @NASA.