1
00:00:07,040 --> 00:00:11,050
This Week at NASA…

2
00:00:11,050 --> 00:00:15,960
With their launch from Kazakhstan to the International
Space Station fast approaching, Expedition

3
00:00:15,960 --> 00:00:22,520
34/35 Soyuz Commander Roman Romanenko, Flight
Engineer Tom Marshburn of NASA and Flight

4
00:00:22,520 --> 00:00:27,660
Engineer Chris Hadfield of the Canadian Space
Agency continue to train and finalize plans

5
00:00:27,660 --> 00:00:29,570
for the December 19 flight.

6
00:00:29,570 --> 00:00:34,750
They've participated in a variety of activities
at the Baikonur Cosmodrome including suit

7
00:00:34,750 --> 00:00:38,079
checks and verification of their spacecraft's
systems.

8
00:00:38,079 --> 00:00:43,220
They'll join the Expedition 34 crew members
already on station, Commander Kevin Ford of

9
00:00:43,220 --> 00:00:50,190
NASA and Russian Flight Engineers Oleg Novitskiy
and Evegeny Tarelkin.

10
00:00:50,190 --> 00:00:55,150
Inside the Operations and Checkout Facility
at the Kennedy Space Center, engineers and

11
00:00:55,150 --> 00:01:01,079

technicians are making steady progress preparing
the new Orion spacecraft for its first orbital

12
00:01:01,079 --> 00:01:02,930
test flight in 2014.

13
00:01:02,930 --> 00:01:08,210
They are wiring the thousands of sensors that
will monitor the crew module’s performance

14
00:01:08,210 --> 00:01:13,080
and have installed the first of the service
module’s 49 composite panels.

15
00:01:13,080 --> 00:01:19,570
Both sections of the vehicle should be complete
and ready to mate this summer.

16
00:01:19,570 --> 00:01:26,080
Using NASA's Hubble Space Telescope, astronomers
have seen further back in time than ever before.

17
00:01:26,080 --> 00:01:33,490
An ambitious Hubble survey of a patch of sky
known as the Ultra Deep Field, or UDF, uncovered

18
00:01:33,490 --> 00:01:40,270
a previously unseen population of seven primitive
galaxies that formed more than 13 billion

19
00:01:40,270 --> 00:01:46,240
years ago, when the universe was less than
3 percent of its present age.

20
00:01:46,240 --> 00:01:52,140
The deepest images to date from Hubble yield
the first statistically robust sample of galaxies

21
00:01:52,140 --> 00:02:00,290
that tells how abundant they were close to

the era when galaxies first formed.

22
00:02:00,290 --> 00:02:05,740
Scientists with NASA's Cassini mission have
spotted what appears to be a miniature, extraterrestrial

23
00:02:05,740 --> 00:02:11,900
likeness of Earth's Nile River: a river valley
on Saturn's moon Titan that stretches more

24
00:02:11,900 --> 00:02:15,950
than 200 miles from its "headwaters" to a
large sea.

25
00:02:15,950 --> 00:02:22,099
It is the first time images have revealed
a river system this vast and in such high

26
00:02:22,099 --> 00:02:27,230
resolution anywhere other than Earth.

27
00:02:27,230 --> 00:02:32,370
The mission of NASA’s moon-orbiting GRAIL
probes comes to an end on December 17 with

28
00:02:32,370 --> 00:02:35,890
the twin spacecraft deorbiting to the lunar
surface.

29
00:02:35,890 --> 00:02:40,989
The probes, Ebb and Flow, have generated a
map of the moon’s gravity field said to

30
00:02:40,989 --> 00:02:45,139
be the highest resolution of any celestial
body.

31
00:02:45,139 --> 00:02:50,299
The map and other GRAIL data are enlightening
scientists about the moon's internal structure

32
00:02:50,299 --> 00:02:57,969
and composition, and how Earth and other rocky
planets in the solar system formed and evolved.

33
00:02:57,969 --> 00:03:05,109
Meanwhile, NASA's Fast, Affordable, Science
and Technology Satellite, or FASTSAT mission

34
00:03:05,109 --> 00:03:11,569
has concluded two years of successfully orbiting
Earth with a suite of six technology and atmospheric

35
00:03:11,569 --> 00:03:12,989
experiments.

36
00:03:12,989 --> 00:03:18,719
Built from off-the-shelf, commercial hardware
and weighing less than 400 pounds, FASTSAT

37
00:03:18,719 --> 00:03:30,319
was the least expensive science and technology
flight mission ever.

38
00:03:30,319 --> 00:03:35,480
NASA has been named the best place to work
of any large agency in the federal government.

39
00:03:35,480 --> 00:03:41,720
The ranking by the Partnership for Public
Service, a nonprofit, non-partisan organization,

40
00:03:41,720 --> 00:03:46,620
is based on responses from nearly 700,000
federal workers.

41
00:03:46,620 --> 00:03:51,709
Accepting the award in Washington on behalf
of the agency: Deputy Administrator, Lori

42
00:03:51,709 --> 00:03:59,150
Garver.

43
00:03:59,150 --> 00:04:04,839
NASA joined forces with Discovery Education
– provider of digital resources to U.S.

44
00:04:04,839 --> 00:04:11,599
classrooms and entertainer will.i.am's "i.am.angel"
foundation to take students on a virtual field

45
00:04:11,599 --> 00:04:13,189
trip to Mars.

46
00:04:13,189 --> 00:04:18,890
Hosted by NASA Associate Administrator for
Education Leland Melvin and Solar System Exploration

47
00:04:18,890 --> 00:04:23,790
Program Executive Dave Lavery, "Journey
to the Extreme" provided an opportunity

48
00:04:23,790 --> 00:04:29,570
for students across the country to meet the
scientists, engineers and innovators behind

49
00:04:29,570 --> 00:04:34,480
NASA's Mars Curiosity Rover mission.

50
00:04:34,480 --> 00:04:42,670
The silver anniversary of the National Full-Scale
Aerodynamics Complex was celebrated on Dec.

51
00:04:42,670 --> 00:04:48,780
11, 25 years to the day after its dedication
at the Ames Research Center.

52
00:04:48,780 --> 00:04:53,060
The home of the two largest wind tunnels in

the world, testing has encompassed military

53
00:04:53,060 --> 00:04:58,530
and commercial aviation; wind turbines as
clean, renewable energy sources: and, entry

54
00:04:58,530 --> 00:05:04,090
and descent technologies used by NASA’s
Spirit, Opportunity and Curiosity rovers to

55
00:05:04,090 --> 00:05:07,310
land safely on Mars.

56
00:05:07,310 --> 00:05:14,190
NASA's Stratospheric Observatory for Infrared
Astronomy, or SOFIA, recently underwent major

57
00:05:14,190 --> 00:05:19,240
upgrades to its telescope control and avionics
systems that will significantly improve their

58
00:05:19,240 --> 00:05:20,480
efficiency and operability.

59
00:05:20,480 --> 00:05:26,270
The new hardware and software fully integrate
the telescope with the observatory's command

60
00:05:26,270 --> 00:05:30,540
and control system, enhancing its pointing
and tracking capabilities.

61
00:05:30,540 --> 00:05:36,360
The avionics upgrades allows the SOFIA aircraft
to be in compliance with current airspace

62
00:05:36,360 --> 00:05:39,360
regulations throughout the world.

63

00:05:39,360 --> 00:05:44,920
The Marshall Space Flight Center spread a
little holiday cheer at its annual rocket-lighting

64
00:05:44,920 --> 00:05:46,110
ceremony.

65
00:05:46,110 --> 00:05:51,370
NASA employees and their families joined at
Marshall's Rocket Park with those from U.S.

66
00:05:51,370 --> 00:05:58,340
Army organizations on Redstone Arsenal to
celebrate the season.

67
00:05:58,340 --> 00:06:02,420
Holiday songs were performed by youngsters
from the Marshall Child Development Center,

68
00:06:02,420 --> 00:06:14,520
and everyone helped with the countdown to
lighting the Saturn I.

69
00:06:14,520 --> 00:06:20,930
Goddard Space Flight Center got into the holiday
spirit with Operation Give Thanks 2012 -- a

70
00:06:20,930 --> 00:06:25,550
volunteer effort to show appreciation to U.S.
military personnel serving overseas.

71
00:06:25,550 --> 00:06:31,770
For the second consecutive year, volunteers
assembled care packages of donated comfort

72
00:06:31,770 --> 00:06:36,550
items, such as cookies, candy and personal
hygiene products, and direct-shipped them

73
00:06:36,550 --> 00:06:41,680

to personnel serving in combat zones.

74
00:06:41,680 --> 00:06:47,590
December 14 marks the 50-year anniversary
of the Mariner 2's flyby of the planet Venus

75
00:06:47,590 --> 00:06:53,620
– making the spacecraft the first to successfully
encounter another planet.

76
00:06:53,620 --> 00:06:59,680
Traveling about 22-thousand miles above Venus's
surface, Mariner 2 took scans with infrared

77
00:06:59,680 --> 00:07:11,060
and microwave radiometers that revealed the
planet's cool clouds and extremely hot surface.

78
00:07:11,060 --> 00:07:19,090
And 47 years ago, on December 15, 1965 the
Gemini 6A capsule completed the first manned

79
00:07:19,090 --> 00:07:23,620
rendezvous with another spacecraft, its sister,
Gemini 7.

80
00:07:23,620 --> 00:07:28,260
The two spacecraft came within a foot, close
enough that, if they'd been so equipped,

81
00:07:28,260 --> 00:07:30,790
they could've docked with each other.

82
00:07:30,790 --> 00:07:36,780
Onboard Gemini 6A was Commander Wally Schirra
and Pilot Tom Stafford; Frank Borman served

83
00:07:36,780 --> 00:07:42,090
as Gemini 7 commander, and Jim Lovell as its
pilot.

84
00:07:42,090 --> 00:07:43,850
And that’s This Week @NASA.

85
00:07:43,850 --> 00:07:49,389
For more on these and other stories, or to
follow us on Facebook, Twitter and other social