



**Jesse Carpenter Reporting, ARC**



1  
00:00:07,029 --> 00:00:09,660  
This Week at NASA...

2  
00:00:09,660 --> 00:00:12,660  
"Launch Key inserted"

3  
00:00:12,660 --> 00:00:17,100  
"Onboard systems have now been switched  
to onboard control to commanders cockpit displays

4  
00:00:17,100 --> 00:00:20,980  
and controls have been activated."  
"We feel great, everything is in order,

5  
00:00:20,980 --> 00:00:24,660  
we are ready for launch... Ignition."  
"And lift off..."

6  
00:00:24,660 --> 00:00:29,460  
Following their launch from the Baikonur Cosmodrome,  
NASA Flight Engineer Chris Cassidy and his

7  
00:00:29,460 --> 00:00:35,780  
Expedition 35/36 crewmates, Soyuz Commander  
Pavel Vinogradov, and Russian Flight Engineer

8  
00:00:35,780 --> 00:00:44,359  
Alexander Misurkin, are now safely aboard  
the International Space Station.

9  
00:00:44,359 --> 00:00:50,059  
The trio was welcomed by ISS Commander Chris  
Hadfield, Tom Marshburn of NASA and Roman

10  
00:00:50,059 --> 00:00:55,859  
Romanenko of the Russian Federal Space Agency.  
The three newcomers begin a six-month residence

11  
00:00:55,859 --> 00:00:59,670

of the world's only laboratory in microgravity.

12  
00:00:59,670 --> 00:01:06,130  
The SpaceX Dragon cargo ship is seen here moments before splashing down in the Pacific

13  
00:01:06,130 --> 00:01:12,000  
Ocean west of Baja California after its fiery reentry of Earth's atmosphere. Among the

14  
00:01:12,000 --> 00:01:18,010  
two tons of cargo returning with Dragon are investigations that could aid in food production;

15  
00:01:18,010 --> 00:01:23,930  
help develop more efficient solar cells, detergents and semiconductor-based electronics; and help

16  
00:01:23,930 --> 00:01:32,009  
scientists continue to examine how the human body reacts to long-term spaceflight.

17  
00:01:32,009 --> 00:01:36,690  
Engineers at the Marshall Space Flight Center completed assembling and welding two identical

18  
00:01:36,690 --> 00:01:44,130  
pieces of hardware for NASA's new Space Launch System, or SLS. One of the two identical

19  
00:01:44,130 --> 00:01:49,869  
adaptors will undergo strenuous structural testing to ensure its twin can successfully

20  
00:01:49,869 --> 00:01:55,710  
connect the Orion spacecraft to its Delta IV launch vehicle. Slated for its first flight

21  
00:01:55,710 --> 00:02:01,770  
test next year, the new SLS rocket will enable

human missions farther into space than ever

22  
00:02:01,770 --> 00:02:07,320  
before.  
After being loaded onto NASA's Super Guppy

23  
00:02:07,320 --> 00:02:13,010  
aircraft, the heat shield for the first Orion  
spacecraft was flown to the Textron Corporation

24  
00:02:13,010 --> 00:02:19,440  
in Boston, where it will receive its special  
thermal protective coating. The Avcoat, named

25  
00:02:19,440 --> 00:02:23,640  
for the company that originally developed  
the honeycomb-like material, will help protect

26  
00:02:23,640 --> 00:02:29,280  
the spacecraft from temperatures up to 4000  
degrees Fahrenheit as it reenters Earth's

27  
00:02:29,280 --> 00:02:34,870  
atmosphere during that first test flight scheduled  
for next year.

28  
00:02:34,870 --> 00:02:40,870  
That Super Guppy also transported two retired  
T-38s from the Dryden Flight Research Center

29  
00:02:40,870 --> 00:02:47,500  
to El Paso, Texas. There, they'll be dismantled  
for parts for NASA's fleet of T-38s flown

30  
00:02:47,500 --> 00:02:52,720  
out of the Johnson Space Center. Only the  
wingtips had to be removed for the two aircraft

31  
00:02:52,720 --> 00:02:59,340  
to squeeze into the Guppy's 25-foot-diameter

cargo bay. This Super Guppy is the last aircraft

32

00:02:59,340 --> 00:03:06,489

of its kind still flying.

A new analysis of movies from NASA's Cassini

33

00:03:06,489 --> 00:03:13,110

spacecraft reveals previously unseen waves

inside Jupiter. The gas giant's bright Equatorial

34

00:03:13,110 --> 00:03:18,940

Zone swirls with dark patches, dubbed "hot

spots" for their infrared glow. The new

35

00:03:18,940 --> 00:03:24,130

analysis by scientists at the Goddard Space

Flight Center and the Jet Propulsion Lab shows

36

00:03:24,130 --> 00:03:30,480

that these hot spots are not just local weather

phenomena, but are in fact linked to large-scale

37

00:03:30,480 --> 00:03:36,379

atmospheric structures called Rossby waves.

Here on Earth, Rossby waves can affect the

38

00:03:36,379 --> 00:03:42,360

paths of the jet streams and lead to dramatic

day-to-day changes in weather.

39

00:03:42,360 --> 00:03:48,150

The second annual California Aerospace Day

at the Capitol in Sacramento became a rare

40

00:03:48,150 --> 00:03:54,180

opportunity for Ames, JPL and Dryden to show

some of NASA's latest projects and achievements

41

00:03:54,180 --> 00:03:55,720

in the Golden State.

42  
00:03:55,720 --> 00:04:00,610  
Presentations included the evolution of Mars rovers featuring a mock-up of the Curiosity

43  
00:04:00,610 --> 00:04:03,189  
rover currently making discoveries on Mars.

44  
00:04:03,189 --> 00:04:08,969  
A version of Ames' CheMin or Chemical and Mineralogy instrument operating on Curiosity

45  
00:04:08,969 --> 00:04:13,069  
was demonstrated by team members who were available to answer questions about laboratory

46  
00:04:13,069 --> 00:04:14,550  
science on Mars.

47  
00:04:14,550 --> 00:04:19,329  
There was also information about upcoming NASA missions such as LADEE which will study

48  
00:04:19,329 --> 00:04:23,870  
the thin atmosphere around the Moon, and IRIS which will study the shifting temperature

49  
00:04:23,870 --> 00:04:28,680  
of heat that radiates from within the Sun.

50  
00:04:28,680 --> 00:04:33,770  
Maryland Congressman Steny Hoyer held a town hall question-and-answer session with employees

51  
00:04:33,770 --> 00:04:39,060  
at the Goddard Space Flight Center. Hoyer, who represents the center's district, thanked

52  
00:04:39,060 --> 00:04:44,389

the men and women of Goddard for their contributions to the scientific community advancing our

53  
00:04:44,389 --> 00:04:48,080  
understanding of the Earth, the solar system and beyond.

54  
00:04:48,080 --> 00:04:52,960  
“You continue to enrich the life of our nation, and indeed advance the cause of human

55  
00:04:52,960 --> 00:04:59,150  
understanding, of the universe, and our place in it. I want to thank all of you for all

56  
00:04:59,150 --> 00:05:05,520  
you do, all of the time.”

57  
00:05:05,520 --> 00:05:09,900  
“Hola!”  
NASA held its first-ever Google+ Hangout en

58  
00:05:09,900 --> 00:05:15,900  
Español. Earth scientist Erika Podest and principal investigator and systems engineer

59  
00:05:15,900 --> 00:05:21,860  
Michela Munoz Fernandez, both of the Jet Propulsion Laboratory, shared stories and answered questions

60  
00:05:21,860 --> 00:05:27,250  
about their career paths and contributions to America’s space program. This Google+

61  
00:05:27,250 --> 00:05:33,919  
Hangout en Español was sponsored by Science4Girls, a NASA partnership with libraries for National

62  
00:05:33,919 --> 00:05:48,250  
Women's History Month.

I am very proud to be a part of the work that's

63  
00:05:48,250 --> 00:05:51,900  
being done here at Dryden with all the different  
flight research as well as the role that I

64  
00:05:51,900 --> 00:05:57,120  
feel like meteorology plays in all of it.  
My name is Franzeska Houtas, and I'm a meteorologist

65  
00:05:57,120 --> 00:06:01,009  
at NASA Dryden.  
We forecast for specifically, not only the

66  
00:06:01,009 --> 00:06:04,840  
type of aircraft, but exactly where they are  
going to be flying. We give them what we call

67  
00:06:04,840 --> 00:06:09,949  
a pinpoint forecast.  
We cover projects from X-48, which is a small

68  
00:06:09,949 --> 00:06:16,419  
UAV. Then we get things as large as the 747  
SOFIA project which, uh, flies all the way

69  
00:06:16,419 --> 00:06:21,120  
up to Northern California, across the Pacific,  
half way to Hawaii and back in eight or nine

70  
00:06:21,120 --> 00:06:26,770  
hours which requires looking at, uh, if they're  
going to encounter any clouds or turbulence

71  
00:06:26,770 --> 00:06:30,680  
and things of that nature, as well as the  
conditions when they get back.

72  
00:06:30,680 --> 00:06:35,580  
We do a lot of work with the F-18's and

the F-15's as well. A lot of the supersonics

73

00:06:35,580 --> 00:06:39,000

projects.

Being a pilot myself has definitely given

74

00:06:39,000 --> 00:06:42,360

me a better understanding of what the pilots are looking for.

75

00:06:42,360 --> 00:06:47,349

What I really like about being at Dryden, uh, is that everyday is different and every

76

00:06:47,349 --> 00:06:52,760

project is different, and we not only get to do the operational side of meteorology,

77

00:06:52,760 --> 00:06:57,069

but we also get to do some of the research side and the data analysis and things like

78

00:06:57,069 --> 00:06:59,000

that.

(nat "... where the turbulence is, but sometimes

79

00:06:59,000 --> 00:07:02,770

there's little signals. This right here...")

So, it was uh, fifth grade science class that

80

00:07:02,770 --> 00:07:07,789

initially got me interested in meteorology.

It's always fun to go and work with the

81

00:07:07,789 --> 00:07:12,810

kids from various levels, from elementary schools, all the way up to high schools. It's

82

00:07:12,810 --> 00:07:17,300

one of those things that goes, relates back

to how I got interested in meteorology, and

83

00:07:17,300 --> 00:07:24,280

how it was one little thing that got me interested.  
So, to me it's showing them what I love,

84

00:07:24,280 --> 00:07:29,650

and if one, even one of them happens to get  
even remotely interested in not just meteorology,

85

00:07:29,650 --> 00:07:36,090

but any of the sciences or the math, technology,  
and engineering, that would just make my day.

86

00:07:36,090 --> 00:07:49,379

Five...four...three....two....one....and a  
flock of animated birds have descended on

87

00:07:49,379 --> 00:07:56,169

the Kennedy Space Center Visitor Complex.  
The grand-opening celebration welcomed the

88

00:07:56,169 --> 00:08:03,080

new Angry Birds Space Encounter amid excitement  
and fanfare. NASA astronaut Don Pettit, who

89

00:08:03,080 --> 00:08:08,069

helped launch Angry Birds Space while aboard  
the International Space Station, introduced

90

00:08:08,069 --> 00:08:13,889

the new attraction and its six interactive  
stations designed to inspire children to explore

91

00:08:13,889 --> 00:08:20,259

science, technology, engineering and math.

92

00:08:20,259 --> 00:08:29,000

A group of fourth and fifth graders from Hampton,  
Virginia came to a movie entertainment complex

93  
00:08:29,000 --> 00:08:35,169  
for a class in geometry and Newton's Laws  
of Motion.

94  
00:08:35,169 --> 00:08:43,640  
It all started with a bowling demonstration.  
An iPad beamed the action from the lanes into

95  
00:08:43,640 --> 00:08:48,510  
a nearby theatre where education specialists  
from NASA's Langley Research Center presented

96  
00:08:48,510 --> 00:08:51,460  
lessons to the students and an audience on  
the Web.

97  
00:08:51,460 --> 00:08:56,690  
“We model all of the forces that are acting  
on the vehicle on the computer and then we

98  
00:08:56,690 --> 00:09:02,420  
fly it in the computer and we see if we can  
land safely or not and we do that literally

99  
00:09:02,420 --> 00:09:04,500  
millions of times.”

100  
00:09:04,500 --> 00:09:08,400  
These are the kinds of lessons that stick  
in a kid's head – including one rocking

101  
00:09:08,400 --> 00:09:11,480  
a haircut made famous by a NASA Mars engineer.

102  
00:09:11,480 --> 00:09:16,860  
“Before I bowl I will be thinking of all  
the equations in my head to see what would

103

00:09:16,860 --> 00:09:18,580

be the best places.”

104

00:09:18,580 --> 00:09:26,190

Bowling and Mars – a unique way to capture students' attention

105

00:09:26,190 --> 00:09:32,660

Two years ago, on March 29, 2011, the first image taken of Mercury by an orbiting spacecraft

106

00:09:32,660 --> 00:09:38,890

was released by NASA. The MESSENGER spacecraft, which eleven days earlier had become the first

107

00:09:38,890 --> 00:09:45,000

spacecraft to achieve orbit around Mercury, captured this picture of previously unseen

108

00:09:45,000 --> 00:09:48,860

terrain near the small, rocky planet's South Pole.

109

00:09:48,860 --> 00:09:54,810

In the two years since, MESSENGER has imaged 100 percent of Mercury, revealing new data

110

00:09:54,810 --> 00:10:00,720

about the planet's topography, core and the abundant water ice and other frozen materials

111

00:10:00,720 --> 00:10:04,220

in its permanently- shadowed polar craters.

112

00:10:04,220 --> 00:10:11,190

Thirty-one years ago, on March 30, 1982, Space Shuttle Columbia made a successful landing

113

00:10:11,190 --> 00:10:15,530

at the White Sands Space Harbor near Las Cruces,

New Mexico to end NASA's

114

00:10:15,530 --> 00:10:21,760

NASA's third space shuttle mission. STS-3 was one of several test missions to qualify

115

00:10:21,760 --> 00:10:27,720

the spacecraft's systems for operational flights. Commander Jack Lousma and Pilot C.

116

00:10:27,720 --> 00:10:33,260

Gordon Fullerton tested the Canadarm Remote Manipulator System and gathered data on how

117

00:10:33,260 --> 00:10:40,080

Columbia handled the sun's heat in various attitudes. STS-3 was the first and only shuttle

118

00:10:40,080 --> 00:10:43,360

mission to land at White Sands

119

00:10:43,360 --> 00:10:47,311

And that's This Week @NASA.

For more on these and other stories, or to