



1  
00:00:07,020 --> 00:00:09,620  
This Week at NASA...

2  
00:00:09,620 --> 00:00:16,960  
“Today you will hear and learn about the anatomy of our galactic neighborhood.”

3  
00:00:16,960 --> 00:00:22,451  
New findings by NASA’s Interstellar Boundary Explorer, or IBEX spacecraft, are

4  
00:00:22,451 --> 00:00:27,430  
helping scientists fill holes in our knowledge about the matter found between the stars

5  
00:00:27,430 --> 00:00:29,170  
in our Milky Way galaxy.

6  
00:00:29,170 --> 00:00:33,230  
IBEX, whose primary focus has been the interaction between

7  
00:00:33,230 --> 00:00:38,910  
our solar system and what lies beyond, has directly sampled multiple heavy elements

8  
00:00:38,910 --> 00:00:44,440  
within this interstellar medium, the same materials of which stars, planets – even

9  
00:00:44,440 --> 00:00:45,820  
people, are made.

10  
00:00:45,820 --> 00:00:53,150  
“The heliosphere changes with time as it passes into a dense interstellar cloud it

11  
00:00:53,150 --> 00:00:55,630  
will be

compressed and very small.

12

00:00:55,630 --> 00:00:59,329

And as it moves into another cloud, it will expand out

13

00:00:59,329 --> 00:01:00,329

again.”

14

00:01:00,329 --> 00:01:05,180

Launched in October 2008, IBEX primarily collects data on the interactions between

15

00:01:05,180 --> 00:01:08,130

the heliosheath and interstellar space.

16

00:01:08,130 --> 00:01:10,750

The heliosheath provides our solar system with

17

00:01:10,750 --> 00:01:17,479

a bubble of protection from deadly cosmic radiation emanating from interstellar space.

18

00:01:17,479 --> 00:01:23,759

NASA’s new multi-purpose crew vehicle, Orion, will travel to new destinations beyond

19

00:01:23,759 --> 00:01:24,859

low Earth orbit.

20

00:01:24,859 --> 00:01:30,119

We’ve now taken a step closer to determining who might be inside, and

21

00:01:30,119 --> 00:01:36,829

it could be one or more of the 6,372 people who’ve submitted applications to become

22

00:01:36,829 --> 00:01:38,639  
new NASA astronauts.

23  
00:01:38,639 --> 00:01:43,240  
That's the second highest number of responses  
ever received.

24  
00:01:43,240 --> 00:01:47,130  
Only the call back in 1978 generated more  
applications.

25  
00:01:47,130 --> 00:01:51,779  
But, suffice it to say that the  
competition over the next few years will be

26  
00:01:51,779 --> 00:01:57,599  
rigorous; by the time NASA completes its  
screening process, no more than fifteen candidates

27  
00:01:57,599 --> 00:02:04,929  
will have been selected for our  
next class of space explorers.

28  
00:02:04,929 --> 00:02:09,450  
As for the Space Launch System's heavy-lift  
launch vehicle that'll send Orion on its

29  
00:02:09,450 --> 00:02:15,170  
deep-space missions, 2012 promises to be an  
active year of testing for its new rocket

30  
00:02:15,170 --> 00:02:16,170  
engine.

31  
00:02:16,170 --> 00:02:21,260  
The J-2X, NASA's first human-rated rocket  
engine to be developed in 40 years,

32  
00:02:21,260 --> 00:02:24,790  
had a recent close-up with media at the Stennis

Space Center.

33

00:02:24,790 --> 00:02:28,120

That's where engineers  
will soon start putting through its paces

34

00:02:28,120 --> 00:02:33,780

the component of this highly-efficient, versatile  
and advanced rocket engine called the "powerpack".

35

00:02:33,780 --> 00:02:39,140

"We are so excited to have accomplished  
what we did in 2011 for the J-2X development

36

00:02:39,140 --> 00:02:40,540

project.

37

00:02:40,540 --> 00:02:45,810

We got ten tests accomplished – 1,000 seconds  
here at Stennis Space Center,

38

00:02:45,810 --> 00:02:51,690

and we had a very good test series in terms  
of understanding engine performance and

39

00:02:51,690 --> 00:02:55,120

understanding how to start and shutdown the  
engine."

40

00:02:55,120 --> 00:03:00,710

The J-2X will power the upper stage of the  
SLS, whose initial test flight is slated for

41

00:03:00,710 --> 00:03:02,510

2017.

42

00:03:02,510 --> 00:03:07,950

NASA's Chief Technologist Mason Peck recently  
visited the Wallops Flight Facility,

43  
00:03:07,950 --> 00:03:12,480  
where he received an overview on its capabilities  
at Wallops in developing and testing

44  
00:03:12,480 --> 00:03:16,880  
technologies for spaceflight applications,  
and the role of the agency's scientific

45  
00:03:16,880 --> 00:03:19,840  
balloon  
program in maturing new technology.

46  
00:03:19,840 --> 00:03:24,850  
He also had a chance to see Orbital Sciences  
Corporation's Antares rocket, which will be

47  
00:03:24,850 --> 00:03:27,540  
carrying supplies to the International Space  
Station.

48  
00:03:27,540 --> 00:03:31,410  
"I'm here at Wallops Flight Facility today  
to check out some of the amazing work that

49  
00:03:31,410 --> 00:03:33,370  
they're doing in space technology.

50  
00:03:33,370 --> 00:03:36,010  
They're proving out, they're testing some  
of the

51  
00:03:36,010 --> 00:03:39,570  
key technologies that will be a part of NASA's  
future."

52  
00:03:39,570 --> 00:03:45,280  
"Jerry Ross as he continues preparations  
for what will be his eighth spacewalk today.

53

00:03:45,280 --> 00:03:48,320

Ross – more experienced than any other U.S. Spacewalker in history.”

54

00:03:48,320 --> 00:03:53,250

Two of NASA’s most prolific astronauts are calling it a career.

55

00:03:53,250 --> 00:03:57,340

Jerry Ross, the first of only two people to launch into space seven

56

00:03:57,340 --> 00:03:59,040

times, has retired.

57

00:03:59,040 --> 00:04:03,090

Ross spent almost 14-hundred hours in space and conducted nine

58

00:04:03,090 --> 00:04:06,420

spacewalks during a career spanning more than three decades.

59

00:04:06,420 --> 00:04:11,190

He joined NASA in 1979 as a payload officer and flight

60

00:04:11,190 --> 00:04:15,230

controller and was selected as an astronaut in 1980.

61

00:04:15,230 --> 00:04:19,290

He and Franklin Chang-Diaz are the only two astronauts to have flown into

62

00:04:19,290 --> 00:04:21,039

space seven times.

63

00:04:21,039 --> 00:04:23,370

“This was my home for six months.

64  
00:04:23,370 --> 00:04:25,680  
You can see that there's lots of ventilation tubes,

65  
00:04:25,680 --> 00:04:29,469  
there's lots of wires, there's lots of equipment that's stored there."

66  
00:04:29,469 --> 00:04:31,639  
Also retiring is Shannon Lucid.

67  
00:04:31,639 --> 00:04:35,009  
A veteran of five flights totaling more than 5-thousand

68  
00:04:35,009 --> 00:04:36,610  
hours in space.

69  
00:04:36,610 --> 00:04:40,469  
Lucid was the first woman to hold an international record for the most

70  
00:04:40,469 --> 00:04:43,199  
flight hours in orbit by a non-Russian.

71  
00:04:43,199 --> 00:04:48,819  
She also holds the United States single mission space flight endurance record on Space Station

72  
00:04:48,819 --> 00:04:49,819  
Mir.

73  
00:04:49,819 --> 00:04:54,910  
In 1996, Lucid served as a Board Engineer 2, onboard Mir, spending more than

74  
00:04:54,910 --> 00:05:00,249  
188 days performing numerous life- and

physical science experiments.

75  
00:05:00,249 --> 00:05:03,050  
She received a hero's welcome from President Clinton

76  
00:05:03,050 --> 00:05:09,830  
upon her return to Earth.

77  
00:05:09,830 --> 00:05:13,580  
At the Kennedy Space Center, space shuttle Endeavour was moved from the Vehicle

78  
00:05:13,580 --> 00:05:16,499  
Assembly Building to Orbiter Processing Facility-2.

79  
00:05:16,499 --> 00:05:21,919  
OPF-2 is where Endeavour will undergo transition and retirement processing

80  
00:05:21,919 --> 00:05:27,040  
in preparation for its public display at the California Science Center in Los Angeles in

81  
00:05:27,040 --> 00:05:29,389  
the fall of 2012.

82  
00:05:29,389 --> 00:05:34,979  
Meanwhile, space shuttle Atlantis remains inside the VAB, but has been moved from

83  
00:05:34,979 --> 00:05:40,690  
the building's transfer aisle to inside High Bay 4 for temporary storage.

84  
00:05:40,690 --> 00:05:43,350  
Atlantis is being prepared for public display at the Kennedy

85

00:05:43,350 --> 00:05:49,030

Space Center Visitor Complex in 2013.

86

00:05:49,030 --> 00:05:52,219

NASA's Kepler mission has "wowed" again.

87

00:05:52,219 --> 00:05:57,360

The spacecraft that "stares at" and detects changes in the light from a select group of

88

00:05:57,360 --> 00:06:05,050

stars has discovered 11 new planetary systems hosting a total of 26 confirmed planets.

89

00:06:05,050 --> 00:06:09,289

These discoveries nearly double the number of verified planets and triple the

90

00:06:09,289 --> 00:06:15,069

number of stars known to have more than one planet that transits, or passes in front of,

91

00:06:15,069 --> 00:06:16,080

the star.

92

00:06:16,080 --> 00:06:20,879

Such systems will help astronomers better understand how planets form.

93

00:06:20,879 --> 00:06:23,599

The planets orbit close to their host stars and

94

00:06:23,599 --> 00:06:29,650

range in size from 1.5 times the radius of Earth, to larger than Jupiter.

95

00:06:29,650 --> 00:06:31,629

Further observations will determine which of these

96  
00:06:31,629 --> 00:06:37,809  
newly-discovered exoplanets are rocky, like  
Earth, and which have thick gaseous atmospheres

97  
00:06:37,809 --> 00:06:39,750  
like Neptune.

98  
00:06:39,750 --> 00:06:45,340  
A key member of the Kepler team is Caltech  
astronomer John Johnson.

99  
00:06:45,340 --> 00:06:49,139  
Johnson's  
contributions, and those of other African-Americans,

100  
00:06:49,139 --> 00:06:52,069  
are significant to the success of  
space exploration.

101  
00:06:52,069 --> 00:06:57,820  
"I think a lot of young people believe that  
the only way to be successful in this world

102  
00:06:57,820 --> 00:07:01,330  
is to  
go thru school and get those grades, to go

103  
00:07:01,330 --> 00:07:05,500  
out and apply for some high paying job and  
do your 9 to 5.

104  
00:07:05,500 --> 00:07:10,499  
If you're a person that's not satisfied  
with that then science is where you might

105  
00:07:10,499 --> 00:07:11,990  
want to  
consider being.

106

00:07:11,990 --> 00:07:18,949

My job with NASA is to conduct research into the discovery and characterization of

107

00:07:18,949 --> 00:07:20,589

planets around other stars.

108

00:07:20,589 --> 00:07:24,349

I use telescopes to observe the universe.

109

00:07:24,349 --> 00:07:27,860

This is what helps me wake up in the morning and what keeps me going thru my very

110

00:07:27,860 --> 00:07:35,029

busy days are discoveries like this where there was no answer in the back of the book.

111

00:07:35,029 --> 00:07:38,979

I lacked a lot of confidence when I first started off studying astronomy.

112

00:07:38,979 --> 00:07:43,499

I encountered questions that nobody on earth knew the answer

113

00:07:43,499 --> 00:07:44,550

to.

114

00:07:44,550 --> 00:07:49,059

And I was actually having to devise the method of reaching the answer.

115

00:07:49,059 --> 00:07:51,159

It's ok to be stuck.

116

00:07:51,159 --> 00:07:54,800

As a matter of fact, to be an astronomer, to be a really successful scientist

117

00:07:54,800 --> 00:07:58,960

you should spend the majority of your time stuck.

118

00:07:58,960 --> 00:08:01,819

Because that means you are doing something interesting.

119

00:08:01,819 --> 00:08:05,360

This is actually a really great job to understand the universe

120

00:08:05,360 --> 00:08:11,009

and I can't think of a better way to earn a

121

00:08:11,009 --> 00:08:12,289

paycheck."

122

00:08:12,289 --> 00:08:17,879

NASA's first multi-player online game to test players' knowledge of the space program

123

00:08:17,879 --> 00:08:21,020

has been launched into orbit on Facebook.

124

00:08:21,020 --> 00:08:26,470

Space Race Blastoff questions players' about NASA history, technology, science and

125

00:08:26,470 --> 00:08:27,470

pop culture.

126

00:08:27,470 --> 00:08:30,419

"We really hope this will reach a different audience.

127

00:08:30,419 --> 00:08:34,880

An audience that may not be that interested in say coming to the website and

128

00:08:34,880 --> 00:08:37,250

reading a long feature story, but wants to sort

129

00:08:37,250 --> 00:08:41,360

of test itself out against how much they already know and what they might want to learn.

130

00:08:41,360 --> 00:08:46,320

We've always tried to put the really cool stuff on the home page and this is a way to

131

00:08:46,320 --> 00:08:48,250

take it a step farther for people who might not

132

00:08:48,250 --> 00:08:49,650

visit the homepage."

133

00:08:49,650 --> 00:08:53,700

NASA chose to make the game available through Facebook to take advantage of the

134

00:08:53,700 --> 00:08:59,570

social media site's large audience and enable players to compete against others.

135

00:08:59,570 --> 00:09:02,540

Individuals also can play solo games.

136

00:09:02,540 --> 00:09:18,280

For factual, spaceflight fun, check out Space Race Blast Off, at <http://apps.facebook.com/spacerace>.

137

00:09:18,280 --> 00:09:20,550

And that's This Week @ NASA!

138

00:09:20,550 --> 00:09:24,970

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