
Power
Noah Warner
MSL Tactical Uplink Lead

1
00:00:07,040 --> 00:00:08,550
This Week at NASA…

2
00:00:08,550 --> 00:00:14,299
“Our view of Dragon, becoming even clearer
as the spacecraft closes in on the orbiting

3
00:00:14,299 --> 00:00:15,299
complex.”

4
00:00:15,299 --> 00:00:20,070
With its arrival to the International Space
Station on CRS-1, the first commercial resupply

5
00:00:20,070 --> 00:00:25,540
mission to the orbiting laboratory, the SpaceX
Dragon spacecraft delivers critical supplies

6
00:00:25,540 --> 00:00:31,000
and materials – but equally as important,
it becomes the first U.S. spacecraft in the

7
00:00:31,000 --> 00:00:36,660
post-space shuttle era capable of transporting
significant amounts of supplies between Earth

8
00:00:36,660 --> 00:00:37,660
and the station.

9
00:00:37,660 --> 00:00:41,020
“The Dragon is in free drift it is not steering
itself any longer.”

10
00:00:41,020 --> 00:00:46,590
Once Dragon was within reach, the crew aboard
the International Space Station used the Canadarm2

11
00:00:46,590 --> 00:00:50,870
robotic arm to grapple the cargo craft ….

“Capture complete … looks like we’ve

12
00:00:50,870 --> 00:00:52,170
tamed the Dragon.

13
00:00:52,170 --> 00:00:54,370
We’re happy she’s on board with us.”

14
00:00:54,370 --> 00:00:59,040
Within hours after the grapple Dragon was
installed to the Earth-facing port of the

15
00:00:59,040 --> 00:01:03,630
station’s Harmony module where it is scheduled
to remain berthed until its scheduled departure

16
00:01:03,630 --> 00:01:08,700
October 28, for the trip back to Earth and
parachute-assisted splashdown in the Pacific

17
00:01:08,700 --> 00:01:10,880
Ocean off the coast of southern California.

18
00:01:10,880 --> 00:01:17,070
“SpaceX starts a whole generation of commercial
spacecraft coming up here for resupply and

19
00:01:17,070 --> 00:01:22,580
one of the most interesting and unique aspects
of this vehicle and its follow on will be

20
00:01:22,580 --> 00:01:28,990
that it can bring stuff back to Earth and
that’s really important for the advancement

21
00:01:28,990 --> 00:01:30,010
of spaceflight.”

22
00:01:30,010 --> 00:01:35,640

CRS-1 is the first of twelve SpaceX missions
to the ISS under NASA’s Commercial Resupply

23
00:01:35,640 --> 00:01:39,240
Services contract.

24
00:01:39,240 --> 00:01:45,299
When Dragon returns to Earth it will bring
back more than 850 pounds of scientific supplies,

25
00:01:45,299 --> 00:01:50,869
including samples from human health, biotechnology
and materials research.

26
00:01:50,869 --> 00:01:56,340
Though resupplying the ISS is important, the
timely return of significant numbers of science

27
00:01:56,340 --> 00:02:01,101
samples for analysis enhances the amount of
scientific research that can be done on the

28
00:02:01,101 --> 00:02:04,189
ISS.

29
00:02:04,189 --> 00:02:08,899
NASA joined with ATK Space Systems at the
company’s Promontory, Utah headquarters

30
00:02:08,899 --> 00:02:13,400
to highlight new cost-saving measures used
in the manufacturing of the largest and most

31
00:02:13,400 --> 00:02:16,989
powerful solid rocket booster ever built for
flight.

32
00:02:16,989 --> 00:02:22,629
Qualification Motor-1 is being assembled by
ATK in Promontory for NASA's Space Launch

33
00:02:22,629 --> 00:02:23,629
System.

34
00:02:23,629 --> 00:02:28,709
The company’s Value Stream Mapping system
has helped ATK identify inefficient processes

35
00:02:28,709 --> 00:02:34,480
and procedures, thereby reducing assembly
time and saving millions of dollars in manufacturing

36
00:02:34,480 --> 00:02:36,590
costs for the SLS.

37
00:02:36,590 --> 00:02:41,249
The four-segment motor will be fired on its
test stand next spring.

38
00:02:41,249 --> 00:02:46,049
The SLS will launch NASA's Orion spacecraft
and other payloads beyond low Earth orbit,

39
00:02:46,049 --> 00:02:51,659
and provide an entirely new capability for
human exploration.

40
00:02:51,659 --> 00:02:57,569
Training continues for Expedition 33/34 Soyuz
Commander Oleg Novitskiy, NASA Flight Engineer

41
00:02:57,569 --> 00:03:02,920
Kevin Ford and Russian Flight Engineer Evgeny
Tarelkin as the International Space Station’s

42
00:03:02,920 --> 00:03:05,790
next crew prepares for its mission.

43
00:03:05,790 --> 00:03:10,799

The trio familiarized themselves with equipment
and procedures for their mid-October launch

44
00:03:10,799 --> 00:03:13,739
to the International Space Station in a Soyuz
spacecraft.

45
00:03:13,739 --> 00:03:20,079
Upon their arrival there they'll join Expedition
33 Commander Suni Williams of NASA, Flight

46
00:03:20,079 --> 00:03:25,439
Engineer Aki Hoshide of the Japan Aerospace
Exploration Agency and Russian Flight Engineer

47
00:03:25,439 --> 00:03:32,319
Yuri Malenchenko aboard the world's only
science lab in microgravity.

48
00:03:32,319 --> 00:03:37,290
Life onboard the station highlighted a recent
ham radio question-and-answer session between

49
00:03:37,290 --> 00:03:42,370
Flight Engineer Aki Hoshide and future explorers
from the Goddard Space Flight Center's Child

50
00:03:42,370 --> 00:03:45,030
Development Center and several nearby schools.

51
00:03:45,030 --> 00:03:47,529
"Hi my name is Aiden.

52
00:03:47,529 --> 00:03:53,019
How would you describe the view from the International
Space Station?

53
00:03:53,019 --> 00:03:54,019
Over."

54
00:03:54,019 --> 00:03:59,010
“I can describe it in one word and it is
cool!”

55
00:03:59,010 --> 00:04:01,309
“My name is Nicole.

56
00:04:01,309 --> 00:04:02,730
Have you always wanted to be an astronaut?

57
00:04:02,730 --> 00:04:03,730
Over.”

58
00:04:03,730 --> 00:04:08,909
“Yes I’ve always wanted to be an astronaut
since I was – let’s see – about eight

59
00:04:08,909 --> 00:04:10,519
years old.

60
00:04:10,519 --> 00:04:11,519
Over.”

61
00:04:11,519 --> 00:04:16,290
The event was made possible through Amateur
Radio on the International Space Station,

62
00:04:16,290 --> 00:04:21,489
or ARISS, a cooperative venture between NASA
and other space agencies to improve teaching

63
00:04:21,489 --> 00:04:25,650
and learning in science, technology, engineering
and math.

64
00:04:25,650 --> 00:04:31,400
Hi I’m Noah Warner, tactical uplink lead
for the Mars Science Laboratory mission and

65
00:04:31,400 --> 00:04:34,170
this is your Curiosity rover update.

66
00:04:34,170 --> 00:04:38,180
Curiosity is currently at the Rocknest location
inside Gale Crater.

67
00:04:38,180 --> 00:04:42,230
When we first arrived at Rocknest, we performed
a wheel scuff maneuver.

68
00:04:42,230 --> 00:04:46,000
This is our rover's version of kicking up
dirt with your hiking boot to determine if

69
00:04:46,000 --> 00:04:49,230
the Rocknest area was indeed a good first
scoop target.

70
00:04:49,230 --> 00:04:54,410
The first scoop was successfully performed
on Sol 61 and the entire teams was excited

71
00:04:54,410 --> 00:04:59,040
to see the Mastcam images showing the scoop
full of dirt, as well as, the video of the

72
00:04:59,040 --> 00:05:03,340
vibration activities performed with the turret
mounted tools.

73
00:05:03,340 --> 00:05:08,250
This vibration allows the team to level out
and remove any excess sample before closing

74
00:05:08,250 --> 00:05:12,880
the scoop and it also provides some insight
into the makeup of the soil.

75

00:05:12,880 --> 00:05:17,360
Any large particles would tend to float up
to the top as the entire sample is vibrating

76
00:05:17,360 --> 00:05:22,240
much the same way you would shake out the
marshmallows in your box of Lucky Charms.

77
00:05:22,240 --> 00:05:26,220
Looking carefully at images, the team noticed
a bright object lying on the ground just in

78
00:05:26,220 --> 00:05:27,220
front of the rover.

79
00:05:27,220 --> 00:05:31,230
We typically call something like this FOD,
Foreign Object Debris.

80
00:05:31,230 --> 00:05:36,280
The ChemCam remote micro-imager captured high
resolution images of the object showing that

81
00:05:36,280 --> 00:05:41,050
it’s most likely a benign piece of plastic
or shrink tube left over from a terminated

82
00:05:41,050 --> 00:05:42,050
wire.

83
00:05:42,050 --> 00:05:45,810
This could’ve possibly come from the rover
or from the descent stage separation event

84
00:05:45,810 --> 00:05:47,330
during landing.

85
00:05:47,330 --> 00:05:51,770
Curiosity processed the scoop sample through
CHIMRA, our labyrinth of passageways at the

86
00:05:51,770 --> 00:05:55,700
end of the arm that we use to sieve and portion
the soil sample.

87
00:05:55,700 --> 00:05:59,860
We did some internal sandblasting by vibrating
the sample at different orientations on the

88
00:05:59,860 --> 00:06:03,520
turret in order to remove any internal contamination.

89
00:06:03,520 --> 00:06:07,800
The team dropped the first scoop off the left
side of the rover and in upcoming sols, we

90
00:06:07,800 --> 00:06:13,530
will make our first attempt to drop off sample
to the observation tray and the CheMin instrument.

91
00:06:13,530 --> 00:06:17,560
We plan to be at Rocknest for the coming week
to complete our scoop activities and then

92
00:06:17,560 --> 00:06:22,180
we'll get back on the road to Glenelg where
we'll be looking for our first rock to drill.

93
00:06:22,180 --> 00:06:30,370
That's your Curiosity rover report, check
back often for more updates.

94
00:06:30,370 --> 00:06:34,920
NASA and the Florida Institute for Human and
Machine Cognition (IHMC) of Pensacola have

95
00:06:34,920 --> 00:06:39,530
jointly developed a robotic exoskeleton, called
X1.

96
00:06:39,530 --> 00:06:44,750
The 57-pound device is a robot that a human
can put on to assist or inhibit movement in

97
00:06:44,750 --> 00:06:45,860
leg joints.

98
00:06:45,860 --> 00:06:53,730
In space, it could be set to supply resistance
for exercising; on the ground, it could help

99
00:06:53,730 --> 00:07:00,180
someone walk for the first time.

100
00:07:00,180 --> 00:07:05,090
More than 40 NASA Ames employees contributed
their musical talents this summer as volunteer

101
00:07:05,090 --> 00:07:09,050
performers with the International Space Orchestra.

102
00:07:09,050 --> 00:07:14,050
The musicians performed in the musical opera,
“Ground Control, an Opera In Space” during

103
00:07:14,050 --> 00:07:18,980
the Zero One Biennial event in September,
a celebration of art and technology held in

104
00:07:18,980 --> 00:07:22,140
downtown San Jose, California.

105
00:07:22,140 --> 00:07:26,730
Award-winning artist Nelly Ben Hayoun (Aye-oon)
who is a specialist in designing immersive

106
00:07:26,730 --> 00:07:31,030
experiences for her audiences created the
concept for the orchestra.

107
00:07:31,030 --> 00:07:32,700
“It’s about the experience.

108
00:07:32,700 --> 00:07:39,870
The experience of being inside the control
room capturing this really intense human emotion

109
00:07:39,870 --> 00:07:40,870
through music.”

110
00:07:40,870 --> 00:07:41,870
“Guidance, go.

111
00:07:41,870 --> 00:07:42,870
Control, go.

112
00:07:42,870 --> 00:07:43,870
Telecom, go.”

113
00:07:43,870 --> 00:07:44,870
The whole idea was to bring together an orchestra
made up of NASA and space people to perform

114
00:07:44,870 --> 00:07:45,870
an opera about space.

115
00:07:45,870 --> 00:07:49,610
One composition is a tribute to the crew of
Apollo Eleven as well as an homage to Neil

116
00:07:49,610 --> 00:07:58,130
Armstrong that was co-written by NASA Ames
LCROSS Mission Flight Director Rusty Hunt.

117
00:07:58,130 --> 00:08:02,070
The second of the two pieces was a tribute
to NASA’s Kepler Mission that is searching

118
00:08:02,070 --> 00:08:06,500
for Earth-size planets in the habitable zone
of distant stars.

119
00:08:06,500 --> 00:08:10,900
The orchestra rehearsed the opera several
times at Ames, including a dress rehearsal

120
00:08:10,900 --> 00:08:14,840
in front of the 80 by 120 foot wind tunnel.

121
00:08:14,840 --> 00:08:19,419
To get the best possible recording of the
music, an arrangement was made to record the

122
00:08:19,419 --> 00:08:24,200
music at Skywalker Sound, in San Rafael California.

123
00:08:24,200 --> 00:08:28,560
The experience was an opportunity for the
performers to share stories about NASA's

124
00:08:28,560 --> 00:08:34,360
achievements with the hope that it might inspire
people to develop a deeper interest in math,

125
00:08:34,360 --> 00:08:40,870
science and the future of space exploration.

126
00:08:40,870 --> 00:08:45,399
Aeronautics engineer Richard T. Whitcomb,
whose legendary NASA research made supersonic

127
00:08:45,399 --> 00:08:50,249
flight practical, has been inducted into the
National Aviation Hall of Fame in Dayton,

128
00:08:50,249 --> 00:08:51,249
Ohio.

129
00:08:51,249 --> 00:08:57,610
Whitcomb, who died in 2009 at age 88, is credited
with the area rule, supercritical wing, and

130
00:08:57,610 --> 00:09:02,290
winglets -- three of the most significant
and practical contributions to aeronautics

131
00:09:02,290 --> 00:09:04,399
in the 20th century.

132
00:09:04,399 --> 00:09:09,339
With his induction, Dick Whitcomb becomes
one of the nation’s 200-plus air and space

133
00:09:09,339 --> 00:09:15,610
pioneers in the hall, including the Wright
brothers, Amelia Earhart, Charles Lindbergh

134
00:09:15,610 --> 00:09:20,569
and astronauts John Glenn and Neil Armstrong.

135
00:09:20,569 --> 00:09:25,160
The world's first man-made sonic boom was
created in California over Rogers Dry Lake

136
00:09:25,160 --> 00:09:32,279
at Edwards Air Force Base 65 years ago on
Oct. 14, 1947 when, at an altitude of about

137
00:09:32,279 --> 00:09:37,749
40-thousand feet, Chuck Yeager safely piloted
an X-1 test aircraft he called "Glamorous

138
00:09:37,749 --> 00:09:44,730
Glennis" to a speed of about 662 mph, faster
than the speed of sound at that altitude.

139

00:09:44,730 --> 00:09:54,139
The X-1 program helped lay the foundation
of America's space program.

140
00:09:54,139 --> 00:10:05,970
15 years ago, on October 15, 1997, the Cassini-Huygens
mission, a joint effort between NASA and the

141
00:10:05,970 --> 00:10:11,220
European Space Agency, was launched from Cape
Canaveral Air Force Station to conduct a detailed

142
00:10:11,220 --> 00:10:14,509
study of Saturn’s planetary system.

143
00:10:14,509 --> 00:10:20,170
Utilizing the Cassini spacecraft, a robotic
orbiter equipped with 12 instruments and Huygens,

144
00:10:20,170 --> 00:10:25,959
a probe carrying a suite of 6 science instruments
which landed on Saturn’s largest moon, Titan

145
00:10:25,959 --> 00:10:32,720
in January 2005, the mission has collected
valuable data about Saturn and its surroundings.

146
00:10:32,720 --> 00:10:37,519
Extended twice since its initial four-year
campaign ended in June 2008, the mission is

147
00:10:37,519 --> 00:10:44,620
now slated to continue through September 2017.

148
00:10:44,620 --> 00:10:48,980
My name is Azlin Biaggi, and my title is a
research electronics engineer.

149
00:10:48,980 --> 00:10:57,110
Well I’m involved in designing chemical

sensors which are used basically platforms

150
00:10:57,110 --> 00:11:04,670
that we use to detect gases and they're
used for hydrogen and gas leak detections,

151
00:11:04,670 --> 00:11:10,620
in for example: engines, fire detection, and
things like that.

152
00:11:10,620 --> 00:11:16,189
Their future use is to be used in the breath
analyzers.

153
00:11:16,189 --> 00:11:22,949
The reason for this is that if we can detect
low levels, as in parts per billion, we can

154
00:11:22,949 --> 00:11:26,579
use it as an asthma prevention technique.

155
00:11:26,579 --> 00:11:32,790
I was born and raised in San Juan, Puerto
Rico, and my Ph.D. degree was obtained at

156
00:11:32,790 --> 00:11:35,209
the University of Puerto Rico.

157
00:11:35,209 --> 00:11:37,910
It was in Chemical Physics.

158
00:11:37,910 --> 00:11:44,649
Right now you need an education now only in
science but in any type of area to make educated

159
00:11:44,649 --> 00:11:46,260
decisions in your life.

160
00:11:46,260 --> 00:11:52,269

If I had an opportunity to tell students to
come to work at NASA, my first thing would

161
00:11:52,269 --> 00:11:58,069
be do internships not only-NASA not only offers
college internships.

162
00:11:58,069 --> 00:12:04,569
It offers high school, summer internships,
and you can experience what it's like to

163
00:12:04,569 --> 00:12:09,790
work at NASA and if you like it, if you like
being at the technology forefront, then NASA

164
00:12:09,790 --> 00:12:12,379
is for you.

165
00:12:12,379 --> 00:12:14,309
And that's This Week @NASA.

166
00:12:14,309 --> 00:12:19,069
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