
CATO

1
00:00:04,080 --> 00:00:08,640
Good morning and welcome from Mission Control
Houston and today's Friday edition of the

2
00:00:08,640 --> 00:00:11,980
International Space Station update hour.

3
00:00:11,980 --> 00:00:15,860
You're getting a live look now inside of the
flight control room here at the Johnson Space

4
00:00:15,860 --> 00:00:20,850
Center as the Orbit Two team is currently
on console monitoring systems on the orbiting

5
00:00:20,850 --> 00:00:25,519
laboratory while the astronauts work hard
up in space.

6
00:00:25,519 --> 00:00:30,030
That Orbit Two team today's being led by flight
director Emily Nelson there on the right side

7
00:00:30,030 --> 00:00:35,940
of your screen and she is joined by Capcom
Jay Marschke, serving as the voice connection

8
00:00:35,940 --> 00:00:41,800
between controllers here on the ground and
the crew members up in space.

9
00:00:41,800 --> 00:00:48,479
And those astronauts right now are the Expedition
30 crew, and they are being led by NASA astronaut

10
00:00:48,479 --> 00:00:54,019
and Expedition 30 Commander Dan Burbank there
in the front left of your screen and then

11

00:00:54,019 --> 00:01:00,350
behind him are Russian cosmonauts Anton Shkaplerov
and Anatoly Ivanishin who joined him on the

12
00:01:00,350 --> 00:01:04,420
station back in November on their Soyuz spacecraft.

13
00:01:04,420 --> 00:01:10,610
On the right side starting in the front row
is another Russian cosmonaut, Oleg Kononenko,

14
00:01:10,610 --> 00:01:16,570
and behind him on the left is European astronaut
Andre Kuipers and to the right is NASA astronaut

15
00:01:16,570 --> 00:01:18,990
Don Pettit.

16
00:01:18,990 --> 00:01:24,940
The crew wrapping up a very busy week onboard
the station, even with an off-duty day on

17
00:01:24,940 --> 00:01:32,090
Monday following some heavy cargo unloading
from that recently docked Progress spacecraft.

18
00:01:32,090 --> 00:01:35,380
Commander Dan Burbank on Monday had just a
few tasks.

19
00:01:35,380 --> 00:01:41,690
He worked with the Integrated Cardiovascular
System which looks to measure heart atrophy

20
00:01:41,690 --> 00:01:46,159
in these astronauts during their long-duration
spaceflights, and also doing some Reaction

21
00:01:46,159 --> 00:01:53,080
self test right when he woke up which helps

to see if any of the daily effects of fatigue

22
00:01:53,080 --> 00:01:57,800
are having negative effects on the astronaut’s
performance.

23
00:01:57,800 --> 00:02:02,840
Anton Shkaplerov worked with the Immuno experiment
which he would go on to work on throughout

24
00:02:02,840 --> 00:02:09,479
the week, and that is a Russian research project
looking at changes in stress and immune responses

25
00:02:09,479 --> 00:02:14,260
during the stay and after a stay onboard station.

26
00:02:14,260 --> 00:02:20,120
Russian cosmonaut Anatoly Ivanishin just did
some software refresh work on one of the laptops

27
00:02:20,120 --> 00:02:24,110
onboard International Space Station, again
being an off-duty day for the crew.

28
00:02:24,110 --> 00:02:31,360
They were fairly relaxed, and then the final
Russian cosmonaut and Oleg Kononenko did some

29
00:02:31,360 --> 00:02:36,140
routine coolant maintenance in the Zvezda
service module.

30
00:02:36,140 --> 00:02:44,520
Andre Kuipers worked with the Earth Knowledge
Acquired By Middle School Students or EarthKAM,

31
00:02:44,520 --> 00:02:49,010
setting that up and activating it in the station's
Window Observational Research Facility.

32
00:02:49,010 --> 00:02:55,040
And then Don Pettit on Monday worked also
with the Integrated Cardiovascular alongside

33
00:02:55,040 --> 00:03:00,040
Dan Burbank setting up some of the monitors
and then downloading the data to researchers

34
00:03:00,040 --> 00:03:02,340
on the ground.

35
00:03:02,340 --> 00:03:07,360
Moving onto Tuesday Commander Dan Burbank
worked with the Binary Colloidal Alloy Test

36
00:03:07,360 --> 00:03:14,459
or BCAT doing some sample homogenization,
mixing them together and that BCAT test is

37
00:03:14,459 --> 00:03:20,099
fairly complex and looks at using microscopic
particles known as colloids as models for

38
00:03:20,099 --> 00:03:24,300
studying the fundamental physics of the liquid
crystal phase.

39
00:03:24,300 --> 00:03:30,430
He also participated in an educational event
with the Asa E. Low Intermediate School talking

40
00:03:30,430 --> 00:03:36,860
to students and relaying some of the experiences
he's had so far onboard the station.

41
00:03:36,860 --> 00:03:41,540
Russian cosmonaut Anton Shkaplerov continued
work with that Immuno experiment taking blood

42
00:03:41,540 --> 00:03:46,890
and saliva samples which are then stored again
to determine any changes in the stress and

43
00:03:46,890 --> 00:03:52,220
immune responses of these astronauts during
and after their expedition stays.

44
00:03:52,220 --> 00:03:56,890
He also did some work unloading cargo from
that Progress 46 spacecraft that docked last

45
00:03:56,890 --> 00:03:59,020
Friday.

46
00:03:59,020 --> 00:04:03,019
Anatoly Ivanishin did some routine maintenance
on the Russian toilet on board the station

47
00:04:03,019 --> 00:04:07,750
and also worked on the Elektron system which
generates some of the oxygen the astronauts

48
00:04:07,750 --> 00:04:09,980
are actively breathing.

49
00:04:09,980 --> 00:04:15,310
And then Oleg Kononenko tested out one of
the control panels in the Pirs docking compartment

50
00:04:15,310 --> 00:04:21,139
as some of the work being done on the upcoming
Russian EVA or extravehicular activity or

51
00:04:21,139 --> 00:04:26,969
more commonly known as a spacewalk which is
coming up here on February 16.

52
00:04:26,969 --> 00:04:32,110

He also did some cargo unloading from that
Progress spacecraft alongside with Anton Shkaplerov

53
00:04:32,110 --> 00:04:35,789
who will be joining him on that spacewalk.

54
00:04:35,789 --> 00:04:42,099
Andre Kuipers worked with one of the Human
Research Facilities specifically doing a replacement

55
00:04:42,099 --> 00:04:45,729
of the Pulmonary Function System.

56
00:04:45,729 --> 00:04:51,349
This helps to measure the respiratory and
cardiovascular systems in the astronauts and

57
00:04:51,349 --> 00:04:56,870
measures this through taking readings off
of different respired gases that can obtain

58
00:04:56,870 --> 00:05:02,020
significant concentrations of nitrogen and
water vapor.

59
00:05:02,020 --> 00:05:06,300
The last member of the crew Don Pettit on
Tuesday started his work with the Capillary

60
00:05:06,300 --> 00:05:08,710
Flow Experiment seen here.

61
00:05:08,710 --> 00:05:14,490
It's a fluid physics experiments that investigates
capillary flow and flows of different fluids

62
00:05:14,490 --> 00:05:18,389
in these containers with very complex geometries.

63

00:05:18,389 --> 00:05:24,319
It's one of the future tech research projects
going on board the station and results will

64
00:05:24,319 --> 00:05:31,340
help improve future flow systems on the as
yet built spacecrafts.

65
00:05:31,340 --> 00:05:35,819
Moving on to Wednesday commander Dan Burbank
spent much of his day working on the high

66
00:05:35,819 --> 00:05:42,469
rate communication system with some very complex
cable routings operations and also began work

67
00:05:42,469 --> 00:05:49,259
on the Solo or SOdium LOading experiment which
has the astronauts follow a diet of constant

68
00:05:49,259 --> 00:05:54,820
either low or normal sodium intake and increased
fluid consumption to study the mechanisms

69
00:05:54,820 --> 00:05:59,860
of fluid and salt retention in the human body
during spaceflight.

70
00:05:59,860 --> 00:06:05,069
Anton Shkaplerov worked some more on the Immuno
experiment collecting some more samples and

71
00:06:05,069 --> 00:06:12,219
also reviewed his preliminary spacewalk timeline,
which will have him and Oleg Kononenko step

72
00:06:12,219 --> 00:06:17,999
out for a six-hour spacewalk on February 16
attaching some debris shields to the Zvezda

73

00:06:17,999 --> 00:06:23,979
service module and relocating one of the cranes
from the Pirs docking compartment to the Poisk

74
00:06:23,979 --> 00:06:28,279
module on the space-facing side of the Zvezda
module.

75
00:06:28,279 --> 00:06:34,539
The Russian cosmonaut Anatoly Ivanishin did
some inspection and photography of the Zvezda

76
00:06:34,539 --> 00:06:39,419
service module's windows and also did some
filter replacement on the dust collectors

77
00:06:39,419 --> 00:06:41,800
in Zarya.

78
00:06:41,800 --> 00:06:46,889
Meanwhile Andre Kuipers did some body mass
measurements using the SLAMMD device, SLAMMD

79
00:06:46,889 --> 00:06:53,180
standing for Space Linear Acceleration Mass
Measurement Device which uses two springs

80
00:06:53,180 --> 00:06:58,439
to generate a known force against a crew member
while they are mounted on an extension arm

81
00:06:58,439 --> 00:07:03,839
and then the resulting acceleration is used
to calculate the astronaut's mass.

82
00:07:03,839 --> 00:07:08,379
As you cannot have a scale in this microgravity
environments it's one of the only ways available

83
00:07:08,379 --> 00:07:12,499

on station to take these calculations.

84
00:07:12,499 --> 00:07:18,189
Don Pettit did his first day of working with
the Lego bricks experiment on Wednesday, building

85
00:07:18,189 --> 00:07:24,270
a model rocket, and the Lego bricks uses the
famous building block kits that you can find

86
00:07:24,270 --> 00:07:29,259
here down on Earth and then they are flown
to the station and assembled on orbit to demonstrate

87
00:07:29,259 --> 00:07:31,110
various scientific concepts.

88
00:07:31,110 --> 00:07:36,460
And then some of these models include satellites,
a space shuttle orbiter and even a scale model

89
00:07:36,460 --> 00:07:42,789
of the International Space Station, and then
the crew records videos for downlink and then

90
00:07:42,789 --> 00:07:49,169
sharing throughout the country with schools
for students to enjoy.

91
00:07:49,169 --> 00:07:54,871
Moving onto Thursday Commander Dan Burbank
sort of work with the VO2max portable pulmonary

92
00:07:54,871 --> 00:07:56,490
function system.

93
00:07:56,490 --> 00:08:02,979
VO2max looks at studying the changes in the
astronauts' aerobic capacity during long-duration

94
00:08:02,979 --> 00:08:04,300
spaceflight.

95
00:08:04,300 --> 00:08:09,379
He also helped out with some tool gathering
for that upcoming spacewalk and participated

96
00:08:09,379 --> 00:08:15,360
in an educational event talking with the United
States Coast Guard Academy and four schools

97
00:08:15,360 --> 00:08:17,889
across the country.

98
00:08:17,889 --> 00:08:23,839
Anton Shkaplerov continued his work in preparation
for that upcoming spacewalk, gathering tools

99
00:08:23,839 --> 00:08:29,509
and conferring with specialists in the Russian
mission control center in Korolev as they

100
00:08:29,509 --> 00:08:35,360
again prepare for the February 16 that excursion
of the Pirs docking compartment.

101
00:08:35,360 --> 00:08:40,560
Anatoly Ivanishin continued with some routine
maintenance work on the Zarya module, cleaning

102
00:08:40,560 --> 00:08:46,870
ventilation screens and then did a water transfer
disinfectant operation on one of the Zvezda

103
00:08:46,870 --> 00:08:49,450
storage tanks.

104
00:08:49,450 --> 00:08:55,810
Oleg Kononenko also joined Shkaplerov in that

EVA or extravehicular activity preparation

105
00:08:55,810 --> 00:09:00,620
and also worked with the Uragan experiment
which is a Russian research project that looks

106
00:09:00,620 --> 00:09:07,410
at predicting, determining and following both
man-made and natural disasters.

107
00:09:07,410 --> 00:09:12,150
Andre Kuipers joined Commander Burbank in
working on that SOLO, that SOdium LOading

108
00:09:12,150 --> 00:09:18,000
diet experiment, taking some biological samples
as well as participating in an educational

109
00:09:18,000 --> 00:09:23,690
event with the Mission X competition which
has students in the Netherlands, Switzerland,

110
00:09:23,690 --> 00:09:28,940
Italy and Portugal all learning about fitness
and training like astronauts for a number

111
00:09:28,940 --> 00:09:32,250
of weeks in a competition.

112
00:09:32,250 --> 00:09:37,910
The final crew member Don Pettit did some
work on the Space Sakura experiment with flight

113
00:09:37,910 --> 00:09:46,080
controllers in Japan, recording the floating
state of cherry blossoms in microgravity.

114
00:09:46,080 --> 00:09:49,670
And that brings us to today, Friday, the end
of the week.

115
00:09:49,670 --> 00:09:54,840
Commander Burbank is taking some more SOLO
samples for that sodium diet experiment and

116
00:09:54,840 --> 00:10:02,970
also working some more with the VO2max experiment
protocols, shown here, and that VO2max measures

117
00:10:02,970 --> 00:10:06,780
the changes in the astronauts' aerobic capacity.

118
00:10:06,780 --> 00:10:12,470
Anton Shkaplerov is gathering some more tools
for that upcoming spacewalk with Kononenko

119
00:10:12,470 --> 00:10:18,010
and going over the procedures, and then the
two will configure the Pirs airlock for their

120
00:10:18,010 --> 00:10:20,500
upcoming spacewalk.

121
00:10:20,500 --> 00:10:27,250
Anatoly Ivanishin is working with the Russian
Relaxation experiment which uses two plasma

122
00:10:27,250 --> 00:10:35,320
contactor units installed on the US Z1 truss,
or backbone of the station, and that helps

123
00:10:35,320 --> 00:10:41,070
determine the effects of propulsion system
exhaust on the Earth's upper atmosphere and

124
00:10:41,070 --> 00:10:47,440
the station environments with optically sensitive
surfaces such as windows, equipment lenses

125

00:10:47,440 --> 00:10:50,510
and solar array panels.

126
00:10:50,510 --> 00:10:56,320
Andre Kuipers also working on that SOLO experiment,
did some work with the EXPRESS rack 4 which

127
00:10:56,320 --> 00:10:58,390
had a computer failure just the other day.

128
00:10:58,390 --> 00:11:03,680
He's rebooting that as well as unpacking some
of the US items from that visiting Progress

129
00:11:03,680 --> 00:11:05,510
spacecraft.

130
00:11:05,510 --> 00:11:10,380
And then the final crew member of Expedition
30 today [Don Pettit] will be working downloading

131
00:11:10,380 --> 00:11:16,840
some video and data from the Integrated Cardiovascular
monitoring system as well as participating

132
00:11:16,840 --> 00:11:20,270
in another Lego bricks experiment.