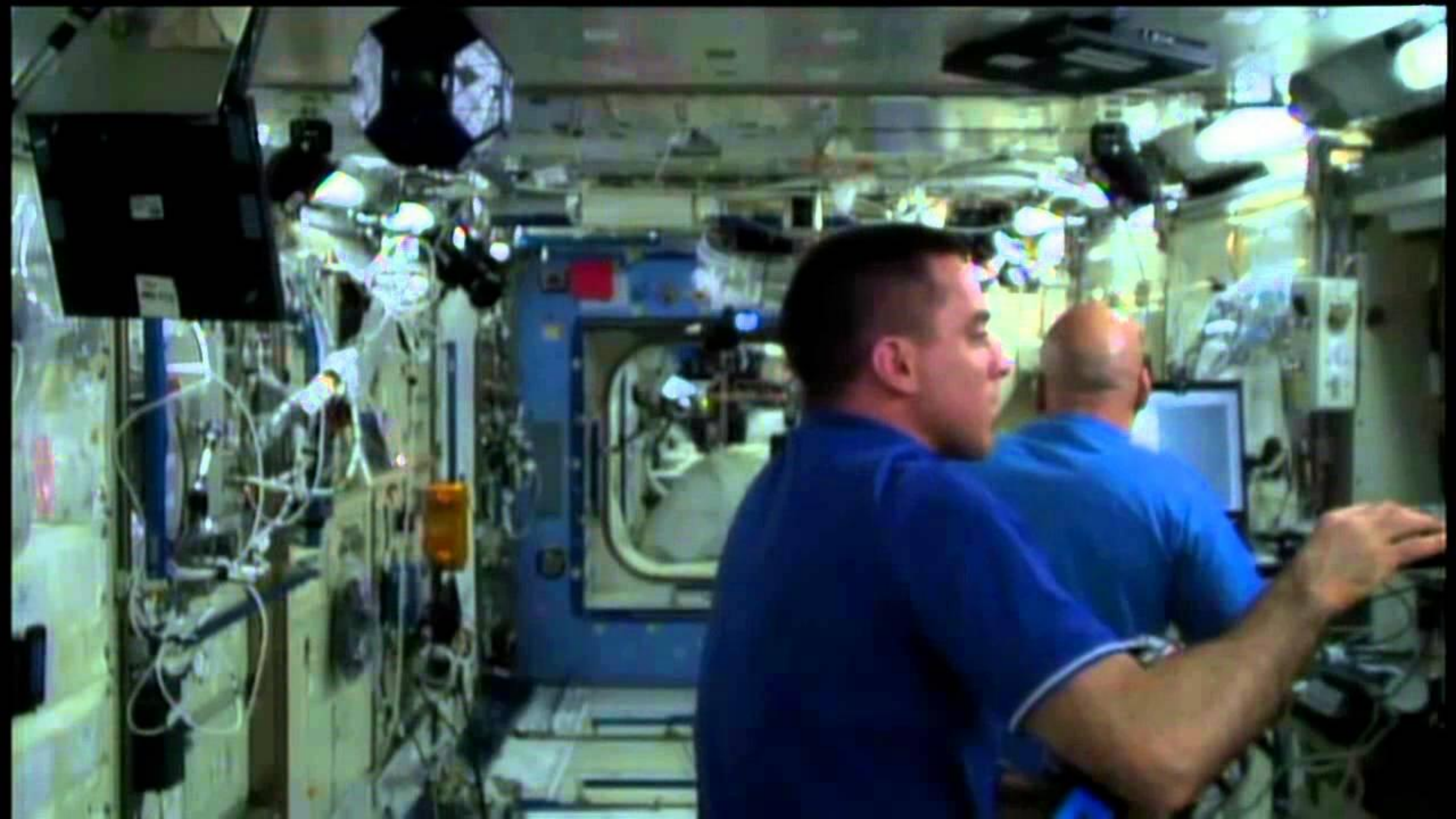

1
00:00:00,766 --> 00:00:09,575
[Music]

2
00:00:13,679 --> 00:00:16,282
>> Good day, and welcome
to Mission Control Houston.

3
00:00:16,282 --> 00:00:19,552
Today is Friday,
September 6, 2013,

4
00:00:19,552 --> 00:00:21,921
and this is Space Station Live.

5
00:00:21,921 --> 00:00:23,856
On board the International
Space Station,

6
00:00:23,856 --> 00:00:26,625
a crew of six people
continues to work in support

7
00:00:26,625 --> 00:00:29,061
of research aboard
the orbiting outpost.

8
00:00:29,061 --> 00:00:30,596
Commander Pavel Vinogradov

9
00:00:30,596 --> 00:00:33,966
and flight engineers Alexander
Misurkin, Chris Cassidy,

10
00:00:33,966 --> 00:00:36,402
Fyodor Yurchikhin,
Luca Parmitano,

11
00:00:36,402 --> 00:00:39,505
and Karen Nyberg are orbiting

the planet at an altitude

12
00:00:39,505 --> 00:00:42,441
of about 250 statute
miles currently

13
00:00:42,441 --> 00:00:47,046
over the southern Indian Ocean.

14
00:00:47,046 --> 00:00:48,514
Supporting the crew
on the ground here

15
00:00:48,514 --> 00:00:51,183
at Mission Control Houston
are our flight director Holly

16
00:00:51,183 --> 00:00:53,285
Ridings, and spacecraft
communicator

17
00:00:53,285 --> 00:00:56,055
or Capcom [Inaudible]
working with the crew

18
00:00:56,055 --> 00:00:59,258
on all the different
activities scheduled for today.

19
00:00:59,258 --> 00:01:02,495
This is another -- been
another busy week aboard the

20
00:01:02,495 --> 00:01:03,929
International Space Station.

21
00:01:03,929 --> 00:01:05,364
It's getting ready
to near an end

22
00:01:05,364 --> 00:01:09,568
and the crew's looking forward
to a full weekend this weekend.

23
00:01:09,568 --> 00:01:12,404
The highlight of this week
was Wednesday's undocking

24
00:01:12,404 --> 00:01:17,343
and departure of the HTV-4
or H2 Transfer Vehicle 4,

25
00:01:17,343 --> 00:01:22,148
the Japanese cargo vehicle that
delivered several tons of cargo

26
00:01:22,148 --> 00:01:26,418
to the space station, and is
now carrying trash and refuse

27
00:01:26,418 --> 00:01:29,655
that will be destroyed
after it is commanded

28
00:01:29,655 --> 00:01:33,192
to begin a fiery reentry through
the Earth's atmosphere early

29
00:01:33,192 --> 00:01:35,361
tomorrow morning.

30
00:01:35,361 --> 00:01:39,832
The Japanese HTV-4 cargo ship
continues now to phase away

31
00:01:39,832 --> 00:01:43,536
from the space station after
its departure and release

32

00:01:43,536 --> 00:01:47,173
by flight engineer Karen
Nyberg and is scheduled

33
00:01:47,173 --> 00:01:49,975
to fire its engines for
a destructive deorbit

34
00:01:49,975 --> 00:01:54,079
at 1:36 a.m. Central
time Saturday.

35
00:01:59,685 --> 00:02:04,256
The Thursday -- the Wednesday
activity involved reaching out

36
00:02:04,256 --> 00:02:07,893
and grappling HTV-4
as it was berthed

37
00:02:07,893 --> 00:02:11,530
to its common berthing
mechanism port on the station;

38
00:02:11,530 --> 00:02:14,567
moving it away to the
full-length of Canadarm2.

39
00:02:14,567 --> 00:02:17,436
That was performed
by the ground,

40
00:02:17,436 --> 00:02:21,240
and then Karen Nyberg
released the vehicle.

41
00:02:22,441 --> 00:02:26,111
It was then commanded by
the Mission Control Center

42

00:02:26,111 --> 00:02:29,748
in Tsukuba Japan to make
thruster firings that led it

43
00:02:29,748 --> 00:02:35,087
to a stately departure from the
International Space Station.

44
00:02:35,087 --> 00:02:39,592
NASA and the Japan Aerospace
Exploration Agency are working

45
00:02:39,592 --> 00:02:43,162
together to gather extensive
data and imagery of the reentry

46
00:02:43,162 --> 00:02:47,266
with data-gathering
devices on the spacecraft,

47
00:02:47,266 --> 00:02:51,470
and some of that will include
imagery gathered by the crew

48
00:02:51,470 --> 00:02:55,608
and the ISERV science camera
which is usually applied

49
00:02:55,608 --> 00:02:59,478
to photographing natural
disasters on the Earth.

50
00:02:59,478 --> 00:03:02,114
The HTV-4 reentry
observation is a test

51
00:03:02,114 --> 00:03:06,285
to define the photographic
exposure and pointing limits

52

00:03:06,285 --> 00:03:08,053
that ultimately determine
how high

53
00:03:08,053 --> 00:03:11,590
and how precisely we can
locate a reentering spacecraft.

54
00:03:11,590 --> 00:03:14,493
There are certain areas
of the reentry environment

55
00:03:14,493 --> 00:03:16,462
for spacecraft that we
don't know a lot about.

56
00:03:16,462 --> 00:03:19,865
The crew will be shooting a wide
range of different exposures

57
00:03:19,865 --> 00:03:23,269
on three different cameras from
the space station's cupola,

58
00:03:23,269 --> 00:03:27,306
which is a 360 degree
bay window connected

59
00:03:27,306 --> 00:03:28,841
to the Tranquility module.

60
00:03:28,841 --> 00:03:32,745
We'll be trying to capture the
faint plasma trail of HTV-4

61
00:03:32,745 --> 00:03:36,148
as it breaks up in
the lower atmosphere.

62
00:03:36,148 --> 00:03:38,517

Mission Control has been
working to determine exactly

63
00:03:38,517 --> 00:03:40,552
where the crew will
need to work --

64
00:03:40,552 --> 00:03:44,490
will need to look as the
HTV will be taking up less

65
00:03:44,490 --> 00:03:48,627
than a pixel in the entire
field of view in those pictures.

66
00:03:48,627 --> 00:03:51,163
This week the crew
worked on a variety

67
00:03:51,163 --> 00:03:54,500
of different experiments
including more work

68
00:03:54,500 --> 00:03:59,371
with the SPHERES satellites in
the Japanese Kibo laboratory.

69
00:03:59,371 --> 00:04:04,710
These SPHERES satellites,
small bowling ball sized,

70
00:04:04,710 --> 00:04:08,981
self-contained satellites,
are designed to interact

71
00:04:08,981 --> 00:04:13,018
with one another and
maintain relative positions,

72
00:04:13,018 --> 00:04:15,054

and this particular set

73
00:04:15,054 --> 00:04:18,524
of experiments used a
smart phone technology

74
00:04:18,524 --> 00:04:22,528
to send commands to
the free-flying orbs.

75
00:04:22,528 --> 00:04:26,131
They also worked with the
ACE-1 experiment which looks

76
00:04:26,131 --> 00:04:30,502
at very small micron-sized
particles that are suspended

77
00:04:30,502 --> 00:04:32,671
within liquids called colloids.

78
00:04:32,671 --> 00:04:36,041
The experiment looks at
strands of such particles to try

79
00:04:36,041 --> 00:04:38,677
to develop ideal mixtures,
to develop products

80
00:04:38,677 --> 00:04:40,879
that will help improve
the quality of life

81
00:04:40,879 --> 00:04:43,515
for everyday people;
detergents, shampoos,

82
00:04:43,515 --> 00:04:45,451
fabric conditioners,
and the like.

83
00:04:45,451 --> 00:04:48,787
They also worked with a human
reaction experiment this week,

84
00:04:48,787 --> 00:04:52,057
some fluids experiments,
combustion experiments,

85
00:04:52,057 --> 00:04:55,294
and today are taking
spinal ultrasound imagery

86
00:04:55,294 --> 00:04:58,097
of Karen Nyberg.

87
00:04:58,097 --> 00:05:00,933
There was also maintenance
aboard the space station

88
00:05:00,933 --> 00:05:01,900
this week.

89
00:05:01,900 --> 00:05:03,702
Chris Cassidy replaced
an air valve

90
00:05:03,702 --> 00:05:07,406
in the carbon dioxide
removal system that is

91
00:05:07,406 --> 00:05:10,109
in the Tranquility
module of the station.

92
00:05:10,109 --> 00:05:11,443
That occurred on Thursday,

93
00:05:11,443 --> 00:05:14,480

and that will help keep the
atmosphere the crew breathes

94
00:05:14,480 --> 00:05:17,015
at the proper balance
without a lot of after --

95
00:05:17,015 --> 00:05:19,118
extra effort from
Mission Control.

96
00:05:19,118 --> 00:05:22,688
Mission Control's been
having to do some extra work

97
00:05:22,688 --> 00:05:26,959
to unstick the old
valve periodically,

98
00:05:26,959 --> 00:05:30,028
and this replacement
should help return it

99
00:05:30,028 --> 00:05:33,899
to more automated operations.

100
00:05:33,899 --> 00:05:40,038
Meanwhile, the crew of six work
together to train and prepare

101
00:05:40,038 --> 00:05:42,040
for the upcoming departure.

102
00:05:42,040 --> 00:05:46,612
The commander Pavlo Vinogradov,
flight engineer Chris Cassidy,

103
00:05:46,612 --> 00:05:52,451
and flight engineer Alexander
Misurkin, they are loading items

104
00:05:52,451 --> 00:05:55,788
and performing final
training for the departure

105
00:05:55,788 --> 00:06:01,260
of the Soyuz TMA-08M spacecraft
that is scheduled to undock

106
00:06:01,260 --> 00:06:04,897
and land on the step of
Kazakhstan next Tuesday.

107
00:06:04,897 --> 00:06:08,634
There will be a change
of command ceremony

108
00:06:08,634 --> 00:06:11,603
that takes place on
Monday, September the 9th,

109
00:06:11,603 --> 00:06:15,641
in which Vinogradov
will hand off command

110
00:06:15,641 --> 00:06:17,810
to his colleague
Fyodor Yurchikhin

111
00:06:17,810 --> 00:06:25,517
of the Expedition 3637 crew.

112
00:06:25,517 --> 00:06:29,488
And then we will have
hatch closing scheduled

113
00:06:29,488 --> 00:06:33,892
for 3:20 p.m. Central
time on Tuesday;

114
00:06:33,892 --> 00:06:38,764
undocking will be scheduled
for 6:37 p.m. Central time;

115
00:06:38,764 --> 00:06:41,433
and then that trio is
scheduled to land on the step

116
00:06:41,433 --> 00:06:47,372
of Kazakhstan at 9:59
p.m. Central time Tuesday.

117
00:06:49,441 --> 00:06:51,009
Meanwhile, in Russia,

118
00:06:51,009 --> 00:06:56,849
the Expedition 3738 prime
crew Mike Hopkins, Oleg Kotov,

119
00:06:56,849 --> 00:07:03,188
and Sergey Ryzansky, who will be
replacing Vinogradov, Misurkin,

120
00:07:03,188 --> 00:07:04,890
and Cassidy aboard
the space station,

121
00:07:04,890 --> 00:07:06,592
they are conducting
their final round

122
00:07:06,592 --> 00:07:09,928
of Soyuz vehicle
qualification exams this week

123
00:07:09,928 --> 00:07:12,698
at the Gagarin Cosmonaut
Training Center in Star City,

124

00:07:12,698 --> 00:07:17,069
Russia, and will begin
preparations for their launch

125
00:07:17,069 --> 00:07:22,341
to the International Space
Station which is scheduled

126
00:07:24,142 --> 00:07:29,181
for Thursday -- Wednesday,
September 25, Houston time,

127
00:07:29,181 --> 00:07:33,986
Thursday, September
26 in Kazakhstan.

128
00:07:33,986 --> 00:07:37,422
We're also getting ready for
the launch and arrival of

129
00:07:37,422 --> 00:07:39,091
yet another cargo vehicle;

130
00:07:39,091 --> 00:07:43,529
the Orbital Sciences Cygnus
vehicle will be launching

131
00:07:43,529 --> 00:07:48,333
from Wallops Flight Facility
in Virginia and heading

132
00:07:48,333 --> 00:07:53,539
for the International Space
Station on September the 17th

133
00:07:53,539 --> 00:07:55,974
with a rendezvous
and grapple planned

134
00:07:55,974 --> 00:07:59,077

for Sunday, September 22.

135
00:07:59,077 --> 00:08:02,714
That launch is scheduled
for 10:16 a.m. Central time

136
00:08:02,714 --> 00:08:07,553
on September 17, and will
expect rendezvous and berthing

137
00:08:07,553 --> 00:08:12,357
at 8:05 a.m. Central time
on Sunday, September 22.

138
00:08:12,357 --> 00:08:14,927
All in all, a very busy week

139
00:08:14,927 --> 00:08:17,696
for the crew aboard the
International Space Station

140
00:08:17,696 --> 00:08:20,966
as we get ready for the
departure of half of that crew

141
00:08:20,966 --> 00:08:24,102
and we will be following along

142
00:08:24,102 --> 00:08:28,507
as the crew enjoys a two-day
weekend on Saturday and Sunday,

143
00:08:28,507 --> 00:08:30,943
and then back with coverage

144
00:08:30,943 --> 00:08:33,211
of the International Space
Station Monday morning.