



A workstation with multiple computer monitors displaying various data and charts. A nameplate in front of the workstation reads "CATO". There are also some personal items like a small American flag and a coffee cup on the desk.

A workstation with multiple computer monitors displaying various data and charts. A nameplate in front of the workstation reads "CANTO". There are also some personal items like a small American flag and a coffee cup on the desk.

A workstation with multiple computer monitors displaying various data and charts. The desk is cluttered with papers, keyboards, and other equipment.

A workstation with multiple computer monitors displaying various data and charts. A nameplate in front of the workstation reads "CANTO". There are also some personal items like a small American flag and a coffee cup on the desk.

1
00:00:17,670 --> 00:00:15,749
good morning from mission control

2
00:00:21,990 --> 00:00:17,680
houston and welcome to space station

3
00:00:23,429 --> 00:00:22,000
live it's thursday november 21st 2013.

4
00:00:24,870 --> 00:00:23,439
you're looking down inside of the

5
00:00:26,870 --> 00:00:24,880
international space station flight

6
00:00:29,669 --> 00:00:26,880
control room located at the johnson

7
00:00:31,750 --> 00:00:29,679
space center in houston texas

8
00:00:33,750 --> 00:00:31,760
inside the room right now sits the orbit

9
00:00:36,150 --> 00:00:33,760
2 team controlling systems onboard the

10
00:00:37,670 --> 00:00:36,160
orbiting laboratory they're being led

11
00:00:39,830 --> 00:00:37,680
right now by flight director emily

12
00:00:41,430 --> 00:00:39,840
nelson and at the capcom position

13
00:00:43,430 --> 00:00:41,440

speaking with the astronauts we hal

14

00:00:45,110 --> 00:00:43,440

getzelman serving as the communication

15

00:00:46,950 --> 00:00:45,120

link between all of our controllers down

16

00:00:49,190 --> 00:00:46,960

here on the ground and the astronauts up

17

00:00:50,790 --> 00:00:49,200

in space

18

00:00:53,670 --> 00:00:50,800

and those astronauts right now are the

19

00:00:56,150 --> 00:00:53,680

crew of expedition 38

20

00:00:58,790 --> 00:00:56,160

comprised of three russian crew members

21

00:01:00,709 --> 00:00:58,800

two americans and one japanese astronaut

22

00:01:02,470 --> 00:01:00,719

on board you can see them here going

23

00:01:04,869 --> 00:01:02,480

across the back row russian cosmonaut

24

00:01:06,870 --> 00:01:04,879

mikhail turin on the left there nasa

25

00:01:08,870 --> 00:01:06,880

astronaut rick mastracchio next to him

26

00:01:10,630 --> 00:01:08,880

another russian cosmonaut

27

00:01:12,230 --> 00:01:10,640

sergey ryazanskiy and mike hopkins

28

00:01:14,550 --> 00:01:12,240

another nasa astronaut all the way in

29

00:01:16,630 --> 00:01:14,560

the right in the front row on two

30

00:01:18,149 --> 00:01:16,640

commanders of the expedition of the

31

00:01:20,149 --> 00:01:18,159

international space station on the right

32

00:01:22,149 --> 00:01:20,159

oleg kotov current expedition 38

33

00:01:24,149 --> 00:01:22,159

commander and the left in the front row

34

00:01:25,670 --> 00:01:24,159

koichi wakata who will take command of

35

00:01:28,870 --> 00:01:25,680

the international space station during

36

00:01:30,870 --> 00:01:28,880

expedition 39

37

00:01:32,630 --> 00:01:30,880

on board the regular contingent of

38

00:01:34,630 --> 00:01:32,640

experiment and maintenance work taking

39

00:01:37,350 --> 00:01:34,640

place on board the station as it orbits

40

00:01:38,710 --> 00:01:37,360

260 miles over the earth's surface

41

00:01:41,590 --> 00:01:38,720

starting off with

42

00:01:43,910 --> 00:01:41,600

expedition 38 commander oleg kotov who

43

00:01:46,469 --> 00:01:43,920

is installing a new communication unit

44

00:01:48,389 --> 00:01:46,479

inside of the zvezda service module over

45

00:01:50,069 --> 00:01:48,399

on the russian segment he'll also be

46

00:01:52,230 --> 00:01:50,079

doing some routine maintenance work in

47

00:01:54,230 --> 00:01:52,240

one of the russian docking compartments

48

00:01:55,590 --> 00:01:54,240

known as poisk or the mini research

49

00:01:57,109 --> 00:01:55,600

module too

50

00:01:58,469 --> 00:01:57,119

and that'll be taking out most of his

51

00:02:01,190 --> 00:01:58,479

day today

52

00:02:02,950 --> 00:02:01,200

meanwhile russian sergey ryazanskiy is

53

00:02:05,109 --> 00:02:02,960

uh doing some

54

00:02:06,630 --> 00:02:05,119

uh work known as fungostat treatment

55

00:02:08,790 --> 00:02:06,640

some

56

00:02:11,270 --> 00:02:08,800

routine work to

57

00:02:12,949 --> 00:02:11,280

coat the surfaces inside of the

58

00:02:15,589 --> 00:02:12,959

international space station to make them

59

00:02:17,750 --> 00:02:15,599

more resistant to uh any microbes that

60

00:02:20,309 --> 00:02:17,760

may accumulate over time they'll be

61

00:02:22,790 --> 00:02:20,319

working inside of the zarya module which

62

00:02:24,949 --> 00:02:22,800

just yesterday celebrated its 15th

63

00:02:26,550 --> 00:02:24,959

anniversary since launch in the

64

00:02:29,030 --> 00:02:26,560

beginning of the international space

65

00:02:31,430 --> 00:02:29,040

station in space

66

00:02:33,350 --> 00:02:31,440

meanwhile nasa astronaut mike hopkins

67

00:02:35,110 --> 00:02:33,360

upon waking up this morning taking a

68

00:02:37,110 --> 00:02:35,120

number of blood samples

69

00:02:39,350 --> 00:02:37,120

and other biological samples for a few

70

00:02:42,070 --> 00:02:39,360

studies on board for the human research

71

00:02:45,270 --> 00:02:42,080

facility and also the pro k experiment a

72

00:02:47,509 --> 00:02:45,280

dietary experiment which looks at

73

00:02:49,750 --> 00:02:47,519

decreasing the ratio between protein and

74

00:02:51,670 --> 00:02:49,760

potassium in the astronauts diet to try

75

00:02:53,430 --> 00:02:51,680

and combat

76

00:02:55,430 --> 00:02:53,440

the bone loss that the astronauts are

77

00:02:58,070 --> 00:02:55,440

typically subjected to while in

78

00:03:01,670 --> 00:02:58,080

microgravity for long durations of time

79

00:03:03,910 --> 00:03:01,680

aside from that also doing some more

80

00:03:05,030 --> 00:03:03,920

astronaut health studies today is uh

81

00:03:07,750 --> 00:03:05,040

hopkins

82

00:03:08,710 --> 00:03:07,760

will be doing some ocular ocular health

83

00:03:10,390 --> 00:03:08,720

scans

84

00:03:13,270 --> 00:03:10,400

using the station's funduscope to do

85

00:03:15,350 --> 00:03:13,280

scans of his eyes and also

86

00:03:17,910 --> 00:03:15,360

joining him in those scans will be his

87

00:03:20,149 --> 00:03:17,920

fellow russian or fellow nasa astronaut

88

00:03:23,190 --> 00:03:20,159

rick mastracchio and japanese astronaut

89

00:03:27,589 --> 00:03:25,910

the third russian on board mikhail taran

90

00:03:29,910 --> 00:03:27,599

started off his day working on the

91

00:03:33,030 --> 00:03:29,920

russian virtual experiment which looks

92

00:03:34,710 --> 00:03:33,040

to gather new data on the mechanisms of

93

00:03:36,949 --> 00:03:34,720

sensory interaction and sensory

94

00:03:39,030 --> 00:03:36,959

adaptation for these astronauts

95

00:03:40,630 --> 00:03:39,040

how well they're able to adapt

96

00:03:41,589 --> 00:03:40,640

during their long duration space

97

00:03:44,470 --> 00:03:41,599

missions

98

00:03:46,710 --> 00:03:44,480

also doing two earth study

99

00:03:48,470 --> 00:03:46,720

experiments today first off the signer

100

00:03:51,589 --> 00:03:48,480

which looks to um

101
00:03:53,910 --> 00:03:51,599
document and track bioproductive areas

102
00:03:56,229 --> 00:03:53,920
of the world's oceans for scientific

103
00:03:58,229 --> 00:03:56,239
research and also for commercial fishing

104
00:03:59,030 --> 00:03:58,239
also working on the eurogan experiment

105
00:04:00,470 --> 00:03:59,040
which

106
00:04:02,070 --> 00:04:00,480
uses the

107
00:04:04,550 --> 00:04:02,080
international space station's unique

108
00:04:06,309 --> 00:04:04,560
vantage point to serve as a

109
00:04:08,149 --> 00:04:06,319
monitoring system for areas where

110
00:04:09,429 --> 00:04:08,159
natural and man-made disasters are

111
00:04:11,509 --> 00:04:09,439
forecasted

112
00:04:13,750 --> 00:04:11,519
and helping to relay information to

113
00:04:16,229 --> 00:04:13,760

authorities whenever these unfavorable

114

00:04:17,670 --> 00:04:16,239

events transpire

115

00:04:19,990 --> 00:04:17,680

meanwhile nasa astronaut rick

116

00:04:22,069 --> 00:04:20,000

mastracchio on board today conducting a

117

00:04:24,870 --> 00:04:22,079

photo survey of some of the external

118

00:04:27,350 --> 00:04:24,880

station structures as part of a regular

119

00:04:29,590 --> 00:04:27,360

maintenance activity to

120

00:04:30,950 --> 00:04:29,600

routinely document the outer portions of

121

00:04:33,110 --> 00:04:30,960

the station

122

00:04:36,230 --> 00:04:33,120

he'll also be doing those ocular

123

00:04:38,790 --> 00:04:36,240

checkouts alongside hopkins and wakata

124

00:04:40,790 --> 00:04:38,800

as mentioned

125

00:04:42,070 --> 00:04:40,800

then koichi wakata on board today is

126

00:04:43,990 --> 00:04:42,080

continuing

127

00:04:45,909 --> 00:04:44,000

with the circadian rhythms experiment

128

00:04:47,909 --> 00:04:45,919

which he began uh towards the end of his

129

00:04:49,830 --> 00:04:47,919

day yesterday it will continue on

130

00:04:51,510 --> 00:04:49,840

through the morning

131

00:04:54,070 --> 00:04:51,520

tomorrow we'll hear more about that

132

00:04:56,390 --> 00:04:54,080

experiment later which looks to attract

133

00:04:58,710 --> 00:04:56,400

the astronaut sleep cycles throughout

134

00:05:00,870 --> 00:04:58,720

their long duration missions avocado

135

00:05:03,510 --> 00:05:00,880

also continuing his work with the

136

00:05:05,110 --> 00:05:03,520

capillary flow experiment fluid physics

137

00:05:06,310 --> 00:05:05,120

experiment on board that looks to

138

00:05:09,110 --> 00:05:06,320

investigate

139

00:05:10,550 --> 00:05:09,120

the force known as capillary

140

00:05:12,550 --> 00:05:10,560

capillary force

141

00:05:13,990 --> 00:05:12,560

which in the absence of gravity is a

142

00:05:15,990 --> 00:05:14,000

powerful tool for

143

00:05:18,550 --> 00:05:16,000

transitioning fluids along different

144

00:05:20,950 --> 00:05:18,560

delivery systems so that experiment

145

00:05:23,510 --> 00:05:20,960

today also looking at uh effectively

146

00:05:25,670 --> 00:05:23,520

separating fluids from gases a very

147

00:05:27,830 --> 00:05:25,680

important component in the design of

148

00:05:29,749 --> 00:05:27,840

spacecraft fuel systems also other

149

00:05:32,469 --> 00:05:29,759

liquid delivery systems such as water

150

00:05:34,310 --> 00:05:32,479

for crew consumption or experiments on

