



**PAVEL  
VINOGRADOV**  
EXPEDITION 35 FLIGHT ENGINEER

1  
00:00:00,500 --> 00:00:07,300  
[ Music ]

2  
00:00:07,300 --> 00:00:08,850  
>> This is Mission  
Control Houston.

3  
00:00:08,850 --> 00:00:10,660  
It's been a very busy week

4  
00:00:10,660 --> 00:00:15,100  
for the 6-member Expedition  
35 crew aboard this station.

5  
00:00:15,100 --> 00:00:17,600  
Three of the crew members  
began their first full week

6  
00:00:17,600 --> 00:00:22,330  
of operations aboard the station  
following their March 28th

7  
00:00:22,330 --> 00:00:25,480  
launch and docking  
to the complex.

8  
00:00:25,480 --> 00:00:28,830  
They were allocated time for  
orientation, familiarization,

9  
00:00:28,830 --> 00:00:31,110  
and adaptation to their new home

10  
00:00:31,110 --> 00:00:33,730  
for the next 5 and  
a half months.

11  
00:00:33,730 --> 00:00:35,640  
Canadian astronaut

Chris Hadfield serving

12

00:00:35,640 --> 00:00:39,400  
as the commander of Expedition  
35 led Pavel Vinogradov,

13

00:00:39,400 --> 00:00:41,610  
Alexander Misurkin,  
and Chris Cassidy

14

00:00:41,610 --> 00:00:43,980  
through a training  
exercise early in the week,

15

00:00:43,980 --> 00:00:47,440  
and emergency equipment  
location and translation paths

16

00:00:47,440 --> 00:00:50,430  
in the event of any  
emergency aboard the complex.

17

00:00:50,430 --> 00:00:53,260  
It's an exercise very similar  
to kind of fire drill training

18

00:00:53,260 --> 00:00:55,450  
that you would perform  
on the ground.

19

00:00:55,450 --> 00:00:56,950  
The week included closeout

20

00:00:56,950 --> 00:00:59,580  
of equipment used  
during the coarsening

21

00:00:59,580 --> 00:01:03,530  
and solid liquid mixtures  
experiment, which studied the --

22

00:01:03,530 --> 00:01:05,940

how crystals known  
as dendrites form

23

00:01:05,940 --> 00:01:09,560

as metal alloy becomes solid.

24

00:01:09,560 --> 00:01:13,800

The experiment was conducted  
during the past several weeks

25

00:01:13,800 --> 00:01:16,690

by the station crew,  
and returned back

26

00:01:16,690 --> 00:01:20,190

to earth aboard the  
Dragon spacecraft,

27

00:01:20,190 --> 00:01:23,190

an ongoing experiment  
known as energy,

28

00:01:23,190 --> 00:01:25,770

changes in a crew  
member's energy balance

29

00:01:25,770 --> 00:01:29,040

and total energy  
expenditures following long-term

30

00:01:29,040 --> 00:01:30,070

space flight.

31

00:01:30,070 --> 00:01:34,480

Tom Marshburn's been conducting  
activities associated with that.

32

00:01:34,480 --> 00:01:37,510

Periodic maintenance is a routine aboard the station,

33

00:01:37,510 --> 00:01:40,120

and this week of course was no different.

34

00:01:40,120 --> 00:01:43,100

Marshburn removed and replaced a pump assembly associated

35

00:01:43,100 --> 00:01:45,450

with the year-end processing assembly,

36

00:01:45,450 --> 00:01:47,790

and he also helped Hadfield early in the week

37

00:01:47,790 --> 00:01:49,060

with upgrading components

38

00:01:49,060 --> 00:01:52,560

in the high-rate communications system rack inside the

39

00:01:52,560 --> 00:01:54,700

Destiny laboratory.

40

00:01:54,700 --> 00:01:56,090

In the design, development,

41

00:01:56,090 --> 00:01:59,520

and testing for this new KU band communications system

42

00:01:59,520 --> 00:02:04,590

for the last 4 plus years, the system now upgrades all

43

00:02:04,590 --> 00:02:07,970  
of the communication  
systems aboard the station,

44

00:02:07,970 --> 00:02:10,510  
including downlink  
television views.

45

00:02:10,510 --> 00:02:13,920  
It has increased those  
views from 4 to 6 now,

46

00:02:13,920 --> 00:02:16,850  
and also increased the  
communications channels

47

00:02:16,850 --> 00:02:18,460  
from 2 to 4.

48

00:02:18,460 --> 00:02:21,520  
It's also greatly increased  
the ability to transmit data

49

00:02:21,520 --> 00:02:25,150  
from ongoing experiments to  
investigators on the ground.

50

00:02:25,150 --> 00:02:28,800  
That work on that system will  
continue into next week as well

51

00:02:28,800 --> 00:02:30,630  
with the installation  
next Thursday

52

00:02:30,630 --> 00:02:34,440  
of the redundant KU  
communications unit number 1,

53

00:02:34,440 --> 00:02:37,530

before officially  
being completed.

54

00:02:37,530 --> 00:02:41,140

But that system already  
is working quite well.

55

00:02:41,140 --> 00:02:45,430

Misurkin worked with a constant  
experiment on the station's --

56

00:02:45,430 --> 00:02:48,680

Russian side of the station,  
which observes the reaction

57

00:02:48,680 --> 00:02:50,940

of enzymes in microgravity.

58

00:02:50,940 --> 00:02:53,540

He also worked with another  
experiment known as cascade,

59

00:02:53,540 --> 00:02:56,550

which investigates the  
cultivation processes

60

00:02:56,550 --> 00:03:00,020

of microorganisms,  
animal and human cells

61

00:03:00,020 --> 00:03:02,390

in the space environment.

62

00:03:02,390 --> 00:03:06,220

Vinogradov and Romanenko  
reviewed procedures

63

00:03:06,220 --> 00:03:09,770

for their upcoming spacewalk  
scheduled for April 19th.

64

00:03:09,770 --> 00:03:13,600

They will install and remove  
some experiments on the outside

65

00:03:13,600 --> 00:03:17,980

of the station, and also replace  
a reflector that's associated

66

00:03:17,980 --> 00:03:19,690

with a rendezvous and docking

67

00:03:19,690 --> 00:03:23,070

of the next European Space  
Agency automated transfer

68

00:03:23,070 --> 00:03:26,720

vehicle known as the Albert  
Einstein, scheduled for launch

69

00:03:26,720 --> 00:03:29,840

and arrival at the  
station in June.

70

00:03:29,840 --> 00:03:34,340

Cassidy removed some equipment  
associated with Robonot 2,

71

00:03:34,340 --> 00:03:36,200

the humanoid robot  
onboard the station.

72

00:03:36,200 --> 00:03:39,720

There'll be some activity  
associated with that next week.

73

00:03:39,720 --> 00:03:44,280

And Hadfield and Marshburn

performed some ultrasound eye

74

00:03:44,280 --> 00:03:47,390  
scans and intraocular  
pressure measurements as part

75

00:03:47,390 --> 00:03:51,360  
of their ongoing health  
maintenance system activities.

76

00:03:51,360 --> 00:03:54,060  
Cassidy of course set up  
and operated the burning

77

00:03:54,060 --> 00:03:56,900  
and suppression of solids  
experiment, or BASS,

78

00:03:56,900 --> 00:03:59,810  
which studies how  
solid materials burn

79

00:03:59,810 --> 00:04:02,380  
and extinguish in microgravity.

80

00:04:02,380 --> 00:04:03,770  
That obviously can help

81

00:04:03,770 --> 00:04:07,600  
with improving computational  
models here on the ground.

82

00:04:07,600 --> 00:04:11,970  
Station's altitude was boosted  
by about 1.3 statute miles,

83

00:04:11,970 --> 00:04:15,010  
setting the stage  
for the departure

84

00:04:15,010 --> 00:04:19,260  
of the Progress 49 cargo  
vehicle, and also the departure

85

00:04:19,260 --> 00:04:23,490  
of the Soyuz 33TMA07M  
spacecraft,

86

00:04:23,490 --> 00:04:26,310  
that will bring Hadfield,  
Romanenko,

87

00:04:26,310 --> 00:04:29,700  
and Marshburn home on May 13th.

88

00:04:29,700 --> 00:04:31,410  
It also sets the  
stage for the launch

89

00:04:31,410 --> 00:04:34,420  
of the next Expedition  
crew members

90

00:04:34,420 --> 00:04:37,340  
to the station in late May.

91

00:04:37,340 --> 00:04:39,430  
And the crew wrapped up  
the week with observation

92

00:04:39,430 --> 00:04:41,920  
of several science  
experiments, and also talked

93

00:04:41,920 --> 00:04:45,850  
with flight controllers about  
next week's schedule as well.

94

00:04:45,850 --> 00:04:48,730

They'll spend the weekend  
fairly quietly checking some

95

00:04:48,730 --> 00:04:51,370  
experiments, conducting  
some human research,