
PAO

1
00:00:05,269 --> 00:00:03,110
hello and welcome to mission control

2
00:00:07,030 --> 00:00:05,279
houston we're going to have a special

3
00:00:08,549 --> 00:00:07,040
conversation with one of the flight

4
00:00:09,990 --> 00:00:08,559
controllers that works here in the

5
00:00:12,709 --> 00:00:10,000
international space station flight

6
00:00:14,789 --> 00:00:12,719
control room this is amy brzezinski

7
00:00:18,630 --> 00:00:14,799
thank you for joining us amy

8
00:00:20,630 --> 00:00:18,640
amy works with the onboard data and

9
00:00:23,349 --> 00:00:20,640
interfaces networks so she's called an

10
00:00:24,870 --> 00:00:23,359
odin flight controller so amy can you

11
00:00:26,630 --> 00:00:24,880
tell us a little bit about what you do

12
00:00:31,910 --> 00:00:26,640
as a flight controller

13
00:00:34,310 --> 00:00:31,920

to monitor and command the space station

14
00:00:36,069 --> 00:00:34,320
specifically for the cdh system for the

15
00:00:37,110 --> 00:00:36,079
command and data handling system as an

16
00:00:39,910 --> 00:00:37,120
odin

17
00:00:41,910 --> 00:00:39,920
i'm responsible for monitoring over 48

18
00:00:43,990 --> 00:00:41,920
computers on the space station that

19
00:00:45,430 --> 00:00:44,000
control the space station and all its

20
00:00:48,310 --> 00:00:45,440
systems

21
00:00:49,670 --> 00:00:48,320
part of my job i'm also responsible for

22
00:00:51,510 --> 00:00:49,680
uplinking software to support the

23
00:00:53,750 --> 00:00:51,520
activities that we do on the space

24
00:00:55,590 --> 00:00:53,760
station and also i'm responsible for

25
00:00:56,950 --> 00:00:55,600
moving data around the space station and

26
00:00:58,389 --> 00:00:56,960
bringing it also

27
00:01:00,790 --> 00:00:58,399
certain pieces of data down to the

28
00:01:02,470 --> 00:01:00,800
ground through special data dumps

29
00:01:04,469 --> 00:01:02,480
okay and the computers set up onboard

30
00:01:05,990 --> 00:01:04,479
the space station is sort of

31
00:01:07,510 --> 00:01:06,000
everybody thinks of your desktop

32
00:01:10,070 --> 00:01:07,520
computer that you have but also the

33
00:01:11,510 --> 00:01:10,080
space station is run by computers so

34
00:01:13,429 --> 00:01:11,520
those are a lot of the computers that

35
00:01:15,590 --> 00:01:13,439
you're monitoring right right so it's a

36
00:01:17,990 --> 00:01:15,600
little bit different from what you think

37
00:01:19,749 --> 00:01:18,000
of at home as your computer um they're

38
00:01:22,230 --> 00:01:19,759

actually like boxes

39
00:01:24,390 --> 00:01:22,240
and there's over like i said over 45 of

40
00:01:26,550 --> 00:01:24,400
them and then the crew interface is with

41
00:01:28,630 --> 00:01:26,560
them through laptops

42
00:01:30,630 --> 00:01:28,640
so when you look at look at a computer

43
00:01:32,550 --> 00:01:30,640
sometimes we call them mdms it's a

44
00:01:34,230 --> 00:01:32,560
multiplexer demultiplexer it's our fancy

45
00:01:36,069 --> 00:01:34,240
way of saying computer it just looks

46
00:01:37,990 --> 00:01:36,079
like a box but there's a lot going on in

47
00:01:40,069 --> 00:01:38,000
there and that's what we use to to keep

48
00:01:41,590 --> 00:01:40,079
station running and keep all the systems

49
00:01:43,830 --> 00:01:41,600
and running and get all the data to the

50
00:01:45,109 --> 00:01:43,840
ground so that other flight control

51
00:01:46,550 --> 00:01:45,119
flight controllers can monitor their

52
00:01:48,149 --> 00:01:46,560
systems

53
00:01:49,990 --> 00:01:48,159
okay and what sort of background do you

54
00:01:52,469 --> 00:01:50,000
have that helps you get ready to be able

55
00:01:54,870 --> 00:01:52,479
to do this work in mission control

56
00:01:57,190 --> 00:01:54,880
well for one i'm a aeronautical and

57
00:01:59,910 --> 00:01:57,200
astronautical engineer um

58
00:02:01,830 --> 00:01:59,920
and uh so i had a basic

59
00:02:03,590 --> 00:02:01,840
engineering education whereby i learned

60
00:02:05,270 --> 00:02:03,600
all the principles of engineering and a

61
00:02:06,709 --> 00:02:05,280
little bit about computers and then when

62
00:02:09,109 --> 00:02:06,719
i got here is really when a lot of my

63
00:02:10,309 --> 00:02:09,119

training really began um i went through

64
00:02:12,710 --> 00:02:10,319
two and a half years of training to

65
00:02:14,309 --> 00:02:12,720
become an odin i learned all about the

66
00:02:17,190 --> 00:02:14,319
computer systems that we have on board

67
00:02:19,589 --> 00:02:17,200
the networks we use 1553b networks which

68
00:02:22,070 --> 00:02:19,599
is kind of an older but very robust

69
00:02:25,830 --> 00:02:22,080
network used in a lot of

70
00:02:27,510 --> 00:02:25,840
space and uh and aircraft systems

71
00:02:29,110 --> 00:02:27,520
and then i also learned how to be a

72
00:02:30,869 --> 00:02:29,120
flight controller and how to how to

73
00:02:32,470 --> 00:02:30,879
communicate effectively with the rest of

74
00:02:35,110 --> 00:02:32,480
the team be able to listen to multiple

75
00:02:36,949 --> 00:02:35,120
conversations be able to solve problems

76
00:02:39,190 --> 00:02:36,959
as they come up based on my knowledge of

77
00:02:41,110 --> 00:02:39,200
the system so i think

78
00:02:42,229 --> 00:02:41,120
my background education definitely

79
00:02:43,910 --> 00:02:42,239
helped me

80
00:02:45,350 --> 00:02:43,920
in engineering and then when i came here

81
00:02:46,869 --> 00:02:45,360
i really learned a lot about computers

82
00:02:49,110 --> 00:02:46,879
and the system on board

83
00:02:51,270 --> 00:02:49,120
is your position in mission control this

84
00:02:52,630 --> 00:02:51,280
similar setup as many of them where they

85
00:02:55,030 --> 00:02:52,640
have a back room where you learn how to

86
00:02:56,949 --> 00:02:55,040
do specific areas and then come to work

87
00:02:58,790 --> 00:02:56,959
in the front room we call it that's

88
00:03:01,030 --> 00:02:58,800

right so when i started out i started

89
00:03:03,110 --> 00:03:01,040
out as what we call a raven

90
00:03:05,589 --> 00:03:03,120
and that's the back room for odin and

91
00:03:07,589 --> 00:03:05,599
it's the resource avionics networks

92
00:03:09,990 --> 00:03:07,599
engineer we use a couple letters there

93
00:03:11,990 --> 00:03:10,000
to make raven and uh

94
00:03:14,149 --> 00:03:12,000
i started out there and that's the

95
00:03:15,430 --> 00:03:14,159
backroom is really the systems expert so

96
00:03:17,430 --> 00:03:15,440
i learned to become an expert in the

97
00:03:18,390 --> 00:03:17,440
system and understand how all the

98
00:03:19,589 --> 00:03:18,400
different software and the different

99
00:03:22,790 --> 00:03:19,599
computers work because it's all

100
00:03:25,030 --> 00:03:22,800
different um and uh and understand how

101
00:03:26,229 --> 00:03:25,040
to do the job and then eventually i

102
00:03:27,589 --> 00:03:26,239
moved into the front room and kind of

103
00:03:29,350 --> 00:03:27,599
learned more about the other systems and

104
00:03:31,190 --> 00:03:29,360
how the computer system interfaces with

105
00:03:32,789 --> 00:03:31,200
them so that i could better address

106
00:03:35,509 --> 00:03:32,799
failures with the team

107
00:03:38,869 --> 00:03:35,519
and you were the lead of odin for

108
00:03:40,550 --> 00:03:38,879
expedition 30. so what does that entail

109
00:03:42,630 --> 00:03:40,560
it's it's a lot of fun to be the lead

110
00:03:44,630 --> 00:03:42,640
for an expedition we had a really great

111
00:03:46,390 --> 00:03:44,640
crew and this was a very exciting time

112
00:03:48,949 --> 00:03:46,400
for our system because we actually

113
00:03:50,229 --> 00:03:48,959

upgraded a lot of the computers both

114
00:03:51,750 --> 00:03:50,239
from a hardware

115
00:03:52,869 --> 00:03:51,760
standpoint and from a software

116
00:03:54,789 --> 00:03:52,879
standpoint

117
00:03:56,869 --> 00:03:54,799
we upgraded seven of the computers with

118
00:03:58,309 --> 00:03:56,879
the new processor cards that have flash

119
00:03:59,830 --> 00:03:58,319
memory on them

120
00:04:02,390 --> 00:03:59,840
so that's a pretty big upgrade we have a

121
00:04:04,390 --> 00:04:02,400
lot more processing power now

122
00:04:06,869 --> 00:04:04,400
and then on top of that we actually

123
00:04:09,830 --> 00:04:06,879
changed the software on a little under

124
00:04:12,390 --> 00:04:09,840
almost half of the computers on board

125
00:04:13,990 --> 00:04:12,400
so it was very dynamic time and it was

126
00:04:16,150 --> 00:04:14,000
me and of course a lot of people that i

127
00:04:18,469 --> 00:04:16,160
work with in my group as a team were

128
00:04:20,629 --> 00:04:18,479
able to execute these activities and the

129
00:04:23,110 --> 00:04:20,639
crew was essential i mean they are our

130
00:04:25,030 --> 00:04:23,120
our hands and our eyes up there um so

131
00:04:27,350 --> 00:04:25,040
they actually performed the the card

132
00:04:28,390 --> 00:04:27,360
changes they had to take out the

133
00:04:30,550 --> 00:04:28,400
computers

134
00:04:32,870 --> 00:04:30,560
open them up take out the old card put

135
00:04:34,310 --> 00:04:32,880
the new card put it back into the rack

136
00:04:35,830 --> 00:04:34,320
and then we would activate the computer

137
00:04:37,670 --> 00:04:35,840
and check it out so

138
00:04:39,430 --> 00:04:37,680

it was very dynamic

139
00:04:40,629 --> 00:04:39,440
and we're very excited about about the

140
00:04:42,790 --> 00:04:40,639
changes and

141
00:04:44,310 --> 00:04:42,800
and it was a very very good increment

142
00:04:46,230 --> 00:04:44,320
and all of it went well it sounds like

143
00:04:47,909 --> 00:04:46,240
all of it very very well yes lots of

144
00:04:48,950 --> 00:04:47,919
planning and very good execution very

145
00:04:50,469 --> 00:04:48,960
smooth

146
00:04:52,710 --> 00:04:50,479
and it from what i understand it's the

147
00:04:55,590 --> 00:04:52,720
most transitions that we've done in a

148
00:04:57,909 --> 00:04:55,600
certain time period that's right so

149
00:04:59,670 --> 00:04:57,919
in total we had on the u.s computers

150
00:05:01,189 --> 00:04:59,680
four software transitions and that's a

151
00:05:02,390 --> 00:05:01,199
record for the most ever done in an

152
00:05:03,830 --> 00:05:02,400
increment

153
00:05:06,310 --> 00:05:03,840
we also transitioned beyond the

154
00:05:09,270 --> 00:05:06,320
computers a piece of equipment that does

155
00:05:10,390 --> 00:05:09,280
routing of fiber optic type data fast

156
00:05:12,310 --> 00:05:10,400
high data rate

157
00:05:14,310 --> 00:05:12,320
information so we had to change that as

158
00:05:15,670 --> 00:05:14,320
well and then our international partners

159
00:05:16,790 --> 00:05:15,680
also had some notable software

160
00:05:18,390 --> 00:05:16,800
transitions

161
00:05:20,469 --> 00:05:18,400
the russians did a transition with their

162
00:05:23,430 --> 00:05:20,479
computers and upgraded the software and

163
00:05:24,870 --> 00:05:23,440

our esa friends did as well so lots of

164
00:05:26,710 --> 00:05:24,880
new software

165
00:05:29,029 --> 00:05:26,720
and that all is to help the the space

166
00:05:31,189 --> 00:05:29,039
station stay up to speed and work better

167
00:05:32,070 --> 00:05:31,199
and support all of the research that

168
00:05:33,909 --> 00:05:32,080
we're

169
00:05:35,430 --> 00:05:33,919
focusing on now right that's absolutely

170
00:05:37,430 --> 00:05:35,440
right one of the one of the big changes

171
00:05:40,390 --> 00:05:37,440
we made is we um we did that hardware

172
00:05:42,150 --> 00:05:40,400
change out for our payload computers and

173
00:05:44,469 --> 00:05:42,160
that increases the ability to do more

174
00:05:46,629 --> 00:05:44,479
science and get more science data on

175
00:05:47,990 --> 00:05:46,639
stations so the science community and

176
00:05:50,150 --> 00:05:48,000
the research community was very excited

177
00:05:52,230 --> 00:05:50,160
about that

178
00:05:54,469 --> 00:05:52,240
and will you be watching the landing

179
00:05:56,150 --> 00:05:54,479
overnight i will i'm actually i'm

180
00:05:58,390 --> 00:05:56,160
actually planning on coming in here and

181
00:05:59,990 --> 00:05:58,400
uh watching it from our viewing room

182
00:06:01,990 --> 00:06:00,000
very excited there's a couple of us from

183
00:06:03,670 --> 00:06:02,000
the increment that are coming in and

184
00:06:05,670 --> 00:06:03,680
we're used to working in the middle of

185
00:06:08,070 --> 00:06:05,680
the night as flight controllers so

186
00:06:09,909 --> 00:06:08,080
it'll be very very exciting to see

187
00:06:11,430 --> 00:06:09,919
dan antonin anatoly come home we're

188
00:06:13,270 --> 00:06:11,440

looking forward to it

189
00:06:15,430 --> 00:06:13,280
well thank you and congratulations on a

190
00:06:17,510 --> 00:06:15,440
successful increment or expedition as we