CAPILLARY FLOW EXPERIMENT

1
00:00:12,549 --> 00:00:10,790
good morning from mission control

2
00:00:14,629 --> 00:00:12,559
houston and welcome to space station

3
00:00:15,990 --> 00:00:14,639
live you're joining us here inside of

4
00:00:18,150 --> 00:00:16,000
the international space station flight

5
00:00:20,470 --> 00:00:18,160
control room looking down as the orbit 2

6
00:00:23,029 --> 00:00:20,480
team sits on console monitoring all the

7
00:00:24,790 --> 00:00:23,039
systems onboard this orbiting laboratory

8
00:00:26,950 --> 00:00:24,800
team being led today by flight director

9
00:00:29,269 --> 00:00:26,960
judd freeland there on the right and to

10
00:00:31,349 --> 00:00:29,279
his immediate right our capcom today

11
00:00:33,110 --> 00:00:31,359
kate rubens serving as the communication

12
00:00:36,150 --> 00:00:33,120
link between our teams down here on the

13
00:00:37,990 --> 00:00:36,160

ground and the astronauts up in space

14
00:00:40,630 --> 00:00:38,000
those astronauts right now the crew of

15
00:00:42,950 --> 00:00:40,640
expedition 35 currently a six-man

16
00:00:45,110 --> 00:00:42,960
contingent from nations around the globe

17
00:00:47,110 --> 00:00:45,120
they're being led right now by a

18
00:00:48,869 --> 00:00:47,120
canadian astronaut chris hadfield there

19
00:00:50,869 --> 00:00:48,879
in the front row on the right

20
00:00:52,630 --> 00:00:50,879
behind him are the crew members who

21
00:00:55,110 --> 00:00:52,640
joined him on the station in their soyuz

22
00:00:57,750 --> 00:00:55,120
craft back in december russian cosmonaut

23
00:00:59,510 --> 00:00:57,760
roman romanenko and nasa astronaut tom

24
00:01:01,349 --> 00:00:59,520
marshburn on the left we have our

25
00:01:03,670 --> 00:01:01,359
remaining three crew members two russian

26
00:01:06,390 --> 00:01:03,680
cosmonauts pavo vinogradov and alexander

27
00:01:09,429 --> 00:01:06,400
misurkin then finally one more nasa

28
00:01:11,670 --> 00:01:09,439
astronaut chris cassidy

29
00:01:13,670 --> 00:01:11,680
so throughout the week the astronauts

30
00:01:16,710 --> 00:01:13,680
have been involved in a bevy of

31
00:01:18,550 --> 00:01:16,720
biological experiments on board

32
00:01:19,990 --> 00:01:18,560
both cataloging the effects of

33
00:01:21,429 --> 00:01:20,000
spaceflight on the human body and a

34
00:01:23,429 --> 00:01:21,439
number of others

35
00:01:25,190 --> 00:01:23,439
starting off with monday commander chris

36
00:01:26,710 --> 00:01:25,200
hadfield was

37
00:01:28,550 --> 00:01:26,720
tasked with

38
00:01:30,789 --> 00:01:28,560

operating one of the microscopes inside

39
00:01:32,630 --> 00:01:30,799
of the nanoracks payload doing an

40
00:01:34,550 --> 00:01:32,640
analysis of some of the crystal plates

41
00:01:36,950 --> 00:01:34,560
contained in one of the modules to

42
00:01:39,030 --> 00:01:36,960
monitor several days of crystal growth

43
00:01:41,270 --> 00:01:39,040
aside from that he was doing some air

44
00:01:43,830 --> 00:01:41,280
sampling throughout the u.s segment on

45
00:01:46,550 --> 00:01:43,840
board the station checking for micro bio

46
00:01:48,710 --> 00:01:46,560
microbiology traces in the astronauts

47
00:01:50,550 --> 00:01:48,720
breathing atmosphere

48
00:01:52,149 --> 00:01:50,560
and while he was doing that uh flight

49
00:01:55,030 --> 00:01:52,159
engineer number one russian cosmonaut

50
00:01:57,510 --> 00:01:55,040
pavel vinogradov was busy transferring

51
00:01:59,190 --> 00:01:57,520
some cargo from the recently docked 51

52
00:02:01,590 --> 00:01:59,200
progress vehicle

53
00:02:04,310 --> 00:02:01,600
that vehicle delivering over three tons

54
00:02:05,590 --> 00:02:04,320
of supplies to this expedition 35 crew

55
00:02:07,350 --> 00:02:05,600
you can see it docked all the way at the

56
00:02:09,430 --> 00:02:07,360
aft end of the station way in the back

57
00:02:11,110 --> 00:02:09,440
there currently one of four docked

58
00:02:13,589 --> 00:02:11,120
visiting vehicles to the international

59
00:02:15,910 --> 00:02:13,599
space station aside from that vinogradov

60
00:02:17,190 --> 00:02:15,920
was studying cardiac bioelectric

61
00:02:18,869 --> 00:02:17,200
activity

62
00:02:21,110 --> 00:02:18,879
while at rest and he was joined in that

63
00:02:23,750 --> 00:02:21,120

by fellow russian cosmonauts alexander

64
00:02:25,750 --> 00:02:23,760
misurkin and roman romanenko i mean

65
00:02:27,750 --> 00:02:25,760
while mizerkin on monday aside from that

66
00:02:29,430 --> 00:02:27,760
i was doing some saliva and blood

67
00:02:32,309 --> 00:02:29,440
collection activities

68
00:02:34,869 --> 00:02:32,319
for some ongoing russian biological

69
00:02:39,110 --> 00:02:34,879
studies on board the station he was also

70
00:02:41,110 --> 00:02:39,120
monitoring the matroyska experiment a

71
00:02:44,309 --> 00:02:41,120
torso shaped object onboard the station

72
00:02:46,070 --> 00:02:44,319
used to study radiation effects

73
00:02:47,670 --> 00:02:46,080
equipped with a number of

74
00:02:49,750 --> 00:02:47,680
monitors throughout it

75
00:02:51,350 --> 00:02:49,760
to document how much radiation these

76
00:02:53,750 --> 00:02:51,360
astronauts are exposed to during their

77
00:02:55,589 --> 00:02:53,760
long-duration space flights meanwhile on

78
00:02:57,589 --> 00:02:55,599
monday chris cassidy was working with

79
00:02:59,750 --> 00:02:57,599
the human research facility taking some

80
00:03:01,509 --> 00:02:59,760
blood and urine samples of his own then

81
00:03:04,070 --> 00:03:01,519
storing them in one of the minus 80

82
00:03:05,509 --> 00:03:04,080
degree laboratory freezers on board he

83
00:03:07,830 --> 00:03:05,519
was also working with the bass

84
00:03:09,830 --> 00:03:07,840
experiment the first day

85
00:03:13,110 --> 00:03:09,840
he was working on that throughout the

86
00:03:14,550 --> 00:03:13,120
week he returned to it a number of times

87
00:03:16,550 --> 00:03:14,560
bass experiments standing for the

88
00:03:18,790 --> 00:03:16,560

burning and suppression of solids it's

89
00:03:20,550 --> 00:03:18,800
an investigation looking to examine the

90
00:03:22,949 --> 00:03:20,560
burning and extinction characteristics

91
00:03:24,949 --> 00:03:22,959
of a wide variety of fuel samples in

92
00:03:27,670 --> 00:03:24,959
microgravity

93
00:03:29,750 --> 00:03:27,680
meanwhile roman romanenko on monday

94
00:03:31,270 --> 00:03:29,760
taking some measurements for the russian

95
00:03:33,270 --> 00:03:31,280
sprut experiment

96
00:03:35,830 --> 00:03:33,280
which looks to assess the adaptation

97
00:03:37,910 --> 00:03:35,840
mechanisms of the human body as it looks

98
00:03:40,309 --> 00:03:37,920
to prevent the unfavorable impact of

99
00:03:42,390 --> 00:03:40,319
zero gravity on astronauts hydration

100
00:03:44,390 --> 00:03:42,400
status he was also working with the

101
00:03:46,309 --> 00:03:44,400
russian countermeasure system

102
00:03:49,589 --> 00:03:46,319
checking for any harmful contaminants

103
00:03:51,830 --> 00:03:49,599
inside the russian zvezda service module

104
00:03:53,350 --> 00:03:51,840
then finally on monday tom marshburn

105
00:03:55,670 --> 00:03:53,360
working with the environmental health

106
00:03:58,390 --> 00:03:55,680
system doing some surface sampling of

107
00:04:00,789 --> 00:03:58,400
his own collecting some samples from

108
00:04:02,869 --> 00:04:00,799
services throughout the u.s segment and

109
00:04:05,670 --> 00:04:02,879
putting them in small incubators in

110
00:04:07,589 --> 00:04:05,680
order to get potent samples for

111
00:04:09,350 --> 00:04:07,599
researchers down here on the ground

112
00:04:11,750 --> 00:04:09,360
constantly monitor the astronauts

113
00:04:14,070 --> 00:04:11,760

environment he was also cleaning out the

114
00:04:15,589 --> 00:04:14,080
potable water dispenser and just some

115
00:04:17,430 --> 00:04:15,599
routine maintenance on the astronauts

116
00:04:19,830 --> 00:04:17,440
drinking device

117
00:04:21,990 --> 00:04:19,840
moving on to tuesday commander hatfield

118
00:04:23,590 --> 00:04:22,000
doing some blood sample collections for

119
00:04:25,350 --> 00:04:23,600
the vascular study which looks to

120
00:04:27,270 --> 00:04:25,360
determine the impact of long-duration

121
00:04:29,510 --> 00:04:27,280
space flight on blood vessels for these

122
00:04:31,590 --> 00:04:29,520
astronauts he also entered into a

123
00:04:33,189 --> 00:04:31,600
conference alongside of tom marshburn

124
00:04:35,270 --> 00:04:33,199
and roman romanenko with search and

125
00:04:37,990 --> 00:04:35,280
rescue specialists and also crew

126
00:04:40,469 --> 00:04:38,000
departure prep for his upcoming landing

127
00:04:42,469 --> 00:04:40,479
which will be taking place on may 13th

128
00:04:44,070 --> 00:04:42,479
just under two weeks from now he was

129
00:04:46,629 --> 00:04:44,080
also doing some checkouts of the

130
00:04:49,749 --> 00:04:46,639
microflow cytometer on board a

131
00:04:51,430 --> 00:04:49,759
technology demonstration which

132
00:04:53,350 --> 00:04:51,440
minimalized the size of a standard

133
00:04:55,350 --> 00:04:53,360
cytometer for

134
00:04:57,270 --> 00:04:55,360
experiments onboard the station

135
00:04:59,110 --> 00:04:57,280
meanwhile pavo vinogradov doing some

136
00:05:01,110 --> 00:04:59,120
more saliva and blood collection samples

137
00:05:02,070 --> 00:05:01,120
and storing those in freezers

138
00:05:03,590 --> 00:05:02,080

also

139
00:05:05,590 --> 00:05:03,600
downlinking some of the video that was

140
00:05:07,510 --> 00:05:05,600
taken when that progress vehicle docked

141
00:05:10,150 --> 00:05:07,520
with the international space station

142
00:05:11,830 --> 00:05:10,160
again delivering just over three tons of

143
00:05:14,629 --> 00:05:11,840
food fuel and supplies to this

144
00:05:17,029 --> 00:05:14,639
expedition 35 crew

145
00:05:19,350 --> 00:05:17,039
meanwhile alexander misurkin

146
00:05:20,469 --> 00:05:19,360
doing some lower body negative pressure

147
00:05:22,870 --> 00:05:20,479
training

148
00:05:25,270 --> 00:05:22,880
that's used to simulate gravitational

149
00:05:26,790 --> 00:05:25,280
stress on the astronaut's body in order

150
00:05:29,270 --> 00:05:26,800
to help increase their heart rate and

151
00:05:30,950 --> 00:05:29,280
blood pressure he was also replacing a

152
00:05:32,310 --> 00:05:30,960
number of smoke detectors throughout the

153
00:05:34,950 --> 00:05:32,320
russian segment

154
00:05:37,350 --> 00:05:34,960
along with pablo vinogradov

155
00:05:39,749 --> 00:05:37,360
meanwhile chris cassidy doing some

156
00:05:42,150 --> 00:05:39,759
ultrasound scans he was scanning his

157
00:05:45,270 --> 00:05:42,160
spine along with tom marshburn also

158
00:05:46,790 --> 00:05:45,280
inside of the columbus laboratory doing

159
00:05:48,710 --> 00:05:46,800
some troubleshooting on a leak that had

160
00:05:50,070 --> 00:05:48,720
developed in the water pump assembly

161
00:05:52,790 --> 00:05:50,080
number two

162
00:05:54,870 --> 00:05:52,800
and then roman romanenko on tuesday

163
00:05:57,110 --> 00:05:54,880

working with the electronic nose inside

164
00:05:59,830 --> 00:05:57,120
of the russian station that's uh an

165
00:06:01,350 --> 00:05:59,840
electronic device on board that is used

166
00:06:03,990 --> 00:06:01,360
to measure the crew's exposure to

167
00:06:06,070 --> 00:06:04,000
different bacteria and fungi he was also

168
00:06:07,430 --> 00:06:06,080
doing some undocking preparation

169
00:06:09,110 --> 00:06:07,440
throughout his day

170
00:06:10,550 --> 00:06:09,120
then our final crew member on tuesday

171
00:06:13,510 --> 00:06:10,560
tom marshburn

172
00:06:15,430 --> 00:06:13,520
was doing not only that spinal scan but

173
00:06:17,350 --> 00:06:15,440
a number of other scans

174
00:06:19,990 --> 00:06:17,360
the small ultrasound system on board

175
00:06:21,749 --> 00:06:20,000
enabling the astronauts to do real-time

176
00:06:22,710 --> 00:06:21,759
high quality imaging with minimal

177
00:06:25,029 --> 00:06:22,720
training

178
00:06:28,390 --> 00:06:25,039
he was scanning his car toward artery

179
00:06:30,710 --> 00:06:28,400
and also his bladder in his hand

180
00:06:32,550 --> 00:06:30,720
moving on to wednesday chris hadfield

181
00:06:35,830 --> 00:06:32,560
did an acoustic survey on board the

182
00:06:37,430 --> 00:06:35,840
station using a sound level meter as

183
00:06:39,029 --> 00:06:37,440
he looked to help

184
00:06:40,629 --> 00:06:39,039
teams down here on the ground understand

185
00:06:41,749 --> 00:06:40,639
the sound loads that these crews are

186
00:06:43,510 --> 00:06:41,759
exposed to

187
00:06:47,029 --> 00:06:43,520
from all the various systems operating

188
00:06:49,270 --> 00:06:47,039

on board the station he also started

189
00:06:50,230 --> 00:06:49,280
on the payload ethernet hub gateway

190
00:06:52,469 --> 00:06:50,240
install

191
00:06:53,909 --> 00:06:52,479
something he'll be continuing today

192
00:06:55,990 --> 00:06:53,919
looking to upgrade some of the

193
00:06:58,070 --> 00:06:56,000
networking infrastructure that controls

194
00:06:59,990 --> 00:06:58,080
all the payloads onboard the station and

195
00:07:01,670 --> 00:07:00,000
relays information on them back down to

196
00:07:02,550 --> 00:07:01,680
the ground you can see some of this

197
00:07:04,230 --> 00:07:02,560
video

198
00:07:06,790 --> 00:07:04,240
right here taken from wednesday as he

199
00:07:09,589 --> 00:07:06,800
was working that again that activity

200
00:07:11,830 --> 00:07:09,599
continuing into today

201
00:07:13,990 --> 00:07:11,840
meanwhile on wednesday pavo vinogradov

202
00:07:16,710 --> 00:07:14,000
was collecting a few condensate water

203
00:07:19,270 --> 00:07:16,720
samples from the russian gas liquid

204
00:07:21,749 --> 00:07:19,280
mixture filter he was also

205
00:07:23,670 --> 00:07:21,759
cleaning a fan screen on the gas liquid

206
00:07:25,749 --> 00:07:23,680
heat exchanger just some routine

207
00:07:29,110 --> 00:07:25,759
maintenance to keep systems on board the

208
00:07:31,189 --> 00:07:29,120
russian segment working in tip-top shape

209
00:07:33,029 --> 00:07:31,199
meanwhile alexander misurkin was

210
00:07:35,110 --> 00:07:33,039
moderating a number of fluid and coolant

211
00:07:37,110 --> 00:07:35,120
loops throughout the russian segment

212
00:07:38,870 --> 00:07:37,120
taking data points and relaying them

213
00:07:40,469 --> 00:07:38,880

back down to controllers in the russian

214
00:07:41,510 --> 00:07:40,479
mission control center in korea of

215
00:07:43,670 --> 00:07:41,520
russia

216
00:07:45,749 --> 00:07:43,680
he was also working with the matroyska

217
00:07:48,710 --> 00:07:45,759
experiment again

218
00:07:50,550 --> 00:07:48,720
he was joining that by roman romanenko

219
00:07:52,550 --> 00:07:50,560
but meanwhile chris cassidy on board on

220
00:07:54,150 --> 00:07:52,560
wednesday was kicking off one of the

221
00:07:57,029 --> 00:07:54,160
many science experiments on board the

222
00:07:59,909 --> 00:07:57,039
station the capillary flow experiment

223
00:08:01,510 --> 00:07:59,919
also known as cfe it's a suite of fluid

224
00:08:02,790 --> 00:08:01,520
physics experiments that looks to

225
00:08:04,550 --> 00:08:02,800
investigate

226
00:08:06,070 --> 00:08:04,560
how fluids move up surfaces and

227
00:08:07,430 --> 00:08:06,080
microgravity

228
00:08:09,990 --> 00:08:07,440
results from that

229
00:08:12,309 --> 00:08:10,000
research hope to improve current models

230
00:08:14,390 --> 00:08:12,319
that are used by designers down here on

231
00:08:16,629 --> 00:08:14,400
the ground of low gravity fluid systems

232
00:08:19,670 --> 00:08:16,639
and also fuel systems it could hopefully

233
00:08:21,909 --> 00:08:19,680
improve fluid transfer for not only fuel

234
00:08:23,510 --> 00:08:21,919
but also water and other devices on

235
00:08:26,070 --> 00:08:23,520
future spacecraft

236
00:08:28,469 --> 00:08:26,080
cassidy was also setting up the slam

237
00:08:30,629 --> 00:08:28,479
device the space linear acceleration

238
00:08:32,550 --> 00:08:30,639

mass measurement device

239
00:08:34,389 --> 00:08:32,560
that is used on board the station in

240
00:08:35,509 --> 00:08:34,399
order to measure the mass of these

241
00:08:36,630 --> 00:08:35,519
astronauts

242
00:08:37,350 --> 00:08:36,640
using

243
00:08:39,829 --> 00:08:37,360
the

244
00:08:41,750 --> 00:08:39,839
basic equation force equal to mass times

245
00:08:42,949 --> 00:08:41,760
acceleration it applies

246
00:09:01,670 --> 00:08:42,959
a

247
00:09:03,590 --> 00:09:01,680
home

248
00:09:06,230 --> 00:09:03,600
he'll be returning along with chris

249
00:09:07,990 --> 00:09:06,240
hadfield and tom marshburn

250
00:09:09,670 --> 00:09:08,000
once they return they'll be bringing an

251
00:09:11,750 --> 00:09:09,680
end to their time on board the station

252
00:09:13,110 --> 00:09:11,760
which started back on friday december

253
00:09:16,310 --> 00:09:13,120
21st

254
00:09:17,470 --> 00:09:16,320
they'll have spent 144 days on board the

255
00:09:22,310 --> 00:09:17,480
iss

256
00:09:24,949 --> 00:09:22,320
146 total days in space

257
00:09:27,430 --> 00:09:24,959
and meanwhile on wednesday tom marshburn

258
00:09:29,110 --> 00:09:27,440
was replacing a number of belts on two

259
00:09:31,990 --> 00:09:29,120
of the centrifuges inside of the

260
00:09:34,389 --> 00:09:32,000
european modular cultivation system

261
00:09:37,269 --> 00:09:34,399
it's a payload found inside of the

262
00:09:38,870 --> 00:09:37,279
columbus laboratory on board the station

263
00:09:42,070 --> 00:09:38,880

used in a number of plant growth and

264
00:09:43,910 --> 00:09:42,080
also small microorganism and even small

265
00:09:45,910 --> 00:09:43,920
invertebrate studies

266
00:09:48,389 --> 00:09:45,920
studying the early stages of life and

267
00:09:51,509 --> 00:09:48,399
growth for many of these as they're

268
00:09:53,670 --> 00:09:51,519
exposed to microgravity

269
00:09:55,910 --> 00:09:53,680
moving on to thursday chris hadfield

270
00:09:57,750 --> 00:09:55,920
setting up a camera and

271
00:10:00,070 --> 00:09:57,760
mixing up a sample for the binary

272
00:10:01,509 --> 00:10:00,080
colloidal alloy test

273
00:10:04,550 --> 00:10:01,519
studying small

274
00:10:07,110 --> 00:10:04,560
particle growth inside of microgravity

275
00:10:09,110 --> 00:10:07,120
he was also working to replace a laptop

276
00:10:10,069 --> 00:10:09,120
on the space acceleration measurement

277
00:10:12,550 --> 00:10:10,079
system

278
00:10:14,630 --> 00:10:12,560
which studies small forces such as

279
00:10:16,790 --> 00:10:14,640
vibrations and accelerations of the

280
00:10:18,470 --> 00:10:16,800
international space station that are

281
00:10:20,550 --> 00:10:18,480
resolved from the operation of all the

282
00:10:22,550 --> 00:10:20,560
hardware on board but also crew

283
00:10:24,790 --> 00:10:22,560
activities and dynamic activities such

284
00:10:27,110 --> 00:10:24,800
as dockings and maneuverings

285
00:10:28,870 --> 00:10:27,120
meanwhile pablo vinogradov sampling some

286
00:10:30,790 --> 00:10:28,880
of the condensate water upstream from

287
00:10:32,790 --> 00:10:30,800
that gas liquid mixture filter that he

288
00:10:34,550 --> 00:10:32,800

was working on earlier in the week and

289
00:10:37,670 --> 00:10:34,560
transferring some items over from that

290
00:10:39,190 --> 00:10:37,680
51p cargo vehicle

291
00:10:40,949 --> 00:10:39,200
you can again you can see the total

292
00:10:42,150 --> 00:10:40,959
station make up to progress currently

293
00:10:44,150 --> 00:10:42,160
docked to the international space

294
00:10:45,829 --> 00:10:44,160
station 50 and 51

295
00:10:48,389 --> 00:10:45,839
50 being the most recent again

296
00:10:50,550 --> 00:10:48,399
delivering about three tons of supplies

297
00:10:52,389 --> 00:10:50,560
i mean while alexander misurkin taking

298
00:10:55,350 --> 00:10:52,399
some measurements for sprut

299
00:10:57,190 --> 00:10:55,360
which again looks to study how the body

300
00:10:58,949 --> 00:10:57,200
reacts to the

301
00:11:01,509 --> 00:10:58,959
and how it stays hydrated once in

302
00:11:03,670 --> 00:11:01,519
microgravity for long periods of time

303
00:11:05,350 --> 00:11:03,680
he helped out pavel vinogradov with some

304
00:11:08,310 --> 00:11:05,360
of that cargo transfer and also doing

305
00:11:10,389 --> 00:11:08,320
some routine coolant system maintenance

306
00:11:12,790 --> 00:11:10,399
meanwhile yesterday on thursday chris

307
00:11:14,550 --> 00:11:12,800
cassidy was setting up the combustion

308
00:11:16,069 --> 00:11:14,560
integrated rack for another run of the

309
00:11:18,790 --> 00:11:16,079
bass experiment or the burning and

310
00:11:20,310 --> 00:11:18,800
suppression of solids he also spent

311
00:11:22,550 --> 00:11:20,320
quite a bit of time

312
00:11:24,870 --> 00:11:22,560
inside of the quest airlock doing some

313
00:11:27,990 --> 00:11:24,880

routine maintenance on the station's

314
00:11:29,269 --> 00:11:28,000
extra vehicular mobility units or emus

315
00:11:30,870 --> 00:11:29,279
they are the

316
00:11:32,470 --> 00:11:30,880
suits that these astronauts wear when

317
00:11:34,790 --> 00:11:32,480
they step outside of the station for

318
00:11:36,310 --> 00:11:34,800
spacewalks he was uh dumping out some of

319
00:11:39,430 --> 00:11:36,320
the water stored in tanks which helped

320
00:11:42,069 --> 00:11:39,440
cool and run the suit and refilling them

321
00:11:44,150 --> 00:11:42,079
once again

322
00:11:46,150 --> 00:11:44,160
meanwhile on thursday roman romanenko

323
00:11:48,710 --> 00:11:46,160
doing some body size measurements is uh

324
00:11:50,949 --> 00:11:48,720
just part of ongoing medical

325
00:11:52,790 --> 00:11:50,959
tracking for these astronauts during

326
00:11:54,550 --> 00:11:52,800
their expedition space flights and he

327
00:11:56,069 --> 00:11:54,560
spent pretty much all of his day

328
00:11:57,750 --> 00:11:56,079
preparing that soyuz vehicle and

329
00:11:59,430 --> 00:11:57,760
pre-packing some of the items that will

330
00:12:01,590 --> 00:11:59,440
be returning home

331
00:12:03,269 --> 00:12:01,600
with him again leaving the station with

332
00:12:07,030 --> 00:12:03,279
tom marshman and chris hadfield just

333
00:12:12,150 --> 00:12:09,910
then on thursday tom marshburn working

334
00:12:14,550 --> 00:12:12,160
with the integrated cardiovascular study

335
00:12:16,790 --> 00:12:14,560
he was doing some ultrasound scans

336
00:12:18,550 --> 00:12:16,800
the integrated cardiovascular a nasa

337
00:12:21,110 --> 00:12:18,560
study that looks to

338
00:12:24,230 --> 00:12:21,120

just focus on the heart muscle and how

339
00:12:26,629 --> 00:12:24,240
it changes during microgravity exposure

340
00:12:28,470 --> 00:12:26,639
typically atrophy of the heart or

341
00:12:32,389 --> 00:12:28,480
weakening of the muscles of the heart

342
00:12:34,230 --> 00:12:32,399
can be found if not properly countered

343
00:12:35,750 --> 00:12:34,240
aside from that marshburn also had a

344
00:12:38,230 --> 00:12:35,760
chance to do a ham radio pass with

345
00:12:39,990 --> 00:12:38,240
students in greensboro north carolina

346
00:12:42,150 --> 00:12:40,000
answering questions and giving them a

347
00:12:44,949 --> 00:12:42,160
little bit of cool insight into life on

348
00:12:48,310 --> 00:12:44,959
board the international space station

349
00:12:49,990 --> 00:12:48,320
and all that brings us to today friday

350
00:12:51,590 --> 00:12:50,000
may 3rd

351
00:12:54,069 --> 00:12:51,600
right now on board station at chris

352
00:12:56,310 --> 00:12:54,079
hadfield earlier this morning alongside

353
00:12:59,269 --> 00:12:56,320
of his departing crew members did a

354
00:13:02,470 --> 00:12:59,279
check of their kentvar

355
00:13:05,030 --> 00:13:02,480
garments it's a corset like a garment

356
00:13:07,350 --> 00:13:05,040
worn similar to a pair of shorts that's

357
00:13:09,430 --> 00:13:07,360
very tightly laced and they'll wear that

358
00:13:11,910 --> 00:13:09,440
during their descent in their soyuz

359
00:13:14,710 --> 00:13:11,920
craft helps to keep blood from pulling

360
00:13:16,710 --> 00:13:14,720
in the legs upon the return to gravity

361
00:13:18,629 --> 00:13:16,720
aside from that he's also continuing his

362
00:13:19,670 --> 00:13:18,639
work on that payload ethernet hub

363
00:13:21,509 --> 00:13:19,680

gateway

364
00:13:23,350 --> 00:13:21,519
that was initialized a little bit

365
00:13:24,870 --> 00:13:23,360
earlier this week as he looks to

366
00:13:26,550 --> 00:13:24,880
continue upgrading the network

367
00:13:28,710 --> 00:13:26,560
infrastructure for controlling many of

368
00:13:30,389 --> 00:13:28,720
the payloads onboard station

369
00:13:32,470 --> 00:13:30,399
again here's some video of

370
00:13:36,150 --> 00:13:32,480
chris hadfield doing that he'll be doing

371
00:13:38,069 --> 00:13:36,160
that most of the afternoon today

372
00:13:40,069 --> 00:13:38,079
then moving on uh pablo vinogradov is

373
00:13:41,990 --> 00:13:40,079
doing some on-board training

374
00:13:44,629 --> 00:13:42,000
for the crew healthcare system he'll be

375
00:13:46,230 --> 00:13:44,639
doing a drill and be joined by alexander

376
00:13:48,629 --> 00:13:46,240
misurkin in that

377
00:13:50,949 --> 00:13:48,639
aside from that task today he'll be

378
00:13:53,189 --> 00:13:50,959
doing an audit of all of the tvis or the

379
00:13:55,829 --> 00:13:53,199
treadmill with vibration and isolation

380
00:13:56,949 --> 00:13:55,839
and stabilization elements tvis one of

381
00:13:58,790 --> 00:13:56,959
the many

382
00:14:00,629 --> 00:13:58,800
exercise devices found on board the

383
00:14:02,230 --> 00:14:00,639
international space station as each of

384
00:14:04,949 --> 00:14:02,240
these astronauts getting in about two

385
00:14:06,310 --> 00:14:04,959
and a half hours of physical activity

386
00:14:08,230 --> 00:14:06,320
in order to

387
00:14:09,829 --> 00:14:08,240
combat many of the negative effects on

388
00:14:12,310 --> 00:14:09,839

the human body that

389
00:14:13,829 --> 00:14:12,320
the weightless environment brings

390
00:14:16,470 --> 00:14:13,839
requiring some routine maintenance so

391
00:14:18,710 --> 00:14:16,480
he'll be working with that tvis today

392
00:14:21,030 --> 00:14:18,720
i mean while alexander misurkin doing

393
00:14:23,670 --> 00:14:21,040
many of the same tasks alongside pablo

394
00:14:25,829 --> 00:14:23,680
vinogradov he'll also be getting in some

395
00:14:28,389 --> 00:14:25,839
crew medical officer proficiency

396
00:14:30,389 --> 00:14:28,399
training as he works with experts down

397
00:14:32,949 --> 00:14:30,399
here on the ground to

398
00:14:36,069 --> 00:14:32,959
walk through some basic tasks required

399
00:14:38,310 --> 00:14:36,079
of the crew medical officer

400
00:14:39,750 --> 00:14:38,320
meanwhile chris cassidy

401
00:14:42,949 --> 00:14:39,760
gathering some hardware up for the

402
00:14:45,350 --> 00:14:42,959
fluids integrated rack fluid

403
00:14:47,750 --> 00:14:45,360
physics experiment rack hosting a number

404
00:14:49,750 --> 00:14:47,760
of payloads on experiment tasks onboard

405
00:14:51,350 --> 00:14:49,760
the international space station he'll

406
00:14:53,430 --> 00:14:51,360
also be taking some time to do some

407
00:14:54,389 --> 00:14:53,440
troubleshooting of the light microscopy

408
00:14:56,389 --> 00:14:54,399
module

409
00:14:58,629 --> 00:14:56,399
the microscope in there showing a few

410
00:15:00,069 --> 00:14:58,639
issues so he'll be working down here or

411
00:15:02,310 --> 00:15:00,079
working with teams down here on the

412
00:15:04,069 --> 00:15:02,320
ground as they look to work through that

413
00:15:07,110 --> 00:15:04,079

and you can see some video

414
00:15:09,670 --> 00:15:07,120
of chris cassidy right now as he is

415
00:15:12,230 --> 00:15:09,680
working through that task

416
00:15:14,230 --> 00:15:12,240
and he'll be doing that again for much

417
00:15:16,550 --> 00:15:14,240
of his afternoon today

418
00:15:18,389 --> 00:15:16,560
meanwhile roman romanenko continuing to

419
00:15:20,069 --> 00:15:18,399
prepare that soyuz vehicle for its

420
00:15:21,030 --> 00:15:20,079
departure from the international space

421
00:15:22,550 --> 00:15:21,040
station

422
00:15:24,389 --> 00:15:22,560
and he'll also be working on the russian

423
00:15:27,189 --> 00:15:24,399
electron system

424
00:15:29,430 --> 00:15:27,199
which generates much of the oxygen for

425
00:15:31,110 --> 00:15:29,440
the russian segment and for these

426
00:15:32,710 --> 00:15:31,120
astronauts breathing atmosphere he'll be

427
00:15:35,189 --> 00:15:32,720
filling up one of the water containers

428
00:15:38,389 --> 00:15:35,199
which help to maintain it and then our

429
00:15:40,069 --> 00:15:38,399
final crew member tom marshburn today

430
00:15:42,069 --> 00:15:40,079
back at working on that integrated

431
00:15:44,069 --> 00:15:42,079
cardiovascular study he'll be attaching

432
00:15:46,069 --> 00:15:44,079
a number of heart monitors and wearing

433
00:15:47,910 --> 00:15:46,079
them for about 24 hours

434
00:15:49,430 --> 00:15:47,920
again integrated cardiovascular looking

435
00:15:51,030 --> 00:15:49,440
to track

436
00:15:52,550 --> 00:15:51,040
any of the atrophy of the heart muscle

437
00:15:54,150 --> 00:15:52,560
which can occur in these astronauts

438
00:15:55,670 --> 00:15:54,160

during their long time exposure to

439
00:15:57,509 --> 00:15:55,680
microgravity

440
00:15:59,990 --> 00:15:57,519
he'll also be working with one of the

441
00:16:01,430 --> 00:16:00,000
express racks doing a controlling laptop

442
00:16:03,269 --> 00:16:01,440
software load

443
00:16:05,189 --> 00:16:03,279
updating that in order to control what