
EXIT
DECK

1
00:00:07,210 --> 00:00:03,230
station this is Houston are you ready

2
00:00:13,120 --> 00:00:10,160
Houston station yes the International

3
00:00:15,740 --> 00:00:13,130
Space Station is ready for the event

4
00:00:17,900 --> 00:00:15,750
Society Radio Canada this is Mission

5
00:00:23,480 --> 00:00:17,910
Control Houston please call station for

6
00:00:27,439 --> 00:00:23,490
a voice check hello Chris for real Chris

7
00:00:33,110 --> 00:00:27,449
it's Alex from Montreal FRC can you hear

8
00:00:35,150 --> 00:00:33,120
me yes

9
00:00:40,600 --> 00:00:35,160
Montreal SNC I hear you loud and clear

10
00:00:44,150 --> 00:00:40,610
how me I can hear you very well I

11
00:00:46,729 --> 00:00:44,160
transfer you sure that I don't care all

12
00:00:51,410 --> 00:00:46,739
for comma C italiana that we're going to

13
00:00:53,689 --> 00:00:51,420

start speaking in French from now on I'm

14
00:01:05,430 --> 00:00:53,699
handing you over merci beaucoup thank

15
00:01:12,000 --> 00:01:08,410
most homicide field good evening mr.

16
00:01:17,590 --> 00:01:14,140
good evening how are you

17
00:01:19,539 --> 00:01:17,600
yes sir doing very well thank you very

18
00:01:22,139 --> 00:01:19,549
much for inviting accepting our

19
00:01:23,320 --> 00:01:22,149
invitation we're gonna start in a few

20
00:01:25,780 --> 00:01:23,330
minutes

21
00:01:27,399 --> 00:01:25,790
good evening mr. Hatfield most waffles

22
00:01:32,940 --> 00:01:27,409
what good evening good evening how are

23
00:01:35,680 --> 00:01:32,950
you yeah well we're very well we're very

24
00:01:38,350 --> 00:01:35,690
lucky to get to speak to you we're very

25
00:01:42,790 --> 00:01:38,360
privileged you were 9 years old when

26
00:01:45,430 --> 00:01:42,800
Neil Armstrong appeared as a person that

27
00:01:48,730 --> 00:01:45,440
you wanted to follow his traces and that

28
00:01:51,460 --> 00:01:48,740
was a very determining moment for you

29
00:01:54,490 --> 00:01:51,470
now that you are on the 3rd mission as

30
00:01:59,219 --> 00:01:54,500
the commander right now can you say that

31
00:02:11,500 --> 00:02:06,609
largest vien and i am just a very lucky

32
00:02:14,590 --> 00:02:11,510
canadian guy of course I have reached my

33
00:02:17,319 --> 00:02:14,600
dreams 20 years ago already it's more

34
00:02:19,960 --> 00:02:17,329
than a dream it's not it's just a visit

35
00:02:23,520 --> 00:02:19,970
to the space station just to build a

36
00:02:28,300 --> 00:02:23,530
part of it to visit it but now I am

37
00:02:31,960 --> 00:02:28,310
lucky very hard to believe but that I am

38
00:02:35,590 --> 00:02:31,970

able to live here specially to be a

39
00:02:38,020 --> 00:02:35,600
spaceman for me this is incredible this

40
00:02:41,620 --> 00:02:38,030
is reality but at the same time it's

41
00:02:44,259 --> 00:02:41,630
very hard to believe hard to believe but

42
00:02:46,690 --> 00:02:44,269
the load of responsibilities you have as

43
00:02:49,420 --> 00:02:46,700
a commander what does this represent

44
00:02:52,270 --> 00:02:49,430
these these responsibilities are you

45
00:02:54,610 --> 00:02:52,280
ready for everything even to make a

46
00:02:57,940 --> 00:02:54,620
decision that might be an extreme

47
00:03:01,120 --> 00:02:57,950
decision that you might have to make we

48
00:03:05,259 --> 00:03:01,130
see petrol Avedon coming out this is the

49
00:03:10,270 --> 00:03:05,269
life of a commander of the ISS usually

50
00:03:12,699 --> 00:03:10,280
is a very calm life here we are in lab

51
00:03:14,140 --> 00:03:12,709
an American lab we called it destiny

52
00:03:16,539 --> 00:03:14,150
over there we have the European the

53
00:03:17,059 --> 00:03:16,549
Japanese lab we also have the Russian

54
00:03:21,050 --> 00:03:17,069
lab

55
00:03:24,860 --> 00:03:21,060
my master so usually it's quite calm and

56
00:03:27,199 --> 00:03:24,870
just life in the lot but as a commander

57
00:03:30,649 --> 00:03:27,209
I'm in charge of a lot of things with

58
00:03:32,360 --> 00:03:30,659
health and well-being for the crew make

59
00:03:38,720 --> 00:03:32,370
sure that they're well taken care of and

60
00:03:41,629 --> 00:03:38,730
also make sure that the space station is

61
00:03:43,459 --> 00:03:41,639
in good health so to speak and also the

62
00:03:46,970 --> 00:03:43,469
experiments and I have to be ready for

63
00:03:48,830 --> 00:03:46,980

this all the time every day and this is

64
00:03:49,520 --> 00:03:48,840
our everyday life but if we do have a

65
00:03:53,390 --> 00:03:49,530
problem

66
00:03:56,209 --> 00:03:53,400
perhaps if we have a lack of pressure of

67
00:04:00,170 --> 00:03:56,219
theirs this could be a fire somewhere we

68
00:04:03,530 --> 00:04:00,180
have to always be ready day and night it

69
00:04:05,929 --> 00:04:03,540
is my responsibility to make the right

70
00:04:07,699 --> 00:04:05,939
decisions in a case like this so

71
00:04:09,920 --> 00:04:07,709
obviously it's a very high level of

72
00:04:14,240 --> 00:04:09,930
responsibility a lot more than the last

73
00:04:15,949 --> 00:04:14,250
flight that I did 17 years ago and of

74
00:04:19,219 --> 00:04:15,959
course you were mentioning your last

75
00:04:24,290 --> 00:04:19,229
flight 17 years ago and now you share

76
00:04:27,920 --> 00:04:24,300
with us several years several times a

77
00:04:31,279 --> 00:04:27,930
day you are telling us how it oh it

78
00:04:34,540 --> 00:04:31,289
takes 90 minutes to go around the world

79
00:04:37,850 --> 00:04:34,550
we do this with you every day and as a

80
00:04:43,279 --> 00:04:37,860
scientist what is the status of the

81
00:04:47,510 --> 00:04:43,289
health of our planet Earth pour moi

82
00:04:49,820 --> 00:04:47,520
service it put it on for me maybe this

83
00:04:52,189 --> 00:04:49,830
is something between reality and a

84
00:04:55,040 --> 00:04:52,199
miracle to be able to look at life and

85
00:04:58,040 --> 00:04:55,050
look at earth like this it gives us

86
00:05:00,830 --> 00:04:58,050
different perspectives and I try to show

87
00:05:03,860 --> 00:05:00,840
this partnership to share this with

88
00:05:08,480 --> 00:05:03,870

everybody don't a photo with the

89
00:05:11,709 --> 00:05:08,490
pictures and explain me sir also with

90
00:05:16,370 --> 00:05:11,719
words I try to express that and earth

91
00:05:19,790 --> 00:05:16,380
obviously has been there for ages and

92
00:05:22,249 --> 00:05:19,800
there is a certain permanence of it when

93
00:05:24,230 --> 00:05:22,259
you look at it you can't see the changes

94
00:05:27,110 --> 00:05:24,240
in the last 20 years the change is

95
00:05:28,899 --> 00:05:27,120
though where human induced natural

96
00:05:30,679 --> 00:05:28,909
changes all of that

97
00:05:34,249 --> 00:05:30,689
Japan scalar

98
00:05:37,389 --> 00:05:34,259
what I think is the perspective as a

99
00:05:42,259 --> 00:05:37,399
result of that is to be able to be

100
00:05:46,219 --> 00:05:42,269
responsible to be a member of the crew

101
00:05:50,409 --> 00:05:46,229
not only on the space station but of our

102
00:05:54,429 --> 00:05:50,419
planet Earth which is our spacial vessel

103
00:05:57,799 --> 00:05:54,439
vehicle and of course there are changes

104
00:06:01,449 --> 00:05:57,809
but it's not the end it's at the end of

105
00:06:05,989 --> 00:06:01,459
life it's just reality and we need to

106
00:06:08,659 --> 00:06:05,999
leap deeper take the proper small steps

107
00:06:11,619 --> 00:06:08,669
individually personally so that we can

108
00:06:15,109 --> 00:06:11,629
improve this and this is my perspective

109
00:06:17,239 --> 00:06:15,119
with all the astronauts put it in

110
00:06:19,969 --> 00:06:17,249
perspective and maybe this is the

111
00:06:24,919 --> 00:06:19,979
astronauts perspective that will always

112
00:06:29,119 --> 00:06:24,929
remain on earth do you think that could

113
00:06:31,189 --> 00:06:29,129

be another Chris Hadfield because after

114
00:06:36,619 --> 00:06:31,199
you speak to the children all the time

115
00:06:38,479 --> 00:06:36,629
there's more than 66 600,000 people on

116
00:06:41,389 --> 00:06:38,489
Twitter we talk to all the children all

117
00:06:44,089 --> 00:06:41,399
the time will there be another Chris

118
00:06:46,639 --> 00:06:44,099
Hadfield in the future maybe he won't be

119
00:06:50,719 --> 00:06:46,649
as good as you but do you think that's

120
00:06:53,119 --> 00:06:50,729
possible I just say we just saved

121
00:06:57,739 --> 00:06:53,129
Anchorage in sweep-a I know very well

122
00:07:00,049 --> 00:06:57,749
that I am NOT unique but yes we need to

123
00:07:02,869 --> 00:07:00,059
remember that when I made the decision

124
00:07:06,290 --> 00:07:02,879
to become an astronaut it wasn't

125
00:07:08,659 --> 00:07:06,300
difficult it was impossible we did not

126
00:07:11,509 --> 00:07:08,669
have a Canadian space station we didn't

127
00:07:14,269 --> 00:07:11,519
have any astronauts we didn't have a

128
00:07:16,939 --> 00:07:14,279
Canadian Space Agency when I made that

129
00:07:19,249 --> 00:07:16,949
decision that's how it was and now it

130
00:07:22,040 --> 00:07:19,259
became a reality so the students

131
00:07:24,319 --> 00:07:22,050
throughout Canada I spoke to the ones

132
00:07:27,549 --> 00:07:24,329
and loved a level and through radio

133
00:07:30,279 --> 00:07:27,559
amateur earlier today for them it is

134
00:07:34,249 --> 00:07:30,289
absolutely a possibility it's not

135
00:07:37,729 --> 00:07:34,259
guaranteed it is difficult but for me it

136
00:07:40,929 --> 00:07:37,739
was impossible and now it's reality so I

137
00:07:44,180 --> 00:07:40,939
am certain that there will be other

138
00:07:47,690 --> 00:07:44,190

through the pre future astronauts

139
00:07:50,680 --> 00:07:47,700
we'll be training not just in Davidson

140
00:07:54,440 --> 00:07:50,690
Jacquin Mr Hudson bet all the other

141
00:07:57,740 --> 00:07:54,450
younger students even and the rest of

142
00:08:01,370 --> 00:07:57,750
the universe is waiting and it's just up

143
00:08:05,770 --> 00:08:01,380
to us to make the proper efforts and to

144
00:08:09,790 --> 00:08:05,780
describe and to establish our own

145
00:08:13,190 --> 00:08:09,800
destiny thank you Chris Hadfield and

146
00:08:16,790 --> 00:08:13,200
good returns to Earth in may you see

147
00:08:19,550 --> 00:08:16,800
thank you do more me thank you I still

148
00:08:22,790 --> 00:08:19,560
have two months to go but I am ready to

149
00:08:28,340 --> 00:08:22,800
come back to earth as well you return

150
00:08:31,610 --> 00:08:28,350
but every day is a very very dear to me

151
00:08:33,580 --> 00:08:31,620
and I love life here but I also would

152
00:08:41,190 --> 00:08:33,590
love to go back home

153
00:08:47,140 --> 00:08:44,500
all you crazy shout shared initially

154
00:08:50,190 --> 00:08:47,150
good morning mr. hat Felicia showers to

155
00:08:55,300 --> 00:08:50,200
sell from Bonjour Alchemist Abba

156
00:08:57,520 --> 00:08:55,310
interview how are you it's I'm doing

157
00:08:59,950 --> 00:08:57,530
fine thank you mr. head well now you are

158
00:09:02,250 --> 00:08:59,960
the commander of the International Space

159
00:09:04,120 --> 00:09:02,260
what does that mean as far as the

160
00:09:07,380 --> 00:09:04,130
responsibilities with regard to the

161
00:09:10,440 --> 00:09:07,390
science experiments conducted on board

162
00:09:13,090 --> 00:09:10,450
yeah beaucoup de 16 there's many

163
00:09:15,610 --> 00:09:13,100

experiments on the station more than a

164
00:09:18,790 --> 00:09:15,620
hundred experiments were conducting the

165
00:09:23,860 --> 00:09:18,800
small ones to measure exactly the

166
00:09:28,090 --> 00:09:23,870
quality of no gravity and then some

167
00:09:30,490 --> 00:09:28,100
Alpha Magnetic Spectrometer experiments

168
00:09:33,370 --> 00:09:30,500
to learn more about the small particles

169
00:09:36,130 --> 00:09:33,380
of the universe so I am in charge of the

170
00:09:39,790 --> 00:09:36,140
experiments the health of the station

171
00:09:42,970 --> 00:09:39,800
for the experiments Chuck Jordan but

172
00:09:45,610 --> 00:09:42,980
every day there's a couple of hours we

173
00:09:49,270 --> 00:09:45,620
spend on doing experiments with our own

174
00:09:52,240 --> 00:09:49,280
hands with the experience that there is

175
00:09:56,740 --> 00:09:52,250
on this station we work all together to

176
00:10:00,970 --> 00:09:56,750
use this lab this unique environment in

177
00:10:02,920 --> 00:10:00,980
this lab that is with weightlessness to

178
00:10:06,990 --> 00:10:02,930
better understand the universe to better

179
00:10:11,230 --> 00:10:07,000
understand human health and to use this

180
00:10:13,240 --> 00:10:11,240
one for the objective of the lab and I'm

181
00:10:18,090 --> 00:10:13,250
just one more of the crew when we do

182
00:10:22,740 --> 00:10:18,100
that why is it that an astronaut is

183
00:10:24,790 --> 00:10:22,750
weightless in orbit in the space station

184
00:10:27,220 --> 00:10:24,800
Souter in bankís Joe

185
00:10:29,970 --> 00:10:27,230
that is a good question suit a suit

186
00:10:33,790 --> 00:10:29,980
there if you jump when you're on earth

187
00:10:37,660 --> 00:10:33,800
you fall back on Earth right away

188
00:10:42,700 --> 00:10:37,670

because of gravity but if you have a

189
00:10:45,280 --> 00:10:42,710
huge speed you would fall due to gravity

190
00:10:49,120 --> 00:10:45,290
at the same time as the curvature of

191
00:10:52,660 --> 00:10:49,130
Earth so if you have a speed that is

192
00:10:54,950 --> 00:10:52,670
fast enough you can fall exactly at the

193
00:10:56,329 --> 00:10:54,960
same time as the

194
00:10:59,090 --> 00:10:56,339
of the earth so you're constantly

195
00:11:01,940 --> 00:10:59,100
falling so to speak supporting you

196
00:11:05,210 --> 00:11:01,950
non-stop it's not that there isn't any

197
00:11:07,790 --> 00:11:05,220
gravity here it's just that it's due to

198
00:11:10,820 --> 00:11:07,800
the orbit of the station you have to

199
00:11:15,320 --> 00:11:10,830
have gravity in order to stay in orbit

200
00:11:18,380 --> 00:11:15,330
but here we are in weightlessness due to

201
00:11:20,870 --> 00:11:18,390
the orbit and the speed of the station

202
00:11:23,960 --> 00:11:20,880
so I'm falling everything is falling

203
00:11:26,840 --> 00:11:23,970
here the station is falling together and

204
00:11:30,260 --> 00:11:26,850
in this environment of weightlessness

205
00:11:32,650 --> 00:11:30,270
yes it is Amazon it's very funny to be

206
00:11:36,079 --> 00:11:32,660
here actually it's different

207
00:11:37,880 --> 00:11:36,089
can this provide us an opportunity to

208
00:11:41,480 --> 00:11:37,890
conduct experiments that would be

209
00:11:44,750 --> 00:11:41,490
impossible to conduct on earth and so

210
00:11:49,670 --> 00:11:44,760
let's talk about the experience on which

211
00:11:52,670 --> 00:11:49,680
you are working on with a BP regulator

212
00:11:57,769 --> 00:11:52,680
and what are the effects on the human

213
00:12:02,720 --> 00:11:57,779

body we in particular yes there is a

214
00:12:05,750 --> 00:12:02,730
part of the the problem the even Wisma

215
00:12:11,079 --> 00:12:05,760
of the Canadian population has a problem

216
00:12:13,699 --> 00:12:11,089
with fainting with low blood pressure

217
00:12:15,590 --> 00:12:13,709
within their bodies so there is an

218
00:12:18,710 --> 00:12:15,600
experiment here right now to better

219
00:12:22,730 --> 00:12:18,720
understand because for now there's no

220
00:12:24,769 --> 00:12:22,740
gravity so blood doesn't go down through

221
00:12:27,860 --> 00:12:24,779
the bottom of my legs and so these

222
00:12:30,019 --> 00:12:27,870
experiments our body is adapted to do

223
00:12:32,900 --> 00:12:30,029
that and with this type of adaptation we

224
00:12:36,530 --> 00:12:32,910
can better understand how the body

225
00:12:40,040 --> 00:12:36,540
controls this so with this licky Markham

226
00:12:45,250 --> 00:12:40,050
sir so the type of equipment we have

227
00:12:48,829 --> 00:12:45,260
these graphs that we put on our legs

228
00:12:50,750 --> 00:12:48,839
suite and we can keep repeating the

229
00:12:54,470 --> 00:12:50,760
blood on the leg and and take it off

230
00:12:57,470 --> 00:12:54,480
quickly and with that blood will go back

231
00:12:59,930 --> 00:12:57,480
down to the legs and then that lowers

232
00:13:03,230 --> 00:12:59,940
our blood pressure and then in a few

233
00:13:05,720 --> 00:13:03,240
minutes we could know exactly how the

234
00:13:07,699 --> 00:13:05,730
heart works and how the system that

235
00:13:08,890 --> 00:13:07,709
regulates this and I can repeat this

236
00:13:11,930 --> 00:13:08,900
experiment

237
00:13:15,470 --> 00:13:11,940
several times in weightlessness I have

238
00:13:17,090 --> 00:13:15,480

done it several times on earth so the

239
00:13:19,820 --> 00:13:17,100
researchers the doctors that are

240
00:13:23,210 --> 00:13:19,830
researching this know how this body

241
00:13:25,970 --> 00:13:23,220
works in gravity on earth and here we

242
00:13:29,480 --> 00:13:25,980
can see exactly the changes that come

243
00:13:33,260 --> 00:13:29,490
about and on the exterior of my body you

244
00:13:36,320 --> 00:13:33,270
can see this better learn it's possible

245
00:13:39,680 --> 00:13:36,330
maybe to see how the system works and so

246
00:13:43,730 --> 00:13:39,690
this is an experiment that's what Alou

247
00:13:45,410 --> 00:13:43,740
emits from Waterloo and this is very

248
00:13:47,990 --> 00:13:45,420
interesting for me I'm very interested

249
00:13:51,710 --> 00:13:48,000
in this type of response is there a risk

250
00:13:54,290 --> 00:13:51,720
too faint for the astronauts when they

251
00:13:57,290 --> 00:13:54,300
come back to earth and will this help us

252
00:14:00,470 --> 00:13:57,300
better understand so that we don't have

253
00:14:06,560 --> 00:14:00,480
a sudden loss of blood pressure when you

254
00:14:09,200 --> 00:14:06,570
return on earth yes this is one result a

255
00:14:11,090 --> 00:14:09,210
disaster no it's for astronaut health

256
00:14:14,660 --> 00:14:11,100
when we come back to earth yes

257
00:14:17,140 --> 00:14:14,670
definitely because the first few minutes

258
00:14:20,540 --> 00:14:17,150
after six minutes in weightlessness

259
00:14:22,670 --> 00:14:20,550
six months in weightlessness it is very

260
00:14:25,610 --> 00:14:22,680
important for the system the way that it

261
00:14:27,650 --> 00:14:25,620
regulates us and to avoid this it's a

262
00:14:30,410 --> 00:14:27,660
lot better for us to learn how this

263
00:14:34,280 --> 00:14:30,420

works but it's not just for us it's also

264
00:14:36,830 --> 00:14:34,290
to better learn for the entire country

265
00:14:38,630 --> 00:14:36,840
for the entire country of Canada for the

266
00:14:41,150 --> 00:14:38,640
population that has problems with

267
00:14:43,100 --> 00:14:41,160
fainting it's for them as well that

268
00:14:46,130 --> 00:14:43,110
we're doing these experiments commander

269
00:14:48,050 --> 00:14:46,140
Hadfield when you do a long term mission

270
00:14:51,320 --> 00:14:48,060
whether it's on the International Space

271
00:14:55,940 --> 00:14:51,330
Station or in the future towards Mars

272
00:14:58,280 --> 00:14:55,950
for example we'll just need to have an

273
00:15:00,470 --> 00:14:58,290
artificial gravity spaceship to make

274
00:15:03,260 --> 00:15:00,480
sure their physical capacities will be

275
00:15:06,260 --> 00:15:03,270
good and you have micro flow also there

276
00:15:09,440 --> 00:15:06,270
can you talk about that yes this is an

277
00:15:12,080 --> 00:15:09,450
experiment so my interest on that is

278
00:15:14,750 --> 00:15:12,090
very interesting I can show you actually

279
00:15:19,750 --> 00:15:14,760
see mrs. load normally you need to go to

280
00:15:21,920 --> 00:15:19,760
the hospital to use the equipment - this

281
00:15:25,519 --> 00:15:21,930
may perhaps

282
00:15:28,010 --> 00:15:25,529
analyze blood tests but with a challenge

283
00:15:30,680 --> 00:15:28,020
such as a voyage in space there is a

284
00:15:36,530 --> 00:15:30,690
group of inventors and engineers and

285
00:15:40,820 --> 00:15:36,540
doctors in Quebec who create micro flow

286
00:15:44,690 --> 00:15:40,830
created micro flows deportees and in a

287
00:15:48,910 --> 00:15:44,700
small box from d kilogram which weighs

288
00:15:53,720 --> 00:15:48,920

approximately 10 kilograms as big as a

289
00:15:58,340 --> 00:15:53,730
small little oven mayor vixa say possib

290
00:16:02,660 --> 00:15:58,350
do and with this you can analyze after

291
00:16:05,780 --> 00:16:02,670
just 10 minutes you can analyze blood

292
00:16:09,920 --> 00:16:05,790
and so these capabilities are new for us

293
00:16:14,180 --> 00:16:09,930
with a such a small device as this we

294
00:16:16,329 --> 00:16:14,190
don't need to bring our blood down to

295
00:16:21,199 --> 00:16:16,339
earth in the freezer and then to earth

296
00:16:24,620 --> 00:16:21,209
and as you said Charles for a very long

297
00:16:27,140 --> 00:16:24,630
voyage like it would be even farther

298
00:16:30,640 --> 00:16:27,150
away from Earth then that would be

299
00:16:33,470 --> 00:16:30,650
impossible so here we have a portable

300
00:16:36,320 --> 00:16:33,480
device that can analyze this and after

301
00:16:40,579 --> 00:16:36,330
10 minutes we can know the results of

302
00:16:42,650 --> 00:16:40,589
the blood test and better understand the

303
00:16:44,449 --> 00:16:42,660
health of the astronauts was very very

304
00:16:48,380 --> 00:16:44,459
interesting I conducted the first

305
00:16:51,590 --> 00:16:48,390
experiments with this last week and with

306
00:16:55,550 --> 00:16:51,600
this in the future we would be able to

307
00:16:57,380 --> 00:16:55,560
have a little hospital in a box in the

308
00:17:00,079 --> 00:16:57,390
station for us in the future and with

309
00:17:03,110 --> 00:17:00,089
something this small it's possible for

310
00:17:06,280 --> 00:17:03,120
Canadians who live far from a hospital

311
00:17:09,410 --> 00:17:06,290
in the north or in the south far away

312
00:17:13,760 --> 00:17:09,420
maybe even just in a small clinic this

313
00:17:15,829 --> 00:17:13,770

is a lot cheaper to run blood tests this

314
00:17:18,169 --> 00:17:15,839
way so it's a very interesting and

315
00:17:19,610 --> 00:17:18,179
important invention that has been used

316
00:17:21,470 --> 00:17:19,620
for the first time here in the

317
00:17:25,250 --> 00:17:21,480
International Space Station commander

318
00:17:28,570 --> 00:17:25,260
how do you do to protect the astronauts

319
00:17:31,130 --> 00:17:28,580
on the space station with respect to

320
00:17:35,470 --> 00:17:31,140
radiation into one minute if you can

321
00:17:43,830 --> 00:17:38,560
we know known as auteur yes normally on

322
00:17:49,690 --> 00:17:43,840
earth we have the atmosphere which is

323
00:17:55,270 --> 00:17:49,700
protecting earth between no source make

324
00:17:58,480 --> 00:17:55,280
race and the race from the Sun say Bondi

325
00:18:00,700 --> 00:17:58,490
be the day trippers L miss you Raisa it

326
00:18:03,250 --> 00:18:00,710
is good to be able to measure that and

327
00:18:06,880 --> 00:18:03,260
so there is an experiment that is also a

328
00:18:12,210 --> 00:18:06,890
Canadian experiment with our flag huge

329
00:18:26,380 --> 00:18:16,930
I'll show you a liquid does not a very

330
00:18:30,790 --> 00:18:26,390
see if exa and with this uses liquid and

331
00:18:35,440 --> 00:18:30,800
so during a week you can see its changes

332
00:18:39,310 --> 00:18:35,450
in this chest tube in one week and every

333
00:18:44,200 --> 00:18:39,320
small particle of energy of the universe

334
00:18:47,760 --> 00:18:44,210
of radiation if we have neutrons here

335
00:18:51,430 --> 00:18:47,770
and this is the most dangerous here for

336
00:18:55,390 --> 00:18:51,440
human health it creates a small bubble

337
00:18:58,120 --> 00:18:55,400
in this liquid and it stays there and we

338
00:19:03,400 --> 00:18:58,130

have a system with a computer that we

339
00:19:07,030 --> 00:19:03,410
can count how many bubbles are created

340
00:19:12,850 --> 00:19:07,040
in a week and with this exact we could

341
00:19:18,310 --> 00:19:12,860
better learn to see how many and what

342
00:19:24,330 --> 00:19:18,320
kind of radiation arrives to the station

343
00:19:26,770 --> 00:19:24,340
and so with this we are able to have a

344
00:19:29,650 --> 00:19:26,780
well-designed system to protect the

345
00:19:33,220 --> 00:19:29,660
astronauts against this so firstly it's

346
00:19:35,380 --> 00:19:33,230
very necessary to know yeah and to learn

347
00:19:37,510 --> 00:19:35,390
the environment this is not the only

348
00:19:41,230 --> 00:19:37,520
experiment that we are conducting to

349
00:19:46,060 --> 00:19:41,240
learn this but this is a Canadian

350
00:19:48,720 --> 00:19:46,070
experiment that I am in charge of on a

351
00:19:51,270 --> 00:19:48,730
regular basis and also

352
00:19:54,000 --> 00:19:51,280
I can't wait to get the results to

353
00:19:58,190 --> 00:19:54,010
better understand the environment in

354
00:20:00,330 --> 00:19:58,200
space and for our future in space

355
00:20:02,850 --> 00:20:00,340
between Earth and the other planets

356
00:20:05,490 --> 00:20:02,860
thank you very much

357
00:20:06,240 --> 00:20:05,500
mr. haire commander Hadfield and had a

358
00:20:08,549 --> 00:20:06,250
good mission

359
00:20:13,190 --> 00:20:08,559
I miss you who thank you thank you for

360
00:20:22,190 --> 00:20:16,950
thank you the station this is Houston

361
00:20:28,380 --> 00:20:25,799
thank you very much Missy and Thank You

362
00:20:29,909 --> 00:20:28,390
society radio-canada station we are now