
PAO

1
00:00:04,970 --> 00:00:02,180
we've been doing a lot of talking about

2
00:00:06,950 --> 00:00:04,980
the kounotori3 it is scheduled to launch

3
00:00:09,770 --> 00:00:06,960
tonight from the Tanegashima Space

4
00:00:12,440 --> 00:00:09,780
Center in Japan aboard that cargo

5
00:00:14,749 --> 00:00:12,450
spacecraft we have about three and a

6
00:00:17,680 --> 00:00:14,759
half tonnes of cargo that is scheduled

7
00:00:20,810 --> 00:00:17,690
to go up 20% of that cargo is a

8
00:00:22,670 --> 00:00:20,820
experiment related equipment and so here

9
00:00:24,740 --> 00:00:22,680
to talk with us today we have Pete has

10
00:00:26,870 --> 00:00:24,750
booked is the associate program

11
00:00:28,460 --> 00:00:26,880
scientists welcome Pete and thank you

12
00:00:30,169 --> 00:00:28,470
for coming thank you very much I'm glad

13
00:00:32,150 --> 00:00:30,179

to be here today well so as we were

14
00:00:34,729 --> 00:00:32,160
saying there is about 3 and 1/2 tons of

15
00:00:36,830 --> 00:00:34,739
cargo that is scheduled to go up 20% of

16
00:00:39,410 --> 00:00:36,840
that cargo is experiment related

17
00:00:41,000 --> 00:00:39,420
equipment and a lot of our equipment

18
00:00:42,500 --> 00:00:41,010
that's actually going up and so peter is

19
00:00:44,540 --> 00:00:42,510
here to talk to us a little about that

20
00:00:47,060 --> 00:00:44,550
but first I'd like to talk a little

21
00:00:49,279 --> 00:00:47,070
about you so tell me first how you came

22
00:00:52,250 --> 00:00:49,289
about coming to NASA how do you made

23
00:00:56,150 --> 00:00:52,260
your way to where you are now I've been

24
00:00:58,069 --> 00:00:56,160
at JSC for 27 years I grew up in

25
00:01:00,349 --> 00:00:58,079
Michigan studied aerospace engineering

26
00:01:01,520 --> 00:01:00,359
at the University of Notre Dame and came

27
00:01:04,789 --> 00:01:01,530
here to the Mission Operations

28
00:01:06,230 --> 00:01:04,799
Directorate right out of school I held

29
00:01:08,330 --> 00:01:06,240
two different positions on the shuttle

30
00:01:10,370 --> 00:01:08,340
flight control team in operations and

31
00:01:12,140 --> 00:01:10,380
then about 10 years ago I came over to

32
00:01:13,670 --> 00:01:12,150
the Space Station program office which

33
00:01:16,219 --> 00:01:13,680
is the program management of the

34
00:01:18,530 --> 00:01:16,229
International Space Station about a

35
00:01:20,539 --> 00:01:18,540
month ago I started my new job which is

36
00:01:22,490 --> 00:01:20,549
the associate program scientist Wow

37
00:01:24,109 --> 00:01:22,500
so you need to this this thing so I

38
00:01:27,140 --> 00:01:24,119

understand so you were an increment

39
00:01:29,770 --> 00:01:27,150
manager and so you obviously know a lot

40
00:01:32,240 --> 00:01:29,780
about the ISS Space Station operations

41
00:01:34,539 --> 00:01:32,250
and so we'll get into some of that as

42
00:01:36,590 --> 00:01:34,549
well as obviously there were some

43
00:01:38,359 --> 00:01:36,600
station operations and also some

44
00:01:40,870 --> 00:01:38,369
partnership things that we that took

45
00:01:43,550 --> 00:01:40,880
place for getting our payload onboard

46
00:01:45,889 --> 00:01:43,560
the the cargo ship that is scheduled to

47
00:01:47,450 --> 00:01:45,899
go up and this is the second operational

48
00:01:49,580 --> 00:01:47,460
Japanese cargo ship that's going up

49
00:01:50,929 --> 00:01:49,590
correct yes it's the third of the HTV

50
00:01:52,670 --> 00:01:50,939
vehicles the first one was a

51
00:01:54,710 --> 00:01:52,680
demonstration mission it was fully

52
00:01:56,209 --> 00:01:54,720
successful and so now the second and

53
00:01:59,389 --> 00:01:56,219
third are the ones that we've relied on

54
00:02:00,950 --> 00:01:59,399
for for all the good cargo okay so a

55
00:02:02,899 --> 00:02:00,960
month into your position as the

56
00:02:05,780 --> 00:02:02,909
associate program scientists explain a

57
00:02:08,839 --> 00:02:05,790
little bit about that so a program

58
00:02:10,550 --> 00:02:08,849
scientist as a part of the International

59
00:02:13,190 --> 00:02:10,560
Space Station program management office

60
00:02:15,650 --> 00:02:13,200
the program scientist represents this

61
00:02:17,990 --> 00:02:15,660
aspect of the station the station is a

62
00:02:20,750 --> 00:02:18,000
laboratory it's a huge laboratory it's a

63
00:02:22,460 --> 00:02:20,760

huge complex to manage so there's a lot

64
00:02:24,589 --> 00:02:22,470
of competing interests in managing that

65
00:02:26,750 --> 00:02:24,599
keeping a crew safe keeping the crew

66
00:02:28,970 --> 00:02:26,760
supplied keeping all the systems up and

67
00:02:30,260 --> 00:02:28,980
running keeping the crew healthy but we

68
00:02:32,680 --> 00:02:30,270
want to use the laboratory for its

69
00:02:35,240 --> 00:02:32,690
purpose which is science investigations

70
00:02:36,979 --> 00:02:35,250
we also want to do that as the

71
00:02:38,960 --> 00:02:36,989
international partnership which is set

72
00:02:40,850 --> 00:02:38,970
up and that's kind of where I come in my

73
00:02:42,410 --> 00:02:40,860
previous job as an increment manager was

74
00:02:44,150 --> 00:02:42,420
a mission manager and I worked

75
00:02:45,979 --> 00:02:44,160
extensively with the international

76
00:02:47,570 --> 00:02:45,989
partners now

77
00:02:49,130 --> 00:02:47,580
in the program science office I will be

78
00:02:51,110 --> 00:02:49,140
focusing on again working with the

79
00:02:52,729 --> 00:02:51,120
partners but now more on collaboration

80
00:02:54,979 --> 00:02:52,739
making sure we're using the station

81
00:02:57,229 --> 00:02:54,989
effectively communicating with those

82
00:02:59,750 --> 00:02:57,239
partners looking for synergy and

83
00:03:02,000 --> 00:02:59,760
collaboration and then the other part of

84
00:03:04,130 --> 00:03:02,010
what a program science office does is we

85
00:03:06,229 --> 00:03:04,140
report on what we're using the station

86
00:03:07,820 --> 00:03:06,239
for some of that is reporting to

87
00:03:09,559 --> 00:03:07,830
management reporting to our partners

88
00:03:11,300 --> 00:03:09,569

reporting to headquarters in Congress

89
00:03:13,580 --> 00:03:11,310
how effectively we're using the station

90
00:03:15,110 --> 00:03:13,590
and then also educating the public

91
00:03:16,610 --> 00:03:15,120
whether it's educating our NASA

92
00:03:18,740 --> 00:03:16,620
employees to go out and talk to the

93
00:03:20,870 --> 00:03:18,750
public or just in general something like

94
00:03:23,090 --> 00:03:20,880
this telling people what we do we have

95
00:03:27,110 --> 00:03:23,100
people today in New York for the opening

96
00:03:29,300 --> 00:03:27,120
of the enterprise at the MMP intrepid

97
00:03:31,550 --> 00:03:29,310
museum some of our offices are out there

98
00:03:34,910 --> 00:03:31,560
telling people about what we do very

99
00:03:36,020 --> 00:03:34,920
interesting so now I want to talk about

100
00:03:37,190 --> 00:03:36,030
some of the things that are going up

101
00:03:38,900 --> 00:03:37,200
because we do have a lot of really

102
00:03:42,349 --> 00:03:38,910
interesting things and I'm really glad

103
00:03:43,970 --> 00:03:42,359
to hear that you referred to this Space

104
00:03:47,630 --> 00:03:43,980
Station as a laboratory because I think

105
00:03:49,970 --> 00:03:47,640
sometimes we we forget it's not just an

106
00:03:51,470 --> 00:03:49,980
orbital home flying in space that is

107
00:03:53,090 --> 00:03:51,480
there that we're sending people up just

108
00:03:55,280 --> 00:03:53,100
to maintain there is a reason that we

109
00:03:56,840 --> 00:03:55,290
are there and that is for the science

110
00:03:59,479 --> 00:03:56,850
that we are able to bring up and so

111
00:04:01,789 --> 00:03:59,489
obviously like I said there is about 20%

112
00:04:03,530 --> 00:04:01,799
of that three and a half tons of cargo

113
00:04:05,620 --> 00:04:03,540

that is being launched to this space

114
00:04:08,300 --> 00:04:05,630
station that launch again is going to be

115
00:04:11,870 --> 00:04:08,310
906 p.m. tonight we'll also have

116
00:04:13,400 --> 00:04:11,880
coverage of the launch at 8:15 p.m. here

117
00:04:15,500 --> 00:04:13,410
on NASA television as well for those of

118
00:04:16,699 --> 00:04:15,510
you who are watching so let's get into

119
00:04:20,150 --> 00:04:16,709
some of those things that are going up

120
00:04:24,860 --> 00:04:20,160
one of the payloads that NASA payload

121
00:04:29,750 --> 00:04:24,870
that is going up up aboard the HTV 3 is

122
00:04:33,050 --> 00:04:29,760
scan testbed now scan is an acronym

123
00:04:35,600 --> 00:04:33,060
excuse me space communicators and

124
00:04:36,080 --> 00:04:35,610
navigation yes so explain to me what

125
00:04:38,570 --> 00:04:36,090
that is

126
00:04:40,370 --> 00:04:38,580
okay the scan testbed is one of the it

127
00:04:41,090 --> 00:04:40,380
uses one of the unique capabilities of

128
00:04:43,670 --> 00:04:41,100
the HTV

129
00:04:45,290 --> 00:04:43,680
in that HTV can launch external cargo

130
00:04:46,879 --> 00:04:45,300
cargo that never comes inside the

131
00:04:50,620 --> 00:04:46,889
station but it gets mounted outside the

132
00:04:53,629 --> 00:04:50,630
station in this case the scan testbed is

133
00:04:56,090 --> 00:04:53,639
demonstrating advanced radio technology

134
00:04:57,020 --> 00:04:56,100
the principal investigator is a Glenn

135
00:04:59,450 --> 00:04:57,030
Research Center

136
00:05:01,310 --> 00:04:59,460
the other major investigators are at the

137
00:05:04,159 --> 00:05:01,320
Goddard Space Flight Center as well as

138
00:05:06,500 --> 00:05:04,169

the Jet Propulsion Laboratory it's in

139
00:05:09,950 --> 00:05:06,510
demonstrating new communication methods

140
00:05:13,400 --> 00:05:09,960
for instance the software software

141
00:05:15,200 --> 00:05:13,410
designed radios traditional radios have

142
00:05:20,810 --> 00:05:15,210
a lot of internal hardware components

143
00:05:22,850 --> 00:05:20,820
transistors tubes converters this new

144
00:05:26,000 --> 00:05:22,860
technology uses computers more uses

145
00:05:28,010 --> 00:05:26,010
modems and it's a reconfigurable radio

146
00:05:30,290 --> 00:05:28,020
in a sense that you can launch it on a

147
00:05:32,540 --> 00:05:30,300
spacecraft let's say and then if

148
00:05:34,010 --> 00:05:32,550
something changes like you can reduce

149
00:05:35,779 --> 00:05:34,020
the power level because you don't need

150
00:05:37,219 --> 00:05:35,789
as much power you can do that through

151
00:05:39,529 --> 00:05:37,229
your commanding you don't have to bring

152
00:05:43,310 --> 00:05:39,539
the radio back to the ground it's also

153
00:05:45,050 --> 00:05:43,320
testing advanced navigation technologies

154
00:05:46,879 --> 00:05:45,060
and the scan testbed is going to be

155
00:05:48,890 --> 00:05:46,889
removed by the robotic arms on the

156
00:05:51,500 --> 00:05:48,900
station and it will be transferred up to

157
00:05:53,930 --> 00:05:51,510
an external location on the station so

158
00:05:57,770 --> 00:05:53,940
it can see satellites communicates in

159
00:06:00,200 --> 00:05:57,780
several different wavelengths ok great

160
00:06:02,659 --> 00:06:00,210
well so I think one of the benefits you

161
00:06:04,700 --> 00:06:02,669
mentioned was the fact that so basically

162
00:06:06,500 --> 00:06:04,710
we can fly that piece of hardware there

163
00:06:08,930 --> 00:06:06,510

but then we don't have to keep bringing

164
00:06:10,940 --> 00:06:08,940
it back in back and forth and so

165
00:06:13,820 --> 00:06:10,950
essentially it's just a software or swap

166
00:06:16,040 --> 00:06:13,830
out but it's using new hardware it's

167
00:06:17,719 --> 00:06:16,050
demonstrating how that hardware can be

168
00:06:19,730 --> 00:06:17,729
commanded from the ground to change the

169
00:06:21,680 --> 00:06:19,740
software inside that hardware another

170
00:06:24,230 --> 00:06:21,690
advantage of using the station you know

171
00:06:25,610 --> 00:06:24,240
you could launch this Hardware on pretty

172
00:06:27,890 --> 00:06:25,620
much any satellite that's going around

173
00:06:29,510 --> 00:06:27,900
the earth and test it but the station is

174
00:06:32,120 --> 00:06:29,520
there it's a National Laboratory so it's

175
00:06:34,490 --> 00:06:32,130
an opportunity for us to take equipment

176
00:06:37,760 --> 00:06:34,500
to our laboratory and demonstrate it

177
00:06:39,050 --> 00:06:37,770
okay very good interesting so let's move

178
00:06:40,640 --> 00:06:39,060
on to another one I found very

179
00:06:41,780 --> 00:06:40,650
interesting and there's a long list of

180
00:06:43,340 --> 00:06:41,790
things that are going up there so we're

181
00:06:45,140 --> 00:06:43,350
really only just touching base on a few

182
00:06:47,420 --> 00:06:45,150
items but one of those things is the

183
00:06:48,590 --> 00:06:47,430
Aquatics habitat I just find very

184
00:06:49,790 --> 00:06:48,600
interesting because we're talking about

185
00:06:52,460 --> 00:06:49,800
this I do too

186
00:06:55,070 --> 00:06:52,470
yes the aquatic habitat is going to go

187
00:06:58,400 --> 00:06:55,080
into the Japanese experiment module it

188
00:07:01,580 --> 00:06:58,410

is the aquarium system that will let the

189
00:07:03,830 --> 00:07:01,590
Japanese scientists study fish there are

190
00:07:05,600 --> 00:07:03,840
no fish in this aquarium yet but it's

191
00:07:07,100 --> 00:07:05,610
sending the systems up it's a

192
00:07:08,630 --> 00:07:07,110
complicated system if you think of an

193
00:07:10,940 --> 00:07:08,640
aquarium you know it's got pumps and

194
00:07:12,820 --> 00:07:10,950
filters and through the filters it puts

195
00:07:15,650 --> 00:07:12,830
oxygen back in the water for the fish

196
00:07:17,720 --> 00:07:15,660
the neat thing to me was imagine an

197
00:07:18,950 --> 00:07:17,730
airlock to get outside the station well

198
00:07:21,170 --> 00:07:18,960
in some way you need to get the fish in

199
00:07:22,700 --> 00:07:21,180
in microgravity so there's a basically a

200
00:07:24,470 --> 00:07:22,710
water lock where eventually the fish

201
00:07:25,880 --> 00:07:24,480
will come up in some kind of a container

202
00:07:27,830 --> 00:07:25,890
and you have to transfer them into the

203
00:07:30,530 --> 00:07:27,840
into the aquarium without one the water

204
00:07:33,920 --> 00:07:30,540
get loose the fish that they're going to

205
00:07:37,370 --> 00:07:33,930
study are the medaka fish here in the

206
00:07:40,040 --> 00:07:37,380
u.s. our researchers use mice because we

207
00:07:42,800 --> 00:07:40,050
understand mice we understand them as a

208
00:07:44,600 --> 00:07:42,810
model of the human body so we understand

209
00:07:47,480 --> 00:07:44,610
if a mouse reacts in a certain way to a

210
00:07:49,490 --> 00:07:47,490
drug or a disease how that might apply

211
00:07:51,650 --> 00:07:49,500
to the human body the Japanese have a

212
00:07:53,600 --> 00:07:51,660
history of studying fish and the medaka

213
00:07:55,610 --> 00:07:53,610

fish is a model for them of the human

214
00:07:57,680 --> 00:07:55,620
body so in a sense they've got so much

215
00:07:59,810 --> 00:07:57,690
history on the ground if you fly the

216
00:08:01,400 --> 00:07:59,820
fish and study at microgravity you

217
00:08:02,870 --> 00:08:01,410
understand the history of how it reacts

218
00:08:05,600 --> 00:08:02,880
on the ground so you can apply that to

219
00:08:07,250 --> 00:08:05,610
what you're seeing in microgravity that

220
00:08:08,540 --> 00:08:07,260
makes sense and it's really really kind

221
00:08:10,670 --> 00:08:08,550
of exciting to think about fish and

222
00:08:12,800 --> 00:08:10,680
space in an aquarium can you just go on

223
00:08:15,890 --> 00:08:12,810
for me about the size of this aquarium

224
00:08:18,200 --> 00:08:15,900
what what the equation at the facility

225
00:08:22,390 --> 00:08:18,210
itself is probably about a meter wide

226
00:08:25,700 --> 00:08:22,400
it's gonna go in a half rack in the gym

227
00:08:28,010 --> 00:08:25,710
the fish will be inside a much smaller

228
00:08:29,719 --> 00:08:28,020
container in that rack it's about seven

229
00:08:32,029 --> 00:08:29,729
centimeters by seven centimeters by

230
00:08:34,579 --> 00:08:32,039
maybe 15 that's how big the aquarium is

231
00:08:36,890 --> 00:08:34,589
the fish themselves are fairly small so

232
00:08:39,050 --> 00:08:36,900
they fit in there that the aquarium not

233
00:08:40,880 --> 00:08:39,060
only has the life-support systems for

234
00:08:42,820 --> 00:08:40,890
the fish as I said it's also got cameras

235
00:08:45,280 --> 00:08:42,830
it can monitor the fish

236
00:08:47,200 --> 00:08:45,290
as they're progressing see how they're

237
00:08:48,340 --> 00:08:47,210
doing okay and then what type of fish

238
00:08:51,250 --> 00:08:48,350

are we talking about freshwater

239
00:08:54,400 --> 00:08:51,260
saltwater I believe they're freshwater

240
00:09:00,810 --> 00:08:54,410
fish don't quote me too much on that I'm

241
00:09:04,300 --> 00:09:00,820
gonna quote you okay so another major

242
00:09:07,720 --> 00:09:04,310
science aspect that we work on

243
00:09:09,820 --> 00:09:07,730
continuously is earth observations for a

244
00:09:11,770 --> 00:09:09,830
number of reasons and so we've been

245
00:09:13,570 --> 00:09:11,780
doing that for you know just in the crew

246
00:09:17,020 --> 00:09:13,580
earth observations for many many years

247
00:09:19,390 --> 00:09:17,030
and so obvious obviously and there's

248
00:09:22,150 --> 00:09:19,400
obviously really great advantages for of

249
00:09:25,720 --> 00:09:22,160
the vantage point of the space station

250
00:09:27,700 --> 00:09:25,730
not only for where it flies but the fact

251
00:09:30,340 --> 00:09:27,710
that it flies all around the world many

252
00:09:32,470 --> 00:09:30,350
many times in even one given day and

253
00:09:35,830 --> 00:09:32,480
literally can cross every part of the

254
00:09:37,900 --> 00:09:35,840
earth so I understand we have a new

255
00:09:40,210 --> 00:09:37,910
camera and this is called the ice serve

256
00:09:42,730 --> 00:09:40,220
this is an earth observing camera that's

257
00:09:44,590 --> 00:09:42,740
going to be brought up and this is the

258
00:09:45,940 --> 00:09:44,600
remote controlled and so if you can

259
00:09:47,140 --> 00:09:45,950
explain to me how it is remote

260
00:09:51,150 --> 00:09:47,150
controlled okay

261
00:09:55,060 --> 00:09:51,160
the ice surf camera is a new design it's

262
00:09:58,930 --> 00:09:55,070
the result of a cooperation of NASA and

263
00:10:02,350 --> 00:09:58,940

US aid the agency for international

264
00:10:04,090 --> 00:10:02,360
development I believe it is the idea is

265
00:10:07,000 --> 00:10:04,100
that we want to use satellite and

266
00:10:09,100 --> 00:10:07,010
spacecraft technology to the data that

267
00:10:12,310 --> 00:10:09,110
comes from those pictures of the earth

268
00:10:14,350 --> 00:10:12,320
rainfall and get that out to governments

269
00:10:17,680 --> 00:10:14,360
and in this case one of the major users

270
00:10:20,020 --> 00:10:17,690
is the surveyor Network and what they

271
00:10:22,480 --> 00:10:20,030
call meso America so Central America and

272
00:10:24,250 --> 00:10:22,490
the Caribbean company or countries that

273
00:10:27,130 --> 00:10:24,260
don't have access a lot of times to

274
00:10:28,900 --> 00:10:27,140
space-based data but are affected quite

275
00:10:31,210 --> 00:10:28,910
a bit whether it's earthquakes or rain

276
00:10:33,040 --> 00:10:31,220
or flooding or hurricanes and the idea

277
00:10:35,470 --> 00:10:33,050
here is let's use the station's

278
00:10:37,690 --> 00:10:35,480
capability and our imagery to get that

279
00:10:39,190 --> 00:10:37,700
out to these governments so they can see

280
00:10:41,020 --> 00:10:39,200
what's going on in their countries and

281
00:10:42,400 --> 00:10:41,030
their their countryside and make

282
00:10:45,640 --> 00:10:42,410
decisions about how to respond to

283
00:10:47,230 --> 00:10:45,650
disasters or potential disasters the

284
00:10:49,060 --> 00:10:47,240
station has a great window in the

285
00:10:51,070 --> 00:10:49,070
laboratory it's an optical quality large

286
00:10:54,520 --> 00:10:51,080
window and we're going to use it with

287
00:10:55,920 --> 00:10:54,530
this new camera this camera is really a

288
00:10:57,269 --> 00:10:55,930

digital camera

289
00:10:59,160 --> 00:10:57,279
looking down the barrel of a bigger

290
00:11:02,250 --> 00:10:59,170
telescope about an eight inch telescope

291
00:11:05,130 --> 00:11:02,260
this telescope is on gimbals so the

292
00:11:08,160 --> 00:11:05,140
ground can command it to one side or the

293
00:11:09,990 --> 00:11:08,170
other of the ground track the program

294
00:11:11,160 --> 00:11:10,000
will know when we're going over various

295
00:11:12,660 --> 00:11:11,170
parts of the earth and if there's

296
00:11:14,610 --> 00:11:12,670
something that the ground wants to see

297
00:11:16,740 --> 00:11:14,620
they can set it up to take pictures of

298
00:11:19,110 --> 00:11:16,750
specifically the area and then share

299
00:11:21,510 --> 00:11:19,120
that okay and so it would only require

300
00:11:24,050 --> 00:11:21,520
as far as crew time just to activate it

301
00:11:26,940 --> 00:11:24,060
or is it all automatic basically to

302
00:11:28,470 --> 00:11:26,950
initially set it up set it within the

303
00:11:30,420 --> 00:11:28,480
window set up the computers it's

304
00:11:33,120 --> 00:11:30,430
controlled by a laptop computer so it's

305
00:11:35,070 --> 00:11:33,130
a very small footprint once the crew

306
00:11:36,750 --> 00:11:35,080
sets it up the ground we'll be able to

307
00:11:38,040 --> 00:11:36,760
monitor it the ground we'll be able to

308
00:11:39,570 --> 00:11:38,050
predict it the ground we'll be able to

309
00:11:40,800 --> 00:11:39,580
command it to change and take the

310
00:11:44,670 --> 00:11:40,810
pictures and don't like the picture

311
00:11:46,680 --> 00:11:44,680
that's very efficient so and again those

312
00:11:48,750 --> 00:11:46,690
photographs are taken of the earth and

313
00:11:51,240 --> 00:11:48,760

are not only beautiful to look at but

314
00:11:52,410 --> 00:11:51,250
they actually do serve a purpose for you

315
00:11:54,240 --> 00:11:52,420
know some research that we are doing

316
00:11:55,920 --> 00:11:54,250
here to help understand and obviously in

317
00:11:57,930 --> 00:11:55,930
those development countries where they

318
00:12:00,660 --> 00:11:57,940
don't have the capability of being able

319
00:12:02,130 --> 00:12:00,670
to you know study those and especially

320
00:12:04,680 --> 00:12:02,140
that they are hit with things like

321
00:12:07,980 --> 00:12:04,690
hurricanes and tsunamis and you know

322
00:12:10,680 --> 00:12:07,990
wildfires and that sort of thing not

323
00:12:13,079 --> 00:12:10,690
only from from a disaster standpoint but

324
00:12:15,900 --> 00:12:13,089
also from an environmental changes part

325
00:12:19,050 --> 00:12:15,910
yes yes so these cameras can take a

326
00:12:20,160 --> 00:12:19,060
history of of the ground areas that

327
00:12:22,230 --> 00:12:20,170
they're looking at whether it's a

328
00:12:25,380 --> 00:12:22,240
seasonal history or years in the making

329
00:12:28,260 --> 00:12:25,390
history see how things are changing you

330
00:12:30,180 --> 00:12:28,270
can use that to say this area needs more

331
00:12:32,640 --> 00:12:30,190
fertilizer this area is at risk of

332
00:12:34,800 --> 00:12:32,650
mudslides so it's a it's a good way to

333
00:12:36,660 --> 00:12:34,810
use the technology and other benefit of

334
00:12:39,360 --> 00:12:36,670
the station is it's a relatively low

335
00:12:40,699 --> 00:12:39,370
altitude so the pictures are closer to

336
00:12:44,190 --> 00:12:40,709
the ground we can get better resolution

337
00:12:45,480 --> 00:12:44,200
yeah that's interesting so now another

338
00:12:48,030 --> 00:12:45,490

one and this is kind of a fun one I

339
00:12:50,460 --> 00:12:48,040
think is the the YouTube Spacelab yes

340
00:12:52,380 --> 00:12:50,470
tell me a little about what that is as

341
00:12:53,639 --> 00:12:52,390
we know I'm new to this office and I've

342
00:12:55,139 --> 00:12:53,649
just been learning about it but in the

343
00:12:57,630 --> 00:12:55,149
last couple of days as I've looked into

344
00:12:58,980 --> 00:12:57,640
the YouTube Spacelab competition I'm

345
00:13:00,960 --> 00:12:58,990
really impressed with what they've done

346
00:13:04,440 --> 00:13:00,970
this is what we call an educational

347
00:13:05,790 --> 00:13:04,450
outreach public outreach activity it was

348
00:13:08,700 --> 00:13:05,800
sponsored through

349
00:13:12,420 --> 00:13:08,710
through YouTube and public sponsors and

350
00:13:13,800 --> 00:13:12,430
the target is kids in let's say middle

351
00:13:17,600 --> 00:13:13,810
school high school there were two age

352
00:13:20,610 --> 00:13:17,610
ranges 14 to 16 and 16 to 18 and it was

353
00:13:22,800 --> 00:13:20,620
to get into this competition the idea

354
00:13:26,220 --> 00:13:22,810
was pick something in physics or in

355
00:13:27,870 --> 00:13:26,230
biology and propose an experiment to be

356
00:13:30,030 --> 00:13:27,880
done on the International Space Station

357
00:13:32,910 --> 00:13:30,040
and to do that you had to submit a

358
00:13:35,190 --> 00:13:32,920
two-minute video of yourself introducing

359
00:13:37,650 --> 00:13:35,200
yourself what your concept was what your

360
00:13:40,110 --> 00:13:37,660
hypothesis was how you had test it and

361
00:13:43,019 --> 00:13:40,120
how would you use your results they had

362
00:13:45,030 --> 00:13:43,029
something like 2,000 entries it's a huge

363
00:13:47,940 --> 00:13:45,040

they've had millions of views on this

364
00:13:51,269 --> 00:13:47,950
YouTube website so they narrowed it down

365
00:13:53,160 --> 00:13:51,279
to about 60 I think finalists and part

366
00:13:55,139 --> 00:13:53,170
of the voting to select the final was

367
00:13:57,600 --> 00:13:55,149
through the public voting on the YouTube

368
00:13:59,760 --> 00:13:57,610
website they narrowed it down the two

369
00:14:02,430 --> 00:13:59,770
finalists are having their experiment

370
00:14:06,600 --> 00:14:02,440
launched on the HTV and it will be

371
00:14:08,070 --> 00:14:06,610
executed operated by the crew and the

372
00:14:10,199 --> 00:14:08,080
neat thing that I saw as well sunny

373
00:14:11,519 --> 00:14:10,209
Williams was the one who announced the

374
00:14:13,800 --> 00:14:11,529
winners I think it was last December

375
00:14:16,110 --> 00:14:13,810
January she's on board now she will be

376
00:14:18,449 --> 00:14:16,120
the one executing the the experiments

377
00:14:21,720 --> 00:14:18,459
there were two teams that were two

378
00:14:24,420 --> 00:14:21,730
individuals that won one was a set from

379
00:14:27,510 --> 00:14:24,430
Michigan my home state two young ladies

380
00:14:30,780 --> 00:14:27,520
that are that proposed biology

381
00:14:32,430 --> 00:14:30,790
experiment they saw that results of

382
00:14:35,040 --> 00:14:32,440
previous research that said Salmonella

383
00:14:37,530 --> 00:14:35,050
gets more very very went viral int on

384
00:14:39,390 --> 00:14:37,540
station in microgravity meaning that

385
00:14:41,910 --> 00:14:39,400
it's more effective and in that case

386
00:14:44,640 --> 00:14:41,920
it's more dangerous to you well they

387
00:14:47,220 --> 00:14:44,650
thought we know of an antifungal let's

388
00:14:48,840 --> 00:14:47,230

fly that and the premises if it works

389
00:14:50,610 --> 00:14:48,850
this well on the earth maybe in

390
00:14:53,130 --> 00:14:50,620
microgravity it does an even better job

391
00:14:55,650 --> 00:14:53,140
and we care long-term about fungus on

392
00:14:58,019 --> 00:14:55,660
ISS you get mold on walls it's a bad

393
00:15:00,780 --> 00:14:58,029
thing it can deteriorate your your walls

394
00:15:02,610 --> 00:15:00,790
your metals on board so they proposed

395
00:15:04,139 --> 00:15:02,620
this experiment it's got what we call

396
00:15:06,480 --> 00:15:04,149
controls on the ground they're gonna

397
00:15:08,910 --> 00:15:06,490
monitor how the fungus the fungicide

398
00:15:10,630 --> 00:15:08,920
reacts on the ground and then see how it

399
00:15:12,819 --> 00:15:10,640
reacts after having flown in space

400
00:15:16,509 --> 00:15:12,829
Wow I'm always amazed when we have some

401
00:15:18,519 --> 00:15:16,519
of these educational type research

402
00:15:19,660 --> 00:15:18,529
projects that are going up because there

403
00:15:21,940 --> 00:15:19,670
are a lot of smart kiddos out there

404
00:15:24,699 --> 00:15:21,950
let's face it and it's really neat that

405
00:15:27,009 --> 00:15:24,709
we're able to send that up there and you

406
00:15:30,460 --> 00:15:27,019
know it's in the end what we learn from

407
00:15:31,870 --> 00:15:30,470
that in turn helps us as well I think we

408
00:15:34,870 --> 00:15:31,880
may have the website here but if you go

409
00:15:38,889 --> 00:15:34,880
search on YouTube that website again is

410
00:15:40,990 --> 00:15:38,899
at www.youtube.com/watch v / so you can

411
00:15:42,819 --> 00:15:41,000
go and look at all the videos that they

412
00:15:45,880 --> 00:15:42,829
have there and the contest and I know

413
00:15:49,180 --> 00:15:45,890

there are some a couple of QA scientific

414
00:15:51,819 --> 00:15:49,190
QA videos there as well so have a visit

415
00:15:54,160 --> 00:15:51,829
and check that out and now I want to

416
00:15:55,780 --> 00:15:54,170
talk about so like I said we have a huge

417
00:15:57,699 --> 00:15:55,790
list of things that have gone up and

418
00:16:00,610 --> 00:15:57,709
that's I mean really good because again

419
00:16:03,250 --> 00:16:00,620
like you said Space Station is a lab and

420
00:16:05,230 --> 00:16:03,260
that is what it is so like I said three

421
00:16:07,870 --> 00:16:05,240
and a half tons of cargo is going up

422
00:16:10,780 --> 00:16:07,880
aboard the kounotori3 again the second

423
00:16:12,930 --> 00:16:10,790
operational cargo ship from from Japan

424
00:16:15,819 --> 00:16:12,940
so I want to talk a little about the

425
00:16:17,860 --> 00:16:15,829
space station operations and that part

426
00:16:23,319 --> 00:16:17,870
the international partnership okay how

427
00:16:24,730 --> 00:16:23,329
we get this stuff to Japan and on that

428
00:16:26,680 --> 00:16:24,740
spacecraft and up to the space station

429
00:16:30,370 --> 00:16:26,690
how do we work with our international

430
00:16:32,500 --> 00:16:30,380
partner we first off we need to decide

431
00:16:34,630 --> 00:16:32,510
what we're gonna fly and we have

432
00:16:35,949 --> 00:16:34,640
projections on how much food the crew

433
00:16:38,259 --> 00:16:35,959
eats what they're going to need to wear

434
00:16:40,480 --> 00:16:38,269
how much medical equipment they need we

435
00:16:42,400 --> 00:16:40,490
also have an extensive process of

436
00:16:44,319 --> 00:16:42,410
looking into the future and what science

437
00:16:47,199 --> 00:16:44,329
will be ready to fly what science we

438
00:16:49,540 --> 00:16:47,209

need to fly in that timeframe what the

439
00:16:51,730 --> 00:16:49,550
crew will be trained for so there's a

440
00:16:55,000 --> 00:16:51,740
process to look at all that and divide

441
00:16:56,949 --> 00:16:55,010
up the cargo allocation among the crew

442
00:16:59,350 --> 00:16:56,959
supplies among the emergency and

443
00:17:01,449 --> 00:16:59,360
maintenance supplies and then especially

444
00:17:03,250 --> 00:17:01,459
we want to get as much utilization or

445
00:17:05,409 --> 00:17:03,260
research hardware onboard as we can

446
00:17:07,390 --> 00:17:05,419
so once we've defined that we know what

447
00:17:09,490 --> 00:17:07,400
hardware needs to fly there's a

448
00:17:11,289 --> 00:17:09,500
manifesting process as we call it that

449
00:17:13,329 --> 00:17:11,299
says this is how much it weighs how big

450
00:17:15,939 --> 00:17:13,339
it is this is the when it can be

451
00:17:17,740 --> 00:17:15,949
delivered there's a lot of folks that

452
00:17:19,179 --> 00:17:17,750
work with the the scheduling and

453
00:17:21,270 --> 00:17:19,189
delivering the hardware making sure it's

454
00:17:23,220 --> 00:17:21,280
safe making sure it's packaged correctly

455
00:17:25,829 --> 00:17:23,230
that then is deliver

456
00:17:28,259 --> 00:17:25,839
in our case here at JSC and then it

457
00:17:30,899 --> 00:17:28,269
shipped over to Japan and turned over to

458
00:17:34,169 --> 00:17:30,909
the Japanese to load into the vehicle

459
00:17:36,629 --> 00:17:34,179
and how far in advance did they send our

460
00:17:38,070 --> 00:17:36,639
cargo to Japan and then and for their

461
00:17:41,700 --> 00:17:38,080
loading how long did that take you know

462
00:17:43,230 --> 00:17:41,710
I don't know that wouldn't even it was

463
00:17:48,000 --> 00:17:43,240

also a part of my old job that I didn't

464
00:17:49,830 --> 00:17:48,010
do so much in well that's okay so again

465
00:17:52,169 --> 00:17:49,840
we have another website you can go to to

466
00:17:54,149 --> 00:17:52,179
learn more about these things that we

467
00:17:58,769 --> 00:17:54,159
talked about and the rest of that list

468
00:18:01,680 --> 00:17:58,779
if you go to WWE gov slash mission

469
00:18:04,909 --> 00:18:01,690
underscore station pages slash station

470
00:18:08,370 --> 00:18:04,919
research now the easy way to go there is

471
00:18:11,129 --> 00:18:08,380
www.nasa.gov slash station on the left

472
00:18:12,629 --> 00:18:11,139
hand navigation just click on research

473
00:18:14,879 --> 00:18:12,639
and you can find the whole list there

474
00:18:17,669 --> 00:18:14,889
you can search it by experiment name

475
00:18:19,500 --> 00:18:17,679
alphabetically you have a couple areas

476
00:18:21,750 --> 00:18:19,510
if I can interrupt the we have areas

477
00:18:23,279 --> 00:18:21,760
specifically for researchers for if you

478
00:18:25,049 --> 00:18:23,289
have an experiment that you want to fly

479
00:18:26,940 --> 00:18:25,059
on the space station there's a section

480
00:18:28,889 --> 00:18:26,950
for researchers there's a section for

481
00:18:31,139 --> 00:18:28,899
teachers for educators how we can get

482
00:18:33,480 --> 00:18:31,149
NASA projects into your classroom and

483
00:18:35,340 --> 00:18:33,490
then for students or for kids there's

484
00:18:37,019 --> 00:18:35,350
another section that say I have an idea

485
00:18:38,399 --> 00:18:37,029
for something I want to fly on Space

486
00:18:41,250 --> 00:18:38,409
Station there's a section for them on

487
00:18:44,519 --> 00:18:41,260
there ok thank you so much and also if

488
00:18:48,379 --> 00:18:44,529

you want to follow along yes more of the

489
00:18:51,450 --> 00:18:48,389
research go to Twitter twitter.com slash

490
00:18:53,340 --> 00:18:51,460
ISS underscore research I'm sorry not

491
00:18:55,259 --> 00:18:53,350
slash it's just ISS underscore research

492
00:18:57,810 --> 00:18:55,269
on Twitter you can learn everything

493
00:19:00,899 --> 00:18:57,820
that's going on the newest updates will

494
00:19:02,789 --> 00:19:00,909
be there and thank you so much Pete for

495
00:19:07,590 --> 00:19:02,799
coming and again we all look forward to

496
00:19:10,590 --> 00:19:07,600
the third space cargo cargo spacecraft

497
00:19:14,009 --> 00:19:10,600
from Japan launching tonight at 9:06

498
00:19:16,289 --> 00:19:14,019
p.m. Central time and we will have live

499
00:19:18,419 --> 00:19:16,299
coverage for you here here on NASA

500
00:19:22,409 --> 00:19:18,429
television at 8:15 p.m. Central time

501
00:19:24,750 --> 00:19:22,419
9:15 p.m. eastern time and then that

502
00:19:26,250 --> 00:19:24,760
cargo spacecraft will be undocked to the

503
00:19:29,460 --> 00:19:26,260
space station with all this good step