



ON THE PHONE

Julie Robinson

ISS Program Scientist

1st Annual International Space Station
Research & Development Conference
Denver, Colorado

1
00:00:08,150 --> 00:00:04,470
and this is mission control houston

2
00:00:10,709 --> 00:00:08,160
welcoming to our program today julie

3
00:00:12,950 --> 00:00:10,719
robinson the international space station

4
00:00:15,430 --> 00:00:12,960
program scientist for nasa

5
00:00:17,269 --> 00:00:15,440
julie hi how are things in denver

6
00:00:19,670 --> 00:00:17,279
oh it's great here

7
00:00:21,269 --> 00:00:19,680
it's there's high energy this is the

8
00:00:23,509 --> 00:00:21,279
first time we've ever had a conference

9
00:00:25,189 --> 00:00:23,519
that had all the disciplines from

10
00:00:27,910 --> 00:00:25,199
international space station research and

11
00:00:29,589 --> 00:00:27,920
technology development all in one place

12
00:00:31,429 --> 00:00:29,599
and so the breadth of topics has been

13
00:00:34,229 --> 00:00:31,439

just amazing

14

00:00:36,069 --> 00:00:34,239

and you have three basic themes for

15

00:00:38,229 --> 00:00:36,079

international space station research

16

00:00:40,150 --> 00:00:38,239

that uh that you're working on can you

17

00:00:41,750 --> 00:00:40,160

tell us a little bit about those

18

00:00:43,110 --> 00:00:41,760

well in the uh

19

00:00:44,389 --> 00:00:43,120

in the sessions that were held yesterday

20

00:00:46,790 --> 00:00:44,399

the introductory sessions for the

21

00:00:48,310 --> 00:00:46,800

meeting it really emerged from the

22

00:00:50,790 --> 00:00:48,320

comments from our associate

23

00:00:52,950 --> 00:00:50,800

administrator bill gerstenmaier all the

24

00:00:55,110 --> 00:00:52,960

way through the scientists that we are

25

00:00:56,869 --> 00:00:55,120

seeing results coming from that early

26
00:00:59,029 --> 00:00:56,879
utilization of the space station that we

27
00:01:00,950 --> 00:00:59,039
did during assembly and that we're

28
00:01:02,950 --> 00:01:00,960
starting to see the rate of those

29
00:01:04,950 --> 00:01:02,960
results going up rapidly now that we've

30
00:01:07,830 --> 00:01:04,960
shifted to full research

31
00:01:09,830 --> 00:01:07,840
and from those results we see basic

32
00:01:11,270 --> 00:01:09,840
discoveries new knowledge that we never

33
00:01:13,350 --> 00:01:11,280
had before

34
00:01:15,510 --> 00:01:13,360
we see new earth benefits coming from

35
00:01:17,830 --> 00:01:15,520
that where that knowledge turns into

36
00:01:20,630 --> 00:01:17,840
things on earth that save lives and

37
00:01:23,109 --> 00:01:20,640
improve our economy and then we see the

38
00:01:25,350 --> 00:01:23,119

benefits for future space flight as we

39

00:01:26,950 --> 00:01:25,360

prove technologies and add knowledge

40

00:01:28,950 --> 00:01:26,960

that will help us go beyond earth orbit

41

00:01:30,950 --> 00:01:28,960

in the future

42

00:01:32,310 --> 00:01:30,960

well that's really interesting julie and

43

00:01:34,550 --> 00:01:32,320

and so you've been on a couple of

44

00:01:37,749 --> 00:01:34,560

different panels there

45

00:01:40,230 --> 00:01:37,759

uh yesterday we had uh our first plenary

46

00:01:41,990 --> 00:01:40,240

panel that covered a sampling of the top

47

00:01:43,429 --> 00:01:42,000

science and technology results over the

48

00:01:44,310 --> 00:01:43,439

last few years

49

00:01:46,230 --> 00:01:44,320

and

50

00:01:48,230 --> 00:01:46,240

it was great because we had

51
00:01:50,550 --> 00:01:48,240
scientists in the life sciences talking

52
00:01:52,870 --> 00:01:50,560
about a possible new cure for duchene's

53
00:01:55,910 --> 00:01:52,880
muscular dystrophy and development of

54
00:01:57,270 --> 00:01:55,920
vaccines for salmonella food poisoning

55
00:01:59,590 --> 00:01:57,280
we had

56
00:02:00,870 --> 00:01:59,600
discussions of new physical science

57
00:02:02,469 --> 00:02:00,880
results that

58
00:02:04,630 --> 00:02:02,479
led to

59
00:02:06,550 --> 00:02:04,640
better ways to develop fuel tanks and a

60
00:02:08,790 --> 00:02:06,560
number of different patents for products

61
00:02:10,469 --> 00:02:08,800
back here on earth

62
00:02:12,550 --> 00:02:10,479
naval research laboratory talked about

63
00:02:14,470 --> 00:02:12,560

their advances in using hyperspectral

64

00:02:16,070 --> 00:02:14,480

remote sensing from earth to map the

65

00:02:17,030 --> 00:02:16,080

coastal oceans

66

00:02:19,190 --> 00:02:17,040

and

67

00:02:21,430 --> 00:02:19,200

then there was even a discussion of new

68

00:02:24,229 --> 00:02:21,440

discoveries in astronaut health

69

00:02:25,750 --> 00:02:24,239

in terms of their vision loss due to

70

00:02:27,990 --> 00:02:25,760

a previously undiscovered effect of

71

00:02:30,949 --> 00:02:28,000

being in space on the central nervous

72

00:02:32,390 --> 00:02:30,959

system and on the on the venous pressure

73

00:02:34,309 --> 00:02:32,400

there was another panel today that

74

00:02:35,830 --> 00:02:34,319

you're participating in as well

75

00:02:38,229 --> 00:02:35,840

that's right right now i just stepped

76

00:02:40,470 --> 00:02:38,239

out of a panel that was focused on

77

00:02:42,390 --> 00:02:40,480

exploration technologies being developed

78

00:02:45,350 --> 00:02:42,400

and tested on the international space

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00:02:47,350 --> 00:02:45,360

station and it kicked off with uh jill

80

00:02:48,949 --> 00:02:47,360

mcguire from goddard space flight center

81

00:02:51,750 --> 00:02:48,959

talking about the robotic refueling

82

00:02:53,830 --> 00:02:51,760

mission which is really pushing

83

00:02:55,430 --> 00:02:53,840

our ability to use robots to repair

84

00:02:57,350 --> 00:02:55,440

spacecraft in orbit and especially the

85

00:02:59,110 --> 00:02:57,360

spacecraft that had not been designed

86

00:03:00,710 --> 00:02:59,120

for robotic repair

87

00:03:02,630 --> 00:03:00,720

and that was just a really strong

88

00:03:04,869 --> 00:03:02,640

presentation

89

00:03:07,190 --> 00:03:04,879

right uh also uh scientists have been

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00:03:09,750 --> 00:03:07,200

talking about uh laser communications

91

00:03:11,509 --> 00:03:09,760

and pushing that envelope uh using tests

92

00:03:13,830 --> 00:03:11,519

on the international space station so

93

00:03:15,830 --> 00:03:13,840

what we're really seeing is advances in

94

00:03:17,030 --> 00:03:15,840

science happening and then advances in

95

00:03:20,070 --> 00:03:17,040

technology

96

00:03:23,830 --> 00:03:20,080

all enabled by the the platform that

97

00:03:26,470 --> 00:03:23,840

serves so many users in low earth orbit

98

00:03:29,030 --> 00:03:26,480

and uh have you uh had anything that

99

00:03:30,390 --> 00:03:29,040

surprised you in in the presentations

100

00:03:32,710 --> 00:03:30,400

thus far

101

00:03:34,149 --> 00:03:32,720

yeah it was funny at uh at lunch i was

102

00:03:35,990 --> 00:03:34,159

polling a number of different people

103

00:03:37,830 --> 00:03:36,000

yesterday and saying you know what did

104

00:03:40,229 --> 00:03:37,840

you learn what did you learn and every

105

00:03:42,949 --> 00:03:40,239

single person had something different uh

106

00:03:44,550 --> 00:03:42,959

that they had learned about um

107

00:03:46,869 --> 00:03:44,560

a lot of people were surprised they did

108

00:03:48,789 --> 00:03:46,879

not know about the the astronaut vision

109

00:03:50,229 --> 00:03:48,799

loss problem so that was something new

110

00:03:52,229 --> 00:03:50,239

to them

111

00:03:53,670 --> 00:03:52,239

others were really surprised to they

112

00:03:55,429 --> 00:03:53,680

knew in our capillary flow

113

00:03:57,350 --> 00:03:55,439

investigations that that was important

114

00:03:59,190 --> 00:03:57,360

for fuel tank design but they didn't

115

00:04:01,270 --> 00:03:59,200

realize all the different earth benefits

116

00:04:03,509 --> 00:04:01,280

that come from being able to use

117

00:04:05,830 --> 00:04:03,519

capillary flow as a tool instead of a

118

00:04:07,830 --> 00:04:05,840

pump to move fluids around in tubes and

119

00:04:09,270 --> 00:04:07,840

so that was also surprising to a lot of

120

00:04:11,270 --> 00:04:09,280

people

121

00:04:14,470 --> 00:04:11,280

the scientists from

122

00:04:16,229 --> 00:04:14,480

alpha magnetic spectrometer at mit also

123

00:04:18,870 --> 00:04:16,239

presented some preliminary data from

124

00:04:20,710 --> 00:04:18,880

their first 18 million observations of

125

00:04:22,950 --> 00:04:20,720

galactic cosmic rays

126

00:04:24,469 --> 00:04:22,960

so just a real a real breath and a lot

127

00:04:26,230 --> 00:04:24,479

of surprises here

128

00:04:27,510 --> 00:04:26,240

and julie i heard million but i think it

129

00:04:28,550 --> 00:04:27,520

was billion right you're right it's

130

00:04:30,469 --> 00:04:28,560

billion

131

00:04:32,390 --> 00:04:30,479

okay i didn't want to undersell that

132

00:04:34,390 --> 00:04:32,400

that's right

133

00:04:37,830 --> 00:04:34,400

and so uh there are a lot of forest

134

00:04:40,150 --> 00:04:37,840

fires going on in colorado um are you

135

00:04:42,150 --> 00:04:40,160

experiencing any of the effects of those

136

00:04:44,870 --> 00:04:42,160

well it's definitely you know big story

137

00:04:47,590 --> 00:04:44,880

here a fire uh close here in colorado

138

00:04:49,270 --> 00:04:47,600

springs is the um top priority fire

139

00:04:51,030 --> 00:04:49,280

across the nation because of the number

140

00:04:51,830 --> 00:04:51,040

of homes that have been destroyed

141

00:04:55,670 --> 00:04:51,840

uh

142

00:04:57,670 --> 00:04:55,680

the timing that they're when they're

143

00:04:59,990 --> 00:04:57,680

going over these fires today is a little

144

00:05:02,790 --> 00:05:00,000

bit off but they are taking a look for

145

00:05:04,629 --> 00:05:02,800

it um capturing images of the fires and

146

00:05:06,710 --> 00:05:04,639

that's a valuable service through our

147

00:05:09,189 --> 00:05:06,720

crew earth observations program we have

148

00:05:10,469 --> 00:05:09,199

a new network in place as well to help

149

00:05:12,469 --> 00:05:10,479

distribute

150

00:05:14,469 --> 00:05:12,479

images of disasters throughout the world

151
00:05:16,150 --> 00:05:14,479
when they come in and so we work with

152
00:05:18,469 --> 00:05:16,160
the us geological survey on the

153
00:05:21,430 --> 00:05:18,479
international disaster charter so that

154
00:05:23,110 --> 00:05:21,440
iss can help with that as we add new

155
00:05:24,629 --> 00:05:23,120
instruments to the space station and

156
00:05:26,230 --> 00:05:24,639
there was a great session yesterday

157
00:05:28,390 --> 00:05:26,240
about all the new earth remote sensing

158
00:05:29,830 --> 00:05:28,400
instruments that are planned uh each of

159
00:05:33,110 --> 00:05:29,840
those instruments will also be able to

160
00:05:34,150 --> 00:05:33,120
participate in that network

161
00:05:35,749 --> 00:05:34,160
has there

162
00:05:37,909 --> 00:05:35,759
been a lot of discussion about

163
00:05:39,430 --> 00:05:37,919

opportunities for additional research at

164

00:05:41,909 --> 00:05:39,440

the conference

165

00:05:43,430 --> 00:05:41,919

there have been and one of the

166

00:05:44,870 --> 00:05:43,440

great things about having all the

167

00:05:46,230 --> 00:05:44,880

different disciplines here is is

168

00:05:49,430 --> 00:05:46,240

scientists are talking across

169

00:05:51,430 --> 00:05:49,440

disciplines and getting new ideas

170

00:05:53,189 --> 00:05:51,440

the u.s department of agriculture for

171

00:05:54,950 --> 00:05:53,199

example had representatives here and

172

00:05:56,150 --> 00:05:54,960

they've been they've been looking at all

173

00:05:58,550 --> 00:05:56,160

the different things that have been done

174

00:06:01,350 --> 00:05:58,560

to date and mapping those to usda

175

00:06:03,110 --> 00:06:01,360

research objectives the usda has a has

176

00:06:05,029 --> 00:06:03,120

an agreement with nasa to use the space

177

00:06:07,189 --> 00:06:05,039

station as a laboratory as does the

178

00:06:09,270 --> 00:06:07,199

national institutes of health and so

179

00:06:11,110 --> 00:06:09,280

seeing those kind of uses developing

180

00:06:12,950 --> 00:06:11,120

then on thursday there's a special

181

00:06:15,909 --> 00:06:12,960

workshop all day special free workshop

182

00:06:17,510 --> 00:06:15,919

for all potential new users of iss to

183

00:06:19,270 --> 00:06:17,520

help them understand

184

00:06:20,710 --> 00:06:19,280

what you need to do to get on board how

185

00:06:21,830 --> 00:06:20,720

to build the right partnership so that

186

00:06:23,510 --> 00:06:21,840

you don't have to learn anything

187

00:06:24,950 --> 00:06:23,520

complicated about the way nasa works you

188

00:06:28,390 --> 00:06:24,960

can just take an experiment you do in

189

00:06:29,270 --> 00:06:28,400

your lab and send it up into space

190

00:06:31,189 --> 00:06:29,280

and

191

00:06:34,309 --> 00:06:31,199

is there a specific place that people

192

00:06:36,230 --> 00:06:34,319

have ideas for research that

193

00:06:38,150 --> 00:06:36,240

may not relate

194

00:06:40,710 --> 00:06:38,160

directly to nasa's mission where they

195

00:06:42,390 --> 00:06:40,720

should go to try and and get clued in on

196

00:06:43,909 --> 00:06:42,400

how to participate in the national

197

00:06:46,390 --> 00:06:43,919

laboratory

198

00:06:48,390 --> 00:06:46,400

oh absolutely a major sponsor of this

199

00:06:50,309 --> 00:06:48,400

conference is cases the center for

200

00:06:53,589 --> 00:06:50,319

advancement of science in space and they

201
00:06:57,189 --> 00:06:53,599
were selected in august as the manager

202
00:06:59,189 --> 00:06:57,199
of nasa of iss as a national laboratory

203
00:07:01,270 --> 00:06:59,199
and so that means that we now have

204
00:07:02,469 --> 00:07:01,280
really three kinds of users coming to

205
00:07:04,710 --> 00:07:02,479
the space station

206
00:07:06,390 --> 00:07:04,720
there are our international partners who

207
00:07:09,189 --> 00:07:06,400
who bring experiments to the space

208
00:07:11,350 --> 00:07:09,199
station there are the nasa funded users

209
00:07:13,430 --> 00:07:11,360
and then there are now

210
00:07:14,950 --> 00:07:13,440
iss national laboratory users and they

211
00:07:16,469 --> 00:07:14,960
are from other government agencies in

212
00:07:18,230 --> 00:07:16,479
the private sector

213
00:07:19,350 --> 00:07:18,240

i saw some great

214

00:07:21,189 --> 00:07:19,360

new work

215

00:07:23,350 --> 00:07:21,199

under discussion for use of the iss

216

00:07:25,430 --> 00:07:23,360

national laboratory yesterday things

217

00:07:27,589 --> 00:07:25,440

like a new way of

218

00:07:30,070 --> 00:07:27,599

developing tumor models that you could

219

00:07:31,510 --> 00:07:30,080

use in space to test things that in in

220

00:07:33,029 --> 00:07:31,520

terms of studying tumors that you can't

221

00:07:36,070 --> 00:07:33,039

do here on the ground

222

00:07:37,909 --> 00:07:36,080

and even new ways of doing observations

223

00:07:41,350 --> 00:07:37,919

at a very fine resolution that are

224

00:07:44,869 --> 00:07:42,950

well julie that sounds like a really

225

00:07:46,710 --> 00:07:44,879

interesting conference and it sounds

226

00:07:49,830 --> 00:07:46,720

like the start of something that can

227

00:07:51,430 --> 00:07:49,840

grow uh in the coming years as we have

228

00:07:53,029 --> 00:07:51,440

this conference each year i want to

229

00:07:55,029 --> 00:07:53,039

thank you so much for joining us from

230

00:07:58,390 --> 00:07:55,039

denver taking time out from your panel

231

00:08:00,469 --> 00:07:58,400

uh any last thoughts before we sign off

232

00:08:04,070 --> 00:08:00,479

i think that the real thing that you see

233

00:08:07,270 --> 00:08:04,080

here is that that iss is in a new era

234

00:08:09,189 --> 00:08:07,280

and that era of research and development

235

00:08:11,270 --> 00:08:09,199

you can feel the energy here you see all

236

00:08:14,390 --> 00:08:11,280

the new ideas you see all the people who

237

00:08:16,150 --> 00:08:14,400

have gotten funding for for bright ideas

238

00:08:17,830 --> 00:08:16,160

and those things getting ready for

239

00:08:19,589 --> 00:08:17,840

before going into orbit or actually

240

00:08:21,909 --> 00:08:19,599

starting their operations on the space

241

00:08:23,749 --> 00:08:21,919

station the other great thing that i see

242

00:08:26,309 --> 00:08:23,759

as a change here is the level of

243

00:08:27,670 --> 00:08:26,319

customer service that the iss is able to

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00:08:29,510 --> 00:08:27,680

offer to help

245

00:08:31,589 --> 00:08:29,520

new users people who don't understand

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00:08:33,589 --> 00:08:31,599

nasa or don't understand space flight

247

00:08:35,350 --> 00:08:33,599

get their ideas to orbit and so it's

248

00:08:36,790 --> 00:08:35,360

really a wonderful time in the history

249

00:08:38,630 --> 00:08:36,800

of the space station

250

00:08:40,389 --> 00:08:38,640

well and you know in in the past when we

251
00:08:42,550 --> 00:08:40,399
had shuttle mission research it was a

252
00:08:44,310 --> 00:08:42,560
kind of a different paradigm it took a

253
00:08:46,310 --> 00:08:44,320
lot longer to get an experiment on orbit

254
00:08:48,070 --> 00:08:46,320
you had only had a couple of weeks to do

255
00:08:49,990 --> 00:08:48,080
your experiment and then it might be

256
00:08:51,829 --> 00:08:50,000
quite a while before you could refly at

257
00:08:53,590 --> 00:08:51,839
that's changed now hasn't it

258
00:08:55,430 --> 00:08:53,600
it really has and that's probably the

259
00:08:57,509 --> 00:08:55,440
most important feature of the

260
00:09:01,110 --> 00:08:57,519
international space station is that

261
00:09:02,710 --> 00:09:01,120
24 7 365 research can go on there and

262
00:09:04,470 --> 00:09:02,720
when somebody has an experiment and it

263
00:09:06,310 --> 00:09:04,480

doesn't work the first time we just

264

00:09:07,910 --> 00:09:06,320

circle around fix it and try again so

265

00:09:10,310 --> 00:09:07,920

having the crew member there having

266

00:09:12,310 --> 00:09:10,320

continuous operations and then really

267

00:09:14,389 --> 00:09:12,320

importantly is because it's always there

268

00:09:16,150 --> 00:09:14,399

we can take research new research and

269

00:09:17,110 --> 00:09:16,160

get it up to orbit quickly

270

00:09:18,870 --> 00:09:17,120

so

271

00:09:20,389 --> 00:09:18,880

you know a piece of cell biology

272

00:09:22,470 --> 00:09:20,399

research for example that's using an

273

00:09:24,550 --> 00:09:22,480

incubator that's flown many times before

274

00:09:27,030 --> 00:09:24,560

could be implemented and put on the very