
NASA
SPACESTATION
LIVE

1
00:00:10,629 --> 00:00:08,629
one part of the overall mission of the

2
00:00:12,709 --> 00:00:10,639
international space station is to serve

3
00:00:15,589 --> 00:00:12,719
as a platform from which to study the

4
00:00:17,590 --> 00:00:15,599
earth and what advantage the complex has

5
00:00:19,830 --> 00:00:17,600
over automated instruments and other

6
00:00:23,509 --> 00:00:19,840
satellites is the presence of human crew

7
00:00:25,750 --> 00:00:23,519
members armed with cameras and curiosity

8
00:00:27,830 --> 00:00:25,760
recently my colleague amiko couterer

9
00:00:30,470 --> 00:00:27,840
talked with dr lisa vanderblumen the

10
00:00:32,150 --> 00:00:30,480
manager of the earth science and remote

11
00:00:34,549 --> 00:00:32,160
sensing unit here at the johnson space

12
00:00:37,430 --> 00:00:34,559
center about the crew earth observation

13
00:00:43,030 --> 00:00:37,440

experiment and asked her to explain why

14
00:00:47,990 --> 00:00:45,590
well because you have human interval in

15
00:00:49,750 --> 00:00:48,000
involvement during the whole process and

16
00:00:51,990 --> 00:00:49,760
that means that we can

17
00:00:55,110 --> 00:00:52,000
get dynamic shots from

18
00:00:57,189 --> 00:00:55,120
the iss and it allows for

19
00:01:00,229 --> 00:00:57,199
immediate types of responses sometimes

20
00:01:02,630 --> 00:01:00,239
we have a lot of dynamic events we also

21
00:01:05,429 --> 00:01:02,640
have idc events which are international

22
00:01:07,830 --> 00:01:05,439
disaster charter events and they happen

23
00:01:09,510 --> 00:01:07,840
in an instant basically and so having

24
00:01:11,270 --> 00:01:09,520
astronauts that can immediately take

25
00:01:13,429 --> 00:01:11,280
these pictures for us

26
00:01:14,789 --> 00:01:13,439
prevents us from having to actually task

27
00:01:17,190 --> 00:01:14,799
satellites

28
00:01:19,510 --> 00:01:17,200
which is a time consuming

29
00:01:20,789 --> 00:01:19,520
matter so that's one of the main reasons

30
00:01:23,429 --> 00:01:20,799
also

31
00:01:25,510 --> 00:01:23,439
the public loves the human involvement

32
00:01:27,270 --> 00:01:25,520
in these pictures so

33
00:01:29,590 --> 00:01:27,280
getting the public involved and seeing

34
00:01:34,469 --> 00:01:29,600
these pictures really helps our program

35
00:01:35,830 --> 00:01:34,479
and helps the um the whole iss program

36
00:01:38,390 --> 00:01:35,840
let's talk about crew at the

37
00:01:41,030 --> 00:01:38,400
observations can you describe for me

38
00:01:41,910 --> 00:01:41,040

what the goals are and also how does it

39
00:01:42,950 --> 00:01:41,920
work

40
00:01:45,350 --> 00:01:42,960
sure

41
00:01:47,830 --> 00:01:45,360
crew earth observations also commonly

42
00:01:49,830 --> 00:01:47,840
known as ceo has been around since the

43
00:01:51,670 --> 00:01:49,840
beginning of the shuttle days and the

44
00:01:53,270 --> 00:01:51,680
reason that it was developed or came

45
00:01:55,510 --> 00:01:53,280
about basically is to help the

46
00:01:56,950 --> 00:01:55,520
astronauts capture the photos while

47
00:01:59,749 --> 00:01:56,960
they're in space

48
00:02:02,230 --> 00:01:59,759
and so we have a group here now of earth

49
00:02:04,469 --> 00:02:02,240
scientists and educators uh very

50
00:02:05,990 --> 00:02:04,479
knowledgeable that actually

51
00:02:08,229 --> 00:02:06,000
we get we receive a lot of different

52
00:02:11,270 --> 00:02:08,239
requests from different parties

53
00:02:13,110 --> 00:02:11,280
educators scientists even the crew

54
00:02:14,390 --> 00:02:13,120
themselves have certain sites that

55
00:02:17,510 --> 00:02:14,400
they'd like to see

56
00:02:19,830 --> 00:02:17,520
so we get those list of of targets we

57
00:02:21,589 --> 00:02:19,840
use a very complicated software package

58
00:02:23,030 --> 00:02:21,599
to actually determine

59
00:02:25,510 --> 00:02:23,040
what targets are

60
00:02:26,790 --> 00:02:25,520
are viable if you will for the next day

61
00:02:29,750 --> 00:02:26,800
and that's based on the position of the

62
00:02:31,910 --> 00:02:29,760
iss based on uh weather conditions and

63
00:02:34,390 --> 00:02:31,920

so forth and so we generate a list we

64
00:02:37,270 --> 00:02:34,400
then send that up to the to the crew on

65
00:02:39,430 --> 00:02:37,280
the iss for them to try to obtain these

66
00:02:41,190 --> 00:02:39,440
these photos and it's our help that we

67
00:02:43,190 --> 00:02:41,200
also give them guidance on how to take

68
00:02:45,430 --> 00:02:43,200
the photos and so forth

69
00:02:47,190 --> 00:02:45,440
great can you give me some examples of

70
00:02:49,270 --> 00:02:47,200
pictures that serve the goal of

71
00:02:52,070 --> 00:02:49,280
documenting the impact

72
00:02:55,190 --> 00:02:52,080
of humans on their planet sure i think

73
00:02:56,869 --> 00:02:55,200
the next shot that you'll see

74
00:02:58,550 --> 00:02:56,879
right here this is a

75
00:03:01,509 --> 00:02:58,560
most part people probably remember this

76
00:03:04,869 --> 00:03:01,519
pretty well this is the bp oil spill

77
00:03:06,309 --> 00:03:04,879
back in 2010 april of 2010 and right

78
00:03:09,670 --> 00:03:06,319
there you'll see the oil slick in the

79
00:03:11,830 --> 00:03:09,680
gulf of mexico a very very uh

80
00:03:14,470 --> 00:03:11,840
disastrous event if people remember

81
00:03:16,550 --> 00:03:14,480
those years ago and what you're seeing

82
00:03:20,470 --> 00:03:16,560
here again is the oil slick on the

83
00:03:22,869 --> 00:03:20,480
surface and uh during this event the oil

84
00:03:24,869 --> 00:03:22,879
leaked out from the rig

85
00:03:26,470 --> 00:03:24,879
and here's a follow-on here

86
00:03:28,630 --> 00:03:26,480
and this image if you look to the left

87
00:03:30,869 --> 00:03:28,640
there you'll see actually the

88
00:03:33,270 --> 00:03:30,879

mississippi delta there and again you're

89
00:03:36,030 --> 00:03:33,280
seeing the huge expanse of this oil

90
00:03:39,670 --> 00:03:36,040
slick there were approximately

91
00:03:41,910 --> 00:03:39,680
68 000 if you will square miles of ocean

92
00:03:43,830 --> 00:03:41,920
that were covered by the oil or affected

93
00:03:46,789 --> 00:03:43,840
by the oil it's not only the surface but

94
00:03:48,630 --> 00:03:46,799
also the deeper depths depth and

95
00:03:51,270 --> 00:03:48,640
again another view here and there at the

96
00:03:53,350 --> 00:03:51,280
top of this image you'll see the the

97
00:03:56,470 --> 00:03:53,360
mississippi delta as well the delta the

98
00:03:58,390 --> 00:03:56,480
mississippi strong flows also impacted

99
00:04:00,710 --> 00:03:58,400
the spread of this oil spill very

100
00:04:03,270 --> 00:04:00,720
disastrous on all the of the different

101
00:04:05,990 --> 00:04:03,280
life in this environment even today

102
00:04:08,470 --> 00:04:06,000
in april and this month basically 2016 a

103
00:04:10,710 --> 00:04:08,480
study was recently done where 88 percent

104
00:04:12,309 --> 00:04:10,720
of 360 of

105
00:04:14,070 --> 00:04:12,319
um

106
00:04:15,830 --> 00:04:14,080
small dolphins actually had

107
00:04:18,949 --> 00:04:15,840
underdeveloped lungs

108
00:04:21,349 --> 00:04:18,959
and they attributed that to the oil this

109
00:04:22,790 --> 00:04:21,359
next image is actually chicago at night

110
00:04:24,710 --> 00:04:22,800
and this was a study

111
00:04:27,270 --> 00:04:24,720
is part of a study that the researchers

112
00:04:28,950 --> 00:04:27,280
are actually looking at light pollution

113
00:04:30,950 --> 00:04:28,960

levels and they want to take that

114
00:04:32,950 --> 00:04:30,960
information across the city this city in

115
00:04:35,270 --> 00:04:32,960
particular and actually take it back to

116
00:04:37,749 --> 00:04:35,280
the laboratory and test those light

117
00:04:40,390 --> 00:04:37,759
levels on mice in a laboratory setting

118
00:04:43,030 --> 00:04:40,400
to see what the biological effects are

119
00:04:45,110 --> 00:04:43,040
what about monitoring natural disasters

120
00:04:47,909 --> 00:04:45,120
that's a big part of what we do in our

121
00:04:52,230 --> 00:04:47,919
group and the next photo that you'll see

122
00:04:56,070 --> 00:04:52,240
this is actually uh flooding in the uh

123
00:04:57,749 --> 00:04:56,080
amur river in russia and to the left

124
00:04:59,990 --> 00:04:57,759
there on the bank of you see the

125
00:05:02,230 --> 00:05:00,000
sediment the reddish sediment flow it's

126
00:05:03,749 --> 00:05:02,240
very intense very large sediment plume

127
00:05:05,990 --> 00:05:03,759
due to the flooding and the on to the

128
00:05:08,469 --> 00:05:06,000
left of the the bank of that river is

129
00:05:09,350 --> 00:05:08,479
the city uh troyskoy

130
00:05:11,029 --> 00:05:09,360
which is

131
00:05:12,950 --> 00:05:11,039
obviously going to be impacted by the

132
00:05:15,270 --> 00:05:12,960
flooding as well as the agricultural

133
00:05:16,390 --> 00:05:15,280
fields to the left as well so a very uh

134
00:05:18,790 --> 00:05:16,400
disaster

135
00:05:20,550 --> 00:05:18,800
uh disastrous area at that time and this

136
00:05:22,310 --> 00:05:20,560
was back in 2013.

137
00:05:25,990 --> 00:05:22,320
and the next image you'll see there this

138
00:05:28,390 --> 00:05:26,000

is a in new south wales

139
00:05:30,870 --> 00:05:28,400
australia excuse me and this is october

140
00:05:33,189 --> 00:05:30,880
of 2013 and what you see there are

141
00:05:35,670 --> 00:05:33,199
intense wildfires there were about 100

142
00:05:38,070 --> 00:05:35,680
wildfires at that time and that was due

143
00:05:40,469 --> 00:05:38,080
to very high temperatures and very windy

144
00:05:42,629 --> 00:05:40,479
conditions and you can see this this

145
00:05:45,110 --> 00:05:42,639
astronaut photo shows the extent quite

146
00:05:47,990 --> 00:05:45,120
well here's the same area at night time

147
00:05:50,310 --> 00:05:48,000
you can see the fires lit up quite well

148
00:05:52,230 --> 00:05:50,320
so again very very good image of the

149
00:05:54,790 --> 00:05:52,240
type of disastrous event that was

150
00:05:56,710 --> 00:05:54,800
occurring at this time

151
00:05:58,550 --> 00:05:56,720
and here's another image this is uh one

152
00:06:01,029 --> 00:05:58,560
of the things that our astronauts like

153
00:06:03,670 --> 00:06:01,039
to take are images of tropical cyclones

154
00:06:06,469 --> 00:06:03,680
and hurricanes this is hurricane olaf

155
00:06:07,510 --> 00:06:06,479
back in october of 2015

156
00:06:09,110 --> 00:06:07,520
and

157
00:06:11,110 --> 00:06:09,120
the reason this we picked this one

158
00:06:11,990 --> 00:06:11,120
basically to show is that this was part

159
00:06:13,510 --> 00:06:12,000
of a

160
00:06:15,510 --> 00:06:13,520
project that we're working with tropical

161
00:06:17,670 --> 00:06:15,520
cyclone project where they're trying to

162
00:06:19,749 --> 00:06:17,680
actually learn more about the eye and

163
00:06:21,830 --> 00:06:19,759

the actual eye wall they're taking

164
00:06:23,830 --> 00:06:21,840
measurements of these types of photos

165
00:06:24,870 --> 00:06:23,840
that are taken on a regular basis by the

166
00:06:27,189 --> 00:06:24,880
crew

167
00:06:29,590 --> 00:06:27,199
to actually determine the altitude of

168
00:06:32,070 --> 00:06:29,600
the clouds in the eye wall and that will

169
00:06:34,230 --> 00:06:32,080
help with learning more and getting a

170
00:06:36,150 --> 00:06:34,240
better idea of the intensity of storms

171
00:06:37,990 --> 00:06:36,160
and actually the paths that storms will

172
00:06:40,790 --> 00:06:38,000
take

173
00:06:43,270 --> 00:06:40,800
and here's one other flooding example

174
00:06:45,990 --> 00:06:43,280
and this was the

175
00:06:48,550 --> 00:06:46,000
shire river in mozambique and this was

176
00:06:51,110 --> 00:06:48,560
in january of last year 2015

177
00:06:54,390 --> 00:06:51,120
and once again if you see the the city

178
00:06:57,110 --> 00:06:54,400
to the top of this image and that's

179
00:06:58,950 --> 00:06:57,120
sanjay and again very

180
00:07:00,870 --> 00:06:58,960
likely to be impacted by the flooding

181
00:07:02,950 --> 00:07:00,880
here there's also an airport if you look

182
00:07:04,950 --> 00:07:02,960
to the very top as well that could also

183
00:07:06,309 --> 00:07:04,960
be impacted by this flooding

184
00:07:08,550 --> 00:07:06,319
so i understand we can take these

185
00:07:10,070 --> 00:07:08,560
photographs and then also uh stitch them

186
00:07:11,749 --> 00:07:10,080
together into video can you tell me

187
00:07:13,350 --> 00:07:11,759
about that yes we can that's that's a

188
00:07:15,350 --> 00:07:13,360

project that we really enjoy doing our

189
00:07:16,790 --> 00:07:15,360
staff really enjoys that so the next

190
00:07:19,350 --> 00:07:16,800
video that you're going to see is

191
00:07:22,070 --> 00:07:19,360
actually a video up at night going

192
00:07:23,670 --> 00:07:22,080
across africa from the northwest uh

193
00:07:25,990 --> 00:07:23,680
portion of the continent down to the

194
00:07:28,150 --> 00:07:26,000
southeast and here you see and also in

195
00:07:29,670 --> 00:07:28,160
the background there which is beautiful

196
00:07:31,430 --> 00:07:29,680
is the milky way that shows in the

197
00:07:32,230 --> 00:07:31,440
background there we're going across now

198
00:07:44,869 --> 00:07:32,240
the

199
00:07:46,230 --> 00:07:44,879
and continuing on more smaller cities

200
00:07:49,110 --> 00:07:46,240
throughout the continent and here we

201
00:07:50,070 --> 00:07:49,120
have harare zimbabwe and pretoria south

202
00:07:52,390 --> 00:07:50,080
africa

203
00:07:54,150 --> 00:07:52,400
now at the very end of this video

204
00:07:56,550 --> 00:07:54,160
does the taking pictures of earth become

205
00:07:58,629 --> 00:07:56,560
valuable to the astronauts themselves oh

206
00:08:00,869 --> 00:07:58,639
definitely one of our jobs that we

207
00:08:02,550 --> 00:08:00,879
really enjoy or the parts of our jobs

208
00:08:04,469 --> 00:08:02,560
that we really enjoy is our ability to

209
00:08:07,029 --> 00:08:04,479
actually interview and talk with the

210
00:08:08,950 --> 00:08:07,039
astronauts both before they go up uh

211
00:08:11,589 --> 00:08:08,960
into space and also when they return

212
00:08:13,430 --> 00:08:11,599
during debriefs and a constant theme

213
00:08:15,670 --> 00:08:13,440

that we hear from them is how much they

214
00:08:17,749 --> 00:08:15,680
enjoy taking pictures they enjoy taking

215
00:08:20,309 --> 00:08:17,759
the time to pick up a camera go to the

216
00:08:22,309 --> 00:08:20,319
window and take pictures for us um and

217
00:08:24,629 --> 00:08:22,319
it's a it's a real challenge sometimes

218
00:08:26,550 --> 00:08:24,639
for them and we help them through it but

219
00:08:28,469 --> 00:08:26,560
i think it's really very relaxing and

220
00:08:30,150 --> 00:08:28,479
therapeutic for them i would imagine in

221
00:08:32,230 --> 00:08:30,160
some ways a way of connecting back to

222
00:08:35,269 --> 00:08:32,240
earth when you're so isolated in a way

223
00:08:36,790 --> 00:08:35,279
exactly exactly and another

224
00:08:39,430 --> 00:08:36,800
fact that we hear from a lot of

225
00:08:41,589 --> 00:08:39,440
astronauts is that they have a hard time

226
00:08:43,909 --> 00:08:41,599
expressing what they see up there to the

227
00:08:45,910 --> 00:08:43,919
rest of the world so by capturing their

228
00:08:48,710 --> 00:08:45,920
views and pictures and these in these

229
00:08:50,550 --> 00:08:48,720
gorgeous images it does justice to

230
00:08:52,150 --> 00:08:50,560
actually letting the rest of the public

231
00:08:54,790 --> 00:08:52,160
know what they what they have been

232
00:08:57,110 --> 00:08:54,800
witnessing absolutely and and mentioning

233
00:08:59,110 --> 00:08:57,120
letting the rest of the public you know

234
00:09:01,430 --> 00:08:59,120
being able to see those uh those images

235
00:09:03,750 --> 00:09:01,440
that the astronauts do take these images

236
00:09:05,430 --> 00:09:03,760
are posted online that anyone can access

237
00:09:06,630 --> 00:09:05,440
anywhere can you tell me about well

238
00:09:08,870 --> 00:09:06,640

first of all i guess can you tell me

239
00:09:10,310 --> 00:09:08,880
where these are located sure

240
00:09:13,030 --> 00:09:10,320
we have a website it's called the

241
00:09:15,910 --> 00:09:13,040
gateway to astronaut photography of

242
00:09:17,670 --> 00:09:15,920
earth and it's called the gape g-a-p-e

243
00:09:20,470 --> 00:09:17,680
and we recently about a year and a half

244
00:09:23,190 --> 00:09:20,480
ago did a major overhaul of the website

245
00:09:25,910 --> 00:09:23,200
made it more modern and uh very good

246
00:09:29,190 --> 00:09:25,920
search utilities and so forth and right

247
00:09:31,030 --> 00:09:29,200
now uh we if you look at the average

248
00:09:32,790 --> 00:09:31,040
number of hits on that website for the

249
00:09:36,070 --> 00:09:32,800
last three months of this year it's

250
00:09:37,430 --> 00:09:36,080
about 40 40 million hits per month and

251
00:09:38,790 --> 00:09:37,440
that's huge

252
00:09:41,269 --> 00:09:38,800
and we're we've been told that we were

253
00:09:42,710 --> 00:09:41,279
one of the most popular sites

254
00:09:45,430 --> 00:09:42,720
within nasa

255
00:09:47,829 --> 00:09:45,440
so we get a huge number of individuals

256
00:09:50,710 --> 00:09:47,839
groups and so forth coming to the site

257
00:09:52,150 --> 00:09:50,720
searching our photos requesting photos

258
00:09:53,509 --> 00:09:52,160
and so forth

259
00:09:55,350 --> 00:09:53,519
that's uh

260
00:09:57,670 --> 00:09:55,360
really great news to know that we have

261
00:09:59,350 --> 00:09:57,680
that uh capability to be able to access

262
00:10:01,509 --> 00:09:59,360
these photographs a lot of people are

263
00:10:04,230 --> 00:10:01,519

already accessing it but if they are not

264
00:10:06,230 --> 00:10:04,240
go to that website again is cape gateway

265
00:10:09,190 --> 00:10:06,240
to astronaut photography of earth if you

266
00:10:10,949 --> 00:10:09,200
type that into google you will find it

267
00:10:12,550 --> 00:10:10,959
great thanks so much for

268
00:10:15,829 --> 00:10:12,560
coming here and talking with us today