



1
00:00:06,309 --> 00:00:03,510
we've all heard about the terrible

2
00:00:08,150 --> 00:00:06,319
floods in calgary well an experiment an

3
00:00:09,990 --> 00:00:08,160
experimental camera called i serve on

4
00:00:12,629 --> 00:00:10,000
the international space station is

5
00:00:15,190 --> 00:00:12,639
aiding in the effort here it's a unique

6
00:00:17,109 --> 00:00:15,200
opportunity to study disasters like this

7
00:00:19,189 --> 00:00:17,119
and joining me now is burgess howe he is

8
00:00:21,990 --> 00:00:19,199
the principal investigator for iserv and

9
00:00:24,390 --> 00:00:22,000
burgess first of all tell us what iserv

10
00:00:26,870 --> 00:00:24,400
is remind us what it does yeah

11
00:00:28,630 --> 00:00:26,880
lori i serve is an experimental camera

12
00:00:30,230 --> 00:00:28,640
it's a test bed camera

13
00:00:32,389 --> 00:00:30,240

primarily an engineering exercise that

14

00:00:34,310 --> 00:00:32,399

we're using for

15

00:00:36,630 --> 00:00:34,320

determining best practices procedures

16

00:00:38,310 --> 00:00:36,640

gaining expertise and experience and

17

00:00:40,709 --> 00:00:38,320

also informing decisions about future

18

00:00:42,069 --> 00:00:40,719

more capable instruments on iss

19

00:00:43,750 --> 00:00:42,079

tell us how we made the connection with

20

00:00:45,750 --> 00:00:43,760

the canadians and and how they learn

21

00:00:47,750 --> 00:00:45,760

device server how you let them know you

22

00:00:50,229 --> 00:00:47,760

have these photographs well i serve as

23

00:00:52,150 --> 00:00:50,239

part of a program called severe servir

24

00:00:53,029 --> 00:00:52,160

is an international uh cooperative

25

00:00:55,750 --> 00:00:53,039

program

26

00:00:58,549 --> 00:00:55,760

aids decision support in a variety of

27

00:01:00,630 --> 00:00:58,559

countries and our management uh

28

00:01:02,229 --> 00:01:00,640

primarily our project director dan irwin

29

00:01:04,789 --> 00:01:02,239

has established relationships with a lot

30

00:01:05,990 --> 00:01:04,799

of agencies around the world and we do

31

00:01:07,350 --> 00:01:06,000

have

32

00:01:09,190 --> 00:01:07,360

some relationships with canadian

33

00:01:11,270 --> 00:01:09,200

agencies dan called up some people that

34

00:01:12,550 --> 00:01:11,280

he had worked with previously and and

35

00:01:14,630 --> 00:01:12,560

and told him that we had of course when

36

00:01:16,070 --> 00:01:14,640

we heard about the disaster uh on the

37

00:01:18,149 --> 00:01:16,080

news we heard about i guess it was uh

38

00:01:19,990 --> 00:01:18,159

the friday prior we immediately sent up

39

00:01:21,270 --> 00:01:20,000

our commands to try to gather images as

40

00:01:22,630 --> 00:01:21,280

soon as possible we were able to get

41

00:01:23,910 --> 00:01:22,640

them the next day

42

00:01:25,830 --> 00:01:23,920

and it's really good because you pass

43

00:01:27,109 --> 00:01:25,840

over that area that's a great area to

44

00:01:28,550 --> 00:01:27,119

photograph yeah it really is it's

45

00:01:31,270 --> 00:01:28,560

advantageous because of the the

46

00:01:33,429 --> 00:01:31,280

characteristics of iso of the iss orbit

47

00:01:35,510 --> 00:01:33,439

um we go over the upper latitudes uh

48

00:01:37,990 --> 00:01:35,520

frequently and we actually got four

49

00:01:39,190 --> 00:01:38,000

passes over calgary in five days wow

50

00:01:40,390 --> 00:01:39,200

well let's take a look at some of those

51
00:01:43,429 --> 00:01:40,400
images the first one i think we're going

52
00:01:45,190 --> 00:01:43,439
to look at is a comparison image tell us

53
00:01:47,270 --> 00:01:45,200
about that what we'll be looking at here

54
00:01:49,270 --> 00:01:47,280
on the left side you should be seeing uh

55
00:01:51,350 --> 00:01:49,280
some imagery from a private company

56
00:01:54,550 --> 00:01:51,360
called digital globe it was acquired in

57
00:01:57,030 --> 00:01:54,560
2008 and to the right is the uh the

58
00:01:59,030 --> 00:01:57,040
scene that we got with iserv on the 22nd

59
00:02:00,389 --> 00:01:59,040
of june just the other day

60
00:02:02,149 --> 00:02:00,399
the primary difference you see between

61
00:02:04,149 --> 00:02:02,159
the two of them is the uh the brownness

62
00:02:05,990 --> 00:02:04,159
of the river that the the large river

63
00:02:07,270 --> 00:02:06,000

that comes in at the upper left and arcs

64

00:02:09,270 --> 00:02:07,280

through the city and goes back down

65

00:02:11,670 --> 00:02:09,280

through the center bottom there is the

66

00:02:13,110 --> 00:02:11,680

bow river now you can maybe see the the

67

00:02:15,190 --> 00:02:13,120

elbow which also comes in through the

68

00:02:17,589 --> 00:02:15,200

center to the left there and at the

69

00:02:19,350 --> 00:02:17,599

elbow near center you see the the

70

00:02:21,670 --> 00:02:19,360

calgary stampede grounds in the left

71

00:02:23,990 --> 00:02:21,680

image it's it's nice and dry and the

72

00:02:25,670 --> 00:02:24,000

right image it's uh it's obviously

73

00:02:27,510 --> 00:02:25,680

flooded if you look up to the right of

74

00:02:29,990 --> 00:02:27,520

there as well there's the the calgary

75

00:02:31,270 --> 00:02:30,000

zoo and uh there was a really

76

00:02:33,750 --> 00:02:31,280

significant problem there many of the

77

00:02:35,350 --> 00:02:33,760

animals uh uh were in serious distress

78

00:02:37,670 --> 00:02:35,360

some animals got away and some animals

79

00:02:39,990 --> 00:02:37,680

drowned uh following down the river

80

00:02:42,070 --> 00:02:40,000

there you see the the englewood golf

81

00:02:43,830 --> 00:02:42,080

club which is essentially destroyed at

82

00:02:46,630 --> 00:02:43,840

this point and uh to the south of there

83

00:02:48,710 --> 00:02:46,640

the old refinery park which is a a nice

84

00:02:51,030 --> 00:02:48,720

public area at the uh the south end of

85

00:02:52,630 --> 00:02:51,040

town and and as well as much of that

86

00:02:54,150 --> 00:02:52,640

industrial area just across the river to

87

00:02:55,910 --> 00:02:54,160

the north over there it was severely

88

00:02:56,790 --> 00:02:55,920

impacted by the flooding

89

00:02:59,350 --> 00:02:56,800

what's the next thing we're going to

90

00:03:00,710 --> 00:02:59,360

look at well um

91

00:03:03,030 --> 00:03:00,720

we're going to go over and take a look

92

00:03:05,110 --> 00:03:03,040

at uh i think we actually have some some

93

00:03:07,430 --> 00:03:05,120

some footage there of what some other

94

00:03:09,990 --> 00:03:07,440

spots in calgary

95

00:03:11,589 --> 00:03:10,000

but i'd like to talk briefly about the

96

00:03:13,750 --> 00:03:11,599

uh

97

00:03:15,430 --> 00:03:13,760

another incident another flooding

98

00:03:18,630 --> 00:03:15,440

incident that occurred a few days after

99

00:03:20,470 --> 00:03:18,640

calgary up in in northern india in uh

100

00:03:21,589 --> 00:03:20,480

the state of uttarakhand

101
00:03:25,430 --> 00:03:21,599
of

102
00:03:31,030 --> 00:03:25,440
a uh a wide-ranging flood event there

103
00:03:34,789 --> 00:03:32,630
yoshimoth

104
00:03:36,949 --> 00:03:34,799
uh rudra prayag several cities up there

105
00:03:38,949 --> 00:03:36,959
uh were hit this was primarily because

106
00:03:41,670 --> 00:03:38,959
of an early onset and a more severe than

107
00:03:42,869 --> 00:03:41,680
normal onset of the the monsoon rains

108
00:03:44,949 --> 00:03:42,879
we

109
00:03:46,949 --> 00:03:44,959
it was a really significant flood event

110
00:03:49,990 --> 00:03:46,959
uh of course that one of the the

111
00:03:52,390 --> 00:03:50,000
compounding factors is that the

112
00:03:54,550 --> 00:03:52,400
the uh area up there around these small

113
00:03:56,470 --> 00:03:54,560

cities there uh there are many uh

114

00:03:58,869 --> 00:03:56,480

shrines and temples there and uh they're

115

00:03:59,990 --> 00:03:58,879

the site of pilgrimages uh for instance

116

00:04:02,309 --> 00:04:00,000

in um

117

00:04:05,910 --> 00:04:02,319

in uh

118

00:04:07,830 --> 00:04:05,920

joshua and just the north of there uh

119

00:04:09,910 --> 00:04:07,840

there are as many as a half million

120

00:04:12,070 --> 00:04:09,920

pilgrims a year that come in and this is

121

00:04:14,070 --> 00:04:12,080

the pilgrimage season so uh a lot of

122

00:04:15,990 --> 00:04:14,080

them were impacted luckily and but or

123

00:04:18,710 --> 00:04:16,000

not there were no fatalities but there

124

00:04:21,749 --> 00:04:18,720

were a lot of damaged buildings

125

00:04:24,230 --> 00:04:21,759

i think you see in your in the the first

126
00:04:26,230 --> 00:04:24,240
frame there you see a a long shot this

127
00:04:28,070 --> 00:04:26,240
is a fairly wide view up in the upper

128
00:04:29,350 --> 00:04:28,080
right hand corner is butternut and

129
00:04:31,270 --> 00:04:29,360
through the center there you can see the

130
00:04:32,230 --> 00:04:31,280
the swelling of the

131
00:04:34,629 --> 00:04:32,240
of the

132
00:04:36,550 --> 00:04:34,639
aleknanda river and

133
00:04:38,230 --> 00:04:36,560
a series of landslides along the the

134
00:04:39,510 --> 00:04:38,240
banks there that impacted a lot of small

135
00:04:42,390 --> 00:04:39,520
villages

136
00:04:44,629 --> 00:04:42,400
next i think we can zoom down to

137
00:04:46,390 --> 00:04:44,639
a little a little closer shot also above

138
00:04:47,830 --> 00:04:46,400

renath and there you see the aleknanda

139

00:04:49,030 --> 00:04:47,840

river running

140

00:04:50,629 --> 00:04:49,040

left to right

141

00:04:53,830 --> 00:04:50,639

through the scene

142

00:04:55,909 --> 00:04:53,840

above the city there you see a lot of

143

00:04:57,510 --> 00:04:55,919

the landslide debris flows this is uh

144

00:04:59,430 --> 00:04:57,520

where the the rain has caused a

145

00:05:00,870 --> 00:04:59,440

significant shifting of the earth down

146

00:05:01,990 --> 00:05:00,880

the slopes you can't really tell in

147

00:05:03,510 --> 00:05:02,000

these images but these are very very

148

00:05:05,189 --> 00:05:03,520

steep slopes this is in the in the

149

00:05:07,510 --> 00:05:05,199

himalaya mountains and uh it's it's very

150

00:05:09,670 --> 00:05:07,520

steep also along the uh the the

151
00:05:12,070 --> 00:05:09,680
riverbank there on the south side of the

152
00:05:14,310 --> 00:05:12,080
river you can see that there's some some

153
00:05:16,469 --> 00:05:14,320
significant changes in the landscape and

154
00:05:18,310 --> 00:05:16,479
those are the buildings which have been

155
00:05:20,790 --> 00:05:18,320
uh impacted by flooding through the city

156
00:05:22,950 --> 00:05:20,800
there these are fascinating images so

157
00:05:25,189 --> 00:05:22,960
what happens after you send these images

158
00:05:27,189 --> 00:05:25,199
them how do they use these well

159
00:05:29,110 --> 00:05:27,199
in the case of canada for instance

160
00:05:30,950 --> 00:05:29,120
they were distributed to the emergency

161
00:05:33,189 --> 00:05:30,960
response agencies there the royal

162
00:05:34,790 --> 00:05:33,199
canadian mounted police also

163
00:05:37,510 --> 00:05:34,800

got them several of the

164

00:05:39,830 --> 00:05:37,520

other ministries agriculture ministry

165

00:05:41,270 --> 00:05:39,840

the the national parks people got

166

00:05:43,110 --> 00:05:41,280

involved there's a significant impact in

167

00:05:44,550 --> 00:05:43,120

banff for instance in the national parks

168

00:05:46,550 --> 00:05:44,560

the highway folks were interested the

169

00:05:48,469 --> 00:05:46,560

trans-canada highway was was impacted

170

00:05:49,830 --> 00:05:48,479

pretty seriously so

171

00:05:51,430 --> 00:05:49,840

they were distributed through a variety

172

00:05:54,390 --> 00:05:51,440

of agencies there the same thing takes

173

00:05:56,230 --> 00:05:54,400

place uh in in india now

174

00:05:57,830 --> 00:05:56,240

calgary was a little different we

175

00:06:00,230 --> 00:05:57,840

typically respond to international

176

00:06:03,029 --> 00:06:00,240

disaster charter floods

177

00:06:04,950 --> 00:06:03,039

events and calgary was not one of those

178

00:06:06,550 --> 00:06:04,960

so we we dealt directly with the

179

00:06:08,790 --> 00:06:06,560

canadian government in the case of

180

00:06:09,670 --> 00:06:08,800

disaster charter activations we go

181

00:06:12,550 --> 00:06:09,680

through

182

00:06:15,110 --> 00:06:12,560

the u.s geological survey is the

183

00:06:16,950 --> 00:06:15,120

clearinghouse for u.s data and they they

184

00:06:18,629 --> 00:06:16,960

push it off to the to the international

185

00:06:19,590 --> 00:06:18,639

managers the problem the disaster

186

00:06:21,110 --> 00:06:19,600

managers

187

00:06:22,950 --> 00:06:21,120

and i serve is a technology

188

00:06:24,710 --> 00:06:22,960

demonstration right but it's it's

189

00:06:27,029 --> 00:06:24,720

serving its purpose right well sure yeah

190

00:06:28,550 --> 00:06:27,039

we um we assumed from the beginning that

191

00:06:30,629 --> 00:06:28,560

uh although we are primarily an

192

00:06:32,629 --> 00:06:30,639

engineering exercise the the the course

193

00:06:34,390 --> 00:06:32,639

of the work that we have to do uh would

194

00:06:36,150 --> 00:06:34,400

produce a lot of good a lot of good data

195

00:06:38,469 --> 00:06:36,160

and this is exactly what we anticipated

196

00:06:41,029 --> 00:06:38,479

being able to do we've uh we've really

197

00:06:43,909 --> 00:06:41,039

increased our our pace and our rate of

198

00:06:45,270 --> 00:06:43,919

of response for these disasters lately

199

00:06:47,670 --> 00:06:45,280

it seems like they're coming one after

200

00:06:49,029 --> 00:06:47,680

the other so we're we're uh very very

201

00:06:50,870 --> 00:06:49,039

busy we're looking as soon as i leave

202

00:06:52,710 --> 00:06:50,880

here going back to our operations center

203

00:06:54,230 --> 00:06:52,720

and planning some shots in china so uh