
Google+
NASA

1
00:00:04,309 --> 00:00:01,910
wallops in the airplane hangar in front

2
00:00:06,309 --> 00:00:04,319
of our p3 airborne laboratory is project

3
00:00:08,310 --> 00:00:06,319
scientist michael stuninger

4
00:00:09,509 --> 00:00:08,320
and coming to us from denver colorado is

5
00:00:11,350 --> 00:00:09,519
chad naughton

6
00:00:13,270 --> 00:00:11,360
he is a science project manager for the

7
00:00:15,110 --> 00:00:13,280
us antarctic program

8
00:00:17,109 --> 00:00:15,120
we'll go straight to questions and the

9
00:00:22,390 --> 00:00:17,119
first one is for michael michael what

10
00:00:26,230 --> 00:00:25,029
operation icebridge is a nasa airborne

11
00:00:29,429 --> 00:00:26,240
campaign

12
00:00:32,069 --> 00:00:29,439
that has been started in 2009

13
00:00:35,190 --> 00:00:32,079

to continue the laser altimetry

14
00:00:38,310 --> 00:00:35,200
measurements that have begun with isa

15
00:00:41,190 --> 00:00:38,320
which ended in 2009 collecting data

16
00:00:44,790 --> 00:00:41,200
and the follow-up mission isa 2 is

17
00:00:48,069 --> 00:00:44,800
currently scheduled for 2016

18
00:00:51,750 --> 00:00:48,079
and between 2009 and 2016 that's a very

19
00:00:55,510 --> 00:00:51,760
long depth in data acquisition so nasa

20
00:00:57,189 --> 00:00:55,520
has decided to bridge the step gap

21
00:00:59,270 --> 00:00:57,199
in data collection

22
00:01:01,590 --> 00:00:59,280
by using a

23
00:01:03,430 --> 00:01:01,600
instrumented aircraft and you can see

24
00:01:05,990 --> 00:01:03,440
one here in the back behind me this is

25
00:01:07,590 --> 00:01:06,000
the p3 aircraft

26
00:01:09,429 --> 00:01:07,600
to continue

27
00:01:11,429 --> 00:01:09,439
collecting

28
00:01:13,750 --> 00:01:11,439
elevation measurements over the polar

29
00:01:16,230 --> 00:01:13,760
ice sheets and the arctic and antarctic

30
00:01:18,149 --> 00:01:16,240
sea ice in order to build a very long

31
00:01:25,109 --> 00:01:18,159
time series how the

32
00:01:29,670 --> 00:01:27,429
great okay so this is the first time

33
00:01:31,990 --> 00:01:29,680
that icebridge has operated directly

34
00:01:35,350 --> 00:01:32,000
from antarctica now christie how is that

35
00:01:39,109 --> 00:01:37,910
hi george thanks for asking the question

36
00:01:41,190 --> 00:01:39,119
we're pretty excited to be going to

37
00:01:43,590 --> 00:01:41,200
mcmurdo this season it'll be our first

38
00:01:45,350 --> 00:01:43,600

ever ice bridge deployment to mcmurdo

39
00:01:48,310 --> 00:01:45,360
and one of the benefits we're going to

40
00:01:50,069 --> 00:01:48,320
get from taking our p3 aircraft down and

41
00:01:52,389 --> 00:01:50,079
being based on the continent down there

42
00:01:55,270 --> 00:01:52,399
is that we're going to collect more

43
00:01:56,789 --> 00:01:55,280
science hours of data per flight time

44
00:01:58,709 --> 00:01:56,799
previously when we deployed from punta

45
00:02:00,389 --> 00:01:58,719
arenas chile we lost a lot of our

46
00:02:02,310 --> 00:02:00,399
science data collection time flying over

47
00:02:03,590 --> 00:02:02,320
the drake passage so we really only had

48
00:02:06,630 --> 00:02:03,600
about four to five hours of science

49
00:02:08,309 --> 00:02:06,640
collection whereas theoretically mcmurdo

50
00:02:09,910 --> 00:02:08,319
will fly eight hour missions and we can

51
00:02:16,229 --> 00:02:09,920
start collecting science data as soon as

52
00:02:19,270 --> 00:02:17,110
okay

53
00:02:21,270 --> 00:02:19,280
now chad you're with the u.s antarctic

54
00:02:22,790 --> 00:02:21,280
program and you're essentially in charge

55
00:02:24,470 --> 00:02:22,800
of logistics for

56
00:02:25,589 --> 00:02:24,480
this and many other science missions in

57
00:02:27,430 --> 00:02:25,599
antarctica

58
00:02:29,350 --> 00:02:27,440
so what exactly is involved in getting

59
00:02:32,229 --> 00:02:29,360
scientists and all of their equipment to

60
00:02:34,550 --> 00:02:32,239
such a remote location

61
00:02:36,630 --> 00:02:34,560
well thanks for the question yeah so it

62
00:02:37,670 --> 00:02:36,640
on a program this size with an aircraft

63
00:02:40,150 --> 00:02:37,680

like this

64
00:02:42,470 --> 00:02:40,160
coming down to mcmurdo station it's kind

65
00:02:45,030 --> 00:02:42,480
of a unique opportunity there's a lot of

66
00:02:46,630 --> 00:02:45,040
detailed planning that needs to occur

67
00:02:47,830 --> 00:02:46,640
we started planning for this over a year

68
00:02:49,910 --> 00:02:47,840
ago

69
00:02:52,309 --> 00:02:49,920
and we'll be down the plane will be down

70
00:02:54,470 --> 00:02:52,319
for you know about two weeks so

71
00:02:56,630 --> 00:02:54,480
there's a lot of resources limited

72
00:02:58,869 --> 00:02:56,640
resources in mcmurdo station in

73
00:03:00,470 --> 00:02:58,879
antarctica and we have a lot of other

74
00:03:02,390 --> 00:03:00,480
groups that need to share those

75
00:03:05,190 --> 00:03:02,400
resources so

76
00:03:07,910 --> 00:03:05,200
the biggest challenge is ensuring the

77
00:03:09,190 --> 00:03:07,920
time frame and the amount of people that

78
00:03:11,990 --> 00:03:09,200
need to be

79
00:03:13,589 --> 00:03:12,000
on this project to make it successful

80
00:03:15,030 --> 00:03:13,599
that's one of the biggest challenges for

81
00:03:20,869 --> 00:03:15,040
any project coming

82
00:03:24,949 --> 00:03:23,350
and i am george hale i'm at nasa goddard

83
00:03:26,309 --> 00:03:24,959
i want to remind everybody uh you can

84
00:03:28,470 --> 00:03:26,319
ask your questions in the youtube

85
00:03:30,869 --> 00:03:28,480
comments box on the google plus page our

86
00:03:33,750 --> 00:03:30,879
facebook page or tweet to us using

87
00:03:36,390 --> 00:03:33,760
icebridge now michael can you explain to

88
00:03:39,030 --> 00:03:36,400

us what's behind you there in the hangar

89
00:03:42,949 --> 00:03:39,040
yeah here uh directly behind me you can

90
00:03:44,789 --> 00:03:42,959
see the uh the tail of the p3 aircraft

91
00:03:47,430 --> 00:03:44,799
and what's happening

92
00:03:49,910 --> 00:03:47,440
this week is the instrument teams and

93
00:03:52,390 --> 00:03:49,920
the air crew are all here

94
00:03:55,190 --> 00:03:52,400
and installing actually science

95
00:03:57,670 --> 00:03:55,200
instruments inside the aircraft and the

96
00:03:59,910 --> 00:03:57,680
antenna structures on the outside of the

97
00:04:02,710 --> 00:03:59,920
aircraft and pretty much getting the

98
00:04:05,110 --> 00:04:02,720
right to the plane ready to deploy to

99
00:04:06,710 --> 00:04:05,120
antarctica so once we are done here with

100
00:04:09,270 --> 00:04:06,720
the installation

101
00:04:10,550 --> 00:04:09,280
we will test fly the aircraft here in

102
00:04:12,309 --> 00:04:10,560
wallops um

103
00:04:13,350 --> 00:04:12,319
collect data with it make sure that

104
00:04:14,390 --> 00:04:13,360
everything

105
00:04:16,949 --> 00:04:14,400
works

106
00:04:19,909 --> 00:04:16,959
properly and calibrate the instruments

107
00:04:22,710 --> 00:04:19,919
here before we are going down south and

108
00:04:24,870 --> 00:04:22,720
then once all this is done

109
00:04:27,990 --> 00:04:24,880
we will ferry the aircraft down to

110
00:04:30,710 --> 00:04:28,000
christchurch and from there to mcmurdo

111
00:04:37,670 --> 00:04:30,720
and then we will start collecting data

112
00:04:41,350 --> 00:04:39,670
all right and our next question comes

113
00:04:44,310 --> 00:04:41,360

from cyril at

114
00:04:46,469 --> 00:04:44,320
underscore cyba and this question for

115
00:04:48,070 --> 00:04:46,479
script is for christy what scientists

116
00:04:51,189 --> 00:04:48,080
work in the icebridge team and who will

117
00:04:53,189 --> 00:04:51,199
be on board during the flights

118
00:04:55,510 --> 00:04:53,199
that's a really good question um

119
00:04:56,390 --> 00:04:55,520
we have a very comprehensive science

120
00:05:00,550 --> 00:04:56,400
team

121
00:05:01,670 --> 00:05:00,560
operators so when we actually deploy to

122
00:05:03,590 --> 00:05:01,680
the field

123
00:05:05,110 --> 00:05:03,600
um we bring a lot of instrument

124
00:05:06,790 --> 00:05:05,120
engineers and operators some of them are

125
00:05:08,550 --> 00:05:06,800
scientists not everybody

126
00:05:10,629 --> 00:05:08,560
um we have michael studenzer who is our

127
00:05:12,390 --> 00:05:10,639
lead project scientist so sort of in

128
00:05:13,909 --> 00:05:12,400
charge of making sure all the science

129
00:05:15,270 --> 00:05:13,919
gets done and helping define our science

130
00:05:16,950 --> 00:05:15,280
objectives

131
00:05:17,830 --> 00:05:16,960
on the team that flies with us though we

132
00:05:22,469 --> 00:05:17,840
have

133
00:05:24,310 --> 00:05:22,479
engineers who operate radar systems we

134
00:05:26,870 --> 00:05:24,320
have a team here from wallops who

135
00:05:28,230 --> 00:05:26,880
operates the laser altimetry systems

136
00:05:30,710 --> 00:05:28,240
we have a team from california that

137
00:05:31,909 --> 00:05:30,720
operates our digital camera systems

138
00:05:34,469 --> 00:05:31,919

we also have

139
00:05:37,590 --> 00:05:34,479
people from columbia university and also

140
00:05:38,950 --> 00:05:37,600
usgs that operate and can in canada that

141
00:05:40,310 --> 00:05:38,960
operate our gravimeter and our

142
00:05:41,830 --> 00:05:40,320
magnetometers

143
00:05:43,990 --> 00:05:41,840
so we we definitely have an extensive

144
00:05:45,749 --> 00:05:44,000
comprehensive team of um

145
00:05:47,670 --> 00:05:45,759
excellent engineers and scientists in

146
00:05:49,189 --> 00:05:47,680
the field who help us collect our data

147
00:05:55,189 --> 00:05:49,199
to try and ultimately meet our level one

148
00:05:59,830 --> 00:05:57,189
all right and uh chad you've worked in

149
00:06:01,990 --> 00:05:59,840
antarctica for quite a while a good

150
00:06:05,510 --> 00:06:02,000
question we have here is how do you stay

151
00:06:08,629 --> 00:06:06,870
we have uh

152
00:06:10,550 --> 00:06:08,639
issued gear

153
00:06:12,150 --> 00:06:10,560
for external layers that help you

154
00:06:14,150 --> 00:06:12,160
withstand the elements

155
00:06:15,909 --> 00:06:14,160
and so you bring down a combination of

156
00:06:17,270 --> 00:06:15,919
depending on where you're from what

157
00:06:18,309 --> 00:06:17,280
works for you

158
00:06:20,070 --> 00:06:18,319
um

159
00:06:22,150 --> 00:06:20,080
we have people that a lot of people that

160
00:06:23,990 --> 00:06:22,160
come down live in alaska

161
00:06:25,270 --> 00:06:24,000
minnesota across the top the high line

162
00:06:26,870 --> 00:06:25,280
of the united states but we also have

163
00:06:29,430 --> 00:06:26,880

people that come from florida

164
00:06:31,189 --> 00:06:29,440
or you know southern states so we get a

165
00:06:32,790 --> 00:06:31,199
good mix and but we make sure they have

166
00:06:34,870 --> 00:06:32,800
the right gear

167
00:06:36,309 --> 00:06:34,880
for where they're going specifically we

168
00:06:38,390 --> 00:06:36,319
have three stations

169
00:06:39,270 --> 00:06:38,400
so at each station you receive different

170
00:06:40,309 --> 00:06:39,280
gear

171
00:06:41,830 --> 00:06:40,319
so

172
00:06:43,590 --> 00:06:41,840
most of it's warm

173
00:06:45,909 --> 00:06:43,600
uh it's intended to

174
00:06:48,469 --> 00:06:45,919
you know to do that and so that and

175
00:06:52,710 --> 00:06:48,479
layering is important

176
00:06:57,029 --> 00:06:55,270
layering is indeed the key uh chad we

177
00:06:58,790 --> 00:06:57,039
have another question this one from

178
00:07:00,390 --> 00:06:58,800
polly pete

179
00:07:02,309 --> 00:07:00,400
wants to see if you would speak more

180
00:07:04,390 --> 00:07:02,319
about the logistics involved at mcmurdo

181
00:07:05,749 --> 00:07:04,400
to support icebridge such as airfield

182
00:07:08,309 --> 00:07:05,759
ops

183
00:07:10,309 --> 00:07:08,319
absolutely yes we have a

184
00:07:14,070 --> 00:07:10,319
typically we operate anywhere from one

185
00:07:16,790 --> 00:07:14,080
to three airfields in mcmurdo region

186
00:07:17,909 --> 00:07:16,800
one is typically on the sea ice

187
00:07:20,710 --> 00:07:17,919
which

188
00:07:22,629 --> 00:07:20,720

can go out on an annual basis or it can

189
00:07:25,510 --> 00:07:22,639
stick around for a while depending on

190
00:07:27,990 --> 00:07:25,520
the environmental conditions that year

191
00:07:30,070 --> 00:07:28,000
another airfield is what's what we call

192
00:07:32,469 --> 00:07:30,080
pegasus and it is actually on the ice

193
00:07:35,510 --> 00:07:32,479
shelf so it's hundreds of feet thick

194
00:07:36,790 --> 00:07:35,520
and that is also a wheeled aircraft

195
00:07:38,390 --> 00:07:36,800
airfield

196
00:07:40,550 --> 00:07:38,400
and then

197
00:07:42,950 --> 00:07:40,560
some seasons and in past years we used

198
00:07:45,430 --> 00:07:42,960
to run up an airfield called williams

199
00:07:48,390 --> 00:07:45,440
field and that is for only ski quiff ski

200
00:07:50,390 --> 00:07:48,400
equipped air aircraft like the military

201
00:07:52,070 --> 00:07:50,400
lc-130s

202
00:07:54,950 --> 00:07:52,080
each airfield has its own unique

203
00:07:57,029 --> 00:07:54,960
capabilities as well as planning the

204
00:07:58,390 --> 00:07:57,039
logistics of getting them started and

205
00:08:00,390 --> 00:07:58,400
operational

206
00:08:01,350 --> 00:08:00,400
is a huge effort it's a monumental

207
00:08:02,869 --> 00:08:01,360
effort

208
00:08:04,550 --> 00:08:02,879
and they've got a pretty good handle on

209
00:08:05,990 --> 00:08:04,560
it now so they can get things going

210
00:08:09,189 --> 00:08:06,000
really quickly in the beginning of a

211
00:08:10,869 --> 00:08:09,199
season to support aircraft

212
00:08:12,790 --> 00:08:10,879
oftentimes in the winter you might have

213
00:08:15,029 --> 00:08:12,800

medevacs and they have to get the

214
00:08:16,710 --> 00:08:15,039
airfields ready really quickly so you're

215
00:08:19,110 --> 00:08:16,720
talking about organizing a lot of people

216
00:08:21,830 --> 00:08:19,120
a lot of heavy equipment

217
00:08:23,189 --> 00:08:21,840
to groom the runways move snow put snow

218
00:08:28,070 --> 00:08:23,199
back on them there's a lot that goes

219
00:08:31,029 --> 00:08:29,670
and hopefully that answers the question

220
00:08:33,190 --> 00:08:31,039
great

221
00:08:34,949 --> 00:08:33,200
well thanks a lot chad

222
00:08:38,550 --> 00:08:34,959
uh the next question for christy and

223
00:08:40,550 --> 00:08:38,560
this comes from rachel at rp news junkie

224
00:08:41,990 --> 00:08:40,560
and rachel wants to know what the most

225
00:08:44,070 --> 00:08:42,000
exciting and interesting part of the

226
00:08:46,790 --> 00:08:44,080
mission is and what the public should be

227
00:08:49,269 --> 00:08:46,800
expecting as a result

228
00:08:50,310 --> 00:08:49,279
well that's a really good question um

229
00:08:51,990 --> 00:08:50,320
let's see

230
00:08:53,190 --> 00:08:52,000
if you ask each person on our team you

231
00:08:54,389 --> 00:08:53,200
might get a different answer for that

232
00:08:56,790 --> 00:08:54,399
response so

233
00:08:59,269 --> 00:08:56,800
i'll give my personal uh perspective of

234
00:09:01,030 --> 00:08:59,279
that i think um i think there's two

235
00:09:02,070 --> 00:09:01,040
exciting parts of this deployment among

236
00:09:03,750 --> 00:09:02,080
many

237
00:09:06,230 --> 00:09:03,760
probably the first one which will be a

238
00:09:08,630 --> 00:09:06,240

huge milestone will be

239
00:09:10,790 --> 00:09:08,640
watching our p3 our nasa p3 aircraft

240
00:09:12,949 --> 00:09:10,800
land on the runway the very first day so

241
00:09:15,590 --> 00:09:12,959
that'll be a milestone in nasa history

242
00:09:17,030 --> 00:09:15,600
and in our airborne science program um

243
00:09:18,870 --> 00:09:17,040
having planned this mission for a year

244
00:09:20,630 --> 00:09:18,880
and a half having worked with asc and

245
00:09:22,389 --> 00:09:20,640
the national science foundation the air

246
00:09:23,190 --> 00:09:22,399
national guard 109th

247
00:09:24,710 --> 00:09:23,200
um

248
00:09:26,949 --> 00:09:24,720
just putting together all the facts the

249
00:09:29,269 --> 00:09:26,959
requirements um

250
00:09:30,949 --> 00:09:29,279
having seen that come to fruition um and

251
00:09:32,870 --> 00:09:30,959
that that's coming up here just in a

252
00:09:35,190 --> 00:09:32,880
couple weeks i think that will be very

253
00:09:37,030 --> 00:09:35,200
exciting um because it's establishing a

254
00:09:39,509 --> 00:09:37,040
milestone our first time to start

255
00:09:41,550 --> 00:09:39,519
science data collection based out of um

256
00:09:45,509 --> 00:09:41,560
us and our

257
00:09:46,949 --> 00:09:45,519
inaudible station so seeing rp3 land and

258
00:09:48,710 --> 00:09:46,959
that's going to measure our starting

259
00:09:51,269 --> 00:09:48,720
point for collecting science data

260
00:09:52,630 --> 00:09:51,279
directly from the ice i think also

261
00:09:53,430 --> 00:09:52,640
the exciting part of this will be i

262
00:09:54,790 --> 00:09:53,440
think

263
00:09:56,630 --> 00:09:54,800

we're going to prove the technology

264
00:09:58,310 --> 00:09:56,640
improve the capability

265
00:10:00,230 --> 00:09:58,320
and once we start getting into our

266
00:10:01,350 --> 00:10:00,240
science data collection ultimately in

267
00:10:03,430 --> 00:10:01,360
the long run we're going to be able to

268
00:10:04,949 --> 00:10:03,440
collect more science data than on

269
00:10:07,509 --> 00:10:04,959
previous fall deployments when we were

270
00:10:09,670 --> 00:10:07,519
based out of chile so our science team

271
00:10:11,030 --> 00:10:09,680
and community is very excited about us

272
00:10:12,470 --> 00:10:11,040
being able to reach different parts of

273
00:10:14,230 --> 00:10:12,480
antarctica that we couldn't reach before

274
00:10:15,670 --> 00:10:14,240
when we were based out of punta arenas

275
00:10:17,590 --> 00:10:15,680
so we're hitting some some targets that

276
00:10:19,750 --> 00:10:17,600
maybe we didn't hit before so that's

277
00:10:21,590 --> 00:10:19,760
exciting to our science team as well um

278
00:10:23,829 --> 00:10:21,600
as well as ultimately in the long run

279
00:10:24,949 --> 00:10:23,839
again just getting more um more data

280
00:10:26,790 --> 00:10:24,959
because we're going to be based directly

281
00:10:28,550 --> 00:10:26,800
off the continent so those two i think

282
00:10:31,030 --> 00:10:28,560
are two of the more exciting milestones

283
00:10:35,110 --> 00:10:31,040
that that we're gonna see see here in a

284
00:10:38,389 --> 00:10:36,389
great thanks

285
00:10:40,310 --> 00:10:38,399
and once again this is a nasa google

286
00:10:42,630 --> 00:10:40,320
plus hangout kicking off the operation

287
00:10:45,190 --> 00:10:42,640
icebridge 2013 antarctic campaign i'm

288
00:10:47,509 --> 00:10:45,200

george hale at nasa goddard and this

289
00:10:49,829 --> 00:10:47,519
next question we have for project

290
00:10:51,910 --> 00:10:49,839
scientist michael stewinger we have a

291
00:10:54,310 --> 00:10:51,920
lot of people on google plus who want to

292
00:10:55,750 --> 00:10:54,320
volunteer to support a nasa mission in

293
00:11:00,470 --> 00:10:55,760
antarctica

294
00:11:06,069 --> 00:11:03,590
it's going to be a challenge as uh chad

295
00:11:08,949 --> 00:11:06,079
has said the uh resources that are

296
00:11:10,949 --> 00:11:08,959
available in mcmurdo are very limited

297
00:11:12,870 --> 00:11:10,959
and have to be shared between

298
00:11:15,910 --> 00:11:12,880
many many projects

299
00:11:18,150 --> 00:11:15,920
so um we we have to

300
00:11:21,509 --> 00:11:18,160
we had to keep our group small on

301
00:11:23,750 --> 00:11:21,519
purpose in order to uh not uh impose a

302
00:11:27,350 --> 00:11:23,760
big logistic footprint

303
00:11:29,430 --> 00:11:27,360
on the uh uh community in

304
00:11:31,750 --> 00:11:29,440
mcmurdo so i think you you really have

305
00:11:33,990 --> 00:11:31,760
to uh think um

306
00:11:36,230 --> 00:11:34,000
keeping your your size down when you go

307
00:11:38,550 --> 00:11:36,240
to places like mcmurdo

308
00:11:40,630 --> 00:11:38,560
but um we do have um

309
00:11:42,389 --> 00:11:40,640
other areas like in greenland where

310
00:11:43,350 --> 00:11:42,399
people

311
00:11:45,910 --> 00:11:43,360
can

312
00:11:48,470 --> 00:11:45,920
actually fly in commercially where we

313
00:11:52,150 --> 00:11:48,480

have local space where we for example

314
00:11:54,949 --> 00:11:52,160
can accommodate the school teachers and

315
00:11:58,069 --> 00:11:54,959
and have them join our mission and then

316
00:12:00,870 --> 00:11:58,079
we bought report back to the classroom

317
00:12:02,870 --> 00:12:00,880
what they experienced the kind of

318
00:12:05,430 --> 00:12:02,880
science that we do

319
00:12:07,829 --> 00:12:05,440
so um i would say antarctica is a bit of

320
00:12:09,670 --> 00:12:07,839
a challenge in getting

321
00:12:11,350 --> 00:12:09,680
just um

322
00:12:13,350 --> 00:12:11,360
more than the uh

323
00:12:16,550 --> 00:12:13,360
absolutely necessary instrument teams

324
00:12:18,710 --> 00:12:16,560
and airport aircrew down there but um we

325
00:12:20,150 --> 00:12:18,720
have certainly other play places where

326
00:12:22,389 --> 00:12:20,160
we where we

327
00:12:23,750 --> 00:12:22,399
can accommodate

328
00:12:28,150 --> 00:12:23,760
people from the outside like in

329
00:12:31,590 --> 00:12:29,990
but maybe that said there are many other

330
00:12:34,310 --> 00:12:31,600
ways to uh

331
00:12:36,069 --> 00:12:34,320
to get involved in nasa science and

332
00:12:37,509 --> 00:12:36,079
contribute to nasa science you don't

333
00:12:39,829 --> 00:12:37,519
really have to actually go into the

334
00:12:42,230 --> 00:12:39,839
field you can apply for

335
00:12:44,389 --> 00:12:42,240
summer internships and other things so

336
00:12:49,110 --> 00:12:44,399
there are many different ways to

337
00:12:51,670 --> 00:12:50,230
thanks michael

338
00:12:54,790 --> 00:12:51,680

we actually have another question for

339
00:12:57,350 --> 00:12:54,800
you here from stephanie at sp auburn

340
00:12:58,389 --> 00:12:57,360
and stephanie wants to know what climate

341
00:12:59,829 --> 00:12:58,399
science

342
00:13:01,750 --> 00:12:59,839
icebridge is doing and how the

343
00:13:05,030 --> 00:13:01,760
government shutdown affected the field

344
00:13:07,430 --> 00:13:05,040
campaign and science

345
00:13:11,670 --> 00:13:07,440
um icebridge

346
00:13:14,629 --> 00:13:11,680
per se is not doing climate science

347
00:13:16,790 --> 00:13:14,639
we are producing the data

348
00:13:19,030 --> 00:13:16,800
that is necessary to

349
00:13:21,350 --> 00:13:19,040
feed into

350
00:13:23,030 --> 00:13:21,360
models how ice sheet

351
00:13:25,670 --> 00:13:23,040
potentially can

352
00:13:26,710 --> 00:13:25,680
evolve over long time scales

353
00:13:28,389 --> 00:13:26,720
but

354
00:13:31,030 --> 00:13:28,399
we we are not

355
00:13:33,430 --> 00:13:31,040
doing climate science per se

356
00:13:35,030 --> 00:13:33,440
so i think the the data that we collect

357
00:13:36,790 --> 00:13:35,040
is important

358
00:13:40,150 --> 00:13:36,800
in

359
00:13:43,030 --> 00:13:40,160
for climate scientists to

360
00:13:46,629 --> 00:13:43,040
understand how ice sheets change over

361
00:13:49,269 --> 00:13:46,639
time what is driving this change

362
00:13:51,350 --> 00:13:49,279
is it coming from let's say

363
00:13:54,150 --> 00:13:51,360

uh increased or reduced snow

364
00:13:55,910 --> 00:13:54,160
accumulation increased surface melting

365
00:13:58,230 --> 00:13:55,920
because of um

366
00:14:00,829 --> 00:13:58,240
warmer temperatures and icebridge is in

367
00:14:05,030 --> 00:14:00,839
a unique position to

368
00:14:07,670 --> 00:14:05,040
um uh to uh sort out all uh these kind

369
00:14:09,990 --> 00:14:07,680
of different aspects and they the

370
00:14:12,710 --> 00:14:10,000
results we produce they will feed

371
00:14:15,590 --> 00:14:12,720
directly into um climate models and

372
00:14:17,829 --> 00:14:15,600
people who uh try to understand the uh

373
00:14:20,629 --> 00:14:17,839
the whole climate system we are just

374
00:14:22,790 --> 00:14:20,639
dealing with a a tiny aspect from the

375
00:14:24,629 --> 00:14:22,800
climate system and those are polar ice

376
00:14:26,310 --> 00:14:24,639
sheets and sea ice

377
00:14:28,150 --> 00:14:26,320
um if you want to understand the earth

378
00:14:30,550 --> 00:14:28,160
climate and how it changes you really

379
00:14:32,949 --> 00:14:30,560
need to um

380
00:14:35,509 --> 00:14:32,959
look at the entire planet today and run

381
00:14:37,590 --> 00:14:35,519
global models and that's a far more

382
00:14:39,910 --> 00:14:37,600
complex than

383
00:14:41,590 --> 00:14:39,920
a question than what we do with

384
00:14:42,710 --> 00:14:41,600
icebridge

385
00:14:45,509 --> 00:14:42,720
now the

386
00:14:49,350 --> 00:14:45,519
second part of the question was how the

387
00:14:54,230 --> 00:14:51,269
impacted icebridge

388
00:14:55,670 --> 00:14:54,240

it has put our preparations

389
00:14:57,269 --> 00:14:55,680
on hold for

390
00:14:59,670 --> 00:14:57,279
more than two weeks

391
00:15:01,910 --> 00:14:59,680
and added some other

392
00:15:03,509 --> 00:15:01,920
headaches that we had to

393
00:15:06,470 --> 00:15:03,519
resolve

394
00:15:10,790 --> 00:15:06,480
but most importantly because

395
00:15:16,069 --> 00:15:13,590
turning the antarctic bases into care

396
00:15:17,189 --> 00:15:16,079
taker a status um

397
00:15:19,350 --> 00:15:17,199
our

398
00:15:20,629 --> 00:15:19,360
field season has been shortened by about

399
00:15:25,189 --> 00:15:20,639
75

400
00:15:29,910 --> 00:15:27,269
considerably less science data than we

401
00:15:33,110 --> 00:15:29,920
had planned for and that's a potentially

402
00:15:35,110 --> 00:15:33,120
uh big issue because one of the reasons

403
00:15:38,550 --> 00:15:35,120
and has been said before why we go to

404
00:15:41,350 --> 00:15:38,560
mcmurdo is because we can reach areas

405
00:15:44,150 --> 00:15:41,360
that we haven't been able to reach

406
00:15:46,710 --> 00:15:44,160
since 2009

407
00:15:47,509 --> 00:15:46,720
and for example the um

408
00:15:56,150 --> 00:15:47,519
the

409
00:15:57,829 --> 00:15:56,160
ice surface velocity we know you know

410
00:16:00,790 --> 00:15:57,839
this from satellite measurements from

411
00:16:02,790 --> 00:16:00,800
space but we don't know how the um

412
00:16:06,430 --> 00:16:02,800
volume changes there the ice surface

413
00:16:09,749 --> 00:16:06,440

elevation and so between uh

414
00:16:12,230 --> 00:16:09,759
2009 and 2016

415
00:16:14,870 --> 00:16:12,240
uh we have potentially only one data

416
00:16:17,749 --> 00:16:14,880
point or maybe not even a single data

417
00:16:21,910 --> 00:16:17,759
point and i think that's a is a big deal

418
00:16:24,949 --> 00:16:21,920
to uh uh help interpreting the uh uh the

419
00:16:28,310 --> 00:16:24,959
data that we will observe with isa 2 in

420
00:16:34,150 --> 00:16:30,870
great thanks michael now chad naughton

421
00:16:35,749 --> 00:16:34,160
um following up on the shutdown question

422
00:16:37,430 --> 00:16:35,759
in your job as a science project manager

423
00:16:39,749 --> 00:16:37,440
for the u.s antarctic program how has it

424
00:16:41,189 --> 00:16:39,759
affected your work

425
00:16:42,389 --> 00:16:41,199
well we've been running through that's a

426
00:16:45,590 --> 00:16:42,399
good question we've been running through

427
00:16:47,509 --> 00:16:45,600
a lot of scenarios um once october one

428
00:16:49,269 --> 00:16:47,519
hit and we realized that things were

429
00:16:51,269 --> 00:16:49,279
going to be a little bit different this

430
00:16:53,430 --> 00:16:51,279
season

431
00:16:55,269 --> 00:16:53,440
essentially we're a pretty good team

432
00:16:56,550 --> 00:16:55,279
here and we have a lot of priorities so

433
00:16:57,590 --> 00:16:56,560
we have to

434
00:17:00,389 --> 00:16:57,600
work on

435
00:17:01,749 --> 00:17:00,399
identifying scenarios

436
00:17:04,230 --> 00:17:01,759
we went through a lot of motions the

437
00:17:05,110 --> 00:17:04,240
first three weeks of october and in the

438
00:17:07,909 --> 00:17:05,120

end

439
00:17:10,390 --> 00:17:07,919
we um we we prevailed and we're all

440
00:17:11,829 --> 00:17:10,400
systems go for a lot of the good science

441
00:17:13,829 --> 00:17:11,839
that's coming down

442
00:17:15,829 --> 00:17:13,839
and so

443
00:17:16,829 --> 00:17:15,839
it there's it seems like annually

444
00:17:23,189 --> 00:17:16,839
there's

445
00:17:24,630 --> 00:17:23,199
there is always something that pops up

446
00:17:27,429 --> 00:17:24,640
that is a challenge

447
00:17:28,470 --> 00:17:27,439
for program-wide that affects affects a

448
00:17:29,590 --> 00:17:28,480
lot of the science and a lot of

449
00:17:31,990 --> 00:17:29,600
logistics

450
00:17:34,390 --> 00:17:32,000
and so this you know in my perspective

451
00:17:36,789 --> 00:17:34,400
was this was a big one but i think we

452
00:17:38,789 --> 00:17:36,799
got through it and i think um

453
00:17:41,190 --> 00:17:38,799
you know a lot of the science that

454
00:17:42,549 --> 00:17:41,200
the nsf funds on an annual basis um is

455
00:17:44,390 --> 00:17:42,559
going to continue

456
00:17:46,310 --> 00:17:44,400
there's a lot of groups that come down

457
00:17:49,110 --> 00:17:46,320
like the lter that have been coming down

458
00:17:51,350 --> 00:17:49,120
for a long time noah has some operations

459
00:17:52,870 --> 00:17:51,360
at south pole measuring co2

460
00:17:54,390 --> 00:17:52,880
concentrations

461
00:17:56,710 --> 00:17:54,400
that they are no longer going to have a

462
00:17:58,230 --> 00:17:56,720
skip year in their data so

463
00:17:59,909 --> 00:17:58,240

there's a lot of priorities out there

464
00:18:02,310 --> 00:17:59,919
and we're able to support a lot of that

465
00:18:04,710 --> 00:18:02,320
so we went through some gyrations and

466
00:18:06,390 --> 00:18:04,720
we figured it all out and uh what we're

467
00:18:07,430 --> 00:18:06,400
going to do some groups got deferred and

468
00:18:09,029 --> 00:18:07,440
a lot of them

469
00:18:10,710 --> 00:18:09,039
like michael mentioned maybe a little

470
00:18:12,950 --> 00:18:10,720
bit of reduced scope

471
00:18:14,549 --> 00:18:12,960
so it's unfortunate

472
00:18:15,990 --> 00:18:14,559
but it's the climate we're in and we'll

473
00:18:21,510 --> 00:18:16,000
just continue plowing forward and

474
00:18:24,870 --> 00:18:22,870
great thanks

475
00:18:27,270 --> 00:18:24,880
and we have a question for icebridge

476
00:18:30,390 --> 00:18:27,280
project manager christy hansen from

477
00:18:32,470 --> 00:18:30,400
youtube user gandalf extreme wants to

478
00:18:34,950 --> 00:18:32,480
know how much a mission like icebridge

479
00:18:40,630 --> 00:18:37,669
well that's a tricky question um

480
00:18:43,510 --> 00:18:40,640
depends on what you what you uh

481
00:18:46,070 --> 00:18:43,520
you count in the cost right do you count

482
00:18:48,070 --> 00:18:46,080
people's labor so all the time that is

483
00:18:49,270 --> 00:18:48,080
put in on any given work day like how

484
00:18:51,190 --> 00:18:49,280
much of my time have i spent on my

485
00:18:54,470 --> 00:18:51,200
growth of planning so that could factor

486
00:18:56,070 --> 00:18:54,480
in that could factor into the costs um

487
00:18:58,870 --> 00:18:56,080
then you actually have hardware and

488
00:19:02,789 --> 00:18:58,880

cargo so tangible things like i need to

489
00:19:04,789 --> 00:19:02,799
ship 55 000 pounds of cargo from the

490
00:19:06,710 --> 00:19:04,799
united states down to mcmurdo so there's

491
00:19:08,470 --> 00:19:06,720
a cost associated with that

492
00:19:10,950 --> 00:19:08,480
um there's a cost associated with

493
00:19:12,070 --> 00:19:10,960
getting all of our bodies our

494
00:19:14,390 --> 00:19:12,080
our team

495
00:19:15,909 --> 00:19:14,400
flying down uh to mcmurdo there's a cost

496
00:19:17,909 --> 00:19:15,919
with that

497
00:19:19,830 --> 00:19:17,919
we also have technology upgrades that

498
00:19:21,270 --> 00:19:19,840
can factor into the cost so we had some

499
00:19:23,270 --> 00:19:21,280
new upgrades

500
00:19:25,270 --> 00:19:23,280
that went with the p that actually were

501
00:19:27,669 --> 00:19:25,280
implemented onto the p3

502
00:19:30,310 --> 00:19:27,679
that that's a cost so um without giving

503
00:19:32,390 --> 00:19:30,320
you a exact quote it could be

504
00:19:34,549 --> 00:19:32,400
um anywhere from a couple hundred

505
00:19:36,789 --> 00:19:34,559
thousand dollars to maybe

506
00:19:38,390 --> 00:19:36,799
a little over a million

507
00:19:40,390 --> 00:19:38,400
so that's kind of a range that you can

508
00:19:42,710 --> 00:19:40,400
you could think of when when looking at

509
00:19:44,710 --> 00:19:42,720
a mission equivalent to ours getting

510
00:19:49,110 --> 00:19:44,720
ready to go to mcmurdo

511
00:19:52,150 --> 00:19:51,029
that was great thanks

512
00:19:54,390 --> 00:19:52,160
and we have another question from

513
00:19:57,029 --> 00:19:54,400

youtube this one is a little more

514
00:19:58,789 --> 00:19:57,039
sciencey so for michael this from uh

515
00:20:00,950 --> 00:19:58,799
this one is from thomas larson and he

516
00:20:03,510 --> 00:20:00,960
wants to know when was antarctica not

517
00:20:07,750 --> 00:20:03,520
covered by ice

518
00:20:09,909 --> 00:20:07,760
uh that was a very very long time ago

519
00:20:11,909 --> 00:20:09,919
i think

520
00:20:13,909 --> 00:20:11,919
and i may not have the right numbers in

521
00:20:14,630 --> 00:20:13,919
my uh

522
00:20:17,029 --> 00:20:14,640
my

523
00:20:19,990 --> 00:20:17,039
brain at the at this point it was about

524
00:20:20,950 --> 00:20:20,000
35 million years ago or 38 million years

525
00:20:24,549 --> 00:20:20,960
ago

526
00:20:27,029 --> 00:20:24,559
when the drake passage between uh south

527
00:20:28,070 --> 00:20:27,039
america and antarctica opened and the

528
00:20:29,990 --> 00:20:28,080
circum

529
00:20:32,630 --> 00:20:30,000
antarctic polar khan

530
00:20:35,270 --> 00:20:32,640
established and cooled down antarctica

531
00:20:37,430 --> 00:20:35,280
then we started seeing uh the first

532
00:20:40,070 --> 00:20:37,440
getting the first um

533
00:20:42,310 --> 00:20:40,080
kind of alpine glaciers and

534
00:20:44,630 --> 00:20:42,320
that grew eventually into

535
00:20:50,310 --> 00:20:44,640
continental ice sheets some 30 million

536
00:20:54,070 --> 00:20:52,710
great thanks michael um another question

537
00:20:57,110 --> 00:20:54,080
for you

538
00:20:59,270 --> 00:20:57,120

you said that icesat-2 will launch in i

539
00:21:01,830 --> 00:20:59,280
believe you said 2016.

540
00:21:04,310 --> 00:21:01,840
what will ice bridge's role be after the

541
00:21:05,430 --> 00:21:04,320
satellite launches

542
00:21:08,070 --> 00:21:05,440
um

543
00:21:11,029 --> 00:21:08,080
the uh the plan is to have at least one

544
00:21:12,630 --> 00:21:11,039
year overlap uh between icebridge and

545
00:21:15,029 --> 00:21:12,640
icesat-2

546
00:21:18,070 --> 00:21:15,039
this will give us one campaign in the

547
00:21:20,630 --> 00:21:18,080
arctic and one campaign in the antarctic

548
00:21:23,190 --> 00:21:20,640
and this is absolutely necessary to

549
00:21:26,630 --> 00:21:23,200
ensure the continuity and the

550
00:21:28,870 --> 00:21:26,640
consistency of the data that we collect

551
00:21:31,190 --> 00:21:28,880
because we are flying slightly different

552
00:21:33,190 --> 00:21:31,200
instruments that measure the ice surface

553
00:21:35,510 --> 00:21:33,200
elevation in slightly different ways

554
00:21:38,230 --> 00:21:35,520
than a satellite so we need to make sure

555
00:21:40,310 --> 00:21:38,240
that the measurements we are doing

556
00:21:42,230 --> 00:21:40,320
are consistent with the measurements

557
00:21:45,190 --> 00:21:42,240
that are being done

558
00:21:48,630 --> 00:21:45,200
by iso too and in order to um determine

559
00:21:50,470 --> 00:21:48,640
this we need um uh overlap between the

560
00:21:52,310 --> 00:21:50,480
two uh measurements

561
00:21:54,549 --> 00:21:52,320
uh beyond that

562
00:21:58,149 --> 00:21:54,559
there is a need for every satellite

563
00:22:01,669 --> 00:21:58,159

mission um to calibrate and validate the

564
00:22:03,909 --> 00:22:01,679
data that a satellite collects

565
00:22:05,909 --> 00:22:03,919
and that typically requires

566
00:22:08,149 --> 00:22:05,919
airborne measurements it requires

567
00:22:09,990 --> 00:22:08,159
measurements taken on the ground

568
00:22:12,710 --> 00:22:10,000
and all sorts of other things and

569
00:22:16,149 --> 00:22:12,720
icebridge runes certainly play a role in

570
00:22:26,149 --> 00:22:16,159
this calibration and validation phase of

571
00:22:29,909 --> 00:22:27,990
everyone um

572
00:22:32,470 --> 00:22:29,919
like to welcome welcome you to the nasa

573
00:22:34,870 --> 00:22:32,480
google plus hangout kicking off the

574
00:22:36,950 --> 00:22:34,880
operation icebridge 2013 antarctic

575
00:22:38,870 --> 00:22:36,960
campaign i'm george hale here at nasa

576
00:22:40,710 --> 00:22:38,880
goddard and we're answering your

577
00:22:42,710 --> 00:22:40,720
questions you can ask a question in the

578
00:22:43,590 --> 00:22:42,720
youtube comments box on the google plus

579
00:22:46,789 --> 00:22:43,600
page

580
00:22:49,830 --> 00:22:46,799
can tweet to us using the hashtag

581
00:22:55,750 --> 00:22:52,230
so michael you talked a little bit about

582
00:22:57,430 --> 00:22:55,760
measuring ice thickness and elevation

583
00:23:00,149 --> 00:22:57,440
can you talk a little bit more about

584
00:23:00,950 --> 00:23:00,159
some of the instruments icebridge uses

585
00:23:03,270 --> 00:23:00,960
yeah

586
00:23:06,149 --> 00:23:03,280
the um

587
00:23:08,470 --> 00:23:06,159
main purpose is to measure the

588
00:23:11,029 --> 00:23:08,480

change in ice surface elevation over

589
00:23:11,909 --> 00:23:11,039
time from year to year

590
00:23:14,950 --> 00:23:11,919
and

591
00:23:16,630 --> 00:23:14,960
this allows us of course to estimate how

592
00:23:20,070 --> 00:23:16,640
much ice

593
00:23:21,510 --> 00:23:20,080
an ice sheet is gaining or losing which

594
00:23:23,590 --> 00:23:21,520
is important

595
00:23:26,390 --> 00:23:23,600
because we want to understand how much

596
00:23:28,549 --> 00:23:26,400
ice of this melting is contributing to

597
00:23:30,710 --> 00:23:28,559
sea level rise in the future

598
00:23:34,470 --> 00:23:30,720
and the way ice bridge is doing this is

599
00:23:37,110 --> 00:23:34,480
we fly a laser altimeter in the p3

600
00:23:40,630 --> 00:23:37,120
aircraft that you can see behind me

601
00:23:42,950 --> 00:23:40,640
and this laser altimeter is kind of

602
00:23:45,350 --> 00:23:42,960
sending down laser beams from the

603
00:23:47,909 --> 00:23:45,360
aircraft down to the ice surface

604
00:23:50,950 --> 00:23:47,919
and the a couple of photons get

605
00:23:53,590 --> 00:23:50,960
reflected back to the

606
00:23:56,310 --> 00:23:53,600
aircraft and going to a detector or

607
00:23:58,870 --> 00:23:56,320
receiver there and then you can measure

608
00:24:01,190 --> 00:23:58,880
pretty much the time it takes from uh

609
00:24:02,470 --> 00:24:01,200
when you kind of we're sending out the

610
00:24:04,870 --> 00:24:02,480
poles

611
00:24:06,870 --> 00:24:04,880
how long it takes to get back and if you

612
00:24:08,789 --> 00:24:06,880
know the speed of light in air you can

613
00:24:11,590 --> 00:24:08,799

calculate the distance

614
00:24:13,190 --> 00:24:11,600
between the aircraft and the ice surface

615
00:24:14,470 --> 00:24:13,200
elevation

616
00:24:16,710 --> 00:24:14,480
and

617
00:24:18,710 --> 00:24:16,720
the next step to figure out where your

618
00:24:20,870 --> 00:24:18,720
ice surface elevation is actually

619
00:24:22,549 --> 00:24:20,880
located in an absolute reference frame

620
00:24:24,470 --> 00:24:22,559
is you need you need to determine

621
00:24:28,149 --> 00:24:24,480
exactly where your aircraft is

622
00:24:31,510 --> 00:24:28,159
positioned so we need very precise uh

623
00:24:33,190 --> 00:24:31,520
gps trajectory from the aircraft which

624
00:24:36,710 --> 00:24:33,200
is a um

625
00:24:39,269 --> 00:24:36,720
a big challenge and also kind of a a a

626
00:24:41,029 --> 00:24:39,279
piece of art to um

627
00:24:43,750 --> 00:24:41,039
to do this and once we

628
00:24:46,870 --> 00:24:43,760
know precisely where the aircraft has

629
00:24:49,990 --> 00:24:46,880
been flying at what elevation and know

630
00:24:52,070 --> 00:24:50,000
the range between the aircraft and the

631
00:24:54,870 --> 00:24:52,080
ice surface from the laser altimeter

632
00:24:56,149 --> 00:24:54,880
measurements we can

633
00:24:57,990 --> 00:24:56,159
pretty much

634
00:25:00,470 --> 00:24:58,000
determine the

635
00:25:01,830 --> 00:25:00,480
change in the ice surface elevation from

636
00:25:08,710 --> 00:25:01,840
year and year

637
00:25:11,909 --> 00:25:10,310
great thanks michael

638
00:25:14,470 --> 00:25:11,919

and we have another question from

639
00:25:16,870 --> 00:25:14,480
stephanie auburn at climatewire

640
00:25:18,710 --> 00:25:16,880
and she wants to know if michael if you

641
00:25:20,390 --> 00:25:18,720
could talk a little bit about the data

642
00:25:22,470 --> 00:25:20,400
and how it will be used by climate

643
00:25:24,310 --> 00:25:22,480
scientists i know you mentioned uh ice

644
00:25:26,390 --> 00:25:24,320
sheet models earlier could you maybe

645
00:25:27,190 --> 00:25:26,400
elaborate on that

646
00:25:30,630 --> 00:25:27,200
yeah

647
00:25:33,590 --> 00:25:30,640
um so icebridge is a nasa mission and

648
00:25:36,470 --> 00:25:33,600
that means all our data are publicly

649
00:25:37,590 --> 00:25:36,480
available after six months of the data

650
00:25:40,470 --> 00:25:37,600
collection

651
00:25:43,029 --> 00:25:40,480
um people can go to the national snow

652
00:25:45,510 --> 00:25:43,039
and ice data center website and download

653
00:25:46,470 --> 00:25:45,520
the data on for free

654
00:25:48,870 --> 00:25:46,480
and

655
00:25:50,789 --> 00:25:48,880
george you mentioned one of the

656
00:25:53,269 --> 00:25:50,799
important

657
00:25:55,590 --> 00:25:53,279
pieces of data that we collect that are

658
00:25:57,350 --> 00:25:55,600
used by

659
00:25:58,870 --> 00:25:57,360
people who

660
00:26:01,510 --> 00:25:58,880
determine how

661
00:26:03,909 --> 00:26:01,520
or project how ice sheets may change

662
00:26:08,470 --> 00:26:03,919
over time are ice sheet modelers

663
00:26:12,470 --> 00:26:08,480

and one of the very critical uh

664
00:26:15,430 --> 00:26:12,480
require is the elevation of the bedrock

665
00:26:17,430 --> 00:26:15,440
topography below the ice sheets

666
00:26:18,870 --> 00:26:17,440
so it is um

667
00:26:21,110 --> 00:26:18,880
critical to

668
00:26:23,350 --> 00:26:21,120
having a reliable

669
00:26:25,830 --> 00:26:23,360
ice sheet model

670
00:26:28,950 --> 00:26:25,840
really the the bedrock structure um

671
00:26:34,630 --> 00:26:32,549
in a precise square way and with a

672
00:26:36,870 --> 00:26:34,640
fairly high resolution because this is

673
00:26:37,669 --> 00:26:36,880
what's essentially driving a lot of the

674
00:26:39,669 --> 00:26:37,679
um

675
00:26:42,390 --> 00:26:39,679
dynamic flow of the ice from the

676
00:26:44,549 --> 00:26:42,400
interior to the um

677
00:26:46,630 --> 00:26:44,559
to the arctic ocean to the uh into the

678
00:26:50,230 --> 00:26:46,640
ocean where it contributes to sea level

679
00:26:52,230 --> 00:26:50,240
rise so in in addition to um

680
00:26:55,510 --> 00:26:52,240
ice surface elevation from laser

681
00:26:56,870 --> 00:26:55,520
altimetry we are collecting a uh many

682
00:26:58,630 --> 00:26:56,880
many different

683
00:27:02,549 --> 00:26:58,640
additional data sets

684
00:27:04,149 --> 00:27:02,559
that are used by ice sheet modelers and

685
00:27:05,190 --> 00:27:04,159
other scientists

686
00:27:08,070 --> 00:27:05,200
for

687
00:27:09,029 --> 00:27:08,080
answering important questions how ice

688
00:27:11,669 --> 00:27:09,039

sheets

689
00:27:13,590 --> 00:27:11,679
evolve over time and what the parameters

690
00:27:19,029 --> 00:27:13,600
are they are responding to when they are

691
00:27:22,230 --> 00:27:20,630
great thanks michael

692
00:27:24,789 --> 00:27:22,240
okay we have another question for

693
00:27:26,630 --> 00:27:24,799
christy of icebridge during the

694
00:27:27,750 --> 00:27:26,640
greenland campaign earlier this year we

695
00:27:30,310 --> 00:27:27,760
had

696
00:27:31,830 --> 00:27:30,320
a few teachers aboard could you talk

697
00:27:33,510 --> 00:27:31,840
about what it was like to work with some

698
00:27:34,710 --> 00:27:33,520
of those teachers during those campaign

699
00:27:35,830 --> 00:27:34,720
flights

700
00:27:37,110 --> 00:27:35,840
yeah that's a really good question

701
00:27:39,430 --> 00:27:37,120
george

702
00:27:41,190 --> 00:27:39,440
this this recent year in greenland was

703
00:27:42,630 --> 00:27:41,200
particularly an amazing one i thought in

704
00:27:43,990 --> 00:27:42,640
terms of

705
00:27:45,750 --> 00:27:44,000
having a

706
00:27:47,110 --> 00:27:45,760
education and outreach project in the

707
00:27:49,909 --> 00:27:47,120
field

708
00:27:51,190 --> 00:27:49,919
we had a teacher from uh polar trek

709
00:27:53,590 --> 00:27:51,200
actually a program from the national

710
00:27:54,789 --> 00:27:53,600
science foundation um you know we

711
00:27:56,310 --> 00:27:54,799
and george hale obviously you were

712
00:27:57,990 --> 00:27:56,320
involved in helping pick and select this

713
00:28:00,230 --> 00:27:58,000

teacher to come into the field his name

714
00:28:02,149 --> 00:28:00,240
was mark fusing and

715
00:28:04,630 --> 00:28:02,159
to this day i was amazed and impressed

716
00:28:06,470 --> 00:28:04,640
with his performance in the in the field

717
00:28:08,070 --> 00:28:06,480
not only how he acted in the field but

718
00:28:10,389 --> 00:28:08,080
the products that he built during

719
00:28:11,990 --> 00:28:10,399
real-time operations that he shared

720
00:28:13,909 --> 00:28:12,000
directly with his classroom and he

721
00:28:15,430 --> 00:28:13,919
reached so many students so

722
00:28:17,110 --> 00:28:15,440
for the public out there he doesn't know

723
00:28:18,630 --> 00:28:17,120
what that program is we we bring a

724
00:28:20,149 --> 00:28:18,640
teacher in the field with us when we go

725
00:28:22,310 --> 00:28:20,159
to greenland they fly on some of the

726
00:28:23,669 --> 00:28:22,320
flights um they meet with each of our

727
00:28:25,669 --> 00:28:23,679
team members to learn about the

728
00:28:27,590 --> 00:28:25,679
instruments how they work a lot of it is

729
00:28:28,710 --> 00:28:27,600
science and math based

730
00:28:30,389 --> 00:28:28,720
and some of them will actually create

731
00:28:31,830 --> 00:28:30,399
lesson plans while they're in the field

732
00:28:34,230 --> 00:28:31,840
they'll get video clips or they'll do

733
00:28:35,990 --> 00:28:34,240
math problems um mark was really good

734
00:28:37,190 --> 00:28:36,000
almost every night he he put out a new

735
00:28:39,590 --> 00:28:37,200
lesson plan

736
00:28:41,590 --> 00:28:39,600
um so he took everything he learned from

737
00:28:43,430 --> 00:28:41,600
our our active research in the field and

738
00:28:45,590 --> 00:28:43,440

turned it into a lesson plan

739
00:28:47,669 --> 00:28:45,600
for his students and we were able to see

740
00:28:49,029 --> 00:28:47,679
the end result of that um

741
00:28:50,950 --> 00:28:49,039
another thing that some of the teachers

742
00:28:52,389 --> 00:28:50,960
in the field do like mark where we do

743
00:28:54,549 --> 00:28:52,399
video blogs so

744
00:28:56,630 --> 00:28:54,559
sort of a career focus teaching the kids

745
00:28:57,750 --> 00:28:56,640
out there today what kind of careers can

746
00:28:59,430 --> 00:28:57,760
you have you don't just have to be at

747
00:29:00,870 --> 00:28:59,440
your desk all day there's all these

748
00:29:03,510 --> 00:29:00,880
exciting careers you can do in math

749
00:29:05,590 --> 00:29:03,520
research science engineering um more

750
00:29:07,510 --> 00:29:05,600
exploration based so he kind of took

751
00:29:10,389 --> 00:29:07,520
little video clips of the flight crew of

752
00:29:11,590 --> 00:29:10,399
our scientists um of me of michael and

753
00:29:14,070 --> 00:29:11,600
he uh

754
00:29:15,830 --> 00:29:14,080
actually put those out on a video feed

755
00:29:17,190 --> 00:29:15,840
and and all the students could learn

756
00:29:19,669 --> 00:29:17,200
about it and comment on the different

757
00:29:21,350 --> 00:29:19,679
job positions so i felt that

758
00:29:22,630 --> 00:29:21,360
he really did an amazing amount of work

759
00:29:24,710 --> 00:29:22,640
and sent a lot of really positive

760
00:29:26,230 --> 00:29:24,720
messages about how exciting math

761
00:29:28,230 --> 00:29:26,240
engineering these stem technologies

762
00:29:30,310 --> 00:29:28,240
could be so both michael and i were very

763
00:29:31,990 --> 00:29:30,320

pleased with his performance and felt

764
00:29:36,389 --> 00:29:32,000
that um having him in the field was an

765
00:29:39,909 --> 00:29:37,990
oh that's great and it was wonderful

766
00:29:41,430 --> 00:29:39,919
working with mark he uh had a lot of

767
00:29:42,950 --> 00:29:41,440
great material that he put together on

768
00:29:44,710 --> 00:29:42,960
his blog

769
00:29:47,430 --> 00:29:44,720
uh christy we have another question this

770
00:29:49,510 --> 00:29:47,440
one from twitter from polly pete

771
00:29:50,870 --> 00:29:49,520
and uh peter wants to know how many

772
00:29:53,750 --> 00:29:50,880
seasons icebridge will work out of

773
00:29:55,590 --> 00:29:53,760
mcmurdo whether it's a one-off thing or

774
00:29:57,269 --> 00:29:55,600
a recurring thing yeah that's a really

775
00:29:58,230 --> 00:29:57,279
good question so we're pretty excited

776
00:29:59,269 --> 00:29:58,240
that

777
00:30:01,110 --> 00:29:59,279
you know it took us about a year and a

778
00:30:03,269 --> 00:30:01,120
half to plan this very first deployment

779
00:30:05,510 --> 00:30:03,279
we're going to do um but this will not

780
00:30:07,350 --> 00:30:05,520
be our only deployment we

781
00:30:08,789 --> 00:30:07,360
plan to at least perform one more

782
00:30:11,029 --> 00:30:08,799
deployment in the field that's at least

783
00:30:13,510 --> 00:30:11,039
one more probably more than that

784
00:30:16,149 --> 00:30:13,520
the challenge is that this time next

785
00:30:17,830 --> 00:30:16,159
year our p3 aircraft that we use

786
00:30:19,510 --> 00:30:17,840
is going through some major maintenance

787
00:30:22,470 --> 00:30:19,520
it's going to have new wings put on it

788
00:30:24,549 --> 00:30:22,480

so unfortunately next year you know for

789
00:30:26,789 --> 00:30:24,559
this season we won't be able to be based

790
00:30:28,710 --> 00:30:26,799
in mcmurdo but the following year our

791
00:30:31,029 --> 00:30:28,720
plan is to be back down there for the

792
00:30:33,110 --> 00:30:31,039
entire season collecting data so what i

793
00:30:34,950 --> 00:30:33,120
can tell you is at least two seasons but

794
00:30:37,830 --> 00:30:34,960
it is highly likely that we will pursue

795
00:30:41,510 --> 00:30:37,840
pursue more than that

796
00:30:45,190 --> 00:30:43,110
that was a great answer

797
00:30:46,230 --> 00:30:45,200
uh once again this is a nasa google plus

798
00:30:49,269 --> 00:30:46,240
hangout

799
00:30:51,269 --> 00:30:49,279
kicking off the operation icebridge 2013

800
00:30:52,710 --> 00:30:51,279
antarctic campaign i'm george hale at

801
00:30:54,710 --> 00:30:52,720
nasa goddard we're answering your

802
00:30:55,750 --> 00:30:54,720
questions you can send questions to us

803
00:30:58,070 --> 00:30:55,760
from

804
00:31:00,710 --> 00:30:58,080
the google plus page youtube comments

805
00:31:03,269 --> 00:31:00,720
box the icebridge facebook page or on

806
00:31:04,950 --> 00:31:03,279
twitter using the hashtag icebridge

807
00:31:07,750 --> 00:31:04,960
i have another question for michael from

808
00:31:10,870 --> 00:31:07,760
youtube this is from austin verily

809
00:31:14,230 --> 00:31:12,310
austin understands that the research is

810
00:31:15,669 --> 00:31:14,240
significant to scientific modeling why

811
00:31:19,830 --> 00:31:15,679
should the public care about the

812
00:31:24,630 --> 00:31:22,149
very simple answer because if the

813
00:31:27,430 --> 00:31:24,640

thickness of ice changes it's going to

814
00:31:30,549 --> 00:31:27,440
end up at the wall as water in the ocean

815
00:31:33,269 --> 00:31:30,559
which means it will rise sea level

816
00:31:36,070 --> 00:31:33,279
and if you are in a place

817
00:31:38,310 --> 00:31:36,080
like here at the wallops flight facility

818
00:31:41,350 --> 00:31:38,320
that's very close to sea level

819
00:31:43,909 --> 00:31:41,360
um they are very concerned about some of

820
00:31:45,110 --> 00:31:43,919
their runways being just barely above

821
00:31:51,909 --> 00:31:45,120
sea level

822
00:31:54,710 --> 00:31:51,919
you will see more and more flooding

823
00:31:57,590 --> 00:31:54,720
together with big storms

824
00:32:00,549 --> 00:31:57,600
tropical depressions hurricanes

825
00:32:04,310 --> 00:32:00,559
so you will kind of see a lot of damage

826
00:32:06,230 --> 00:32:04,320
to property um economic loss and that's

827
00:32:08,710 --> 00:32:06,240
these are all not good things that we

828
00:32:11,110 --> 00:32:08,720
want so it really what matters in

829
00:32:12,830 --> 00:32:11,120
antarctica what happens in antarctica

830
00:32:19,190 --> 00:32:12,840
really matters at the

831
00:32:22,710 --> 00:32:20,950
great thanks michael

832
00:32:25,350 --> 00:32:22,720
we have another question from twitter

833
00:32:28,230 --> 00:32:25,360
for christy cyril wants to know how the

834
00:32:30,070 --> 00:32:28,240
future for icebridge missions will look

835
00:32:32,710 --> 00:32:30,080
i think the future is positive for

836
00:32:35,430 --> 00:32:32,720
icebridge missions i'm pleased to say

837
00:32:36,310 --> 00:32:35,440
so um we have a we have an amazing team

838
00:32:41,830 --> 00:32:36,320

um

839
00:32:43,269 --> 00:32:41,840
well and when i say that i mean

840
00:32:45,269 --> 00:32:43,279
instrument operators in the field the

841
00:32:47,190 --> 00:32:45,279
flight crew our science team our

842
00:32:48,789 --> 00:32:47,200
logistics teams um

843
00:32:49,909 --> 00:32:48,799
we deploy twice a year generally and

844
00:32:50,950 --> 00:32:49,919
actually this year it's three times a

845
00:32:52,710 --> 00:32:50,960
year

846
00:32:54,870 --> 00:32:52,720
we collect data and then about six

847
00:32:56,310 --> 00:32:54,880
months after that our team

848
00:32:57,830 --> 00:32:56,320
processes all their data and they get

849
00:32:59,590 --> 00:32:57,840
all their data products out and michael

850
00:33:00,470 --> 00:32:59,600
talked about that those data sets being

851
00:33:02,870 --> 00:33:00,480
free

852
00:33:04,870 --> 00:33:02,880
and each year we continue to collect

853
00:33:06,710 --> 00:33:04,880
data in the field i think um our data

854
00:33:08,230 --> 00:33:06,720
sets are known to more and more

855
00:33:10,630 --> 00:33:08,240
communities um

856
00:33:11,909 --> 00:33:10,640
across the world so we're just now in

857
00:33:13,110 --> 00:33:11,919
this exciting phase where we're starting

858
00:33:15,190 --> 00:33:13,120
to get a lot of feedback we're starting

859
00:33:17,430 --> 00:33:15,200
to see more and more papers being

860
00:33:18,870 --> 00:33:17,440
written um for people who've used our

861
00:33:19,830 --> 00:33:18,880
ice ridge data sets which is very

862
00:33:21,909 --> 00:33:19,840
exciting

863
00:33:23,430 --> 00:33:21,919

and uh so right now what i can say is

864
00:33:26,789 --> 00:33:23,440
that we expect that ice bridge will

865
00:33:28,950 --> 00:33:26,799
continue going until at least 2017

866
00:33:30,310 --> 00:33:28,960
um because we see that the again the the

867
00:33:33,110 --> 00:33:30,320
community is very excited about our data

868
00:33:34,549 --> 00:33:33,120
sets we're doing well um as well as um

869
00:33:36,950 --> 00:33:34,559
using a lot of our data sets to help

870
00:33:38,789 --> 00:33:36,960
with icesat-2

871
00:33:40,870 --> 00:33:38,799
calval procedures and stuff that michael

872
00:33:42,950 --> 00:33:40,880
talked about earlier so again at least

873
00:33:44,789 --> 00:33:42,960
2017 um

874
00:33:46,230 --> 00:33:44,799
i feel positive there that maybe there's

875
00:33:50,870 --> 00:33:46,240
a chance it could go longer than that

876
00:33:54,070 --> 00:33:52,630
great thanks chrissy and i just want to

877
00:33:55,269 --> 00:33:54,080
remind everyone this is a nasa google

878
00:33:57,590 --> 00:33:55,279
plus hangout

879
00:33:59,750 --> 00:33:57,600
kicking off the operation icebridge 2013

880
00:34:02,070 --> 00:33:59,760
antarctic campaign and i'm george hale

881
00:34:04,149 --> 00:34:02,080
at nasa goddard you can ask questions

882
00:34:06,950 --> 00:34:04,159
via youtube in the comments box on the

883
00:34:08,869 --> 00:34:06,960
google plus page through the icebridge

884
00:34:10,710 --> 00:34:08,879
facebook page or tweet to us using the

885
00:34:12,790 --> 00:34:10,720
hashtag icebridge

886
00:34:15,270 --> 00:34:12,800
and we have another question from

887
00:34:16,069 --> 00:34:15,280
twitter from cyril again

888
00:34:17,750 --> 00:34:16,079

and

889
00:34:19,829 --> 00:34:17,760
cyril wants to know michael are there

890
00:34:23,750 --> 00:34:19,839
plan are there flights planned to go

891
00:34:27,990 --> 00:34:25,349
um

892
00:34:30,149 --> 00:34:28,000
we we have a plan to go close to south

893
00:34:32,550 --> 00:34:30,159
pole and the

894
00:34:35,430 --> 00:34:32,560
reason for that is

895
00:34:39,190 --> 00:34:35,440
as i mentioned the calibration and

896
00:34:44,069 --> 00:34:39,200
validation of icesat and cryosat 2

897
00:34:47,669 --> 00:34:44,079
and isa 2 are a major parts of our work

898
00:34:50,069 --> 00:34:47,679
and the cryosat 2 has a

899
00:34:50,790 --> 00:34:50,079
inflection point where all the orbits

900
00:34:53,430 --> 00:34:50,800
come

901
00:34:57,109 --> 00:34:53,440
close together that is at the

902
00:35:01,109 --> 00:34:57,119
88 degrees south and so has ice set too

903
00:35:04,069 --> 00:35:01,119
so if we collect data along a

904
00:35:05,510 --> 00:35:04,079
circle along 88 degrees south we can

905
00:35:09,190 --> 00:35:05,520
actually

906
00:35:10,550 --> 00:35:09,200
collect data over all ice uh sat2 and

907
00:35:13,109 --> 00:35:10,560
christ

908
00:35:15,510 --> 00:35:13,119
that have ever been flown so this is a

909
00:35:18,470 --> 00:35:15,520
tremendous data set for a

910
00:35:19,430 --> 00:35:18,480
validation and calibration

911
00:35:22,150 --> 00:35:19,440
and

912
00:35:24,950 --> 00:35:22,160
we probably have to go we have to break

913
00:35:27,430 --> 00:35:24,960

this up into multiple flights so we

914
00:35:30,069 --> 00:35:27,440
will be heading on a transit back to

915
00:35:32,790 --> 00:35:30,079
mcmurdo closer to south pole station and

916
00:35:34,950 --> 00:35:32,800
also collecting data in what we call the

917
00:35:38,710 --> 00:35:34,960
polar gap because

918
00:35:41,670 --> 00:35:38,720
south of 86 degree and 88 degrees

919
00:35:44,230 --> 00:35:41,680
which are the inflection points of

920
00:35:47,190 --> 00:35:44,240
icesat and cryosat 2 we don't really

921
00:35:53,750 --> 00:35:47,200
have any any uh reliable data about ice

922
00:35:57,990 --> 00:35:55,190
thank you michael

923
00:36:00,710 --> 00:35:58,000
our next question comes from google plus

924
00:36:02,790 --> 00:36:00,720
uh christy jarno wants to know if nasa

925
00:36:05,430 --> 00:36:02,800
will allow the plane to be tracked by

926
00:36:07,589 --> 00:36:05,440
flightradar24.com

927
00:36:09,190 --> 00:36:07,599
this will be a great for aircraft

928
00:36:10,710 --> 00:36:09,200
spotters as well as anyone interested in

929
00:36:12,550 --> 00:36:10,720
science

930
00:36:14,230 --> 00:36:12,560
yeah so that's a good question um we we

931
00:36:15,910 --> 00:36:14,240
definitely are advocates of sharing our

932
00:36:18,230 --> 00:36:15,920
flight lines and with the community so

933
00:36:19,670 --> 00:36:18,240
people can follow us along in real time

934
00:36:22,550 --> 00:36:19,680
i'm not familiar with that website you

935
00:36:25,190 --> 00:36:22,560
gave but what i can tell you is that our

936
00:36:28,069 --> 00:36:25,200
airborne science program um the airborne

937
00:36:30,069 --> 00:36:28,079
science program website for nasa uh has

938
00:36:31,510 --> 00:36:30,079

a flight it has its own flight tracker

939
00:36:33,430 --> 00:36:31,520
so when we take off and land we turn on

940
00:36:35,109 --> 00:36:33,440
our flight tracker and we can show where

941
00:36:37,430 --> 00:36:35,119
we're flying on the airborne science

942
00:36:39,349 --> 00:36:37,440
programs website so you can google that

943
00:36:41,030 --> 00:36:39,359
look that up and you can follow us at

944
00:36:42,150 --> 00:36:41,040
least using that that program to see

945
00:36:43,349 --> 00:36:42,160
where we go

946
00:36:45,510 --> 00:36:43,359
um

947
00:36:47,109 --> 00:36:45,520
another kind of exciting thing we do for

948
00:36:48,870 --> 00:36:47,119
education and outreach kind of in

949
00:36:50,390 --> 00:36:48,880
addition to showing where we're flying

950
00:36:52,950 --> 00:36:50,400
and what flight lines we do

951
00:36:54,630 --> 00:36:52,960
is we will post to our facebook page

952
00:36:56,230 --> 00:36:54,640
where we're going each day and we'll try

953
00:36:57,349 --> 00:36:56,240
and actually post

954
00:36:59,030 --> 00:36:57,359
photos that we've taken during the

955
00:37:00,470 --> 00:36:59,040
mission anything that comes up we can

956
00:37:01,750 --> 00:37:00,480
share that with the community you can

957
00:37:04,150 --> 00:37:01,760
check that out at the operation

958
00:37:06,870 --> 00:37:04,160
icebridge facebook page

959
00:37:08,390 --> 00:37:06,880
as well as uh we can do real time

960
00:37:10,069 --> 00:37:08,400
chatting while we're flying

961
00:37:11,750 --> 00:37:10,079
it's a pretty basic limited capability

962
00:37:13,430 --> 00:37:11,760
but we can share text

963
00:37:15,349 --> 00:37:13,440

with classrooms on the ground who want

964
00:37:16,790 --> 00:37:15,359
to get involved and follow us along

965
00:37:18,230 --> 00:37:16,800
while we're flying to to figure out what

966
00:37:20,150 --> 00:37:18,240
we're doing why are we going where we

967
00:37:21,750 --> 00:37:20,160
are

968
00:37:23,670 --> 00:37:21,760
interpersonal questions as well too like

969
00:37:25,589 --> 00:37:23,680
what does it feel like how high are you

970
00:37:27,270 --> 00:37:25,599
what do you eat so we do try to share

971
00:37:29,349 --> 00:37:27,280
the whole experience with with students

972
00:37:30,470 --> 00:37:29,359
on the ground when we're flying and um

973
00:37:31,829 --> 00:37:30,480
you could actually talk to george hale

974
00:37:33,829 --> 00:37:31,839
in the future about that if if you

975
00:37:35,270 --> 00:37:33,839
wanted a classroom to get involved to

976
00:37:37,750 --> 00:37:35,280
kind of see where we're flying in real

977
00:37:39,829 --> 00:37:37,760
time and then and having a classroom

978
00:37:42,390 --> 00:37:39,839
communicate with us while we're flying

979
00:37:44,150 --> 00:37:42,400
i hope that answers your question

980
00:37:46,870 --> 00:37:44,160
that's a great answer

981
00:37:48,470 --> 00:37:46,880
okay and uh chad following up on

982
00:37:50,950 --> 00:37:48,480
something that christy said earlier she

983
00:37:53,430 --> 00:37:50,960
said that it was a year and a half

984
00:37:55,270 --> 00:37:53,440
planning this mission could you

985
00:37:57,190 --> 00:37:55,280
maybe let us know in your work with the

986
00:37:59,829 --> 00:37:57,200
u.s antarctic program how that

987
00:38:01,270 --> 00:37:59,839
fits in with others is that less time or

988
00:38:03,589 --> 00:38:01,280

more time than other

989
00:38:07,510 --> 00:38:03,599
projects take

990
00:38:10,550 --> 00:38:07,520
right so the nsf funds projects um they

991
00:38:11,510 --> 00:38:10,560
the annual submission for grants at nsf

992
00:38:13,910 --> 00:38:11,520
uh

993
00:38:16,470 --> 00:38:13,920
the solicitation opens up i think around

994
00:38:17,589 --> 00:38:16,480
may or june so that's when proposals

995
00:38:20,710 --> 00:38:17,599
come in

996
00:38:22,550 --> 00:38:20,720
in this round with nasa

997
00:38:24,310 --> 00:38:22,560
they didn't submit a proposal so what we

998
00:38:27,109 --> 00:38:24,320
do is we incorporated them into our

999
00:38:28,870 --> 00:38:27,119
normal round of all the other proposals

1000
00:38:30,470 --> 00:38:28,880
and fit them in you know in the year

1001
00:38:33,750 --> 00:38:30,480
that they want to go so we start looking

1002
00:38:35,750 --> 00:38:33,760
at all projects a minimum of a year in

1003
00:38:38,710 --> 00:38:35,760
advance

1004
00:38:41,190 --> 00:38:38,720
so if a project gets funded or you know

1005
00:38:42,790 --> 00:38:41,200
submitted in june it actually won't get

1006
00:38:45,670 --> 00:38:42,800
funded until the following about

1007
00:38:47,190 --> 00:38:45,680
february time frame is about average

1008
00:38:49,670 --> 00:38:47,200
then they'll plan to go down to

1009
00:38:51,270 --> 00:38:49,680
antarctica that following year so most

1010
00:38:53,829 --> 00:38:51,280
projects

1011
00:38:55,510 --> 00:38:53,839
require um a year to year and a half of

1012
00:38:57,030 --> 00:38:55,520
planning now

1013
00:38:59,190 --> 00:38:57,040

the question specifically is how

1014
00:39:00,790 --> 00:38:59,200
icebridge fits into that icebridge is a

1015
00:39:02,069 --> 00:39:00,800
complicated project with a lot of

1016
00:39:04,710 --> 00:39:02,079
resources

1017
00:39:06,790 --> 00:39:04,720
so it takes a little bit longer

1018
00:39:08,230 --> 00:39:06,800
because nasa was so organized and

1019
00:39:10,950 --> 00:39:08,240
because they've done their deployments

1020
00:39:12,870 --> 00:39:10,960
before to greenland and on the peninsula

1021
00:39:15,270 --> 00:39:12,880
side of antarctica they came well

1022
00:39:18,310 --> 00:39:15,280
prepared and they knew exactly

1023
00:39:19,589 --> 00:39:18,320
their requirements and capabilities so

1024
00:39:21,750 --> 00:39:19,599
christy and i have spent the last year

1025
00:39:24,230 --> 00:39:21,760
and a half figuring out how that how

1026
00:39:25,670 --> 00:39:24,240
that fits into our little shoe box of

1027
00:39:27,190 --> 00:39:25,680
resources

1028
00:39:30,230 --> 00:39:27,200
how does that fit into other projects

1029
00:39:31,270 --> 00:39:30,240
some projects um are quite

1030
00:39:32,950 --> 00:39:31,280
simple

1031
00:39:34,470 --> 00:39:32,960
in a sense that

1032
00:39:36,230 --> 00:39:34,480
they don't require a full year of

1033
00:39:38,470 --> 00:39:36,240
planning other projects we might plan

1034
00:39:39,430 --> 00:39:38,480
for three to five years before they even

1035
00:39:40,829 --> 00:39:39,440
deploy

1036
00:39:43,030 --> 00:39:40,839
maybe there's um

1037
00:39:44,950 --> 00:39:43,040
technological advances that need to be

1038
00:39:46,950 --> 00:39:44,960

made maybe there's testing that needs to

1039
00:39:49,190 --> 00:39:46,960
happen in similar regions maybe in

1040
00:39:50,390 --> 00:39:49,200
canada there's all sorts there's a wide

1041
00:39:52,230 --> 00:39:50,400
variety i would say ice bridge is

1042
00:39:53,750 --> 00:39:52,240
somewhere right in the middle you know

1043
00:39:55,430 --> 00:39:53,760
it's it's very complicated it's very

1044
00:39:58,470 --> 00:39:55,440
complex

1045
00:40:00,470 --> 00:39:58,480
but again because nasa was so organized

1046
00:40:02,550 --> 00:40:00,480
that that's really helpful to know

1047
00:40:05,270 --> 00:40:02,560
exactly what you need

1048
00:40:06,950 --> 00:40:05,280
and i hope that answers the question

1049
00:40:09,109 --> 00:40:06,960
that's great thanks chad and uh going

1050
00:40:10,630 --> 00:40:09,119
back nsf stands for national science

1051
00:40:13,190 --> 00:40:10,640
foundation

1052
00:40:14,870 --> 00:40:13,200
our next question comes from youtube and

1053
00:40:16,630 --> 00:40:14,880
this will be for michael

1054
00:40:20,630 --> 00:40:16,640
this user wants to know who had the

1055
00:40:23,829 --> 00:40:21,910
um

1056
00:40:26,630 --> 00:40:23,839
i don't think there was a single person

1057
00:40:29,829 --> 00:40:26,640
behind this and it actually predates my

1058
00:40:32,950 --> 00:40:29,839
involvement in icebridge

1059
00:40:35,589 --> 00:40:32,960
there was a team of scientists in the

1060
00:40:38,150 --> 00:40:35,599
cryosphere community and within nasa

1061
00:40:40,710 --> 00:40:38,160
including project managers at nasa

1062
00:40:42,310 --> 00:40:40,720
headquarters that

1063
00:40:45,670 --> 00:40:42,320

realized that

1064
00:40:47,910 --> 00:40:45,680
the end of icesat-1 was coming in 2009

1065
00:40:50,310 --> 00:40:47,920
and they were sitting down and looking

1066
00:40:52,550 --> 00:40:50,320
into possibilities

1067
00:40:55,430 --> 00:40:52,560
of continuing the uh the measurements

1068
00:40:58,069 --> 00:40:55,440
that have been begun by uh i said one

1069
00:41:00,710 --> 00:40:58,079
and so people were looking into uh

1070
00:41:02,390 --> 00:41:00,720
various different kinds of um airborne

1071
00:41:04,630 --> 00:41:02,400
campaigns or

1072
00:41:07,990 --> 00:41:04,640
mini satellites that could be launched

1073
00:41:10,230 --> 00:41:08,000
on a small budget to collect

1074
00:41:12,950 --> 00:41:10,240
the data the kind of data sets that

1075
00:41:15,829 --> 00:41:12,960
icesat was collecting

1076
00:41:19,270 --> 00:41:15,839
and after several studies and

1077
00:41:21,910 --> 00:41:19,280
a lot of work in teams and communities

1078
00:41:24,550 --> 00:41:21,920
nasa made the decision to

1079
00:41:27,510 --> 00:41:24,560
launch a a airborne science project

1080
00:41:28,870 --> 00:41:27,520
called icebridge in 2009

1081
00:41:31,670 --> 00:41:28,880
to continue

1082
00:41:33,829 --> 00:41:31,680
acquisition of data until icesat-2 will

1083
00:41:38,390 --> 00:41:33,839
be launched in

1084
00:41:42,390 --> 00:41:40,069
great thanks michael

1085
00:41:45,430 --> 00:41:42,400
uh we have another question from twitter

1086
00:41:47,109 --> 00:41:45,440
uh from damara mara wants to know if we

1087
00:41:49,109 --> 00:41:47,119
collect audio data

1088
00:41:50,710 --> 00:41:49,119

from aurora and space weather and i know

1089
00:41:51,510 --> 00:41:50,720
that icebridge doesn't collect data like

1090
00:41:53,270 --> 00:41:51,520
that

1091
00:41:55,589 --> 00:41:53,280
but chad maybe you can give us a sense

1092
00:41:59,510 --> 00:41:55,599
of all the different sorts of scientific

1093
00:42:03,670 --> 00:42:01,750
sure specifically

1094
00:42:05,589 --> 00:42:03,680
aeronomy and astrophysics are popular at

1095
00:42:07,270 --> 00:42:05,599
south pole because the atmosphere is

1096
00:42:08,630 --> 00:42:07,280
clear and there's not a lot of light

1097
00:42:10,150 --> 00:42:08,640
pollution

1098
00:42:13,190 --> 00:42:10,160
so there are a lot of instruments at

1099
00:42:15,829 --> 00:42:13,200
south pole to monitor the mesosphere

1100
00:42:18,470 --> 00:42:15,839
as well as deep space as well as the you

1101
00:42:21,589 --> 00:42:18,480
know neutrino array that was called ice

1102
00:42:23,349 --> 00:42:21,599
cube that was built over the last decade

1103
00:42:25,030 --> 00:42:23,359
simultaneously with the new south pole

1104
00:42:26,309 --> 00:42:25,040
station

1105
00:42:28,829 --> 00:42:26,319
there's a wide variety of science

1106
00:42:32,550 --> 00:42:28,839
projects that occur on the continent

1107
00:42:35,349 --> 00:42:32,560
biology glaciology again astrophysics

1108
00:42:37,750 --> 00:42:35,359
and aeronauty and then you have people

1109
00:42:39,829 --> 00:42:37,760
studying paleontology too there's a lot

1110
00:42:41,510 --> 00:42:39,839
of fossils in antarctica

1111
00:42:42,870 --> 00:42:41,520
that are buried in snow and on these

1112
00:42:44,950 --> 00:42:42,880
mountaintops you've seen some of the

1113
00:42:46,309 --> 00:42:44,960

graphics going down on the screen there

1114
00:42:48,309 --> 00:42:46,319
you can see those little brown mountain

1115
00:42:50,230 --> 00:42:48,319
tops some of the you know the continent

1116
00:42:51,990 --> 00:42:50,240
is exposed and where it's exposed is

1117
00:42:52,790 --> 00:42:52,000
very valuable to a lot of scientists to

1118
00:42:55,430 --> 00:42:52,800
gain

1119
00:42:57,109 --> 00:42:55,440
invaluable data sets on

1120
00:42:58,950 --> 00:42:57,119
anything from like what michael was

1121
00:43:00,790 --> 00:42:58,960
talking about earlier about 38 million

1122
00:43:03,589 --> 00:43:00,800
years ago and then we've got

1123
00:43:05,750 --> 00:43:03,599
ice cores out in the

1124
00:43:07,430 --> 00:43:05,760
the higher depths of the ice on the

1125
00:43:09,589 --> 00:43:07,440
continent we're drilling down getting

1126
00:43:12,630 --> 00:43:09,599
cores looking back at the atmosphere for

1127
00:43:14,069 --> 00:43:12,640
200 200 600 000 years ago to get an

1128
00:43:15,190 --> 00:43:14,079
understanding of what the continent was

1129
00:43:16,870 --> 00:43:15,200
like then

1130
00:43:19,030 --> 00:43:16,880
there there's a wide variety we have

1131
00:43:20,950 --> 00:43:19,040
divers looking you know that are going

1132
00:43:23,030 --> 00:43:20,960
down and collecting organisms for

1133
00:43:24,710 --> 00:43:23,040
scientists

1134
00:43:27,829 --> 00:43:24,720
there's a lot of seal and penguin study

1135
00:43:30,550 --> 00:43:27,839
groups locally around the coast

1136
00:43:32,230 --> 00:43:30,560
all over the coast of antarctica by

1137
00:43:34,150 --> 00:43:32,240
all different types of antarctic

1138
00:43:36,630 --> 00:43:34,160

international antarctic

1139
00:43:38,150 --> 00:43:36,640
programs so

1140
00:43:40,550 --> 00:43:38,160
there's a there's there's a lot of

1141
00:43:42,950 --> 00:43:40,560
science going on down there

1142
00:43:44,550 --> 00:43:42,960
and it's it's it's good to be a part of

1143
00:43:46,390 --> 00:43:44,560
it actually i

1144
00:43:51,510 --> 00:43:46,400
actually love this stuff so

1145
00:43:56,550 --> 00:43:52,829
that's great thanks

1146
00:43:58,069 --> 00:43:56,560
chad so cyril on twitter wants to know

1147
00:44:00,870 --> 00:43:58,079
and michael you can help with this

1148
00:44:04,950 --> 00:44:00,880
question how exactly does icesat help in

1149
00:44:10,150 --> 00:44:07,910
um i think it's probably more the other

1150
00:44:14,630 --> 00:44:10,160
way around that icebridge is helping

1151
00:44:14,640 --> 00:44:17,829
but

1152
00:44:22,950 --> 00:44:20,630
in order to answer the designs questions

1153
00:44:25,349 --> 00:44:22,960
that we are interested in in how ice

1154
00:44:26,870 --> 00:44:25,359
sheets are changing over time we need

1155
00:44:29,190 --> 00:44:26,880
all sorts of different kinds of

1156
00:44:31,510 --> 00:44:29,200
measurements and isa is contributing to

1157
00:44:34,790 --> 00:44:31,520
this i said two will be contributing to

1158
00:44:35,670 --> 00:44:34,800
this and also and so does icebridge

1159
00:44:39,270 --> 00:44:35,680
so

1160
00:44:42,069 --> 00:44:39,280
what we do in addition to

1161
00:44:45,030 --> 00:44:42,079
collecting ice surface elevation data we

1162
00:44:48,230 --> 00:44:45,040
also collect the ice thickness data snow

1163
00:44:51,510 --> 00:44:48,240

thickness data over sea ice

1164
00:44:55,430 --> 00:44:51,520
skin temperature data um all sorts of uh

1165
00:44:57,750 --> 00:44:55,440
measurements and they all will help them

1166
00:45:01,190 --> 00:44:57,760
to better interpret the signal that we

1167
00:45:04,309 --> 00:45:01,200
will see in icesat and isaac too

1168
00:45:08,150 --> 00:45:04,319
so i think it's uh it's just um

1169
00:45:10,950 --> 00:45:08,160
icebridge is one part of a uh a big

1170
00:45:12,710 --> 00:45:10,960
puzzle that makes a contribution in a

1171
00:45:15,589 --> 00:45:12,720
specific field

1172
00:45:16,950 --> 00:45:15,599
that helps a worldwide community of

1173
00:45:20,230 --> 00:45:16,960
scientists

1174
00:45:22,470 --> 00:45:20,240
answering bigger questions about how

1175
00:45:25,430 --> 00:45:22,480
how will the um

1176
00:45:26,470 --> 00:45:25,440
climate change uh change the uh

1177
00:45:32,950 --> 00:45:26,480
the

1178
00:45:36,710 --> 00:45:34,470
thank you michael

1179
00:45:39,349 --> 00:45:36,720
uh another question for christy from

1180
00:45:40,390 --> 00:45:39,359
peter on twitter peter wants to know

1181
00:45:43,109 --> 00:45:40,400
how many

1182
00:45:45,430 --> 00:45:43,119
fights we have planned for the campaign

1183
00:45:49,109 --> 00:45:45,440
versus how many were originally planned

1184
00:45:51,190 --> 00:45:49,119
and what some of our field targets are

1185
00:45:52,870 --> 00:45:51,200
okay well uh that's a good question

1186
00:45:55,030 --> 00:45:52,880
multi-part question

1187
00:45:56,710 --> 00:45:55,040
so i think our our current number that

1188
00:45:58,790 --> 00:45:56,720

we have planned is

1189
00:46:00,870 --> 00:45:58,800
i think it's about 37 flights this year

1190
00:46:02,470 --> 00:46:00,880
between 37 and 41

1191
00:46:04,710 --> 00:46:02,480
different planned

1192
00:46:07,190 --> 00:46:04,720
missions so typically what we do just to

1193
00:46:08,390 --> 00:46:07,200
maintain flexibility in the field is we

1194
00:46:10,230 --> 00:46:08,400
we plan

1195
00:46:13,030 --> 00:46:10,240
a lot more missions than we ever intend

1196
00:46:16,309 --> 00:46:13,040
to fly so we plan land ice missions sea

1197
00:46:17,829 --> 00:46:16,319
ice missions um depending on what what

1198
00:46:19,349 --> 00:46:17,839
science we're looking at

1199
00:46:20,710 --> 00:46:19,359
and usually what we do is to help us

1200
00:46:22,309 --> 00:46:20,720
with planning in the field is we take

1201
00:46:24,069 --> 00:46:22,319
all those missions and we prioritize

1202
00:46:25,990 --> 00:46:24,079
them you know these are the top priority

1203
00:46:27,430 --> 00:46:26,000
these are medium these are low so we

1204
00:46:28,870 --> 00:46:27,440
have a nice

1205
00:46:30,630 --> 00:46:28,880
big book that we can go to the weather

1206
00:46:32,950 --> 00:46:30,640
office with in the morning and then we

1207
00:46:34,550 --> 00:46:32,960
take a look and we think okay how's the

1208
00:46:37,270 --> 00:46:34,560
how's the weather in this region versus

1209
00:46:39,109 --> 00:46:37,280
that region um if the weather looks bad

1210
00:46:41,430 --> 00:46:39,119
on the east side maybe we'll fly on the

1211
00:46:43,190 --> 00:46:41,440
west side so we'll pull out missions

1212
00:46:44,710 --> 00:46:43,200
that reflect targets on the west side of

1213
00:46:45,750 --> 00:46:44,720

the continent for example and then we'll

1214
00:46:48,950 --> 00:46:45,760
look through our priorities and always

1215
00:46:50,390 --> 00:46:48,960
try and fly our top priorities

1216
00:46:52,630 --> 00:46:50,400
when the government shut down we didn't

1217
00:46:54,309 --> 00:46:52,640
actually change or remove any of our

1218
00:46:55,910 --> 00:46:54,319
flights we still have the same number of

1219
00:46:58,710 --> 00:46:55,920
flight opportunities or flight plans

1220
00:47:00,309 --> 00:46:58,720
that we can fly um it just did actually

1221
00:47:02,150 --> 00:47:00,319
reduce the number of days that we could

1222
00:47:03,990 --> 00:47:02,160
fly in the field so

1223
00:47:05,829 --> 00:47:04,000
so our what we call potential science

1224
00:47:07,510 --> 00:47:05,839
flight numbers have gone down a little

1225
00:47:08,710 --> 00:47:07,520
bit but we're still going to

1226
00:47:10,069 --> 00:47:08,720
work through

1227
00:47:11,990 --> 00:47:10,079
the list that we've already come up with

1228
00:47:14,230 --> 00:47:12,000
and try and get as many as we can

1229
00:47:15,750 --> 00:47:14,240
off the ground

1230
00:47:17,990 --> 00:47:15,760
so you know reasons that we look at i

1231
00:47:20,630 --> 00:47:18,000
talked a little bit of the high level um

1232
00:47:22,710 --> 00:47:20,640
sea ice so we'll be looking at the rossi

1233
00:47:24,950 --> 00:47:22,720
targets over the rossi on the ross ice

1234
00:47:26,630 --> 00:47:24,960
shelf we have some stuff in the uh trans

1235
00:47:27,910 --> 00:47:26,640
antarctic mountain range

1236
00:47:29,190 --> 00:47:27,920
um

1237
00:47:31,030 --> 00:47:29,200
we have uh

1238
00:47:33,030 --> 00:47:31,040

targets uh so the difference is i guess

1239
00:47:35,430 --> 00:47:33,040
with punta uranus is we can't reach some

1240
00:47:37,109 --> 00:47:35,440
of the targets that we we did before um

1241
00:47:38,150 --> 00:47:37,119
because we're working out you know some

1242
00:47:40,390 --> 00:47:38,160
of our new characteristics and

1243
00:47:41,829 --> 00:47:40,400
capabilities with the p3 aircraft and

1244
00:47:44,630 --> 00:47:41,839
you know looking at our times with how

1245
00:47:45,750 --> 00:47:44,640
far we can get from mcmurdo um how far

1246
00:47:48,069 --> 00:47:45,760
we can get with the range of the plane

1247
00:47:49,990 --> 00:47:48,079
and come back so things like pine island

1248
00:47:51,829 --> 00:47:50,000
glacier that we we would have gotten

1249
00:47:53,190 --> 00:47:51,839
using the dc8 deployment we don't we

1250
00:47:54,470 --> 00:47:53,200
won't necessarily get on this deployment

1251
00:47:55,510 --> 00:47:54,480
so some of the targets has changed a

1252
00:47:56,710 --> 00:47:55,520
little bit

1253
00:48:02,550 --> 00:47:56,720
but um we're still excited about

1254
00:48:06,550 --> 00:48:04,390
i hope that answers your question thanks

1255
00:48:08,790 --> 00:48:06,560
christie that was a good answer uh we

1256
00:48:11,349 --> 00:48:08,800
have a uh another question here

1257
00:48:13,430 --> 00:48:11,359
from google plus and uh from michael we

1258
00:48:15,510 --> 00:48:13,440
see the p3 there behind you

1259
00:48:19,270 --> 00:48:15,520
and the question is why nasa chose an

1260
00:48:20,550 --> 00:48:19,280
old prop aircraft instead of a new plane

1261
00:48:23,670 --> 00:48:20,560
um

1262
00:48:26,069 --> 00:48:23,680
i think the p3 has been

1263
00:48:28,790 --> 00:48:26,079

flying off kind of collecting and flying

1264
00:48:32,150 --> 00:48:28,800
these kind of missions for nasa for

1265
00:48:34,549 --> 00:48:32,160
more than two decades and um

1266
00:48:37,510 --> 00:48:34,559
icebridge is not the only mission that

1267
00:48:38,630 --> 00:48:37,520
is using the p3 aircraft and in fact

1268
00:48:40,470 --> 00:48:38,640
it's

1269
00:48:43,589 --> 00:48:40,480
there's a high demand on having a

1270
00:48:46,549 --> 00:48:43,599
capability like a p3

1271
00:48:51,030 --> 00:48:46,559
for doing atmospheric sciences

1272
00:48:55,430 --> 00:48:52,230
a great

1273
00:48:58,390 --> 00:48:55,440
load carrying capability it has a lot of

1274
00:48:59,589 --> 00:48:58,400
space in the interior and it has a lot

1275
00:49:02,069 --> 00:48:59,599
of range

1276
00:49:05,430 --> 00:49:02,079
and that makes it an ideal aircraft to

1277
00:49:06,710 --> 00:49:05,440
fly in places like greenland um very low

1278
00:49:08,630 --> 00:49:06,720
over the

1279
00:49:11,349 --> 00:49:08,640
surface of the ice

1280
00:49:12,230 --> 00:49:11,359
specifically at 1500 feet above the ice

1281
00:49:13,589 --> 00:49:12,240
sheet

1282
00:49:17,270 --> 00:49:13,599
so it's

1283
00:49:19,030 --> 00:49:17,280
it's a pretty uniquely uh it's uniquely

1284
00:49:20,630 --> 00:49:19,040
suited for the uh

1285
00:49:22,870 --> 00:49:20,640
type of work that

1286
00:49:25,829 --> 00:49:22,880
we are doing in icebridge in greenland

1287
00:49:27,430 --> 00:49:25,839
and also as well in antarctica

1288
00:49:29,910 --> 00:49:27,440

and but

1289
00:49:32,470 --> 00:49:29,920
beyond that it's it's also a great

1290
00:49:35,030 --> 00:49:32,480
capability to have for um

1291
00:49:37,510 --> 00:49:35,040
airborne chemistry and all sorts of

1292
00:49:39,349 --> 00:49:37,520
airborne signs so um

1293
00:49:40,790 --> 00:49:39,359
it's it's an airplane that has been

1294
00:49:43,190 --> 00:49:40,800
around for

1295
00:49:45,910 --> 00:49:43,200
for more than 20 years at nasa and

1296
00:49:47,349 --> 00:49:45,920
before this it was used by the navy

1297
00:49:49,990 --> 00:49:47,359
and

1298
00:49:52,230 --> 00:49:50,000
the decision has just been made that

1299
00:49:54,150 --> 00:49:52,240
this is worth keeping and

1300
00:49:56,710 --> 00:49:54,160
as christie has mentioned

1301
00:49:58,790 --> 00:49:56,720
replacing the wings next year putting

1302
00:50:00,790 --> 00:49:58,800
new wings on the aircraft so that we can

1303
00:50:04,950 --> 00:50:00,800
keep the airplane for another

1304
00:50:08,870 --> 00:50:06,549
great thank you michael

1305
00:50:11,270 --> 00:50:08,880
and a follow-up question on that one

1306
00:50:12,710 --> 00:50:11,280
from stephanie auburn at climate wire

1307
00:50:13,750 --> 00:50:12,720
and i think christy you can handle this

1308
00:50:16,150 --> 00:50:13,760
one

1309
00:50:17,750 --> 00:50:16,160
when is the p3 arriving in antarctica

1310
00:50:21,430 --> 00:50:17,760
when does it start collecting data and

1311
00:50:24,790 --> 00:50:22,870
yeah all good questions putting the

1312
00:50:26,950 --> 00:50:24,800
calendar together was always an exciting

1313
00:50:28,790 --> 00:50:26,960

task to do with uh changing schedules

1314
00:50:30,950 --> 00:50:28,800
trying to coordinate with you know when

1315
00:50:32,950 --> 00:50:30,960
we can get down to mcmurdo based on when

1316
00:50:34,950 --> 00:50:32,960
the sea ice runway would be ready for us

1317
00:50:36,390 --> 00:50:34,960
and when does the sea ice runway close

1318
00:50:37,990 --> 00:50:36,400
you know because that's uh weather and

1319
00:50:39,990 --> 00:50:38,000
environmental permitting how long that

1320
00:50:41,910 --> 00:50:40,000
runway can stay open so we definitely

1321
00:50:43,109 --> 00:50:41,920
have to work in inside a set of unique

1322
00:50:44,950 --> 00:50:43,119
challenges

1323
00:50:46,549 --> 00:50:44,960
that help us outline our deployment

1324
00:50:48,069 --> 00:50:46,559
length and time frame

1325
00:50:50,069 --> 00:50:48,079
so um

1326
00:50:52,950 --> 00:50:50,079
right now the p3 is scheduled to leave

1327
00:50:55,270 --> 00:50:52,960
wallops on november 11th and arrive in

1328
00:50:56,710 --> 00:50:55,280
mcmurdo on november 16th

1329
00:50:58,790 --> 00:50:56,720
there's a plane flying by overhead right

1330
00:51:00,390 --> 00:50:58,800
now you can probably hear it so um

1331
00:51:02,390 --> 00:51:00,400
november 16th is when it should arrive

1332
00:51:04,710 --> 00:51:02,400
in mcmurdo um

1333
00:51:07,190 --> 00:51:04,720
the following day the 17th is is what we

1334
00:51:09,109 --> 00:51:07,200
call a hard hard down day um nsf

1335
00:51:11,910 --> 00:51:09,119
dictates the hard down day

1336
00:51:14,069 --> 00:51:11,920
in mcmurdo and then the following monday

1337
00:51:15,349 --> 00:51:14,079
which is the 18th we do our very first

1338
00:51:17,190 --> 00:51:15,359

what we're called what we call a test

1339
00:51:19,109 --> 00:51:17,200
flight so we're going to take our p3 up

1340
00:51:20,630 --> 00:51:19,119
and perform some test objectives because

1341
00:51:22,309 --> 00:51:20,640
it's a different environment trying to

1342
00:51:23,589 --> 00:51:22,319
characterize understanding the weather

1343
00:51:25,430 --> 00:51:23,599
um get familiar with the environment

1344
00:51:26,950 --> 00:51:25,440
around us and some of the flying so our

1345
00:51:29,349 --> 00:51:26,960
flight crew will do that check some

1346
00:51:30,150 --> 00:51:29,359
things out and that'll be the 18th and

1347
00:51:32,710 --> 00:51:30,160
then

1348
00:51:34,549 --> 00:51:32,720
the 19th is when we start our first

1349
00:51:36,470 --> 00:51:34,559
science flight

1350
00:51:37,910 --> 00:51:36,480
so the 19th is when we'll we'll get into

1351
00:51:43,589 --> 00:51:37,920
our first chance to actually collect

1352
00:51:46,710 --> 00:51:44,950
great thanks christy

1353
00:51:48,470 --> 00:51:46,720
uh i've been told we have a lot of

1354
00:51:51,109 --> 00:51:48,480
questions people coming in and asking

1355
00:51:52,470 --> 00:51:51,119
about the movie the thing and i have to

1356
00:51:54,549 --> 00:51:52,480
say that with icebridge one of our

1357
00:51:56,309 --> 00:51:54,559
favorite movies is airplane we uh we

1358
00:51:58,150 --> 00:51:56,319
like to quote that one a lot

1359
00:52:13,670 --> 00:51:58,160
we have just a few minutes left so is

1360
00:52:18,630 --> 00:52:15,589
oh not from my end

1361
00:52:21,109 --> 00:52:18,640
all right

1362
00:52:22,950 --> 00:52:21,119
oh great

1363
00:52:27,510 --> 00:52:22,960

uh chad other than icebridge what

1364
00:52:33,190 --> 00:52:29,670
as far as science groups

1365
00:52:35,349 --> 00:52:33,200
deploying um you know there are

1366
00:52:37,910 --> 00:52:35,359
there are some concerted efforts from

1367
00:52:39,990 --> 00:52:37,920
crisis the center of remote sensing

1368
00:52:41,829 --> 00:52:40,000
university of kansas they're coming down

1369
00:52:43,030 --> 00:52:41,839
they they had a skip here last year they

1370
00:52:44,710 --> 00:52:43,040
come down about every other year and

1371
00:52:47,109 --> 00:52:44,720
they're flying some

1372
00:52:49,109 --> 00:52:47,119
auvs around as well gathering a lot of

1373
00:52:50,710 --> 00:52:49,119
snow and ice data

1374
00:52:53,589 --> 00:52:50,720
uh the

1375
00:52:55,270 --> 00:52:53,599
wizard group which was

1376
00:52:57,510 --> 00:52:55,280
last year i don't know if anyone uh

1377
00:52:59,190 --> 00:52:57,520
remembers but they drilled down through

1378
00:53:00,870 --> 00:52:59,200
lake willens

1379
00:53:02,950 --> 00:53:00,880
into lake villans through about a

1380
00:53:05,910 --> 00:53:02,960
thousand meters of ice

1381
00:53:07,270 --> 00:53:05,920
and recovered some organisms and they've

1382
00:53:07,990 --> 00:53:07,280
taken those back to the labs and i think

1383
00:53:10,390 --> 00:53:08,000
it

1384
00:53:12,390 --> 00:53:10,400
you can go look at wizards uh

1385
00:53:14,069 --> 00:53:12,400
webpage and they have some of their

1386
00:53:15,589 --> 00:53:14,079
exciting science going on there they're

1387
00:53:16,950 --> 00:53:15,599
coming back they've been reduced in

1388
00:53:19,030 --> 00:53:16,960

scope a little bit

1389
00:53:21,270 --> 00:53:19,040
um but they're still meeting some of

1390
00:53:23,349 --> 00:53:21,280
their priorities and objectives

1391
00:53:26,069 --> 00:53:23,359
those are those are the two big deep

1392
00:53:27,910 --> 00:53:26,079
field efforts that are going on and then

1393
00:53:29,829 --> 00:53:27,920
there's lots of science groups that come

1394
00:53:31,589 --> 00:53:29,839
to mcmurdo and come to south pole and

1395
00:53:33,829 --> 00:53:31,599
come to palmer station on the peninsula

1396
00:53:35,990 --> 00:53:33,839
side that are doing their annual science

1397
00:53:38,069 --> 00:53:36,000
events you know a typical science event

1398
00:53:39,990 --> 00:53:38,079
is funded for about three years

1399
00:53:43,109 --> 00:53:40,000
so they'll come down and do a lot of the

1400
00:53:45,270 --> 00:53:43,119
same science

1401
00:53:47,990 --> 00:53:45,280
it's always fun the the seal groups that

1402
00:53:50,150 --> 00:53:48,000
come through mcmurdo they go out and

1403
00:53:52,470 --> 00:53:50,160
you know they weigh seals and they look

1404
00:53:54,710 --> 00:53:52,480
at some of them have been tagged for 20

1405
00:53:56,710 --> 00:53:54,720
year plus years and they put cameras on

1406
00:53:58,870 --> 00:53:56,720
their head sometimes and they can

1407
00:54:00,470 --> 00:53:58,880
see the profile of their dives and what

1408
00:54:02,470 --> 00:54:00,480
they're chasing and fish so there's a

1409
00:54:03,790 --> 00:54:02,480
lot of exciting science out there

1410
00:54:06,150 --> 00:54:03,800
if you go to

1411
00:54:08,309 --> 00:54:06,160
www.usap and that's united states

1412
00:54:10,230 --> 00:54:08,319
antarcticprogram.gov

1413
00:54:13,430 --> 00:54:10,240

you can see some of the links as well as

1414
00:54:14,630 --> 00:54:13,440
the nsf's website at nsf.gov

1415
00:54:18,390 --> 00:54:14,640
if you want to learn a lot more about

1416
00:54:22,390 --> 00:54:20,069
great thanks chad

1417
00:54:24,790 --> 00:54:22,400
so wrapping up here we'd like to uh

1418
00:54:26,790 --> 00:54:24,800
thank our panelists christy hansen

1419
00:54:28,790 --> 00:54:26,800
icebridge project manager michael

1420
00:54:30,470 --> 00:54:28,800
studinger icebridge project scientist

1421
00:54:33,109 --> 00:54:30,480
and chad naughton science project

1422
00:54:34,870 --> 00:54:33,119
manager for the u.s antarctic program

1423
00:54:35,750 --> 00:54:34,880
we'd like to remind everybody that we'd

1424
00:54:37,270 --> 00:54:35,760
like to thank everybody for

1425
00:54:39,430 --> 00:54:37,280
participating in this hangout and remind

1426
00:54:41,349 --> 00:54:39,440
you that this hangout will be archived

1427
00:54:45,349 --> 00:54:41,359
on youtube for more information about

1428
00:54:46,870 --> 00:54:45,359
icebridge you can go to www.nasa.gov

1429
00:54:48,790 --> 00:54:46,880
icebridge

1430
00:54:50,549 --> 00:54:48,800
and thanks everybody