1
00:00:08,790 --> 00:00:07,430
um

2
00:00:10,470 --> 00:00:08,800
some of the ways we can look at trying

3
00:00:12,549 --> 00:00:10,480
to understand who astroviolets are is

4
00:00:15,190 --> 00:00:12,559
collecting a couple points of data on

5
00:00:16,870 --> 00:00:15,200
the first is academic age academic age

6
00:00:19,029 --> 00:00:16,880
is traditionally defined as the year in

7
00:00:20,950 --> 00:00:19,039
which a person publishes their first

8
00:00:23,349 --> 00:00:20,960
paper in a peer-reviewed journal

9
00:00:24,790 --> 00:00:23,359
for my purposes i couldn't use that so i

10
00:00:26,070 --> 00:00:24,800
looked at the year in which person got

11
00:00:27,670 --> 00:00:26,080
their phd

12
00:00:28,870 --> 00:00:27,680
next is what discipline do they come

13
00:00:30,630 --> 00:00:28,880

from

14
00:00:32,229 --> 00:00:30,640
the easiest way to do that for me was to

15
00:00:34,150 --> 00:00:32,239
look at what field they say their

16
00:00:35,590 --> 00:00:34,160
dissertations in

17
00:00:37,030 --> 00:00:35,600
and the last is

18
00:00:39,350 --> 00:00:37,040
do they continue to participate in

19
00:00:41,030 --> 00:00:39,360
astrobiology meaning when someone says

20
00:00:43,270 --> 00:00:41,040
they're an astrobiologist

21
00:00:44,470 --> 00:00:43,280
do they keep on being an astrobiologist

22
00:00:46,389 --> 00:00:44,480
or do they give up and go on to a

23
00:00:49,670 --> 00:00:46,399
different discipline and are there new

24
00:00:53,110 --> 00:00:50,470
now

25
00:00:55,029 --> 00:00:53,120
um for purposes of my study

26
00:00:56,310 --> 00:00:55,039
it was difficult to find astrobiologists

27
00:00:58,470 --> 00:00:56,320
in the wild

28
00:01:00,709 --> 00:00:58,480
because they're spread across a lot of

29
00:01:02,709 --> 00:01:00,719
different diverse disciplines right

30
00:01:05,189 --> 00:01:02,719
so the easiest way to do that was to let

31
00:01:07,030 --> 00:01:05,199
them self select and look at who shows

32
00:01:09,190 --> 00:01:07,040
up to absycon

33
00:01:13,109 --> 00:01:09,200
so i randomly selected

34
00:01:15,590 --> 00:01:13,119
the presenters of apps icon 2002 to

35
00:01:17,749 --> 00:01:15,600
through 2012.

36
00:01:21,910 --> 00:01:17,759
then i figured out when they got their

37
00:01:24,230 --> 00:01:21,920
phd and what field they got it in

38
00:01:27,429 --> 00:01:24,240

this is the distribution of fields that

39
00:01:29,190 --> 00:01:27,439
people got their phds in

40
00:01:31,510 --> 00:01:29,200
now the important thing to look at here

41
00:01:32,710 --> 00:01:31,520
is you have a few core disciplines on

42
00:01:34,950 --> 00:01:32,720
the far left

43
00:01:36,710 --> 00:01:34,960
that a lot of people were in and then

44
00:01:39,590 --> 00:01:36,720
you have a whole bunch where there was

45
00:01:42,469 --> 00:01:39,600
only one person in all of those

46
00:01:44,789 --> 00:01:42,479
this is a measure of multidisciplinarity

47
00:01:46,870 --> 00:01:44,799
and the question is how much is good for

48
00:01:48,469 --> 00:01:46,880
astrobiology to continue growing and

49
00:01:51,350 --> 00:01:48,479
then is there a point at which you get

50
00:01:53,270 --> 00:01:51,360
too much in the field fractures

51
00:01:54,469 --> 00:01:53,280
like do some of these people team up

52
00:01:56,789 --> 00:01:54,479
with some of the other ones and then you

53
00:01:58,389 --> 00:01:56,799
end up with two different things though

54
00:02:03,109 --> 00:01:58,399
astrobiology right

55
00:02:06,830 --> 00:02:04,550
you have a couple weird ones up there

56
00:02:08,550 --> 00:02:06,840
that i don't fully understand like

57
00:02:09,589 --> 00:02:08,560
neuroscience

58
00:02:10,869 --> 00:02:09,599
um

59
00:02:12,630 --> 00:02:10,879
i get

60
00:02:14,790 --> 00:02:12,640
paleobiology

61
00:02:16,710 --> 00:02:14,800
and you know geology and chemistry those

62
00:02:17,910 --> 00:02:16,720
were the two biggest

63
00:02:19,750 --> 00:02:17,920

um

64
00:02:21,270 --> 00:02:19,760
genetics yeah but

65
00:02:23,270 --> 00:02:21,280
it was also difficult because it's hard

66
00:02:24,869 --> 00:02:23,280
to come up with an ontology or taxonomy

67
00:02:27,110 --> 00:02:24,879
for science because some of these are

68
00:02:28,390 --> 00:02:27,120
clearly related but it's hard to like

69
00:02:32,710 --> 00:02:28,400
mush them together into larger

70
00:02:36,390 --> 00:02:33,830
so now we're going to talk about

71
00:02:38,390 --> 00:02:36,400
academic age so what year did the people

72
00:02:39,670 --> 00:02:38,400
get their phd

73
00:02:42,309 --> 00:02:39,680
you have

74
00:02:44,070 --> 00:02:42,319
one at 1950 which would be your oldest

75
00:02:46,550 --> 00:02:44,080
and then you have one at two in the two

76
00:02:50,390 --> 00:02:46,560
decades of the 2010s which makes sense

77
00:02:51,750 --> 00:02:50,400
because my data stopped in 2012.

78
00:02:53,430 --> 00:02:51,760
so what does a healthy feel like

79
00:02:55,270 --> 00:02:53,440
astrobiology look like

80
00:02:57,830 --> 00:02:55,280
you'd expect to find people that are

81
00:03:00,949 --> 00:02:57,840
older and people that are younger which

82
00:03:04,229 --> 00:03:00,959
is what the data shows

83
00:03:06,470 --> 00:03:04,239
this is the academic age calculated at

84
00:03:07,990 --> 00:03:06,480
the time of the conference

85
00:03:10,070 --> 00:03:08,000
and what's interesting at this is that

86
00:03:12,790 --> 00:03:10,080
you have a wide distribution

87
00:03:14,309 --> 00:03:12,800
right if astrobiology wasn't

88
00:03:15,750 --> 00:03:14,319

progressing very healthily you would see

89
00:03:18,149 --> 00:03:15,760
like a whole bunch of people

90
00:03:19,990 --> 00:03:18,159
at the bottom some people at the top but

91
00:03:21,670 --> 00:03:20,000
nobody in the middle

92
00:03:23,430 --> 00:03:21,680
meaning that

93
00:03:25,190 --> 00:03:23,440
as people get trained as astrobiologists

94
00:03:26,790 --> 00:03:25,200
they're going up the ranks

95
00:03:28,869 --> 00:03:26,800
they're getting a postdoc and going on

96
00:03:30,149 --> 00:03:28,879
to fact so on and so forth

97
00:03:32,070 --> 00:03:30,159
and then the people with negative

98
00:03:34,470 --> 00:03:32,080
numbers for academic age which is the

99
00:03:36,789 --> 00:03:34,480
sorry academic age is the blue bars

100
00:03:38,229 --> 00:03:36,799
and the orange bars of participation

101
00:03:39,589 --> 00:03:38,239
people the negative numbers means they

102
00:03:42,149 --> 00:03:39,599
got their

103
00:03:43,430 --> 00:03:42,159
phd after the conference which is also

104
00:03:46,470 --> 00:03:43,440
good because that means that the grad

105
00:03:49,830 --> 00:03:46,480
students that showed up progressed on

106
00:03:54,149 --> 00:03:49,840
and you can see the pattern holds

107
00:03:58,149 --> 00:03:56,149
now we'll look at participation

108
00:03:59,830 --> 00:03:58,159
this is the part where we talk about

109
00:04:01,270 --> 00:03:59,840
if the field is healthy people show up

110
00:04:04,470 --> 00:04:01,280
at the conference and then keep showing

111
00:04:09,990 --> 00:04:07,750
and then obviously uh 2000 and each year

112
00:04:12,149 --> 00:04:10,000
that i pick is going to be uh 20 you

113
00:04:15,270 --> 00:04:12,159

know the full 20

114
00:04:18,150 --> 00:04:15,280
um and then it's the following years

115
00:04:20,069 --> 00:04:18,160
so you see this pattern develop here

116
00:04:21,189 --> 00:04:20,079
where you know it's pretty strong people

117
00:04:23,110 --> 00:04:21,199
are showing up

118
00:04:25,030 --> 00:04:23,120
at pretty good rates

119
00:04:26,390 --> 00:04:25,040
then you get here we get more on the

120
00:04:28,070 --> 00:04:26,400
front end

121
00:04:29,510 --> 00:04:28,080
meaning that they showed up in 2008 when

122
00:04:31,189 --> 00:04:29,520
i collected their name

123
00:04:33,030 --> 00:04:31,199
and then they the participation rate was

124
00:04:34,390 --> 00:04:33,040
pretty high going on

125
00:04:36,310 --> 00:04:34,400
and you get this one

126
00:04:38,230 --> 00:04:36,320
same pattern

127
00:04:40,150 --> 00:04:38,240
this one because it's 2012 you can't

128
00:04:41,510 --> 00:04:40,160
really look at it but what that means is

129
00:04:43,670 --> 00:04:41,520
that you have new people coming into the

130
00:04:45,189 --> 00:04:43,680
field and they continue to stay at least

131
00:04:48,310 --> 00:04:45,199
for a few years

132
00:04:48,320 --> 00:04:51,189
this is you guys

133
00:04:54,550 --> 00:04:51,909
now

134
00:04:57,110 --> 00:04:54,560
what's the big problem with my study

135
00:04:58,390 --> 00:04:57,120
how do you find an astrobiologist

136
00:04:59,590 --> 00:04:58,400
obviously there's a bunch of you here

137
00:05:00,710 --> 00:04:59,600
now

138
00:05:02,070 --> 00:05:00,720

but

139
00:05:04,230 --> 00:05:02,080
how do you identify them because they're

140
00:05:05,590 --> 00:05:04,240
in all sorts of different disciplines

141
00:05:07,110 --> 00:05:05,600
i can tell you for sure that there's one

142
00:05:08,790 --> 00:05:07,120
person up there that's not an

143
00:05:10,390 --> 00:05:08,800
astrobiologist and they're not in the

144
00:05:11,590 --> 00:05:10,400
right category

145
00:05:13,350 --> 00:05:11,600
that would be me

146
00:05:14,950 --> 00:05:13,360
education

147
00:05:16,150 --> 00:05:14,960
i'm actually an information scientist

148
00:05:18,310 --> 00:05:16,160
like i said

149
00:05:19,670 --> 00:05:18,320
but how many of you think that

150
00:05:21,830 --> 00:05:19,680
you would like me to collect out on you

151
00:05:25,270 --> 00:05:21,840
and call you a planetary scientist

152
00:05:27,029 --> 00:05:25,280
or do you think it's something else

153
00:05:29,590 --> 00:05:27,039
you have something

154
00:05:33,189 --> 00:05:29,600
oh you are a planetary scientist so we

155
00:05:35,189 --> 00:05:33,199
have one one planetary scientist

156
00:05:36,550 --> 00:05:35,199
now a few okay

157
00:05:38,390 --> 00:05:36,560
but that's the problem with these sorts

158
00:05:40,070 --> 00:05:38,400
of studies is getting good data on

159
00:05:42,310 --> 00:05:40,080
academics because they bounce around and

160
00:05:44,150 --> 00:05:42,320
so forth

161
00:05:45,909 --> 00:05:44,160
and also i guess the question is how

162
00:05:47,909 --> 00:05:45,919
much multidisciplinarity do you guys

163
00:05:49,430 --> 00:05:47,919

want in the field how much do you think

164
00:05:51,270 --> 00:05:49,440
is healthy

165
00:05:52,950 --> 00:05:51,280
is it good that we have this many

166
00:05:54,950 --> 00:05:52,960
biologists showing up

167
00:05:57,510 --> 00:05:54,960
do we need more astronomy people i mean

168
00:05:58,950 --> 00:05:57,520
what's what's the mix you're after

169
00:06:00,710 --> 00:05:58,960
now obviously that's not a question that

170
00:06:02,629 --> 00:06:00,720
any individual can answer but when you

171
00:06:05,510 --> 00:06:02,639
talk about studying emerging fields

172
00:06:07,029 --> 00:06:05,520
these questions become relevant

173
00:06:10,230 --> 00:06:07,039
i think i got through that quick enough

174
00:06:10,240 --> 00:06:26,309
questions questions

175
00:06:29,830 --> 00:06:28,070
so you were studying absycon which

176
00:06:31,189 --> 00:06:29,840
obviously is an american-based

177
00:06:33,110 --> 00:06:31,199
conference how much do you think your

178
00:06:35,350 --> 00:06:33,120
data would have been affected by people

179
00:06:36,870 --> 00:06:35,360
who may have attended for a couple of

180
00:06:39,189 --> 00:06:36,880
times because they were studying in the

181
00:06:40,710 --> 00:06:39,199
us and then stopped attending because

182
00:06:42,629 --> 00:06:40,720
they had to come back to the us to

183
00:06:45,270 --> 00:06:42,639
attend like by the the presence of an

184
00:06:47,749 --> 00:06:45,280
international community a lot but

185
00:06:49,510 --> 00:06:47,759
because there was no good methodology

186
00:06:51,189 --> 00:06:49,520
that i could come up with

187
00:06:52,790 --> 00:06:51,199
that was the frankly the best i could do

188
00:06:54,710 --> 00:06:52,800

and the data is not perfect it's far

189
00:06:57,830 --> 00:06:54,720
from but that was as close as i could

190
00:07:01,110 --> 00:06:59,909
uh so i noticed that there

191
00:07:02,629 --> 00:07:01,120
you pointed out that there are a couple

192
00:07:04,710 --> 00:07:02,639
of spikes and things like that in your

193
00:07:06,950 --> 00:07:04,720
in your graphs um but how much of it do

194
00:07:08,950 --> 00:07:06,960
you think is related to how much funding

195
00:07:10,309 --> 00:07:08,960
we're getting for doing astrobiology

196
00:07:12,070 --> 00:07:10,319
research or have you not looked into

197
00:07:14,070 --> 00:07:12,080
that yeah

198
00:07:16,070 --> 00:07:14,080
well i think a lot of these spikes like

199
00:07:18,629 --> 00:07:16,080
these ones are probably related to the

200
00:07:20,469 --> 00:07:18,639
size of the conference but and it's

201
00:07:21,990 --> 00:07:20,479
probably related to how much funding

202
00:07:23,670 --> 00:07:22,000
people are getting

203
00:07:25,670 --> 00:07:23,680
but that would be an interesting data

204
00:07:30,870 --> 00:07:25,680
point i could try to pull out

205
00:07:35,830 --> 00:07:32,550
the title of your talk was health and

206
00:07:38,790 --> 00:07:35,840
robustness of our field um maybe i

207
00:07:39,749 --> 00:07:38,800
missed it did you give us an answer

208
00:07:41,029 --> 00:07:39,759
well

209
00:07:42,870 --> 00:07:41,039
just let me follow up on that i was

210
00:07:45,029 --> 00:07:42,880
wondering if you'd done similar

211
00:07:47,029 --> 00:07:45,039
evaluations of other emerging fields

212
00:07:49,990 --> 00:07:47,039
that would help us get an idea of you

213
00:07:51,430 --> 00:07:50,000

know are we robust and healthy or

214
00:07:53,110 --> 00:07:51,440
decrepit

215
00:07:55,670 --> 00:07:53,120
well

216
00:07:59,110 --> 00:07:55,680
okay so the data so far many of the

217
00:08:01,909 --> 00:07:59,120
years for academic age and participation

218
00:08:04,150 --> 00:08:01,919
show that there are people at all three

219
00:08:06,629 --> 00:08:04,160
sort of levels right so you have grad

220
00:08:08,390 --> 00:08:06,639
students uh people sort of mid-career

221
00:08:10,390 --> 00:08:08,400
and people later in the career

222
00:08:12,070 --> 00:08:10,400
that's good because it indicates the

223
00:08:14,230 --> 00:08:12,080
likelihood that people that are grad

224
00:08:16,230 --> 00:08:14,240
students have the opportunity to pursue

225
00:08:17,990 --> 00:08:16,240
this way it also means that people that

226
00:08:20,070 --> 00:08:18,000
it were around before there was much of

227
00:08:21,990 --> 00:08:20,080
a notion of astrobiology are coming into

228
00:08:23,749 --> 00:08:22,000
the field so you're getting a good mix

229
00:08:26,230 --> 00:08:23,759
of ages which is good for a healthy

230
00:08:27,670 --> 00:08:26,240
field an unhealthy field would would be

231
00:08:29,909 --> 00:08:27,680
where you have a lot of people at this

232
00:08:31,589 --> 00:08:29,919
end and a lot of people at this end

233
00:08:34,790 --> 00:08:31,599
indicating that the people at the the

234
00:08:36,070 --> 00:08:34,800
younger people are unable to get jobs

235
00:08:38,149 --> 00:08:36,080
in the field

236
00:08:39,750 --> 00:08:38,159
and there's a bunch of basically there's

237
00:08:41,509 --> 00:08:39,760
a bunch of grad students working for a

238
00:08:43,829 --> 00:08:41,519

bunch of old farts

239
00:08:45,910 --> 00:08:43,839
that would be unhealthy

240
00:08:48,310 --> 00:08:45,920
and the fact that they keep showing up

241
00:08:49,990 --> 00:08:48,320
to the conferences also indicates a

242
00:08:57,829 --> 00:08:50,000
level of interest and participation in

243
00:09:02,790 --> 00:09:00,150
are you going to compare that with the

244
00:09:05,829 --> 00:09:02,800
astrobiology conference in europe

245
00:09:07,350 --> 00:09:05,839
um well probably not because the next

246
00:09:09,030 --> 00:09:07,360
phase of this research is to pick

247
00:09:11,269 --> 00:09:09,040
another discipline

248
00:09:12,150 --> 00:09:11,279
probably one that's like how do you say

249
00:09:14,070 --> 00:09:12,160
uh

250
00:09:15,670 --> 00:09:14,080
more well developed along the lines like

251
00:09:17,030 --> 00:09:15,680
it's been around for a lot longer and

252
00:09:18,949 --> 00:09:17,040
then to see if they have a similar

253
00:09:21,590 --> 00:09:18,959
pattern or a different pattern because i

254
00:09:23,910 --> 00:09:21,600
can't really talk about uh you know do a

255
00:09:28,949 --> 00:09:23,920
lot of strong conclusions until i get

256
00:09:39,670 --> 00:09:30,630
any other questions

257
00:09:43,990 --> 00:09:41,590
yeah i'm not sure if your um your data

258
00:09:46,470 --> 00:09:44,000
can can give an answer to that but did

259
00:09:48,310 --> 00:09:46,480
you get an idea how multidisciplinary

260
00:09:50,630 --> 00:09:48,320
the field really is i mean are people

261
00:09:52,790 --> 00:09:50,640
like really just presenting

262
00:09:55,030 --> 00:09:52,800
projects from their particular field or

263
00:09:57,190 --> 00:09:55,040

how many of the projects are actually

264
00:09:58,949 --> 00:09:57,200
combination of different fields did you

265
00:10:00,310 --> 00:09:58,959
get an idea about that well that's

266
00:10:01,990 --> 00:10:00,320
actually an incredibly difficult

267
00:10:03,990 --> 00:10:02,000
question to answer because just reading

268
00:10:04,870 --> 00:10:04,000
the titles and abstracts it's hard to

269
00:10:06,070 --> 00:10:04,880
place

270
00:10:07,910 --> 00:10:06,080
what uh

271
00:10:09,670 --> 00:10:07,920
field the person's presenting it the

272
00:10:10,710 --> 00:10:09,680
only thing i could really do is let them

273
00:10:12,550 --> 00:10:10,720
tell me

274
00:10:15,190 --> 00:10:12,560
what their field was

275
00:10:16,710 --> 00:10:15,200
and i did that by looking at their cvs

276
00:10:19,430 --> 00:10:16,720
and also well digging through a lot of

277
00:10:21,670 --> 00:10:19,440
different databases but primarily cvs so

278
00:10:24,389 --> 00:10:21,680
if somebody said i graduated with a phd

279
00:10:25,829 --> 00:10:24,399
in chemistry i said okay put you on

280
00:10:27,509 --> 00:10:25,839
there for chemistry

281
00:10:29,269 --> 00:10:27,519
but it was almost impossible to do it

282
00:10:32,550 --> 00:10:29,279
from abstracts