Realizing Pathways to Discovery: A Town Hall on Realizing Astro2020's Astrobiology Goals

1
00:00:04,309 --> 00:00:01,910
to the town hall we're going to have uh

2
00:00:06,309 --> 00:00:04,319
starting now on realizing pathways to

3
00:00:08,390 --> 00:00:06,319
discovery a town hall on community

4
00:00:10,310 --> 00:00:08,400
activities to realize astro 2020's

5
00:00:11,990 --> 00:00:10,320
astrobiology goals

6
00:00:14,150 --> 00:00:12,000
and i'm proud to say that you know there

7
00:00:16,070 --> 00:00:14,160
was a planetary and astrobiology decadal

8
00:00:18,070 --> 00:00:16,080
survey that just came out was released

9
00:00:19,269 --> 00:00:18,080
last month but i

10
00:00:21,189 --> 00:00:19,279
am now finally thinking of the

11
00:00:23,590 --> 00:00:21,199
astrophysics tequila surveys also the

12
00:00:26,230 --> 00:00:23,600
astrophysics and astrobiology decadal

13
00:00:28,070 --> 00:00:26,240

survey because there certainly were

14
00:00:29,429 --> 00:00:28,080
multiple astrobiology goals in that

15
00:00:30,950 --> 00:00:29,439
report

16
00:00:32,470 --> 00:00:30,960
and we're going to hear from paul hertz

17
00:00:35,670 --> 00:00:32,480
who's the director of the astrophysics

18
00:00:37,270 --> 00:00:35,680
division of next steps for uh for for

19
00:00:39,750 --> 00:00:37,280
implementing and

20
00:00:42,150 --> 00:00:39,760
a strategy to realize those goals uh

21
00:00:45,190 --> 00:00:42,160
from nasa's side that will be followed

22
00:00:47,670 --> 00:00:45,200
by people speaking from other nasa and

23
00:00:49,110 --> 00:00:47,680
nasa affiliated community groups

24
00:00:51,110 --> 00:00:49,120
telling you what they have planned or

25
00:00:53,110 --> 00:00:51,120
might be capable of doing and then we'll

26
00:00:55,189 --> 00:00:53,120
end with a chance for all of you to give

27
00:00:56,869 --> 00:00:55,199
us feedback on things that you think we

28
00:00:58,150 --> 00:00:56,879
can or should be doing

29
00:00:59,590 --> 00:00:58,160
or questions you might have about the

30
00:01:00,950 --> 00:00:59,600
activities

31
00:01:02,229 --> 00:01:00,960
and with that i'm going to hand it over

32
00:01:04,310 --> 00:01:02,239
to paul hertz

33
00:01:06,710 --> 00:01:04,320
he's going to share remotely and tell

34
00:01:10,789 --> 00:01:06,720
you what apd the astrophysics division

35
00:01:16,950 --> 00:01:13,190
all right thank you very much sean and i

36
00:01:19,670 --> 00:01:16,960
uh hope that i'm now sharing correctly

37
00:01:22,070 --> 00:01:19,680
i see your slides confirmed

38
00:01:24,550 --> 00:01:22,080

okay thanks thanks for the invitation to

39
00:01:27,030 --> 00:01:24,560
uh speak remotely at this town hall i

40
00:01:29,510 --> 00:01:27,040
really appreciate it and it's great to

41
00:01:31,590 --> 00:01:29,520
be talking to the astrobiology community

42
00:01:37,030 --> 00:01:31,600
um since astrobiology is such an

43
00:01:43,350 --> 00:01:40,069
um we're not seeing full screen so can

44
00:01:46,069 --> 00:01:43,360
you um maybe swap displays on your

45
00:01:47,749 --> 00:01:46,079
slideshow or

46
00:01:49,749 --> 00:01:47,759
i have no idea how to do that i want a

47
00:01:51,670 --> 00:01:49,759
pc there's no

48
00:01:53,749 --> 00:01:51,680
swap screen

49
00:01:56,789 --> 00:01:53,759
option available for me so up on the top

50
00:01:56,799 --> 00:01:59,830
um okay

51
00:01:59,840 --> 00:02:02,789
and um

52
00:02:06,709 --> 00:02:04,469
you want to go full screen

53
00:02:12,550 --> 00:02:06,719
the icon at the bottom i went

54
00:02:17,510 --> 00:02:14,390
so now that's what i've done but you're

55
00:02:21,830 --> 00:02:20,390
so um you can swap display can i get a

56
00:02:23,670 --> 00:02:21,840
thumbs up from audience members if you

57
00:02:25,910 --> 00:02:23,680
can see paul's slides okay even in this

58
00:02:27,190 --> 00:02:25,920
mode maybe folks in the back okay paul

59
00:02:28,390 --> 00:02:27,200
we got some thumbs up it looks like

60
00:02:30,710 --> 00:02:28,400
you're okay if you're comfortable

61
00:02:32,550 --> 00:02:30,720
presenting this way

62
00:02:34,229 --> 00:02:32,560
it looks perfect to me

63
00:02:36,710 --> 00:02:34,239

i don't know how to swap swings i've got

64
00:02:39,670 --> 00:02:36,720
the one i want you guys to see

65
00:02:41,910 --> 00:02:39,680
so i apologize um some of us are not i.t

66
00:02:44,949 --> 00:02:41,920
wizards

67
00:02:46,630 --> 00:02:44,959
so uh the astrophysics portfolio

68
00:02:49,430 --> 00:02:46,640
includes a

69
00:02:50,949 --> 00:02:49,440
a broad range of space telescopes that

70
00:02:52,070 --> 00:02:50,959
operate across the electromagnetic

71
00:02:54,790 --> 00:02:52,080
spectrum

72
00:02:57,670 --> 00:02:54,800
we have a portfolio of missions in

73
00:03:00,390 --> 00:02:57,680
operations the blue ones in development

74
00:03:01,750 --> 00:03:00,400
our missions including uh

75
00:03:03,589 --> 00:03:01,760
in the blue of course we just launched

76
00:03:07,030 --> 00:03:03,599
the james webb space telescope which

77
00:03:08,309 --> 00:03:07,040
will be the next great exoplanet mission

78
00:03:11,030 --> 00:03:08,319
one of the

79
00:03:13,830 --> 00:03:11,040
key areas of science for james webb will

80
00:03:15,830 --> 00:03:13,840
be interrogating the atmospheres of

81
00:03:18,949 --> 00:03:15,840
exoplanets around nearby stars through

82
00:03:21,030 --> 00:03:18,959
the transit spectroscopy method

83
00:03:23,110 --> 00:03:21,040
and searching for

84
00:03:25,350 --> 00:03:23,120
helping us to understand the physics of

85
00:03:27,750 --> 00:03:25,360
exoplanet atmospheres and

86
00:03:30,830 --> 00:03:27,760
searching for

87
00:03:32,710 --> 00:03:30,840
biosignatures in habitable zone

88
00:03:34,789 --> 00:03:32,720

exoplanets

89
00:03:36,470 --> 00:03:34,799
in in yellow we have our missions that

90
00:03:38,390 --> 00:03:36,480
we're currently building

91
00:03:41,030 --> 00:03:38,400
and those include the roman space

92
00:03:43,030 --> 00:03:41,040
telescope which will uh do a micro

93
00:03:43,990 --> 00:03:43,040
lensing survey that completes our census

94
00:03:45,910 --> 00:03:44,000
of the

95
00:03:47,990 --> 00:03:45,920
demographics of exoplanets in their own

96
00:03:51,030 --> 00:03:48,000
galaxy filling in

97
00:03:53,830 --> 00:03:51,040
uh the have the habitable zone and out

98
00:03:56,149 --> 00:03:53,840
that was not well accessible by kepler

99
00:03:58,869 --> 00:03:56,159
or tess our test

100
00:04:00,949 --> 00:03:58,879
and then a great

101
00:04:02,630 --> 00:04:00,959
portfolio of very small missions uh

102
00:04:04,789 --> 00:04:02,640
including pandora

103
00:04:08,869 --> 00:04:04,799
so a small sap that will be studying uh

104
00:04:13,350 --> 00:04:11,270
uh you know we are

105
00:04:16,310 --> 00:04:13,360
after one of the three areas of

106
00:04:18,390 --> 00:04:16,320
astrophysics uh theme areas is the

107
00:04:19,990 --> 00:04:18,400
exploration of one of the three areas of

108
00:04:22,710 --> 00:04:20,000
astrophysics is the exploration of

109
00:04:25,030 --> 00:04:22,720
exoplanets uh we recently

110
00:04:26,629 --> 00:04:25,040
announced the 5 000th confirmed

111
00:04:29,189 --> 00:04:26,639
exoplanet

112
00:04:33,110 --> 00:04:29,199
and uh these are the percentages of the

113
00:04:35,990 --> 00:04:33,120

exoplanets in the catalog at the nasa uh

114
00:04:38,629 --> 00:04:36,000
exoplanet science institute at uh jpl

115
00:04:40,870 --> 00:04:38,639
and sorry at caltech um in the urls

116
00:04:43,590 --> 00:04:40,880
there at the bottom uh and you can see

117
00:04:45,909 --> 00:04:43,600
that uh that it's easiest to find the

118
00:04:47,189 --> 00:04:45,919
gas giant and the neptune-like ones but

119
00:04:49,749 --> 00:04:47,199
that they don't

120
00:04:51,990 --> 00:04:49,759
make up the bulk of the uh of the

121
00:04:55,030 --> 00:04:52,000
exoplanets when you correct for

122
00:04:56,550 --> 00:04:55,040
uh observational biases in fact sucrose

123
00:04:59,189 --> 00:04:56,560
and terrestrials

124
00:05:00,629 --> 00:04:59,199
make up a large much larger fraction and

125
00:05:02,950 --> 00:05:00,639
those are the ones are very interested

126
00:05:04,950 --> 00:05:02,960
in as they represent the

127
00:05:09,110 --> 00:05:04,960
best places to search for life as we

128
00:05:14,390 --> 00:05:12,629
we're not seeing your pie chart um

129
00:05:18,790 --> 00:05:14,400
we're still seeing that first

130
00:05:18,800 --> 00:05:22,950
what do you see now james webb

131
00:05:31,510 --> 00:05:25,350
okay i'm gonna stay like this

132
00:05:35,990 --> 00:05:33,189
here's the pie chart in case you missed

133
00:05:38,469 --> 00:05:36,000
it you can see it online

134
00:05:40,070 --> 00:05:38,479
uh and here is my here is my portfolio

135
00:05:42,550 --> 00:05:40,080
of missions which i apparently also

136
00:05:44,230 --> 00:05:42,560
didn't see so let's go on uh the james

137
00:05:47,430 --> 00:05:44,240
webb space telescope was launched on

138
00:05:49,830 --> 00:05:47,440

christmas day uh last year here is the

139
00:05:53,350 --> 00:05:49,840
last picture that we'll ever have of the

140
00:05:55,189 --> 00:05:53,360
james webb space telescope this is it a

141
00:05:57,670 --> 00:05:55,199
picture taken from the

142
00:06:00,790 --> 00:05:57,680
rocket booster as the james webb space

143
00:06:02,150 --> 00:06:00,800
telescope is heading out into space

144
00:06:04,309 --> 00:06:02,160
we have

145
00:06:06,390 --> 00:06:04,319
brought the web telescope into full

146
00:06:07,830 --> 00:06:06,400
focus we've completed commissioning the

147
00:06:09,990 --> 00:06:07,840
telescope

148
00:06:12,309 --> 00:06:10,000
and you can see here all four

149
00:06:15,590 --> 00:06:12,319
instruments as well as the fine guidance

150
00:06:17,749 --> 00:06:15,600
sensor are in focus

151
00:06:19,830 --> 00:06:17,759
and these are sample images taken

152
00:06:21,830 --> 00:06:19,840
through each of the imagers on board the

153
00:06:22,790 --> 00:06:21,840
james webb space telescope

154
00:06:25,270 --> 00:06:22,800
um

155
00:06:27,430 --> 00:06:25,280
uh the json face also of course works in

156
00:06:29,110 --> 00:06:27,440
the mirror from the mid infrared here is

157
00:06:30,629 --> 00:06:29,120
a picture on the right

158
00:06:32,390 --> 00:06:30,639
of a

159
00:06:34,150 --> 00:06:32,400
field in the large magic link cloud

160
00:06:36,469 --> 00:06:34,160
taking the mid-infrared instrument james

161
00:06:39,189 --> 00:06:36,479
webb compared to the same field taken

162
00:06:41,430 --> 00:06:39,199
with the spencer infrared camera

163
00:06:43,270 --> 00:06:41,440

and you can see uh the

164
00:06:44,390 --> 00:06:43,280
great at the same wavelength you can see

165
00:06:46,950 --> 00:06:44,400
the

166
00:06:48,870 --> 00:06:46,960
factor of 10 improvement in

167
00:06:50,950 --> 00:06:48,880
spatial resolution that were realized

168
00:06:52,550 --> 00:06:50,960
with james revving you can imagine

169
00:06:54,550 --> 00:06:52,560
how much great science you're gonna get

170
00:06:56,629 --> 00:06:54,560
because you can resolve all of those

171
00:06:58,469 --> 00:06:56,639
fainter sources in the image at the

172
00:07:00,230 --> 00:06:58,479
right that are completely invisible in

173
00:07:01,909 --> 00:07:00,240
the image at the left

174
00:07:04,070 --> 00:07:01,919
right now we are commissioning the

175
00:07:07,589 --> 00:07:04,080
science instruments uh that's the purple

176
00:07:09,589 --> 00:07:07,599
bar uh at the right there um and uh

177
00:07:13,189 --> 00:07:09,599
we're about a quarter of the way through

178
00:07:15,029 --> 00:07:13,199
it um and uh there are 17 observing

179
00:07:17,589 --> 00:07:15,039
modes amongst the four science

180
00:07:19,830 --> 00:07:17,599
instruments on james webb and we will be

181
00:07:22,950 --> 00:07:19,840
commissioning all 17 of them

182
00:07:25,510 --> 00:07:22,960
between now and the end of june

183
00:07:27,990 --> 00:07:25,520
and once we complete the commissioning

184
00:07:29,510 --> 00:07:28,000
after about six months after launch

185
00:07:31,589 --> 00:07:29,520
at the end of june

186
00:07:34,309 --> 00:07:31,599
then we will be ready to start uh

187
00:07:36,309 --> 00:07:34,319
science with uh james webb we'll release

188
00:07:39,749 --> 00:07:36,319

the um some early release

189
00:07:42,710 --> 00:07:39,759
observations and we'll begin the the

190
00:07:44,309 --> 00:07:42,720
cycle one science which includes uh

191
00:07:48,710 --> 00:07:44,319
guest observers guaranteed time

192
00:07:52,390 --> 00:07:50,710
if you want to follow along with james

193
00:07:54,390 --> 00:07:52,400
webb we've got a

194
00:07:56,629 --> 00:07:54,400
bunch of interesting places the blog the

195
00:07:59,029 --> 00:07:56,639
blog is updated weekly with what's

196
00:08:00,950 --> 00:07:59,039
happening in the commissioning that week

197
00:08:03,749 --> 00:08:00,960
and then the where is webb provides a

198
00:08:05,430 --> 00:08:03,759
lot of visual tools for uh seeing

199
00:08:07,749 --> 00:08:05,440
where we're at in the commissioning of

200
00:08:09,830 --> 00:08:07,759
the james webb space telescope

201
00:08:11,749 --> 00:08:09,840
the great observatory to follow james

202
00:08:13,110 --> 00:08:11,759
webb will be the nancy grace roman space

203
00:08:14,710 --> 00:08:13,120
telescope

204
00:08:17,749 --> 00:08:14,720
it is in

205
00:08:21,189 --> 00:08:17,759
phase c right now which is the

206
00:08:21,990 --> 00:08:21,199
critical design and fabrication phase

207
00:08:23,589 --> 00:08:22,000
we

208
00:08:24,950 --> 00:08:23,599
will be

209
00:08:27,110 --> 00:08:24,960
completing

210
00:08:29,909 --> 00:08:27,120
manufacturing of pretty much all the

211
00:08:30,790 --> 00:08:29,919
parts of the anti-grace roman by next

212
00:08:32,389 --> 00:08:30,800
year

213
00:08:34,550 --> 00:08:32,399

and then we will be fully into the

214
00:08:37,589 --> 00:08:34,560
integration and test part we're on track

215
00:08:40,149 --> 00:08:37,599
for a launch in may of 2027

216
00:08:42,469 --> 00:08:40,159
and nancy grace roman is a wide field

217
00:08:44,389 --> 00:08:42,479
telescope with the sensitivity of hubble

218
00:08:47,829 --> 00:08:44,399
but 100 times the field of view which

219
00:08:50,150 --> 00:08:47,839
will allow us to do fabulous surveys

220
00:08:51,269 --> 00:08:50,160
and of interest to the astrobiology

221
00:08:54,389 --> 00:08:51,279
community

222
00:08:56,230 --> 00:08:54,399
might be the surveys for uh microlensing

223
00:08:57,269 --> 00:08:56,240
discovery of exoplanets as i mentioned

224
00:08:58,470 --> 00:08:57,279
earlier

225
00:09:00,710 --> 00:08:58,480
but also

226
00:09:02,310 --> 00:09:00,720
other kinds of time domain surveys with

227
00:09:05,190 --> 00:09:02,320
its wide field of view

228
00:09:07,110 --> 00:09:05,200
it's an excellent time domain

229
00:09:09,190 --> 00:09:07,120
instrument

230
00:09:11,829 --> 00:09:09,200
so we just received as john mentioned

231
00:09:13,670 --> 00:09:11,839
the new decadal survey for uh

232
00:09:16,070 --> 00:09:13,680
for astrophysics and i'll talk a little

233
00:09:18,070 --> 00:09:16,080
bit about what our implementation of it

234
00:09:20,389 --> 00:09:18,080
uh but just want to remind you that even

235
00:09:23,269 --> 00:09:20,399
though we received it back in november

236
00:09:25,910 --> 00:09:23,279
which is uh all of six months ago

237
00:09:28,710 --> 00:09:25,920
uh we are executing right now a budget

238
00:09:32,790 --> 00:09:28,720

that was formulated two years ago and it

239
00:09:34,949 --> 00:09:32,800
won't be until 2024 that we are formed

240
00:09:37,110 --> 00:09:34,959
that we are executing a budget that was

241
00:09:38,870 --> 00:09:37,120
fully formulated after the details

242
00:09:41,509 --> 00:09:38,880
survey was received

243
00:09:43,910 --> 00:09:41,519
and so this is a feature of the federal

244
00:09:47,110 --> 00:09:43,920
budgeting process uh that there that it

245
00:09:49,190 --> 00:09:47,120
takes us time to make changes in our

246
00:09:52,070 --> 00:09:49,200
plans but we are

247
00:09:53,910 --> 00:09:52,080
making those plans right now so this is

248
00:09:55,269 --> 00:09:53,920
an exciting and ambitious plan for the

249
00:09:57,269 --> 00:09:55,279
next decade

250
00:09:59,509 --> 00:09:57,279
it makes recommendations across the

251
00:10:00,870 --> 00:09:59,519
breadth of astrophysics

252
00:10:03,269 --> 00:10:00,880
and

253
00:10:05,110 --> 00:10:03,279
its new large initiative

254
00:10:07,590 --> 00:10:05,120
is a

255
00:10:10,069 --> 00:10:07,600
program of future great observatories

256
00:10:13,350 --> 00:10:10,079
that includes a

257
00:10:15,750 --> 00:10:13,360
infrared optical ultraviolet

258
00:10:17,990 --> 00:10:15,760
telescope that is optimized for

259
00:10:21,190 --> 00:10:18,000
characterizing exoplanets around nearby

260
00:10:25,110 --> 00:10:21,200
stars followed by a x-ray and a far

261
00:10:29,590 --> 00:10:26,470
the

262
00:10:33,350 --> 00:10:29,600
decadal survey did make recommendations

263
00:10:35,269 --> 00:10:33,360

on how we can improve our

264
00:10:37,910 --> 00:10:35,279
the diversity of our community the

265
00:10:39,670 --> 00:10:37,920
inclusiveness of our community

266
00:10:41,829 --> 00:10:39,680
these are really important

267
00:10:44,470 --> 00:10:41,839
as we look forward to this to executing

268
00:10:46,790 --> 00:10:44,480
this ambitious decadal survey the

269
00:10:48,230 --> 00:10:46,800
decadal survey stated that uh the

270
00:10:50,630 --> 00:10:48,240
pursuit of the science and the

271
00:10:52,389 --> 00:10:50,640
scientific excellence that we are

272
00:10:55,430 --> 00:10:52,399
targeting with this decadal survey

273
00:10:58,630 --> 00:10:55,440
cannot be separated from the scientists

274
00:11:01,509 --> 00:10:58,640
who animate it and so we must make sure

275
00:11:03,750 --> 00:11:01,519
that we are including everybody in our

276
00:11:06,230 --> 00:11:03,760
program

277
00:11:08,470 --> 00:11:06,240
and that is something that nasa is doing

278
00:11:09,750 --> 00:11:08,480
all of our programs and projects

279
00:11:12,310 --> 00:11:09,760
incorporate

280
00:11:14,310 --> 00:11:12,320
diversity and collusion initiatives and

281
00:11:17,110 --> 00:11:14,320
all of the decadal survey initiatives

282
00:11:20,150 --> 00:11:17,120
that we will implement will incorporate

283
00:11:23,190 --> 00:11:20,160
uh those values as well and i'll take

284
00:11:25,430 --> 00:11:23,200
questions on that later um

285
00:11:27,350 --> 00:11:25,440
the decadal survey said that before you

286
00:11:29,509 --> 00:11:27,360
start your next great observatory you

287
00:11:30,790 --> 00:11:29,519
really need to make sure you're ready to

288
00:11:33,350 --> 00:11:30,800

start it

289
00:11:35,110 --> 00:11:33,360
and they are exactly right and in fact

290
00:11:37,990 --> 00:11:35,120
in parallel with this decadal survey

291
00:11:41,590 --> 00:11:38,000
being done nasa conducted its own

292
00:11:44,389 --> 00:11:41,600
study of past large missions including

293
00:11:46,949 --> 00:11:44,399
uh the james webb space telescope of

294
00:11:48,870 --> 00:11:46,959
mars rovers europa clipper

295
00:11:51,430 --> 00:11:48,880
all of our large missions

296
00:11:53,030 --> 00:11:51,440
to figure out what could we do to

297
00:11:55,670 --> 00:11:53,040
to

298
00:11:58,790 --> 00:11:55,680
better perform once we've set our cost

299
00:12:01,350 --> 00:11:58,800
and schedule for the missions and

300
00:12:03,190 --> 00:12:01,360
we've found 10 things that we can do

301
00:12:05,430 --> 00:12:03,200
better at nasa we've incorporated those

302
00:12:06,629 --> 00:12:05,440
into our plans and they mostly have to

303
00:12:08,949 --> 00:12:06,639
do with

304
00:12:10,470 --> 00:12:08,959
doing more work up front than we had

305
00:12:12,629 --> 00:12:10,480
previously done in the past in the past

306
00:12:15,430 --> 00:12:12,639
there was a lot of emphasis on maturing

307
00:12:18,150 --> 00:12:15,440
your technologies before you start and

308
00:12:20,629 --> 00:12:18,160
by what we've learned is that it's not

309
00:12:22,629 --> 00:12:20,639
enough to mature your technology you

310
00:12:24,790 --> 00:12:22,639
also have to mature your architecture

311
00:12:26,790 --> 00:12:24,800
and and your science requirements you

312
00:12:27,990 --> 00:12:26,800
have to do all three of those in concert

313
00:12:29,990 --> 00:12:28,000

with each other

314
00:12:32,629 --> 00:12:30,000
because uh picking things that are

315
00:12:34,310 --> 00:12:32,639
doable in one area might uh put you into

316
00:12:36,389 --> 00:12:34,320
places that are very difficult in the

317
00:12:38,550 --> 00:12:36,399
other i'm an example of the james webb

318
00:12:40,710 --> 00:12:38,560
space telescope we did mature all the

319
00:12:42,870 --> 00:12:40,720
technologies early but what we didn't

320
00:12:43,910 --> 00:12:42,880
look at early enough was how hard it was

321
00:12:45,829 --> 00:12:43,920
going to be

322
00:12:48,550 --> 00:12:45,839
to um to

323
00:12:49,829 --> 00:12:48,560
manufacture uh all the parts it takes

324
00:12:51,269 --> 00:12:49,839
and how hard it was going to be to

325
00:12:53,750 --> 00:12:51,279
integrate them and how are was going to

326
00:12:56,069 --> 00:12:53,760
be to test them and all of those areas

327
00:12:58,310 --> 00:12:56,079
were harder than we had anticipated

328
00:13:01,590 --> 00:12:58,320
which contributed to why it took so long

329
00:13:03,430 --> 00:13:01,600
to realize james webb uh with roman we

330
00:13:05,590 --> 00:13:03,440
looked at all those earlier and roman

331
00:13:08,710 --> 00:13:05,600
remains within the cost that we set back

332
00:13:10,310 --> 00:13:08,720
at the very beginning of the project

333
00:13:12,310 --> 00:13:10,320
and

334
00:13:13,750 --> 00:13:12,320
the decadal survey recommended that we

335
00:13:16,710 --> 00:13:13,760
do the same

336
00:13:17,750 --> 00:13:16,720
in parallel with nasa's own and you can

337
00:13:19,829 --> 00:13:17,760
see

338
00:13:22,230 --> 00:13:19,839

that the decadal survey recommended a

339
00:13:23,910 --> 00:13:22,240
subset of some of the

340
00:13:26,550 --> 00:13:23,920
changes that we had already put on

341
00:13:28,550 --> 00:13:26,560
ourselves at nasa

342
00:13:30,150 --> 00:13:28,560
so we're going to implement the program

343
00:13:32,150 --> 00:13:30,160
of future great observatories that the

344
00:13:33,670 --> 00:13:32,160
cable survey recommended

345
00:13:36,069 --> 00:13:33,680
but right now

346
00:13:37,750 --> 00:13:36,079
our focus is on uh completing the

347
00:13:40,069 --> 00:13:37,760
commissioning of james webb and making

348
00:13:42,550 --> 00:13:40,079
sure that we uh successfully begin his

349
00:13:44,949 --> 00:13:42,560
science program and also completing the

350
00:13:47,030 --> 00:13:44,959
roman space telescope and launching it

351
00:13:48,230 --> 00:13:47,040
within the cost and schedule commitments

352
00:13:51,269 --> 00:13:48,240
that we made at the beginning

353
00:13:53,990 --> 00:13:51,279
demonstrating that nasa does know how to

354
00:13:55,110 --> 00:13:54,000
manage large missions uh within our cost

355
00:13:56,949 --> 00:13:55,120
commitments

356
00:13:58,629 --> 00:13:56,959
uh and so we're not going to start that

357
00:14:01,590 --> 00:13:58,639
next great observatory right now we're

358
00:14:03,910 --> 00:14:01,600
going to get ready to start it uh we

359
00:14:05,189 --> 00:14:03,920
foresee a three-stage program over the

360
00:14:08,310 --> 00:14:05,199
next um

361
00:14:10,150 --> 00:14:08,320
uh five or seven years uh where stage

362
00:14:12,790 --> 00:14:10,160
one is what we're doing right now where

363
00:14:15,030 --> 00:14:12,800

we're we're focusing on the enabling

364
00:14:18,949 --> 00:14:15,040
science and technology that it will take

365
00:14:19,750 --> 00:14:18,959
to do that exoplanet mission uh in stage

366
00:14:22,550 --> 00:14:19,760
two

367
00:14:24,710 --> 00:14:22,560
we'll begin the maturation program

368
00:14:26,310 --> 00:14:24,720
recommended by the decadal survey by

369
00:14:28,310 --> 00:14:26,320
doing analysis alternatives and

370
00:14:30,150 --> 00:14:28,320
beginning the trade

371
00:14:32,870 --> 00:14:30,160
and then stage three is when we'll move

372
00:14:35,030 --> 00:14:32,880
into a more uh standard nasa

373
00:14:36,470 --> 00:14:35,040
pre-formulation where we identify a

374
00:14:38,150 --> 00:14:36,480
study office

375
00:14:42,550 --> 00:14:38,160
and begin the process of getting ready

376
00:14:47,750 --> 00:14:44,710
in stage one uh we've got a lot of

377
00:14:51,590 --> 00:14:47,760
activities going on uh that involve the

378
00:14:53,670 --> 00:14:51,600
community as well as nasa um we are

379
00:14:55,750 --> 00:14:53,680
conducting a lot of outreach to the

380
00:14:58,389 --> 00:14:55,760
community in science we've already had

381
00:15:00,069 --> 00:14:58,399
our first workshop and some joint

382
00:15:02,470 --> 00:15:00,079
program analysis group meetings got

383
00:15:04,629 --> 00:15:02,480
another workshop coming up

384
00:15:06,310 --> 00:15:04,639
we are setting up

385
00:15:07,829 --> 00:15:06,320
processes for

386
00:15:09,990 --> 00:15:07,839
assessing

387
00:15:11,910 --> 00:15:10,000
which science requirements

388
00:15:13,189 --> 00:15:11,920

drive the cost

389
00:15:15,269 --> 00:15:13,199
in which science requirements don't

390
00:15:17,350 --> 00:15:15,279
drive the cost so that we can do a

391
00:15:19,110 --> 00:15:17,360
better job of setting science

392
00:15:20,389 --> 00:15:19,120
requirements that can actually be built

393
00:15:23,110 --> 00:15:20,399
within the

394
00:15:25,110 --> 00:15:23,120
time and cost that we intend to allocate

395
00:15:27,990 --> 00:15:25,120
to this next great observatory and of

396
00:15:31,189 --> 00:15:28,000
course we are updating our technology

397
00:15:34,069 --> 00:15:31,199
priorities and our technology gap lists

398
00:15:35,910 --> 00:15:34,079
so that we can be maturing the tall pole

399
00:15:39,269 --> 00:15:35,920
technologies for the next great

400
00:15:45,030 --> 00:15:42,069
and uh we continue to uh provide funding

401
00:15:47,269 --> 00:15:45,040
to the community um uh there's uh all

402
00:15:49,110 --> 00:15:47,279
the catal surveys both the astrophysics

403
00:15:51,749 --> 00:15:49,120
and the planetary science potato survey

404
00:15:53,110 --> 00:15:51,759
uh pay attention to uh making sure that

405
00:15:54,949 --> 00:15:53,120
we're supporting the community to

406
00:15:56,710 --> 00:15:54,959
realize the benefits of the money that

407
00:15:59,350 --> 00:15:56,720
we spend on the mission

408
00:16:00,230 --> 00:15:59,360
we are continuing to grow our support to

409
00:16:02,310 --> 00:16:00,240
the

410
00:16:04,470 --> 00:16:02,320
astrophysics community you can see

411
00:16:05,670 --> 00:16:04,480
through this sand chart

412
00:16:08,870 --> 00:16:05,680
that

413
00:16:10,790 --> 00:16:08,880

we have been growing both research

414
00:16:12,629 --> 00:16:10,800
portfolio and the technology before over

415
00:16:14,230 --> 00:16:12,639
the years and now with the launch of the

416
00:16:16,710 --> 00:16:14,240
james webb space telescope in the

417
00:16:17,749 --> 00:16:16,720
beginning of this general observer

418
00:16:19,910 --> 00:16:17,759
program

419
00:16:22,389 --> 00:16:19,920
we'll be growing that part of our

420
00:16:24,069 --> 00:16:22,399
community support as well

421
00:16:25,910 --> 00:16:24,079
and uh

422
00:16:27,829 --> 00:16:25,920
the blue line shows what fraction of the

423
00:16:29,829 --> 00:16:27,839
total astrophysics budget

424
00:16:31,350 --> 00:16:29,839
gets sent out directly to the community

425
00:16:32,870 --> 00:16:31,360
through grants and grant-like

426
00:16:35,430 --> 00:16:32,880
obligations

427
00:16:39,350 --> 00:16:35,440
and you can see that it has

428
00:16:41,030 --> 00:16:39,360
has always been uh between 10 and 15 and

429
00:16:42,550 --> 00:16:41,040
with the launch of james webb it will be

430
00:16:45,590 --> 00:16:42,560
approaching 20

431
00:16:49,269 --> 00:16:45,600
in the years ahead

432
00:16:52,150 --> 00:16:49,279
now um the next observatory is going to

433
00:16:54,069 --> 00:16:52,160
be an astrobiology mission uh the

434
00:16:55,749 --> 00:16:54,079
decadal survey recommended that we

435
00:16:58,949 --> 00:16:55,759
realize a mission that can search for

436
00:17:00,310 --> 00:16:58,959
biosignatures from our 25 habitable zone

437
00:17:01,670 --> 00:17:00,320
planets

438
00:17:03,670 --> 00:17:01,680

and

439
00:17:06,150 --> 00:17:03,680
they said also be a transformative

440
00:17:09,429 --> 00:17:06,160
facility for general astrophysics the

441
00:17:11,029 --> 00:17:09,439
challenge of characterizing 25 habitable

442
00:17:13,590 --> 00:17:11,039
zone planets

443
00:17:15,909 --> 00:17:13,600
requires a large telescope with

444
00:17:18,470 --> 00:17:15,919
incredible capabilities

445
00:17:21,350 --> 00:17:18,480
both in optics and instrumentation and

446
00:17:23,029 --> 00:17:21,360
uh if we build such a telescope

447
00:17:25,669 --> 00:17:23,039
it will have the capabilities of doing

448
00:17:28,069 --> 00:17:25,679
transformative astrophysics in every

449
00:17:31,350 --> 00:17:28,079
possible area of astrophysics

450
00:17:33,669 --> 00:17:31,360
and so that is the goal that we have

451
00:17:36,230 --> 00:17:33,679
and as i mentioned right now we are

452
00:17:38,150 --> 00:17:36,240
beginning uh stage one which is the

453
00:17:40,950 --> 00:17:38,160
enabling science and the technology

454
00:17:42,630 --> 00:17:40,960
maturation uh to allow us to move into

455
00:17:44,549 --> 00:17:42,640
the uh stage two where we'll do the

456
00:17:46,390 --> 00:17:44,559
trade studies

457
00:17:48,390 --> 00:17:46,400
so uh

458
00:17:50,950 --> 00:17:48,400
this is what our fleet looks like right

459
00:17:53,190 --> 00:17:50,960
now um and the the hero survey has

460
00:17:56,070 --> 00:17:53,200
recommended missions in the future and

461
00:17:58,870 --> 00:17:56,080
we'll be excited to get them going

462
00:18:00,390 --> 00:17:58,880
and with that i'm going to uh

463
00:18:01,990 --> 00:18:00,400

sean i think we're going to do all the

464
00:18:03,750 --> 00:18:02,000
talks without taking questions is that

465
00:18:05,510 --> 00:18:03,760
correct

466
00:18:07,590 --> 00:18:05,520
yeah i think we'll save questions and

467
00:18:09,190 --> 00:18:07,600
community feedback for the end um and

468
00:18:11,270 --> 00:18:09,200
eric you're going to help paul continue

469
00:18:13,110 --> 00:18:11,280
to share slides is that correct

470
00:18:13,830 --> 00:18:13,120
i'm

471
00:18:16,150 --> 00:18:13,840
i speaking right

472
00:18:18,230 --> 00:18:16,160
eric mama jack who is the deputy program

473
00:18:22,710 --> 00:18:18,240
chief scientist for the nasa exoplanet

474
00:18:24,549 --> 00:18:22,720
exploration program at jpel jpl eric

475
00:18:29,990 --> 00:18:24,559
uh thank you paul's already introduced

476
00:18:32,870 --> 00:18:31,350
uh paul i think you need to advance

477
00:18:33,830 --> 00:18:32,880
there we go

478
00:18:35,830 --> 00:18:33,840
um

479
00:18:37,909 --> 00:18:35,840
so this is uh my one slide encapsulated

480
00:18:39,830 --> 00:18:37,919
the nasa exoplanet exploration program

481
00:18:41,110 --> 00:18:39,840
let me take my mask off here

482
00:18:42,789 --> 00:18:41,120
um

483
00:18:45,190 --> 00:18:42,799
you know the the 20 if you think back

484
00:18:47,909 --> 00:18:45,200
the 2010 decadal was excited about the

485
00:18:48,950 --> 00:18:47,919
search for life around nearby planets um

486
00:18:51,669 --> 00:18:48,960
and uh

487
00:18:53,909 --> 00:18:51,679
uh building a large telescope to

488
00:18:56,230 --> 00:18:53,919

uh search them with reflected light but

489
00:18:57,669 --> 00:18:56,240
it said we're not quite there yet they

490
00:18:59,510 --> 00:18:57,679
said we need to advance the science we

491
00:19:00,789 --> 00:18:59,520
need to advance the technology we don't

492
00:19:02,070 --> 00:19:00,799
know how many earth-like planets are out

493
00:19:04,070 --> 00:19:02,080
there how much dust there is around

494
00:19:05,590 --> 00:19:04,080
nearby stars uh the starlight

495
00:19:07,590 --> 00:19:05,600
suppression technologies and other

496
00:19:09,110 --> 00:19:07,600
technologies are not quite there yet so

497
00:19:10,390 --> 00:19:09,120
why don't you go back and do a plan over

498
00:19:11,669 --> 00:19:10,400
the 20 teens

499
00:19:13,270 --> 00:19:11,679
and that's really been the focus of the

500
00:19:16,390 --> 00:19:13,280
nasa exoplanet exploration program the

501
00:19:17,990 --> 00:19:16,400
last decade and it's great to see that

502
00:19:19,830 --> 00:19:18,000
these the advances in the science and

503
00:19:22,150 --> 00:19:19,840
technology over the last decade

504
00:19:24,630 --> 00:19:22,160
got us to the point where the 2020

505
00:19:25,590 --> 00:19:24,640
decadal was was ready to

506
00:19:30,070 --> 00:19:25,600
uh

507
00:19:31,430 --> 00:19:30,080
direct imaging mission

508
00:19:33,430 --> 00:19:31,440
um so

509
00:19:35,669 --> 00:19:33,440
we've been the the exoplanet program

510
00:19:37,909 --> 00:19:35,679
office has been uh involved with

511
00:19:40,549 --> 00:19:37,919
uh uh working with the community on uh

512
00:19:44,150 --> 00:19:40,559
some of the mission concepts um uh

513
00:19:46,710 --> 00:19:44,160

including uh havex and uh luvar a few

514
00:19:48,470 --> 00:19:46,720
years back um and now going forward with

515
00:19:50,150 --> 00:19:48,480
some of the

516
00:19:51,270 --> 00:19:50,160
studies that will be taking place with

517
00:19:53,029 --> 00:19:51,280
the uh

518
00:19:55,270 --> 00:19:53,039
the new decatal missions

519
00:19:56,150 --> 00:19:55,280
um the exoplanet program if you've seen

520
00:19:57,669 --> 00:19:56,160
you know if you've seen any of the

521
00:19:59,669 --> 00:19:57,679
exoplanet uh

522
00:20:01,190 --> 00:19:59,679
travel bureau posters if you've attended

523
00:20:03,110 --> 00:20:01,200
a segan workshop

524
00:20:05,590 --> 00:20:03,120
uh if you've applied for uh some of the

525
00:20:07,510 --> 00:20:05,600
ground-based time through a cac or the

526
00:20:09,190 --> 00:20:07,520
nn explorer program those are those are

527
00:20:11,669 --> 00:20:09,200
parts of the nas exoplanet exploration

528
00:20:12,630 --> 00:20:11,679
program where we're helping to sustain

529
00:20:15,270 --> 00:20:12,640
the uh

530
00:20:17,270 --> 00:20:15,280
the exoplanet community and also we work

531
00:20:19,270 --> 00:20:17,280
closely with the uh the exopag the

532
00:20:22,230 --> 00:20:19,280
program analysis group

533
00:20:23,669 --> 00:20:22,240
um we have uh technology uh and and

534
00:20:26,630 --> 00:20:23,679
science gap list we've been thinking

535
00:20:28,710 --> 00:20:26,640
about um you know hoping that a mission

536
00:20:31,350 --> 00:20:28,720
something like this to cable six meter

537
00:20:33,590 --> 00:20:31,360
um you know we're anticipating that um

538
00:20:36,230 --> 00:20:33,600

the uh the technology gap lists have

539
00:20:39,270 --> 00:20:36,240
been quite mature um we've had input

540
00:20:40,870 --> 00:20:39,280
from the large mission studies um

541
00:20:43,270 --> 00:20:40,880
and on the science side we had the

542
00:20:45,590 --> 00:20:43,280
benefit of the 2018 um

543
00:20:47,909 --> 00:20:45,600
exoplanet science strategy so really

544
00:20:49,830 --> 00:20:47,919
once the decay the 2020 decatur came out

545
00:20:53,110 --> 00:20:49,840
we're we're in pretty good shape

546
00:20:54,549 --> 00:20:53,120
um uh we've already been uh

547
00:20:57,350 --> 00:20:54,559
moving in in terms of science and

548
00:20:58,870 --> 00:20:57,360
technology in that direction

549
00:21:02,310 --> 00:20:58,880
uh so okay so that's enough on the

550
00:21:03,830 --> 00:21:02,320
exoplanet program next line

551
00:21:05,510 --> 00:21:03,840
i just want to circle back to paul's

552
00:21:06,390 --> 00:21:05,520
slide uh and just think a little bit

553
00:21:09,590 --> 00:21:06,400
about

554
00:21:12,149 --> 00:21:09,600
the community interface um with this the

555
00:21:14,230 --> 00:21:12,159
stage one process and i just wanted to i

556
00:21:15,110 --> 00:21:14,240
just want to reiterate to uh

557
00:21:17,510 --> 00:21:15,120
um

558
00:21:20,470 --> 00:21:17,520
that this there is time for a community

559
00:21:22,470 --> 00:21:20,480
input on uh think about the precursor

560
00:21:23,590 --> 00:21:22,480
science for the decadal six meter

561
00:21:25,990 --> 00:21:23,600
um

562
00:21:27,590 --> 00:21:26,000
and uh the the first workshop was in

563
00:21:31,430 --> 00:21:27,600

late april the next one will either be

564
00:21:32,710 --> 00:21:31,440
in late july or early august um and

565
00:21:34,310 --> 00:21:32,720
we're working with the community to try

566
00:21:36,630 --> 00:21:34,320
to find what the what the key science

567
00:21:37,830 --> 00:21:36,640
gaps are that should be known that will

568
00:21:39,750 --> 00:21:37,840
that are

569
00:21:42,310 --> 00:21:39,760
sufficiently important to inform the

570
00:21:45,430 --> 00:21:42,320
design um of the

571
00:21:47,510 --> 00:21:45,440
future flagships um and these workshops

572
00:21:50,789 --> 00:21:47,520
are for all uh for all three the far ir

573
00:21:53,110 --> 00:21:50,799
x-ray and the uh iro uv

574
00:21:54,870 --> 00:21:53,120
um there's the uh exo set the science

575
00:21:56,549 --> 00:21:54,880
evaluation team and this is this is

576
00:21:58,470 --> 00:21:56,559
another group that will have um an

577
00:22:02,070 --> 00:21:58,480
interface with the pags

578
00:22:04,549 --> 00:22:02,080
and on the technology side we'll have um

579
00:22:05,669 --> 00:22:04,559
an updated technology gap list and and

580
00:22:07,350 --> 00:22:05,679
the community will be able to propose

581
00:22:08,950 --> 00:22:07,360
through the

582
00:22:09,990 --> 00:22:08,960
strategic astrophysics technology

583
00:22:11,510 --> 00:22:10,000
program

584
00:22:13,510 --> 00:22:11,520
to advance

585
00:22:15,029 --> 00:22:13,520
technologies relevant to the catal again

586
00:22:16,149 --> 00:22:15,039
those and even the changes to that gap

587
00:22:18,230 --> 00:22:16,159
list was not all that big because we

588
00:22:20,070 --> 00:22:18,240

already had the input from the um from

589
00:22:22,230 --> 00:22:20,080
these mission studies going into the

590
00:22:23,669 --> 00:22:22,240
2020 to cable so there was there's no no

591
00:22:29,590 --> 00:22:23,679
major surprises

592
00:22:33,750 --> 00:22:32,310
i want to advertise exopag 26 or the

593
00:22:36,789 --> 00:22:33,760
exoplanet

594
00:22:39,510 --> 00:22:36,799
program analysis group uh holds meetings

595
00:22:41,270 --> 00:22:39,520
twice a year they're usually time to run

596
00:22:42,549 --> 00:22:41,280
they're always around a winter double as

597
00:22:45,110 --> 00:22:42,559
uh during the summer they're either

598
00:22:47,909 --> 00:22:45,120
around a a science a

599
00:22:49,830 --> 00:22:47,919
topical meeting or a summer double a s

600
00:22:51,590 --> 00:22:49,840
in this case it's uh uh it'll be

601
00:22:54,310 --> 00:22:51,600
scheduled right before the uh the

602
00:22:55,909 --> 00:22:54,320
pasadena uh 240th american astronomical

603
00:22:57,590 --> 00:22:55,919
society meeting

604
00:22:59,190 --> 00:22:57,600
the agenda to that is quickly coming

605
00:23:02,149 --> 00:22:59,200
together now but i encourage you to

606
00:23:03,350 --> 00:23:02,159
reach out to members of the exopag

607
00:23:05,909 --> 00:23:03,360
if you have

608
00:23:08,149 --> 00:23:05,919
particular items about

609
00:23:10,149 --> 00:23:08,159
you'd like to see discussed

610
00:23:12,390 --> 00:23:10,159
so i i also encourage you if you're not

611
00:23:15,270 --> 00:23:12,400
already on the exopage email list to pre

612
00:23:16,950 --> 00:23:15,280
uh to please sign up um we only we send

613
00:23:18,070 --> 00:23:16,960

those out about every week or two with

614
00:23:20,630 --> 00:23:18,080
with uh

615
00:23:22,630 --> 00:23:20,640
uh updates relevant to the uh to the

616
00:23:24,470 --> 00:23:22,640
exit page with that i'd like to

617
00:23:26,149 --> 00:23:24,480
introduce michael meyer who is the

618
00:23:27,830 --> 00:23:26,159
exopage chair

619
00:23:30,390 --> 00:23:27,840
and hopefully he was able to join oh

620
00:23:32,549 --> 00:23:30,400
good i see his face okay

621
00:23:35,190 --> 00:23:32,559
michael myers professor at university of

622
00:23:36,789 --> 00:23:35,200
michigan and he is our uh he's been our

623
00:23:39,110 --> 00:23:36,799
exopag

624
00:23:39,990 --> 00:23:39,120
chair the last uh the last couple years

625
00:23:41,909 --> 00:23:40,000
uh

626
00:23:45,590 --> 00:23:41,919
michael are you is your audio

627
00:23:48,710 --> 00:23:46,789
now it should be

628
00:23:49,590 --> 00:23:48,720
thanks eric thank you i hope you can all

629
00:23:53,190 --> 00:23:49,600
hear me

630
00:23:55,510 --> 00:23:53,200
so uh what a great segue into just a

631
00:23:57,990 --> 00:23:55,520
couple of charts to tell you what about

632
00:24:00,630 --> 00:23:58,000
the exo pag uh and what we're thinking

633
00:24:06,630 --> 00:24:03,669
and let me advance so this is the

634
00:24:08,549 --> 00:24:06,640
executive committee that eric was uh

635
00:24:11,029 --> 00:24:08,559
obliquely alluding to uh these are the

636
00:24:14,710 --> 00:24:11,039
people you can uh contact if you have

637
00:24:15,830 --> 00:24:14,720
ideas or suggestions this is not a

638
00:24:17,669 --> 00:24:15,840

a strong

639
00:24:19,510 --> 00:24:17,679
closed leadership group it's simply a

640
00:24:22,630 --> 00:24:19,520
coordinating body for what is the

641
00:24:25,669 --> 00:24:22,640
exopage which is everybody it's anyone

642
00:24:27,430 --> 00:24:25,679
who's interested in the nasa exoplanet

643
00:24:29,110 --> 00:24:27,440
exploration program which i think must

644
00:24:31,190 --> 00:24:29,120
include everyone who can hear me right

645
00:24:33,830 --> 00:24:31,200
now so you're all a member whether you

646
00:24:35,190 --> 00:24:33,840
knew it or not of the exopage

647
00:24:37,750 --> 00:24:35,200
we have some new members who've joined

648
00:24:39,269 --> 00:24:37,760
the ecc and we are very grateful for

649
00:24:40,549 --> 00:24:39,279
their service as well as those who are

650
00:24:42,390 --> 00:24:40,559
rotating off

651
00:24:44,230 --> 00:24:42,400
diana dragomir

652
00:24:45,110 --> 00:24:44,240
from the university of new mexico aaron

653
00:24:47,590 --> 00:24:45,120
may

654
00:24:48,950 --> 00:24:47,600
from jhu applied physics lab beartron

655
00:24:51,990 --> 00:24:48,960
medicine from

656
00:24:54,470 --> 00:24:52,000
jpl and john winzinowicz from the

657
00:24:57,830 --> 00:24:54,480
university of oklahoma so thanks to all

658
00:24:58,830 --> 00:24:57,840
of them i'll point out that the exopag

659
00:25:01,590 --> 00:24:58,840
is an

660
00:25:03,669 --> 00:25:01,600
interdisciplinary group we are within

661
00:25:05,909 --> 00:25:03,679
the nasa astrophysics division but we do

662
00:25:08,070 --> 00:25:05,919
have observers and liaisons from other

663
00:25:11,750 --> 00:25:08,080

nasa divisions because of the nature the

664
00:25:13,669 --> 00:25:11,760
interdisciplinary nature of the field

665
00:25:17,110 --> 00:25:13,679
you've heard this term i think thrown

666
00:25:19,669 --> 00:25:17,120
out about sigs and sags a sig is a

667
00:25:22,310 --> 00:25:19,679
science interest group which is meant to

668
00:25:24,310 --> 00:25:22,320
be a longer term activity of some number

669
00:25:26,870 --> 00:25:24,320
of years that is

670
00:25:29,750 --> 00:25:26,880
working issues and providing analyses

671
00:25:31,990 --> 00:25:29,760
for nasa we are not an advisory group so

672
00:25:35,190 --> 00:25:32,000
we don't advise nasa but we perform

673
00:25:38,390 --> 00:25:35,200
analyses and generate findings which go

674
00:25:40,950 --> 00:25:38,400
into the nasa leadership and they use

675
00:25:41,669 --> 00:25:40,960
that in their decision-making process

676
00:25:43,830 --> 00:25:41,679
so

677
00:25:46,230 --> 00:25:43,840
sigs are one mechanism where we can do

678
00:25:48,630 --> 00:25:46,240
those analyses sags are another those

679
00:25:50,390 --> 00:25:48,640
are science analysis groups and the

680
00:25:53,029 --> 00:25:50,400
difference is that the sags are meant to

681
00:25:55,510 --> 00:25:53,039
be short-term more focused activities

682
00:25:57,909 --> 00:25:55,520
with a specific report or

683
00:25:59,669 --> 00:25:57,919
some output product which is generated

684
00:26:02,549 --> 00:25:59,679
and then hand it to the astrophysics

685
00:26:05,269 --> 00:26:02,559
division leadership in this case paul

686
00:26:07,510 --> 00:26:05,279
for his consumption so we've just closed

687
00:26:08,710 --> 00:26:07,520
out two sags which some of you many of

688
00:26:10,390 --> 00:26:08,720

you in the room have probably

689
00:26:12,390 --> 00:26:10,400
participated in they were very large

690
00:26:14,549 --> 00:26:12,400
efforts by many many people and

691
00:26:15,990 --> 00:26:14,559
extremely valuable we think uh to the

692
00:26:18,149 --> 00:26:16,000
community so thank you all for your

693
00:26:20,070 --> 00:26:18,159
efforts on stellar contamination on

694
00:26:22,870 --> 00:26:20,080
transit spectra and exoplanet host

695
00:26:25,350 --> 00:26:22,880
properties we've just launched a new sag

696
00:26:27,190 --> 00:26:25,360
uh led by john debeson a couple of

697
00:26:30,070 --> 00:26:27,200
colleagues on debris disk properties and

698
00:26:32,710 --> 00:26:30,080
exo zodies of exoplanet host stars so

699
00:26:35,430 --> 00:26:32,720
that is one ongoing analysis which will

700
00:26:37,510 --> 00:26:35,440
hopefully be useful in this context and

701
00:26:40,149 --> 00:26:37,520
the two cigs are exoplanet demographics

702
00:26:44,470 --> 00:26:40,159
which is an ongoing topic uh updating

703
00:26:46,630 --> 00:26:44,480
the sad 13 uh eta earth focused

704
00:26:48,149 --> 00:26:46,640
initiative and of course as many of you

705
00:26:50,390 --> 00:26:48,159
know in the room that

706
00:26:52,390 --> 00:26:50,400
exoplanets and solar system exploration

707
00:26:54,710 --> 00:26:52,400
are two uh things that have a lot of

708
00:26:57,190 --> 00:26:54,720
synergies uh together and vicki meadows

709
00:26:58,870 --> 00:26:57,200
and kathy mant lead that science

710
00:27:00,230 --> 00:26:58,880
interest group there are links at the

711
00:27:01,909 --> 00:27:00,240
bottom of this i don't know if we can

712
00:27:03,750 --> 00:27:01,919
make these charts available but people

713
00:27:05,990 --> 00:27:03,760

can go and learn about the work of the

714
00:27:08,710 --> 00:27:06,000
sigs and sags there but the real topic

715
00:27:11,430 --> 00:27:08,720
today is what can the exopage contribute

716
00:27:13,909 --> 00:27:11,440
to uh the topic of this um

717
00:27:15,990 --> 00:27:13,919
town hall and we're already doing some

718
00:27:18,630 --> 00:27:16,000
things we're supporting what we hope

719
00:27:20,630 --> 00:27:18,640
will be uh crosstag science analysis

720
00:27:23,110 --> 00:27:20,640
groups these shorter term things on

721
00:27:24,789 --> 00:27:23,120
studying and understanding the value of

722
00:27:26,549 --> 00:27:24,799
numerous great observatories that could

723
00:27:28,630 --> 00:27:26,559
work in concert like our previous

724
00:27:31,029 --> 00:27:28,640
generation of the observatories did

725
00:27:33,190 --> 00:27:31,039
there we also hope to participate in uh

726
00:27:35,510 --> 00:27:33,200
new efforts to understand barriers to

727
00:27:37,510 --> 00:27:35,520
participation by underrepresented groups

728
00:27:38,870 --> 00:27:37,520
in space science and of course we're

729
00:27:40,310 --> 00:27:38,880
supporting the precursor science

730
00:27:42,789 --> 00:27:40,320
workshops which i hope many of you

731
00:27:45,510 --> 00:27:42,799
participated in and others will join as

732
00:27:48,149 --> 00:27:45,520
eric said for the july workshop what

733
00:27:50,149 --> 00:27:48,159
else can we do well this is just one

734
00:27:52,310 --> 00:27:50,159
idea and you may have others that are

735
00:27:54,230 --> 00:27:52,320
better than this but uh we've been

736
00:27:56,630 --> 00:27:54,240
discussing the possibility of creating a

737
00:27:59,190 --> 00:27:56,640
new science interest group it would

738
00:28:01,350 --> 00:27:59,200

again be a cross-pag meaning that we

739
00:28:04,230 --> 00:28:01,360
would have representatives from fizpag

740
00:28:06,630 --> 00:28:04,240
and kopag on it as well as several uh

741
00:28:08,549 --> 00:28:06,640
leaders from the exo pack perhaps we

742
00:28:11,750 --> 00:28:08,559
would spin up a science interest group

743
00:28:13,590 --> 00:28:11,760
on this topic of uh the phase one uh

744
00:28:16,230 --> 00:28:13,600
precursor activities in science and

745
00:28:19,269 --> 00:28:16,240
technology for the future large aperture

746
00:28:20,870 --> 00:28:19,279
uv optical ir space telescope and this

747
00:28:22,950 --> 00:28:20,880
would really be to support the process

748
00:28:25,029 --> 00:28:22,960
that paul and others have outlined uh

749
00:28:26,549 --> 00:28:25,039
the go map phase one

750
00:28:28,549 --> 00:28:26,559
we think this could be led by the

751
00:28:30,870 --> 00:28:28,559
exopage but we would definitely need to

752
00:28:33,110 --> 00:28:30,880
have we think representatives from the

753
00:28:34,789 --> 00:28:33,120
other pegs because a great observatory

754
00:28:36,630 --> 00:28:34,799
uh something like we're talking about

755
00:28:39,430 --> 00:28:36,640
would serve a large fraction of the

756
00:28:41,669 --> 00:28:39,440
astrophysics community this group would

757
00:28:44,389 --> 00:28:41,679
uh maybe have subgroups then that would

758
00:28:46,870 --> 00:28:44,399
spin off and create analyses on specific

759
00:28:48,389 --> 00:28:46,880
topics perhaps issue findings or reports

760
00:28:50,549 --> 00:28:48,399
on specific topics but it would be an

761
00:28:53,510 --> 00:28:50,559
ongoing thing through this very very

762
00:28:55,110 --> 00:28:53,520
important phase one uh set of activities

763
00:28:56,710 --> 00:28:55,120

so i just throw out a couple of

764
00:28:59,190 --> 00:28:56,720
questions that i'm personally interested

765
00:29:02,230 --> 00:28:59,200
in what would instrumentation targeted

766
00:29:04,310 --> 00:29:02,240
at exoplanet diversity not necessarily a

767
00:29:06,310 --> 00:29:04,320
specific focus on habitability but but

768
00:29:08,470 --> 00:29:06,320
atmospheric characterization of the

769
00:29:11,269 --> 00:29:08,480
diversity would that be any different or

770
00:29:13,190 --> 00:29:11,279
not it's not obvious that it would and

771
00:29:14,870 --> 00:29:13,200
as has been talked about by many members

772
00:29:16,630 --> 00:29:14,880
of the community here

773
00:29:18,870 --> 00:29:16,640
how much do we understand the range of

774
00:29:21,190 --> 00:29:18,880
habitability is it a big enough picture

775
00:29:22,870 --> 00:29:21,200
is it broad enough and diverse enough um

776
00:29:24,630 --> 00:29:22,880
i want to say that anything that that

777
00:29:26,710 --> 00:29:24,640
such a group would do would not be done

778
00:29:28,149 --> 00:29:26,720
in a vacuum and reinventing the wheel of

779
00:29:30,870 --> 00:29:28,159
course there's a huge amount of effort

780
00:29:33,590 --> 00:29:30,880
by experts who know more about specific

781
00:29:35,110 --> 00:29:33,600
topics than many others of us myself um

782
00:29:36,710 --> 00:29:35,120
on the concept studies and so we would

783
00:29:39,669 --> 00:29:36,720
try to take advantage of all that as

784
00:29:41,750 --> 00:29:39,679
well as the existing ongoing activities

785
00:29:43,510 --> 00:29:41,760
uh that are for example happening in

786
00:29:45,190 --> 00:29:43,520
nexus the quantitative habit

787
00:29:47,110 --> 00:29:45,200
habitability group for example has

788
00:29:48,630 --> 00:29:47,120

already studied some of these issues so

789
00:29:51,269 --> 00:29:48,640
we would not repeat what has already

790
00:29:53,669 --> 00:29:51,279
been done i am personally not exactly

791
00:29:55,750 --> 00:29:53,679
sure how such a group would interface

792
00:29:58,389 --> 00:29:55,760
and report out to apd i mean we could

793
00:30:01,430 --> 00:29:58,399
always send uh reports to paul

794
00:30:04,470 --> 00:30:01,440
but how would we interface with this sst

795
00:30:06,470 --> 00:30:04,480
tst and sct the science the technology

796
00:30:08,310 --> 00:30:06,480
and the evaluation group which eric

797
00:30:09,750 --> 00:30:08,320
mentioned again and paul showed earlier

798
00:30:11,590 --> 00:30:09,760
so we'd have to figure out how such a

799
00:30:13,110 --> 00:30:11,600
group would interact with them and if

800
00:30:14,870 --> 00:30:13,120
some people i know in the community are

801
00:30:16,710 --> 00:30:14,880
very anxious to get started doing

802
00:30:19,029 --> 00:30:16,720
something to have a mechanism for the

803
00:30:20,710 --> 00:30:19,039
community to have input here and if we

804
00:30:23,190 --> 00:30:20,720
wanted to do something quick we would

805
00:30:25,510 --> 00:30:23,200
have to try to get a term of reference

806
00:30:27,830 --> 00:30:25,520
put together and approved at least

807
00:30:29,510 --> 00:30:27,840
viewed by the apac and approved by uh

808
00:30:31,269 --> 00:30:29,520
the leadership sometime this summer and

809
00:30:34,630 --> 00:30:31,279
the next opportunity to do that at the

810
00:30:36,549 --> 00:30:34,640
apac would be july 19-21

811
00:30:38,710 --> 00:30:36,559
but let me just say none of this is set

812
00:30:40,630 --> 00:30:38,720
in stone these are just ideas and as

813
00:30:43,029 --> 00:30:40,640

eric said we're having exo pack 26

814
00:30:45,269 --> 00:30:43,039
coming up and it's really what you want

815
00:30:46,870 --> 00:30:45,279
what do you think we should do and we

816
00:30:48,950 --> 00:30:46,880
are are your servants here and

817
00:30:50,149 --> 00:30:48,960
coordinators to try to implement what

818
00:30:52,470 --> 00:30:50,159
you think would be best for the

819
00:30:53,190 --> 00:30:52,480
community to participate in the phase

820
00:30:55,669 --> 00:30:53,200
one

821
00:31:00,789 --> 00:30:55,679
of this activity and that's all thanks

822
00:31:05,029 --> 00:31:03,590
thank you michael and eric and paul

823
00:31:06,789 --> 00:31:05,039
our last speaker before we go to

824
00:31:08,630 --> 00:31:06,799
community discussion is victoria meadows

825
00:31:10,470 --> 00:31:08,640
from the university of washington also a

826
00:31:12,950 --> 00:31:10,480
co-lead for the nexus for exoplanet

827
00:31:14,389 --> 00:31:12,960
systems science or nexus one of the

828
00:31:15,750 --> 00:31:14,399
astrobiology programs research

829
00:31:17,990 --> 00:31:15,760
coordination networks and she'll talk

830
00:31:19,909 --> 00:31:18,000
about that group's potential activities

831
00:31:23,590 --> 00:31:19,919
okay

832
00:31:27,269 --> 00:31:23,600
all right hello everybody let's see

833
00:31:32,630 --> 00:31:29,830
it's been 50 50. okay cool

834
00:31:35,110 --> 00:31:32,640
all right so um i am representing my

835
00:31:36,950 --> 00:31:35,120
colleagues here in nexus and i just want

836
00:31:38,310 --> 00:31:36,960
to talk a little bit about what nexus is

837
00:31:40,470 --> 00:31:38,320
and what we've done in the past to give

838
00:31:42,149 --> 00:31:40,480

you some inspiration of what we could do

839
00:31:43,909 --> 00:31:42,159
um as far as precursor science and

840
00:31:45,509 --> 00:31:43,919
supporting the astrobiology initiatives

841
00:31:48,710 --> 00:31:45,519
in the decadal

842
00:31:50,870 --> 00:31:48,720
so nexus is nasa's nexus for exoplanet

843
00:31:53,110 --> 00:31:50,880
system science and so we are working

844
00:31:54,470 --> 00:31:53,120
together to find life beyond the solar

845
00:31:57,990 --> 00:31:54,480
system

846
00:31:59,590 --> 00:31:58,000
we recognize that you know to have a

847
00:32:01,590 --> 00:31:59,600
habitable planet

848
00:32:03,590 --> 00:32:01,600
it takes a lot of characteristics and a

849
00:32:05,430 --> 00:32:03,600
lot of processes and those are not just

850
00:32:07,029 --> 00:32:05,440
intrinsic to the planet itself which you

851
00:32:08,870 --> 00:32:07,039
can see in the bottom panel it's not

852
00:32:10,950 --> 00:32:08,880
just what happened to the planet how it

853
00:32:13,830 --> 00:32:10,960
formed evolved its characteristics now

854
00:32:15,509 --> 00:32:13,840
it's also how it interacts with its star

855
00:32:17,590 --> 00:32:15,519
and also how it interacts with other

856
00:32:20,230 --> 00:32:17,600
planets and other objects in its

857
00:32:23,110 --> 00:32:20,240
planetary system and so for a planet to

858
00:32:26,310 --> 00:32:23,120
be able to acquire maintain um and even

859
00:32:27,990 --> 00:32:26,320
lose habitability it all comes down to

860
00:32:30,470 --> 00:32:28,000
these interactions between these three

861
00:32:32,870 --> 00:32:30,480
major components planet uh star and

862
00:32:35,669 --> 00:32:32,880
planetary system so that is taking a

863
00:32:37,590 --> 00:32:35,679

systems uh science approach to to

864
00:32:40,149 --> 00:32:37,600
understanding habitability

865
00:32:42,149 --> 00:32:40,159
so to do that it's obviously very

866
00:32:43,830 --> 00:32:42,159
clearly on this diagram massively

867
00:32:44,950 --> 00:32:43,840
interdisciplinary we're getting you know

868
00:32:47,350 --> 00:32:44,960
lots and lots of different fields

869
00:32:50,149 --> 00:32:47,360
geology biology atmospheric sciences

870
00:32:53,029 --> 00:32:50,159
astronomy um all working together and so

871
00:32:54,710 --> 00:32:53,039
to do that it's important to have a

872
00:32:56,789 --> 00:32:54,720
collaborative network that will allow

873
00:32:58,470 --> 00:32:56,799
these disciplines to interact

874
00:33:00,070 --> 00:32:58,480
and work together more efficiently on

875
00:33:02,149 --> 00:33:00,080
answering one of humanity's oldest

876
00:33:04,230 --> 00:33:02,159
questions which is of course are we

877
00:33:05,830 --> 00:33:04,240
alone

878
00:33:07,590 --> 00:33:05,840
so um

879
00:33:09,430 --> 00:33:07,600
here's sort of an articulation of nexus

880
00:33:10,950 --> 00:33:09,440
science goals and these were written a

881
00:33:12,710 --> 00:33:10,960
while ago but actually they're very well

882
00:33:14,470 --> 00:33:12,720
aligned with what recently came out in

883
00:33:16,470 --> 00:33:14,480
the decadal survey so that's that's good

884
00:33:19,669 --> 00:33:16,480
we're all running in parallel here

885
00:33:21,110 --> 00:33:19,679
so uh in nexus uh what our groups are

886
00:33:22,710 --> 00:33:21,120
trying to do by by doing that

887
00:33:25,110 --> 00:33:22,720
interdisciplinary interaction is to

888
00:33:26,870 --> 00:33:25,120

understand planets in context throughout

889
00:33:29,509 --> 00:33:26,880
their formation and co-evolution with

890
00:33:31,110 --> 00:33:29,519
their parents star and planetary system

891
00:33:32,710 --> 00:33:31,120
to investigate the diversity of

892
00:33:34,149 --> 00:33:32,720
exoplanet characteristics and learn how

893
00:33:36,310 --> 00:33:34,159
their properties and evolution can

894
00:33:38,149 --> 00:33:36,320
create the conditions for life

895
00:33:40,549 --> 00:33:38,159
to understand how to identify the best

896
00:33:42,950 --> 00:33:40,559
exoplanet targets for life searches and

897
00:33:44,710 --> 00:33:42,960
to learn how to recognize and search for

898
00:33:47,350 --> 00:33:44,720
signs of habitability and life on

899
00:33:50,389 --> 00:33:47,360
exoplanets so it's a pretty broad scope

900
00:33:52,549 --> 00:33:50,399
covered under nexus science

901
00:33:54,710 --> 00:33:52,559
so those incredibly broad goals require

902
00:33:56,470 --> 00:33:54,720
again massive interdisciplinarity so the

903
00:33:58,789 --> 00:33:56,480
other thing that nexus does

904
00:34:01,269 --> 00:33:58,799
um is it tries to address the complexity

905
00:34:03,190 --> 00:34:01,279
of these science questions uh by

906
00:34:05,269 --> 00:34:03,200
leveraging nasa-funded research across

907
00:34:06,389 --> 00:34:05,279
the four nasa science divisions so for

908
00:34:08,550 --> 00:34:06,399
those of you who don't know that's

909
00:34:11,270 --> 00:34:08,560
planetary science astrophysics

910
00:34:13,510 --> 00:34:11,280
heliophysics and earth science and all

911
00:34:15,270 --> 00:34:13,520
of these divisions have scientists um

912
00:34:17,909 --> 00:34:15,280
and science that is relevant to

913
00:34:20,550 --> 00:34:17,919

answering these bigger questions

914
00:34:21,750 --> 00:34:20,560
so what is nexus then uh it's a it's

915
00:34:23,669 --> 00:34:21,760
many things there's some some

916
00:34:25,829 --> 00:34:23,679
definitions but but i'll just go through

917
00:34:27,190 --> 00:34:25,839
some of the the standard ones so this is

918
00:34:30,069 --> 00:34:27,200
an interdisciplinary research

919
00:34:31,669 --> 00:34:30,079
coordination network founded in 2015 and

920
00:34:33,190 --> 00:34:31,679
dedicated to the study of planetary

921
00:34:35,589 --> 00:34:33,200
habitability in the search for life on

922
00:34:37,190 --> 00:34:35,599
exoplanets it's also a cross-division

923
00:34:38,950 --> 00:34:37,200
initiative bringing astrophysicists

924
00:34:40,629 --> 00:34:38,960
planetary scientists earth scientists

925
00:34:42,869 --> 00:34:40,639
and heliophysics together to bring a

926
00:34:44,710 --> 00:34:42,879
system science approach to the problem

927
00:34:46,389 --> 00:34:44,720
it's also a way to leverage nasa

928
00:34:48,230 --> 00:34:46,399
investments and research and missions to

929
00:34:49,589 --> 00:34:48,240
create a community that will accelerate

930
00:34:51,349 --> 00:34:49,599
discovery and characterization of

931
00:34:52,950 --> 00:34:51,359
potentially life-bearing worlds and

932
00:34:54,790 --> 00:34:52,960
break down barriers between smd

933
00:34:56,230 --> 00:34:54,800
divisions so that's that's our goal

934
00:34:58,069 --> 00:34:56,240
that's what we're trying to do

935
00:35:00,390 --> 00:34:58,079
so we have headquarters reps from from

936
00:35:02,069 --> 00:35:00,400
all of these different uh divisions uh

937
00:35:03,430 --> 00:35:02,079
and the co-leads are listed there and

938
00:35:04,230 --> 00:35:03,440

you can see all our photos on the bottom

939
00:35:06,470 --> 00:35:04,240
there

940
00:35:08,470 --> 00:35:06,480
um and we are also one of five what's

941
00:35:10,870 --> 00:35:08,480
called research coordination networks so

942
00:35:13,349 --> 00:35:10,880
nasa has um five research coordination

943
00:35:15,510 --> 00:35:13,359
networks that incorporate the larger

944
00:35:17,349 --> 00:35:15,520
teams that are funded under the the icar

945
00:35:18,710 --> 00:35:17,359
for interdisciplinary astrobiology

946
00:35:20,390 --> 00:35:18,720
research

947
00:35:23,349 --> 00:35:20,400
we're currently running or as of a few

948
00:35:26,390 --> 00:35:23,359
months ago at about 410 members with 66

949
00:35:28,829 --> 00:35:26,400
teams spanning 114 institutions in 15

950
00:35:31,270 --> 00:35:28,839
countries so it is a very large

951
00:35:33,510 --> 00:35:31,280
collaboration currently about 90 percent

952
00:35:35,990 --> 00:35:33,520
of us are from the us and we have 10

953
00:35:37,510 --> 00:35:36,000
percent international participation

954
00:35:38,950 --> 00:35:37,520
and uh daniel apparently one of the

955
00:35:41,670 --> 00:35:38,960
co-leads found this number two just

956
00:35:43,349 --> 00:35:41,680
searching on ads we have 377 papers that

957
00:35:45,270 --> 00:35:43,359
actually acknowledge nexus

958
00:35:47,910 --> 00:35:45,280
so far as being part of

959
00:35:49,750 --> 00:35:47,920
what helps that paper to be published

960
00:35:51,829 --> 00:35:49,760
okay so here's some example nexus

961
00:35:53,589 --> 00:35:51,839
activities um and i'm also going to go

962
00:35:56,069 --> 00:35:53,599
in more detail into things where we're

963
00:35:57,670 --> 00:35:56,079

actually integrating science as well

964
00:35:59,990 --> 00:35:57,680
so we can help coordinate community

965
00:36:02,230 --> 00:36:00,000
white paper activities both in response

966
00:36:03,829 --> 00:36:02,240
to the catals and other calls but also

967
00:36:05,589 --> 00:36:03,839
in response to science questions that we

968
00:36:07,990 --> 00:36:05,599
identify ourselves and i think one of

969
00:36:10,230 --> 00:36:08,000
our our most famous and impactful and

970
00:36:11,910 --> 00:36:10,240
highly cited white papers is in fact the

971
00:36:13,750 --> 00:36:11,920
one that was led by jonathan fortney on

972
00:36:15,349 --> 00:36:13,760
laboratory astrophysics that we needed

973
00:36:17,109 --> 00:36:15,359
to address our questions

974
00:36:18,630 --> 00:36:17,119
uh in the past we've had postdoc

975
00:36:21,349 --> 00:36:18,640
opportunities we don't have any right

976
00:36:23,670 --> 00:36:21,359
now um but you know watch this space

977
00:36:25,109 --> 00:36:23,680
we have a whole slew of science working

978
00:36:27,349 --> 00:36:25,119
groups and i'll talk about those in more

979
00:36:29,910 --> 00:36:27,359
detail on the next slide uh we have

980
00:36:31,829 --> 00:36:29,920
infiltrated um habits and levoir and we

981
00:36:34,390 --> 00:36:31,839
have helped out with science uh within

982
00:36:35,829 --> 00:36:34,400
both the science study teams uh and also

983
00:36:37,829 --> 00:36:35,839
the um the science technology and

984
00:36:38,870 --> 00:36:37,839
definition teams and the study teams for

985
00:36:41,109 --> 00:36:38,880
the missions

986
00:36:43,750 --> 00:36:41,119
uh we hold workshops without walls so

987
00:36:44,870 --> 00:36:43,760
these are virtual uh conferences that we

988
00:36:46,950 --> 00:36:44,880

were doing long before virtual

989
00:36:48,470 --> 00:36:46,960
conferences became a thing

990
00:36:50,630 --> 00:36:48,480
and we also hold the hab worlds

991
00:36:53,030 --> 00:36:50,640
conferences so these are specifically

992
00:36:55,510 --> 00:36:53,040
focused on habitable planets

993
00:36:57,589 --> 00:36:55,520
and we held one in person in 2017 and

994
00:36:59,670 --> 00:36:57,599
one completely virtually in 2021 for

995
00:37:01,589 --> 00:36:59,680
reasons i don't need to go into

996
00:37:04,390 --> 00:37:01,599
we have a communication working group

997
00:37:06,470 --> 00:37:04,400
that works to communicate our science uh

998
00:37:08,069 --> 00:37:06,480
with to each other and to the general

999
00:37:09,430 --> 00:37:08,079
public and also up to the nasa

1000
00:37:10,870 --> 00:37:09,440
administration so we have a group of

1001
00:37:13,910 --> 00:37:10,880
people who will help you write science

1002
00:37:16,069 --> 00:37:13,920
nuggets if you would like to do that

1003
00:37:18,790 --> 00:37:16,079
we help sponsor student summer schools

1004
00:37:20,630 --> 00:37:18,800
we do webinars where we have different

1005
00:37:22,150 --> 00:37:20,640
disciplines talking to each other and we

1006
00:37:24,069 --> 00:37:22,160
also have this fabulous new initiative

1007
00:37:25,589 --> 00:37:24,079
led by jessica nobiello which is an

1008
00:37:27,270 --> 00:37:25,599
early career professional development

1009
00:37:29,030 --> 00:37:27,280
series that is run virtually and so if

1010
00:37:30,310 --> 00:37:29,040
you have early career people please

1011
00:37:32,310 --> 00:37:30,320
point them in the direction of pause

1012
00:37:34,550 --> 00:37:32,320
there's some fantastic um

1013
00:37:36,950 --> 00:37:34,560

events as part of that and we also have

1014
00:37:39,270 --> 00:37:36,960
a public outreach uh manyworlds.space

1015
00:37:41,109 --> 00:37:39,280
blog um as well

1016
00:37:43,270 --> 00:37:41,119
so speaking specifically to the charge

1017
00:37:45,270 --> 00:37:43,280
you know what nexus activities um you

1018
00:37:47,190 --> 00:37:45,280
know can integrate teams build community

1019
00:37:49,030 --> 00:37:47,200
and potentially address um the

1020
00:37:51,109 --> 00:37:49,040
astrobiology that's been outlined in

1021
00:37:54,150 --> 00:37:51,119
this decadal survey

1022
00:37:55,910 --> 00:37:54,160
so we have um in the past done a bunch

1023
00:37:58,550 --> 00:37:55,920
of collaborative community observing

1024
00:38:01,030 --> 00:37:58,560
proposals um two of these are shown here

1025
00:38:02,870 --> 00:38:01,040
there's the james webb space telescope

1026
00:38:04,950 --> 00:38:02,880
early release science proposal which was

1027
00:38:07,109 --> 00:38:04,960
spectacularly successful

1028
00:38:08,950 --> 00:38:07,119
and that proposal was was initiated

1029
00:38:10,470 --> 00:38:08,960
within nexus with nexus scientists but

1030
00:38:12,550 --> 00:38:10,480
as a broad community activity that

1031
00:38:14,950 --> 00:38:12,560
brought in other scientists as well

1032
00:38:17,030 --> 00:38:14,960
and it will be studying stars in great

1033
00:38:19,190 --> 00:38:17,040
detail to help inform

1034
00:38:20,630 --> 00:38:19,200
things like noise levels and observing

1035
00:38:23,750 --> 00:38:20,640
you know gotchas

1036
00:38:26,470 --> 00:38:23,760
for all future uh exoplanet observations

1037
00:38:27,990 --> 00:38:26,480
and transmission and so that is a you

1038
00:38:29,910 --> 00:38:28,000

know a fabulous community service that's

1039
00:38:32,150 --> 00:38:29,920
being done we also have the trampos 1

1040
00:38:33,990 --> 00:38:32,160
jwst community initiative where a group

1041
00:38:36,390 --> 00:38:34,000
of interdisciplinary scientists got

1042
00:38:37,589 --> 00:38:36,400
together and uh put in a whole bunch of

1043
00:38:39,510 --> 00:38:37,599
proposals

1044
00:38:41,750 --> 00:38:39,520
for jedi burst tea time in the last

1045
00:38:43,349 --> 00:38:41,760
round you know but but coordinating

1046
00:38:44,950 --> 00:38:43,359
helping each other making sure we did

1047
00:38:46,470 --> 00:38:44,960
noise analyses sharing them amongst

1048
00:38:48,230 --> 00:38:46,480
proposals and just making it so much

1049
00:38:50,470 --> 00:38:48,240
more efficient to actually propose for

1050
00:38:52,950 --> 00:38:50,480
that particular target

1051
00:38:54,470 --> 00:38:52,960
we do workshops and reports the most

1052
00:38:56,230 --> 00:38:54,480
recent one is the biosignature

1053
00:38:58,550 --> 00:38:56,240
assessment framework which we talked

1054
00:39:00,150 --> 00:38:58,560
about in a town hall earlier this week

1055
00:39:01,910 --> 00:39:00,160
and that was a joint activity between

1056
00:39:03,589 --> 00:39:01,920
the nexus research coordination network

1057
00:39:05,109 --> 00:39:03,599
and the enfold research coordination

1058
00:39:06,550 --> 00:39:05,119
network and that's the network for life

1059
00:39:09,990 --> 00:39:06,560
detection

1060
00:39:11,990 --> 00:39:10,000
uh we have um these fabulous 1d and 3d

1061
00:39:13,030 --> 00:39:12,000
gcm model comparison workshops and

1062
00:39:15,589 --> 00:39:13,040
that's

1063
00:39:17,990 --> 00:39:15,599

coming out of the uh the cuisines uh

1064
00:39:19,589 --> 00:39:18,000
climate model into comparison uh science

1065
00:39:21,430 --> 00:39:19,599
working group and you can see a bunch of

1066
00:39:23,109 --> 00:39:21,440
their uh a bunch of their little logos

1067
00:39:25,349 --> 00:39:23,119
here for their different uh model

1068
00:39:27,430 --> 00:39:25,359
comparison activities and their amazing

1069
00:39:29,510 --> 00:39:27,440
acronyms including things like camembert

1070
00:39:31,910 --> 00:39:29,520
and malbec and i don't know exactly what

1071
00:39:34,950 --> 00:39:31,920
they stand for but it makes sense

1072
00:39:37,430 --> 00:39:34,960
okay so um so we have those so bringing

1073
00:39:40,150 --> 00:39:37,440
the community together to compare models

1074
00:39:41,510 --> 00:39:40,160
to to find bugs to to find things that

1075
00:39:43,589 --> 00:39:41,520
need to be worked on to strengthen our

1076
00:39:45,270 --> 00:39:43,599
models and uh you know

1077
00:39:46,710 --> 00:39:45,280
get sort of more of a consensus on what

1078
00:39:48,630 --> 00:39:46,720
we should be modeling

1079
00:39:50,230 --> 00:39:48,640
uh we've held work workshops and

1080
00:39:52,310 --> 00:39:50,240
magnetic field effects on habitability

1081
00:39:53,910 --> 00:39:52,320
looking at star planet interactions and

1082
00:39:55,589 --> 00:39:53,920
also on the quantification of

1083
00:39:57,510 --> 00:39:55,599
habitability which is directly relevant

1084
00:39:59,510 --> 00:39:57,520
to what we're talking about here

1085
00:40:01,349 --> 00:39:59,520
so we currently have six science working

1086
00:40:03,589 --> 00:40:01,359
groups um there's a planet formation

1087
00:40:06,390 --> 00:40:03,599
group um uh

1088
00:40:07,510 --> 00:40:06,400

so uh maitreya bose and uh sebastian

1089
00:40:08,710 --> 00:40:07,520
kreit are actually running that i'm

1090
00:40:10,550 --> 00:40:08,720
sorry i've got old names here these

1091
00:40:11,910 --> 00:40:10,560
people have rolled off the leading and

1092
00:40:12,870 --> 00:40:11,920
we have new and new leaders at the

1093
00:40:14,710 --> 00:40:12,880
moment

1094
00:40:16,150 --> 00:40:14,720
we have the multi-domain habitability

1095
00:40:17,910 --> 00:40:16,160
assessment the quantification group

1096
00:40:19,589 --> 00:40:17,920
which is led by daniela pie and rory

1097
00:40:21,190 --> 00:40:19,599
barnes who is here

1098
00:40:23,750 --> 00:40:21,200
we have a biosignatures group stephanie

1099
00:40:26,309 --> 00:40:23,760
olson avi mandel techno signatures adam

1100
00:40:28,150 --> 00:40:26,319
frank and jason wright uh and then this

1101
00:40:29,829 --> 00:40:28,160
wonderful climate model into comparison

1102
00:40:31,750 --> 00:40:29,839
uh group uh which is done into

1103
00:40:32,950 --> 00:40:31,760
comparisons for the trappist system as

1104
00:40:35,349 --> 00:40:32,960
well as a bunch of other sort of

1105
00:40:37,190 --> 00:40:35,359
standard comparisons and that's

1106
00:40:38,950 --> 00:40:37,200
a and olinda sol

1107
00:40:41,270 --> 00:40:38,960
and then we have a planetary atmosphere

1108
00:40:43,270 --> 00:40:41,280
and interiors connectivity group that's

1109
00:40:46,470 --> 00:40:43,280
particularly interested in how interior

1110
00:40:48,790 --> 00:40:46,480
processes uh and also exterior loss

1111
00:40:49,910 --> 00:40:48,800
processes affect um the secondary

1112
00:40:51,349 --> 00:40:49,920
atmospheres that you might get from

1113
00:40:52,790 --> 00:40:51,359

terrestrial planets so that's also

1114
00:40:55,270 --> 00:40:52,800
potentially extremely relevant to the

1115
00:40:56,870 --> 00:40:55,280
precursor science that we need for these

1116
00:40:58,309 --> 00:40:56,880
upcoming missions

1117
00:41:01,030 --> 00:40:58,319
uh we have a communications working

1118
00:41:03,190 --> 00:41:01,040
group um so um there's sort of inter

1119
00:41:05,270 --> 00:41:03,200
team uh you know getting information out

1120
00:41:06,550 --> 00:41:05,280
to to the people within the nexus

1121
00:41:08,710 --> 00:41:06,560
collaboration but also out to the

1122
00:41:11,270 --> 00:41:08,720
general science community in hq as i

1123
00:41:12,950 --> 00:41:11,280
said science nuggets um and you know

1124
00:41:15,030 --> 00:41:12,960
opportunities for knowledge exchange

1125
00:41:16,790 --> 00:41:15,040
through these various uh things like the

1126
00:41:18,150 --> 00:41:16,800
publication bulletin and we also have

1127
00:41:20,390 --> 00:41:18,160
regular steering committee meetings of

1128
00:41:22,950 --> 00:41:20,400
our principal investigators so if you

1129
00:41:24,470 --> 00:41:22,960
when you when you put in a proposal

1130
00:41:26,150 --> 00:41:24,480
if you check the box and say i'd like to

1131
00:41:28,150 --> 00:41:26,160
be part of nexus if i'm selected then

1132
00:41:29,990 --> 00:41:28,160
you also become a member of our steering

1133
00:41:32,470 --> 00:41:30,000
group as well and so you can have a say

1134
00:41:34,550 --> 00:41:32,480
in the activities that we take part in

1135
00:41:36,470 --> 00:41:34,560
uh we also have slack workspace

1136
00:41:37,670 --> 00:41:36,480
uh you know with with special channels

1137
00:41:39,829 --> 00:41:37,680
for our working groups and our early

1138
00:41:41,510 --> 00:41:39,839

career channels as well um as our nexus

1139
00:41:44,230 --> 00:41:41,520
newsletter

1140
00:41:46,309 --> 00:41:44,240
okay so um given all of these different

1141
00:41:48,550 --> 00:41:46,319
activities many of them relevant to uh

1142
00:41:51,030 --> 00:41:48,560
to the the charge here uh there are many

1143
00:41:52,710 --> 00:41:51,040
many ways to get involved in nexus um if

1144
00:41:54,069 --> 00:41:52,720
you do get involved in nexus you get

1145
00:41:55,589 --> 00:41:54,079
access to you know our announcements

1146
00:41:57,430 --> 00:41:55,599
publication bulletins newsletter and

1147
00:41:58,870 --> 00:41:57,440
slack space and of course you'll get

1148
00:42:00,630 --> 00:41:58,880
sort of first notification of all of

1149
00:42:01,910 --> 00:42:00,640
these collaborative activities but you

1150
00:42:03,190 --> 00:42:01,920
can also propose collaborative

1151
00:42:04,790 --> 00:42:03,200
activities and in fact you don't

1152
00:42:06,390 --> 00:42:04,800
actually have to be a nexus to do that

1153
00:42:08,150 --> 00:42:06,400
if you come to us and say hey i'd really

1154
00:42:09,910 --> 00:42:08,160
like to hold this workshop you know on

1155
00:42:12,390 --> 00:42:09,920
this on this this thing that's relevant

1156
00:42:15,670 --> 00:42:12,400
uh we can help you actually find uh the

1157
00:42:17,190 --> 00:42:15,680
funding and uh you know the the uh the

1158
00:42:18,309 --> 00:42:17,200
help that you need to to make that

1159
00:42:21,030 --> 00:42:18,319
happen

1160
00:42:22,470 --> 00:42:21,040
so um if you just want to you know dip

1161
00:42:24,069 --> 00:42:22,480
your toe in the water you don't have to

1162
00:42:25,190 --> 00:42:24,079
apply for membership you can join one of

1163
00:42:26,550 --> 00:42:25,200

our science working groups or

1164
00:42:27,750 --> 00:42:26,560
participate in any of the workshops

1165
00:42:29,589 --> 00:42:27,760
conferences or other community

1166
00:42:31,510 --> 00:42:29,599
activities that we have there

1167
00:42:33,670 --> 00:42:31,520
or you can join as a nexus affiliate if

1168
00:42:34,470 --> 00:42:33,680
you're not already a member of a nexus

1169
00:42:36,710 --> 00:42:34,480
team

1170
00:42:38,950 --> 00:42:36,720
and so if you go into the nexus.info

1171
00:42:39,910 --> 00:42:38,960
website um and look for the affiliate

1172
00:42:42,950 --> 00:42:39,920
page

1173
00:42:45,109 --> 00:42:42,960
you can apply there to do that

1174
00:42:46,950 --> 00:42:45,119
so um for the decay cursor activity

1175
00:42:48,630 --> 00:42:46,960
specifically um we are going to you know

1176
00:42:51,510 --> 00:42:48,640
we're not going to lay out exactly what

1177
00:42:54,390 --> 00:42:51,520
you should do what we love to to hear is

1178
00:42:56,550 --> 00:42:54,400
from you ideas again as as mike also

1179
00:42:57,750 --> 00:42:56,560
called for what would you like to do um

1180
00:42:59,349 --> 00:42:57,760
and so we're going to encourage you to

1181
00:43:01,030 --> 00:42:59,359
propose activities that align with the

1182
00:43:02,470 --> 00:43:01,040
priorities recommended in the decadal

1183
00:43:03,829 --> 00:43:02,480
and it could potentially support this

1184
00:43:05,190 --> 00:43:03,839
pathway to habitable planets

1185
00:43:07,270 --> 00:43:05,200
implementation

1186
00:43:09,190 --> 00:43:07,280
um and this could be via either you know

1187
00:43:11,030 --> 00:43:09,200
participating in existing activities in

1188
00:43:12,790 --> 00:43:11,040

the nexus science working groups model

1189
00:43:13,990 --> 00:43:12,800
into comparisons the habitable

1190
00:43:15,109 --> 00:43:14,000
quantification of habitability

1191
00:43:16,630 --> 00:43:15,119
activities

1192
00:43:17,750 --> 00:43:16,640
you could suggest new topics of studies

1193
00:43:19,349 --> 00:43:17,760
to those working groups or you could

1194
00:43:21,670 --> 00:43:19,359
even suggest a new science working group

1195
00:43:23,030 --> 00:43:21,680
that's perfectly fine too

1196
00:43:24,710 --> 00:43:23,040
you could organize a community

1197
00:43:26,069 --> 00:43:24,720
conference on a key topic and again we

1198
00:43:27,829 --> 00:43:26,079
will help you with the sort of the twist

1199
00:43:30,390 --> 00:43:27,839
proposal and everything we need to do to

1200
00:43:31,670 --> 00:43:30,400
get funding for that um and of course

1201
00:43:33,430 --> 00:43:31,680
you could develop community

1202
00:43:35,190 --> 00:43:33,440
collaborations for any precursor

1203
00:43:37,589 --> 00:43:35,200
observations in space or on the ground

1204
00:43:40,309 --> 00:43:37,599
that you would like to get done

1205
00:43:41,990 --> 00:43:40,319
so on behalf of the co-leads for nexus

1206
00:43:44,069 --> 00:43:42,000
and for the the science working groups

1207
00:43:45,349 --> 00:43:44,079
i'd we'd love to hear your ideas and to

1208
00:43:47,270 --> 00:43:45,359
help you get the collaborations and the

1209
00:43:49,510 --> 00:43:47,280
support you need for your activities so

1210
00:43:52,309 --> 00:43:49,520
um you know please hunt us down uh

1211
00:43:54,630 --> 00:43:52,319
either after this or virtually uh and uh

1212
00:44:04,069 --> 00:43:54,640
ask about the opportunities

1213
00:44:13,109 --> 00:44:06,309

let's thank vicky and all our speakers

1214
00:44:16,550 --> 00:44:15,030
um yeah come on up and then i think this

1215
00:44:19,430 --> 00:44:16,560
is the place where we'd have questions

1216
00:44:21,030 --> 00:44:19,440
feedback on anything we've heard so far

1217
00:44:22,309 --> 00:44:21,040
ideas for any of these groups clearly

1218
00:44:23,910 --> 00:44:22,319
there's a lot of ways for us to get

1219
00:44:25,349 --> 00:44:23,920
involved as individuals and as a

1220
00:44:26,870 --> 00:44:25,359
community

1221
00:44:29,430 --> 00:44:26,880
but this is where we open up the floor

1222
00:44:45,670 --> 00:44:29,440
to questions feedback thoughts concerns

1223
00:44:50,390 --> 00:44:47,670
hi this is michelle hill from uc

1224
00:44:52,069 --> 00:44:50,400
riverside um that was great

1225
00:44:53,750 --> 00:44:52,079
i just wanted to know um all the

1226
00:44:55,030 --> 00:44:53,760
workshops and everything from nexus is

1227
00:44:57,349 --> 00:44:55,040
there a website

1228
00:44:59,030 --> 00:44:57,359
that lists everything that is

1229
00:45:01,670 --> 00:44:59,040
going on

1230
00:45:03,589 --> 00:45:01,680
um yeah if you go to the nexus.info

1231
00:45:05,990 --> 00:45:03,599
website um it will list our current

1232
00:45:07,750 --> 00:45:06,000
community collaborations and activities

1233
00:45:09,030 --> 00:45:07,760
um and yeah and if you if you want to

1234
00:45:11,030 --> 00:45:09,040
join as an affiliate you'll get on the

1235
00:45:13,030 --> 00:45:11,040
email list and you know you'll send

1236
00:45:14,950 --> 00:45:13,040
reminders of those but yeah nexus.info

1237
00:45:15,990 --> 00:45:14,960
has has listings of all our current

1238
00:45:24,630 --> 00:45:16,000

activities

1239
00:45:24,640 --> 00:45:31,510
any other ideas from folks or questions

1240
00:45:36,230 --> 00:45:32,870
do we have one online or is that just

1241
00:45:37,910 --> 00:45:36,240
you know michael also put the nexus.info

1242
00:45:41,670 --> 00:45:37,920
website for remote attendees it looks

1243
00:45:45,430 --> 00:45:43,109
uh michael i'll ask you the same

1244
00:45:47,589 --> 00:45:45,440
question we just heard um there is a

1245
00:45:50,470 --> 00:45:47,599
website i believe for the except i'm

1246
00:45:53,270 --> 00:45:50,480
sorry the xo peg activities correct

1247
00:45:54,470 --> 00:45:53,280
that's right i had it in the charts but

1248
00:45:55,670 --> 00:45:54,480
i will

1249
00:45:58,230 --> 00:45:55,680
put it in

1250
00:46:00,390 --> 00:45:58,240
as well so if you google

1251
00:46:02,390 --> 00:46:00,400
nasa exopag it will take you right to

1252
00:46:05,430 --> 00:46:02,400
the first hit uh right up and i think

1253
00:46:06,950 --> 00:46:05,440
eric also had the links uh on his charts

1254
00:46:08,470 --> 00:46:06,960
so i don't know sean if you could make

1255
00:46:09,190 --> 00:46:08,480
those available but i'll certainly pop

1256
00:46:14,069 --> 00:46:09,200
the

1257
00:46:15,510 --> 00:46:14,079
we're being recorded so if you uh if

1258
00:46:17,109 --> 00:46:15,520
you're in the audience here in person

1259
00:46:19,589 --> 00:46:17,119
you can you can see the slides be

1260
00:46:22,470 --> 00:46:19,599
replayed and also uh the chat window

1261
00:46:25,270 --> 00:46:22,480
replay another question in person

1262
00:46:27,510 --> 00:46:25,280
hi jacob about mr marble space uh so the

1263
00:46:30,790 --> 00:46:27,520

astro 2020 uh report made

1264
00:46:31,910 --> 00:46:30,800
recommendations how soon can we

1265
00:46:36,870 --> 00:46:31,920
expect

1266
00:46:41,750 --> 00:46:38,390
so

1267
00:46:44,470 --> 00:46:41,760
budget our decision

1268
00:46:46,710 --> 00:46:44,480
we are currently formulating the

1269
00:46:48,710 --> 00:46:46,720
fy 24 budget

1270
00:46:50,390 --> 00:46:48,720
and that is the first budget we have

1271
00:46:52,150 --> 00:46:50,400
that will be fully informed by the

1272
00:46:54,870 --> 00:46:52,160
decadal survey

1273
00:46:57,190 --> 00:46:54,880
that budget will be submitted by the

1274
00:47:01,510 --> 00:46:57,200
president to congress in february of

1275
00:47:03,750 --> 00:47:01,520
2023 so next february um that's that's

1276
00:47:06,230 --> 00:47:03,760
the that you asked when

1277
00:47:07,589 --> 00:47:06,240
uh let me draw your attention to the

1278
00:47:08,829 --> 00:47:07,599
fact that

1279
00:47:12,470 --> 00:47:08,839
the

1280
00:47:13,430 --> 00:47:12,480
um planning budget that nasa has been

1281
00:47:16,550 --> 00:47:13,440
given

1282
00:47:18,790 --> 00:47:16,560
which is the run out of the fy 23

1283
00:47:20,710 --> 00:47:18,800
request that was submitted to congress

1284
00:47:24,549 --> 00:47:20,720
back at the end of march

1285
00:47:26,790 --> 00:47:24,559
is substantially lower for astrophysics

1286
00:47:29,990 --> 00:47:26,800
is substantially lower than the planning

1287
00:47:32,630 --> 00:47:30,000
budget we had a year previously

1288
00:47:36,150 --> 00:47:32,640

and so we are re-planning all of our out

1289
00:47:39,190 --> 00:47:36,160
years uh to a much lower planning budget

1290
00:47:40,870 --> 00:47:39,200
than we had done a year ago

1291
00:47:43,910 --> 00:47:40,880
and this will have a

1292
00:47:45,829 --> 00:47:43,920
a noticeable impact on how quickly we

1293
00:47:47,510 --> 00:47:45,839
can implement the recommendations up to

1294
00:47:49,670 --> 00:47:47,520
the survey

1295
00:47:51,270 --> 00:47:49,680
but i cannot

1296
00:47:53,589 --> 00:47:51,280
decisions haven't been made and we'll be

1297
00:47:54,950 --> 00:47:53,599
able to talk about them publicly uh next

1298
00:47:56,790 --> 00:47:54,960
february

1299
00:47:58,309 --> 00:47:56,800
and and paul just a follow-up question

1300
00:48:00,069 --> 00:47:58,319
you said that budget is submitted in

1301
00:48:02,710 --> 00:48:00,079
december i think that usually goes

1302
00:48:05,270 --> 00:48:02,720
public later in january to march of the

1303
00:48:06,710 --> 00:48:05,280
following year

1304
00:48:09,430 --> 00:48:06,720
the the

1305
00:48:11,109 --> 00:48:09,440
the federal government's uh request for

1306
00:48:15,190 --> 00:48:11,119
fiscal year 24 will be submitted to

1307
00:48:16,950 --> 00:48:15,200
congress in february of 2023. um between

1308
00:48:19,510 --> 00:48:16,960
now and then there's a lot of behind the

1309
00:48:21,349 --> 00:48:19,520
scenes stuff that goes on within the

1310
00:48:22,710 --> 00:48:21,359
of the white house

1311
00:48:24,549 --> 00:48:22,720
jacob does that answer your question

1312
00:48:26,230 --> 00:48:24,559
okay great

1313
00:48:34,150 --> 00:48:26,240

got a thumbs up paul

1314
00:48:38,790 --> 00:48:37,270
okay um other questions last last call

1315
00:48:40,630 --> 00:48:38,800
not that we're in a hurry but i also

1316
00:48:43,670 --> 00:48:40,640
don't want to oh we do have a question

1317
00:48:48,870 --> 00:48:46,230
i can bot uc riverside

1318
00:48:50,390 --> 00:48:48,880
um i might have just missed this on the

1319
00:48:51,270 --> 00:48:50,400
slides or because i came in a little bit

1320
00:48:53,670 --> 00:48:51,280
late

1321
00:48:56,069 --> 00:48:53,680
but uh i know a lot of

1322
00:48:57,270 --> 00:48:56,079
where junior people are very excited to

1323
00:48:59,670 --> 00:48:57,280
get

1324
00:49:00,790 --> 00:48:59,680
involved with these missions more and i

1325
00:49:02,710 --> 00:49:00,800
was wondering if

1326
00:49:05,589 --> 00:49:02,720
any or all of you could expand a little

1327
00:49:07,349 --> 00:49:05,599
bit on like the formal routes

1328
00:49:09,349 --> 00:49:07,359
to do that obviously one way to do that

1329
00:49:10,870 --> 00:49:09,359
is to write like a relevant paper but

1330
00:49:12,870 --> 00:49:10,880
are there workshops or things like that

1331
00:49:14,710 --> 00:49:12,880
coming up where people can like network

1332
00:49:16,309 --> 00:49:14,720
as well

1333
00:49:18,150 --> 00:49:16,319
if it's okay i'd like i'd like each of

1334
00:49:19,430 --> 00:49:18,160
the the groups to respond to that

1335
00:49:21,030 --> 00:49:19,440
question maybe paul do you want to go

1336
00:49:23,030 --> 00:49:21,040
first of ways early career members could

1337
00:49:27,030 --> 00:49:23,040
get involved in these future

1338
00:49:30,150 --> 00:49:27,040

recommended uh flight activities

1339
00:49:33,589 --> 00:49:30,160
yes uh glad to so um we are in the

1340
00:49:35,990 --> 00:49:33,599
process of establishing some uh

1341
00:49:38,150 --> 00:49:36,000
uh science and technology strategy teams

1342
00:49:41,030 --> 00:49:38,160
which will be made up mostly of nasa

1343
00:49:43,990 --> 00:49:41,040
people but um they will be coordinating

1344
00:49:46,230 --> 00:49:44,000
uh activities and uh

1345
00:49:50,309 --> 00:49:46,240
forgotten the words we're using but uh

1346
00:49:52,390 --> 00:49:50,319
uh community groups to help address the

1347
00:49:53,910 --> 00:49:52,400
topics that we need to address in order

1348
00:49:55,589 --> 00:49:53,920
to plan the next

1349
00:49:56,950 --> 00:49:55,599
great observatory

1350
00:49:58,390 --> 00:49:56,960
and these will be

1351
00:50:01,349 --> 00:49:58,400
fully advertised

1352
00:50:04,390 --> 00:50:01,359
within the community so that people can

1353
00:50:06,390 --> 00:50:04,400
join them and get involved in those

1354
00:50:07,349 --> 00:50:06,400
we'll also be having opportunities for

1355
00:50:09,349 --> 00:50:07,359
funding

1356
00:50:10,390 --> 00:50:09,359
we'll be issuing through rose's calls

1357
00:50:13,430 --> 00:50:10,400
for

1358
00:50:15,349 --> 00:50:13,440
precursor science investigations and all

1359
00:50:17,910 --> 00:50:15,359
as always our technology programs will

1360
00:50:20,069 --> 00:50:17,920
be continuing but now our priorities are

1361
00:50:22,390 --> 00:50:20,079
focused on the technologies needed to

1362
00:50:24,230 --> 00:50:22,400
implement the beginning survey uh so

1363
00:50:25,670 --> 00:50:24,240

that's that's with regards to the next

1364
00:50:27,750 --> 00:50:25,680
great observatory

1365
00:50:29,670 --> 00:50:27,760
we have a call for medium-sized mission

1366
00:50:31,990 --> 00:50:29,680
astrophysics probes coming out i know

1367
00:50:33,270 --> 00:50:32,000
that those teams are being assembled

1368
00:50:36,390 --> 00:50:33,280
because those are principal

1369
00:50:37,990 --> 00:50:36,400
investigator-led teams you'll have to

1370
00:50:39,510 --> 00:50:38,000
contact the individual principal

1371
00:50:40,630 --> 00:50:39,520
investigators nasa doesn't do

1372
00:50:43,750 --> 00:50:40,640
matchmaking

1373
00:50:45,670 --> 00:50:43,760
for those activities um and then the the

1374
00:50:47,750 --> 00:50:45,680
kindle survey is going to be fully

1375
00:50:49,910 --> 00:50:47,760
informing all of our research programs

1376
00:50:51,349 --> 00:50:49,920
and our research priorities so all of

1377
00:50:53,190 --> 00:50:51,359
our roses elements that are being

1378
00:50:56,309 --> 00:50:53,200
advertised this year

1379
00:50:58,390 --> 00:50:56,319
the peer reviews will be peer reviewers

1380
00:51:01,190 --> 00:50:58,400
will be fully informed about the decadal

1381
00:51:03,910 --> 00:51:01,200
survey and roses already said

1382
00:51:08,710 --> 00:51:03,920
that addressing decadal survey science

1383
00:51:13,510 --> 00:51:10,870
uh eric you wanna do you wanna go next i

1384
00:51:15,190 --> 00:51:13,520
just wanna uh again advertise the exo

1385
00:51:16,549 --> 00:51:15,200
pack email list if for the people that

1386
00:51:17,589 --> 00:51:16,559
are not on it because there may be

1387
00:51:18,870 --> 00:51:17,599
opportunities for some of these

1388
00:51:20,549 --> 00:51:18,880

activities where they'll be interfacing

1389
00:51:23,030 --> 00:51:20,559
with the pags i think that's where

1390
00:51:24,790 --> 00:51:23,040
you'll hear about

1391
00:51:28,630 --> 00:51:24,800
the different opportunities and meetings

1392
00:51:32,790 --> 00:51:30,470
michael

1393
00:51:34,790 --> 00:51:32,800
i'll follow up eric and i totally agree

1394
00:51:36,790 --> 00:51:34,800
with what he said the easiest thing a

1395
00:51:38,630 --> 00:51:36,800
young person can do to sort of get

1396
00:51:40,790 --> 00:51:38,640
plugged in is to get on that email list

1397
00:51:41,910 --> 00:51:40,800
and then you'll review the opportunities

1398
00:51:44,390 --> 00:51:41,920
as they come up some of them will

1399
00:51:46,150 --> 00:51:44,400
interest you and others won't

1400
00:51:48,150 --> 00:51:46,160
the other thing that we would really

1401
00:51:50,069 --> 00:51:48,160
like to see a lot of young scientists

1402
00:51:52,870 --> 00:51:50,079
participate in is the precursor science

1403
00:51:54,549 --> 00:51:52,880
workshops uh as was alluded to the first

1404
00:51:56,390 --> 00:51:54,559
one happened in april there will be

1405
00:51:58,470 --> 00:51:56,400
another one in july

1406
00:52:01,109 --> 00:51:58,480
and this is really a great opportunity

1407
00:52:03,309 --> 00:52:01,119
because some of the best and most

1408
00:52:05,109 --> 00:52:03,319
knowledgeable and wisest

1409
00:52:07,510 --> 00:52:05,119
instrumentalists that have worked on

1410
00:52:09,589 --> 00:52:07,520
nasa missions for decades will be there

1411
00:52:11,829 --> 00:52:09,599
trying to lead conversations of others

1412
00:52:13,910 --> 00:52:11,839
with less experience and trying to help

1413
00:52:15,910 --> 00:52:13,920

people figure out what's useful to do

1414
00:52:17,349 --> 00:52:15,920
now and start thinking about things for

1415
00:52:18,390 --> 00:52:17,359
the future so it's really a great

1416
00:52:19,349 --> 00:52:18,400
opportunity

1417
00:52:21,750 --> 00:52:19,359
um

1418
00:52:23,990 --> 00:52:21,760
we always worry about trying to get

1419
00:52:24,870 --> 00:52:24,000
young people to do too much service for

1420
00:52:26,790 --> 00:52:24,880
free

1421
00:52:28,710 --> 00:52:26,800
older folks should share that shoulder

1422
00:52:30,790 --> 00:52:28,720
that burden but there are really great

1423
00:52:32,390 --> 00:52:30,800
opportunities and we're you know you

1424
00:52:34,470 --> 00:52:32,400
guys are the future so these will be

1425
00:52:36,309 --> 00:52:34,480
your observatories and so i think it's

1426
00:52:39,349 --> 00:52:36,319
really important to get the young people

1427
00:52:40,549 --> 00:52:39,359
involved in these preparatory activities

1428
00:52:41,349 --> 00:52:40,559
vicki

1429
00:52:43,670 --> 00:52:41,359
um

1430
00:52:45,750 --> 00:52:43,680
yeah so uh you know in the in the again

1431
00:52:47,109 --> 00:52:45,760
i will i will absolutely endorse getting

1432
00:52:48,230 --> 00:52:47,119
on the exo pack mailing list that's

1433
00:52:50,309 --> 00:52:48,240
really important because you will see

1434
00:52:52,230 --> 00:52:50,319
these specific sort of mission uh you

1435
00:52:53,990 --> 00:52:52,240
know focused uh activities come up for

1436
00:52:55,750 --> 00:52:54,000
community involvement so that's

1437
00:52:57,270 --> 00:52:55,760
important um and then also you know

1438
00:52:58,470 --> 00:52:57,280

again to just stay plugged into the

1439
00:53:00,230 --> 00:52:58,480
community that's working on these

1440
00:53:03,990 --> 00:53:00,240
science problems i would encourage you

1441
00:53:05,430 --> 00:53:04,000
to apply to join nexus you don't have to

1442
00:53:06,950 --> 00:53:05,440
you don't have to be a member of a team

1443
00:53:09,670 --> 00:53:06,960
if you're interested in hearing about

1444
00:53:11,910 --> 00:53:09,680
the activities that we're working on

1445
00:53:13,109 --> 00:53:11,920
and of course we specifically have

1446
00:53:29,190 --> 00:53:13,119
a

1447
00:53:30,630 --> 00:53:29,200
how you get involved so i think you know

1448
00:53:33,750 --> 00:53:30,640
that there's also summer schools i know

1449
00:53:35,510 --> 00:53:33,760
jpl runs one specifically um to uh you

1450
00:53:37,270 --> 00:53:35,520
know sort of train you and in mission

1451
00:53:38,630 --> 00:53:37,280
involvement but really you know the way

1452
00:53:39,990 --> 00:53:38,640
i got into missions initially was you

1453
00:53:41,589 --> 00:53:40,000
know just getting into that community

1454
00:53:43,510 --> 00:53:41,599
getting into the relevant science and

1455
00:53:44,950 --> 00:53:43,520
keeping your ear to the ground on uh you

1456
00:53:47,349 --> 00:53:44,960
know being able to come up with some of

1457
00:53:48,950 --> 00:53:47,359
these particular activities and also i

1458
00:53:51,109 --> 00:53:48,960
mean within nexus you can initiate

1459
00:53:53,190 --> 00:53:51,119
activities you can start your own you

1460
00:53:54,230 --> 00:53:53,200
know collaborative group or uh you know

1461
00:53:55,910 --> 00:53:54,240
or even

1462
00:53:57,030 --> 00:53:55,920
propose activities and we can support

1463
00:53:58,710 --> 00:53:57,040

you with that

1464
00:54:00,630 --> 00:53:58,720
thank you vicky thank you all um and

1465
00:54:02,069 --> 00:54:00,640
just to add to this uh i'd also just

1466
00:54:04,069 --> 00:54:02,079
encourage each individual member of our

1467
00:54:05,750 --> 00:54:04,079
community um to take a look at the

1468
00:54:07,990 --> 00:54:05,760
section of the of the decadal survey

1469
00:54:10,150 --> 00:54:08,000
that paul referenced in his uh in his

1470
00:54:12,870 --> 00:54:10,160
talk earlier on diversity equity

1471
00:54:15,109 --> 00:54:12,880
inclusivity and accessibility

1472
00:54:17,430 --> 00:54:15,119
because it's it's our responsibility to

1473
00:54:19,750 --> 00:54:17,440
meet all the astrophysics the kiddo

1474
00:54:20,870 --> 00:54:19,760
recommendations including those on deia

1475
00:54:22,150 --> 00:54:20,880
issues

1476
00:54:25,190 --> 00:54:22,160
so please take a look at that and make

1477
00:54:26,870 --> 00:54:25,200
sure along career lines in terms of

1478
00:54:28,950 --> 00:54:26,880
early versus late career but also other

1479
00:54:30,630 --> 00:54:28,960
demographic factors that we're doing

1480
00:54:32,150 --> 00:54:30,640
what was uh what we were recommended to

1481
00:54:33,750 --> 00:54:32,160
do and that goes across all the

1482
00:54:35,589 --> 00:54:33,760
activities hold our feet to the fire on

1483
00:54:36,390 --> 00:54:35,599
that

1484
00:54:38,870 --> 00:54:36,400
um

1485
00:54:41,510 --> 00:54:38,880
other questions thoughts

1486
00:54:42,470 --> 00:54:41,520
sean if i could just oh go ahead i was

1487
00:54:44,390 --> 00:54:42,480
afraid

1488
00:54:46,789 --> 00:54:44,400

raised go ahead mike i'm just gonna say

1489
00:54:48,549 --> 00:54:46,799
at the exo pack 26 that eric already

1490
00:54:51,030 --> 00:54:48,559
advertised we're having a kind of mini

1491
00:54:52,630 --> 00:54:51,040
symposium on the state of the profession

1492
00:54:54,870 --> 00:54:52,640
to try to address exactly some of the

1493
00:54:56,230 --> 00:54:54,880
issues you were just raising wonderful

1494
00:54:58,549 --> 00:54:56,240
thank you don was there something you

1495
00:54:59,990 --> 00:54:58,559
were going to add to that

1496
00:55:01,990 --> 00:55:00,000
nope i was just going to make sure that

1497
00:55:04,309 --> 00:55:02,000
michael was recognized this wine just

1498
00:55:05,750 --> 00:55:04,319
says thank you yes

1499
00:55:07,510 --> 00:55:05,760
i just want to say to the early career

1500
00:55:08,630 --> 00:55:07,520
people the other thing is please reach

1501
00:55:10,950 --> 00:55:08,640
out to us

1502
00:55:12,069 --> 00:55:10,960
uh it is great going to these meetings

1503
00:55:13,670 --> 00:55:12,079
and just

1504
00:55:15,510 --> 00:55:13,680
uh just coming up to some of the you

1505
00:55:17,829 --> 00:55:15,520
know mid-career senior career people

1506
00:55:20,069 --> 00:55:17,839
tell you know introduce yourself tell us

1507
00:55:20,950 --> 00:55:20,079
about your research show me your poster

1508
00:55:22,630 --> 00:55:20,960
um

1509
00:55:24,630 --> 00:55:22,640
and uh it's it's great to hear what

1510
00:55:26,630 --> 00:55:24,640
you're working on and it's great to um

1511
00:55:27,910 --> 00:55:26,640
you know some of us are also thinking oh

1512
00:55:29,430 --> 00:55:27,920
did you think of going you know thinking

1513
00:55:30,150 --> 00:55:29,440

about this this sounds really relevant

1514
00:55:32,150 --> 00:55:30,160
to

1515
00:55:33,270 --> 00:55:32,160
um you know these uh these decadal

1516
00:55:34,630 --> 00:55:33,280
priorities and these funding

1517
00:55:36,309 --> 00:55:34,640
opportunities so

1518
00:55:37,990 --> 00:55:36,319
please reach out to the

1519
00:55:40,390 --> 00:55:38,000
uh

1520
00:55:44,789 --> 00:55:40,400
the folks you see here extra pack nexus

1521
00:55:49,030 --> 00:55:46,950
paulie ranch nasa headquarters i also

1522
00:55:51,270 --> 00:55:49,040
just wanted to plug the pi launch pad as

1523
00:55:53,510 --> 00:55:51,280
another a great opportunity to learn

1524
00:55:55,670 --> 00:55:53,520
more about um how to get involved in

1525
00:55:58,069 --> 00:55:55,680
missions and how to propose missions um

1526
00:55:59,589 --> 00:55:58,079
that's a cross smd

1527
00:56:03,190 --> 00:55:59,599
um i also had a question for vicki i

1528
00:56:05,190 --> 00:56:03,200
wanted to ask in terms of uh your nexus

1529
00:56:07,430 --> 00:56:05,200
membership uh you know here at absec

1530
00:56:09,670 --> 00:56:07,440
volume right there's such a diversity of

1531
00:56:11,910 --> 00:56:09,680
uh science disciplines and i wondered if

1532
00:56:13,270 --> 00:56:11,920
you feel like um there's any particular

1533
00:56:16,390 --> 00:56:13,280
science disciplines you'd love to see

1534
00:56:17,990 --> 00:56:16,400
more involved in nexus

1535
00:56:21,589 --> 00:56:18,000
heliophysics

1536
00:56:23,829 --> 00:56:21,599
people involved um

1537
00:56:26,150 --> 00:56:23,839
and uh yeah i think i think that's

1538
00:56:28,069 --> 00:56:26,160

probably our identified biggest issue

1539
00:56:29,270 --> 00:56:28,079
also also more card carrying our

1540
00:56:30,789 --> 00:56:29,280
scientists we'd like to get them more

1541
00:56:32,470 --> 00:56:30,799
involved and we've definitely got a very

1542
00:56:34,630 --> 00:56:32,480
good access going with astrophysics and

1543
00:56:36,630 --> 00:56:34,640
planetary science but it's those other

1544
00:56:38,549 --> 00:56:36,640
two um divisions that i mean we do have

1545
00:56:41,109 --> 00:56:38,559
participation but we'd like to boost it

1546
00:56:42,950 --> 00:56:41,119
up a bit so yeah heliophysics and

1547
00:56:45,910 --> 00:56:42,960
and earth scientists great thanks so

1548
00:56:49,109 --> 00:56:47,190
okay

1549
00:56:50,230 --> 00:56:49,119
last chance now we really are almost up

1550
00:56:52,390 --> 00:56:50,240
at the deadline but we still have time

1551
00:56:56,309 --> 00:56:52,400
for one or two questions or thoughts if

1552
00:57:01,670 --> 00:56:58,630
okay um let's thank all our speakers one