



1
00:00:37,600 --> 00:00:34,930
in 1957 the geopolitical landscape

2
00:00:40,119 --> 00:00:37,610
changed forever when the Soviet Union

3
00:00:42,490 --> 00:00:40,129
launched Sputnik 1 by today's standard

4
00:00:45,670 --> 00:00:42,500
this primitive orbiting satellite is

5
00:00:47,890 --> 00:00:45,680
certainly nothing exciting but in 1957

6
00:00:50,740 --> 00:00:47,900
its impact was psychologically

7
00:00:52,689 --> 00:00:50,750
devastating the launch of Sputnik made

8
00:00:55,210 --> 00:00:52,699
out of space the new high ground of the

9
00:00:58,540 --> 00:00:55,220
Cold War the value of space exploration

10
00:01:01,420 --> 00:00:58,550
was now obviously the space race was on

11
00:01:03,340 --> 00:01:01,430
for more than 10 years the space were is

12
00:01:05,910 --> 00:01:03,350
thrilled and inspired people all around

13
00:01:08,889 --> 00:01:05,920

the world with new and more spectacular

14

00:01:11,620 --> 00:01:08,899

accomplishments then on July twentieth

15

00:01:13,540 --> 00:01:11,630

nineteen sixty-nine the whole world

16

00:01:16,060 --> 00:01:13,550

stopped two Watchers the United States

17

00:01:18,669 --> 00:01:16,070

with the crew of Apollo 11 left the

18

00:01:21,279 --> 00:01:18,679

first human footprints on the moon the

19

00:01:24,910 --> 00:01:21,289

eagle had landed and in one sense the

20

00:01:27,010 --> 00:01:24,920

space race was over without the

21

00:01:29,499 --> 00:01:27,020

competition and fear generated by the

22

00:01:31,990 --> 00:01:29,509

Cold War our reasons to explore space

23

00:01:35,289 --> 00:01:32,000

have changed and our sense of purpose is

24

00:01:37,350 --> 00:01:35,299

much less clear but the truth is humans

25

00:01:40,240 --> 00:01:37,360

use space more now than ever before

26
00:01:43,060 --> 00:01:40,250
today many benefits of space exploration

27
00:01:45,609 --> 00:01:43,070
such as weather and communication and

28
00:01:48,520 --> 00:01:45,619
navigation satellites are routinely

29
00:01:50,920 --> 00:01:48,530
taken for granted spectacular feats go

30
00:01:53,200 --> 00:01:50,930
unnoticed and the valuable products of

31
00:01:55,300 --> 00:01:53,210
orbital research are really associated

32
00:01:58,179 --> 00:01:55,310
with their origins down-to-earth

33
00:02:00,850 --> 00:01:58,189
applications of space exploration save

34
00:02:03,340 --> 00:02:00,860
people in distress at sea assess the

35
00:02:05,980 --> 00:02:03,350
condition of crops guide us to remote

36
00:02:08,040 --> 00:02:05,990
locations around the globe and allow us

37
00:02:11,610 --> 00:02:08,050
to communicate with each other over

38
00:02:14,010 --> 00:02:11,620

vast distances unfortunately without a

39

00:02:15,810 --> 00:02:14,020

threat to spur us on our sense of

40

00:02:18,390 --> 00:02:15,820

urgency to explore space has

41

00:02:20,400 --> 00:02:18,400

significantly diminished but the future

42

00:02:22,800 --> 00:02:20,410

of space exploration still keeps us

43

00:02:24,780 --> 00:02:22,810

looking up and the value and potential

44

00:02:28,080 --> 00:02:24,790

of our work in space is far greater

45

00:02:40,240 --> 00:02:28,090

today than ever before imagined we need

46

00:02:44,960 --> 00:02:43,010

i'm joanne irene Gubru knowit's and i'm

47

00:02:47,330 --> 00:02:44,970

a professor of space studies here at the

48

00:02:49,040 --> 00:02:47,340

University of North Dakota and tonight

49

00:02:52,309 --> 00:02:49,050

we are here to discuss what the

50

00:02:53,630 --> 00:02:52,319

possibilities of space are joining me

51

00:02:56,540 --> 00:02:53,640

here tonight and Clifford hall

52

00:02:58,520 --> 00:02:56,550

auditorium are a number of North

53

00:03:01,010 --> 00:02:58,530

Dakotans and three North Dakotans in

54

00:03:02,570 --> 00:03:01,020

particular who have chosen to share

55

00:03:06,699 --> 00:03:02,580

their views with us on this subject

56

00:03:09,410 --> 00:03:06,709

tonight to my raft is Lonnie faladi a

57

00:03:12,620 --> 00:03:09,420

farmer from attic and president of agri

58

00:03:15,410 --> 00:03:12,630

images dr. Linda Grinnell a physician

59

00:03:18,620 --> 00:03:15,420

from Newtown and Rick former

60

00:03:21,729 --> 00:03:18,630

astronaut and native of Jamestown six

61

00:03:25,250 --> 00:03:21,739

North Dakota towns grand forks hazen

62

00:03:27,170 --> 00:03:25,260

Jamestown why not Mott and Newtown will

63

00:03:30,170 --> 00:03:27,180

all be participating in this community

64

00:03:32,509 --> 00:03:30,180

conversation tonight's topics are going

65

00:03:36,250 --> 00:03:32,519

to be the economic cultural and

66

00:03:38,540 --> 00:03:36,260

scientific value of space exploration

67

00:03:41,120 --> 00:03:38,550

space has always been very interesting

68

00:03:43,370 --> 00:03:41,130

to me and ever since I first saw them

69

00:03:44,810 --> 00:03:43,380

first moonwalk I've always wanted to be

70

00:03:47,600 --> 00:03:44,820

an astronaut like Rick but I guess I

71

00:03:49,900 --> 00:03:47,610

never will be but the next closest thing

72

00:03:53,030 --> 00:03:49,910

is to be able to see things from space

73

00:03:56,449 --> 00:03:53,040

we developed a new company called agri

74

00:03:58,610 --> 00:03:56,459

images that is taking the satellite

75

00:04:00,680 --> 00:03:58,620

technology and bring it into agriculture

76
00:04:03,440 --> 00:04:00,690
in a form that is usable for the average

77
00:04:05,690 --> 00:04:03,450
farmer we're able to analyze the

78
00:04:09,410 --> 00:04:05,700
patterns within a field and be able to

79
00:04:13,940 --> 00:04:09,420
take them and put them into a variable

80
00:04:16,729 --> 00:04:13,950
rate application spreader and analyze

81
00:04:20,000 --> 00:04:16,739
the vegetation and change the fertilizer

82
00:04:22,130 --> 00:04:20,010
on the go we're able to revolutionize

83
00:04:24,860 --> 00:04:22,140
agriculture in a form that we never knew

84
00:04:27,770 --> 00:04:24,870
would it ever happened we're all part of

85
00:04:30,400 --> 00:04:27,780
this life and we're also related to all

86
00:04:33,290 --> 00:04:30,410
men o mankind and womankind on the earth

87
00:04:34,490 --> 00:04:33,300
in a way it's like yeah I I could

88
00:04:36,080 --> 00:04:34,500

understand that you know that we're

89

00:04:37,550 --> 00:04:36,090

related and sometimes some people don't

90

00:04:39,890 --> 00:04:37,560

see that but I think once you get up

91

00:04:42,050 --> 00:04:39,900

into space and you look back down onto

92

00:04:44,090 --> 00:04:42,060

the earth you realize that you will

93

00:04:46,400 --> 00:04:44,100

belong that's home and all the people

94

00:04:49,159 --> 00:04:46,410

there is family tonight we're going to

95

00:04:51,620 --> 00:04:49,169

talk mostly about the third of my space

96

00:04:52,779 --> 00:04:51,630

shuttle flights in a lot of ways it's

97

00:04:56,839 --> 00:04:52,789

the least

98

00:04:59,570 --> 00:04:56,849

space shuttle mission that I was part of

99

00:05:00,950 --> 00:04:59,580

because it was a Space Lab mission

100

00:05:04,249 --> 00:05:00,960

although my other missions were

101
00:05:07,210 --> 00:05:04,259
certainly visually more exciting I can

102
00:05:10,460 --> 00:05:07,220
pretty well guarantee that when you or I

103
00:05:12,499 --> 00:05:10,470
on down the road 10 years from now 15

104
00:05:15,140 --> 00:05:12,509
years from now the things that will

105
00:05:17,029 --> 00:05:15,150
affect your life in ways that you don't

106
00:05:18,379 --> 00:05:17,039
even know about most of those

107
00:05:20,510 --> 00:05:18,389
discoveries will have been made in

108
00:05:22,640 --> 00:05:20,520
laboratories like this just as an

109
00:05:25,969 --> 00:05:22,650
example one of the 80 experiments we

110
00:05:27,559 --> 00:05:25,979
flew we had a furnace in which we had a

111
00:05:30,140 --> 00:05:27,569
bunch of different samples that could be

112
00:05:31,939 --> 00:05:30,150
injected into the furnace held in place

113
00:05:33,830 --> 00:05:31,949

with magnetic fields so they wouldn't go

114

00:05:36,740 --> 00:05:33,840

floating off and get it get about and

115

00:05:38,689 --> 00:05:36,750

then another magnetic field or electric

116

00:05:40,430 --> 00:05:38,699

field was applied to melt those samples

117

00:05:42,950 --> 00:05:40,440

well the big deal about that was at this

118

00:05:44,870 --> 00:05:42,960

particular metal they believe that they

119

00:05:47,749 --> 00:05:44,880

can get this special structure would be

120

00:05:50,240 --> 00:05:47,759

slippery ER than Teflon and yet a metal

121

00:05:52,309 --> 00:05:50,250

well I think anybody in here can

122

00:05:54,080 --> 00:05:52,319

immediately draw some rapid conclusions

123

00:05:57,260 --> 00:05:54,090

if you could produce this commercially

124

00:05:58,909 --> 00:05:57,270

every motor in there in the world within

125

00:06:01,159 --> 00:05:58,919

a decade would have to take this stuff

126
00:06:03,080 --> 00:06:01,169
into account well now we'd like to

127
00:06:05,510 --> 00:06:03,090
invite all of you in all of the towns

128
00:06:08,540 --> 00:06:05,520
all over North Dakota to participate in

129
00:06:11,839 --> 00:06:08,550
this and use our comments as a

130
00:06:14,360 --> 00:06:11,849
springboard I'm Solomon Mandel a farmer

131
00:06:16,730 --> 00:06:14,370
40 miles from Grand Forks and I just

132
00:06:18,200 --> 00:06:16,740
want to thank all the explorers for

133
00:06:20,170 --> 00:06:18,210
everything that they've done for our

134
00:06:23,029 --> 00:06:20,180
farming we run center-pivot irrigation

135
00:06:25,760 --> 00:06:23,039
the resolver that tells me what degree

136
00:06:28,999 --> 00:06:25,770
my irrigator is is a direct descendant

137
00:06:31,370 --> 00:06:29,009
from NASA the computer that feeds my

138
00:06:35,570 --> 00:06:31,380

chickens that instead of running 108

139

00:06:37,189 --> 00:06:35,580

motors you run 10 motors 10 minutes at a

140

00:06:39,140 --> 00:06:37,199

time you're still feeding the 60

141

00:06:41,629 --> 00:06:39,150

thousand chickens without causing a

142

00:06:42,920 --> 00:06:41,639

brownout in Grand Forks the energy

143

00:06:44,930 --> 00:06:42,930

savings that we've seen already the

144

00:06:46,790 --> 00:06:44,940

water savings that we've seen with

145

00:06:50,749 --> 00:06:46,800

irrigation we've cut our water use in

146

00:06:52,700 --> 00:06:50,759

half by this imaging I can see where we

147

00:06:54,499 --> 00:06:52,710

build a cut it another seventy to eighty

148

00:06:57,490 --> 00:06:54,509

percent in the next four or five years

149

00:06:59,779 --> 00:06:57,500

it's a that technology is there already

150

00:07:01,790 --> 00:06:59,789

engineer came up to visit his

151
00:07:04,129 --> 00:07:01,800
brother-in-law in nebraska in the summer

152
00:07:06,320 --> 00:07:04,139
and his brother-in-law said let's go

153
00:07:08,510 --> 00:07:06,330
cornfield and check the irrigator that

154
00:07:10,730 --> 00:07:08,520
went out and said my mechanical water

155
00:07:12,379 --> 00:07:10,740
meters broke down and the engineer said

156
00:07:15,290 --> 00:07:12,389
that's nothing everything we do at NASA

157
00:07:17,839 --> 00:07:15,300
we check the flow he said I'll send you

158
00:07:20,179 --> 00:07:17,849
one of it's just uh it's a magnetic

159
00:07:22,850 --> 00:07:20,189
thing it runs and there's no there are

160
00:07:25,249 --> 00:07:22,860
no moving parts and today all our water

161
00:07:27,800 --> 00:07:25,259
meters are a direct descendant from NASA

162
00:07:30,140 --> 00:07:27,810
and the potential is so great it's just

163
00:07:31,909 --> 00:07:30,150

incredible at this time in southwest

164

00:07:33,800 --> 00:07:31,919

North Dakota there's an emerging

165

00:07:35,589 --> 00:07:33,810

strategy for small town economic

166

00:07:40,189 --> 00:07:35,599

development that involves identifying

167

00:07:42,170 --> 00:07:40,199

relocatable companies buying them moving

168

00:07:46,249 --> 00:07:42,180

their operations to small towns in North

169

00:07:50,450 --> 00:07:46,259

Dakota and in this area our preference

170

00:07:54,649 --> 00:07:50,460

would be to buy a small high-tech space

171

00:07:58,369 --> 00:07:54,659

related type company or manufacturing

172

00:08:02,329 --> 00:07:58,379

come no content in und space or NASA

173

00:08:04,929 --> 00:08:02,339

help in the following area identify

174

00:08:07,550 --> 00:08:04,939

companies for sale that can be relocated

175

00:08:12,079 --> 00:08:07,560

provide technical expertise to assist

176

00:08:16,040 --> 00:08:12,089

relocating help evaluate and relocation

177

00:08:19,070 --> 00:08:16,050

candidates products or services and as

178

00:08:23,059 --> 00:08:19,080

an alternative can you suggest ideas for

179

00:08:25,670 --> 00:08:23,069

startups derive from some spin-offs in

180

00:08:27,829 --> 00:08:25,680

the aerospace industry really NASA

181

00:08:30,589 --> 00:08:27,839

probably can't do that for you because

182

00:08:32,180 --> 00:08:30,599

it from an economic point of viewers no

183

00:08:34,430 --> 00:08:32,190

way you could argue that that's part of

184

00:08:37,370 --> 00:08:34,440

NASA's Charter but it seems to be

185

00:08:39,469 --> 00:08:37,380

clearly part of you know what's your

186

00:08:41,899 --> 00:08:39,479

state delegation your congressional

187

00:08:43,939 --> 00:08:41,909

bodies that is part of what they should

188

00:08:45,980 --> 00:08:43,949

be doing I think I've always lived in

189

00:08:49,370 --> 00:08:45,990

Maddock North Dakota small town of 600

190

00:08:51,259 --> 00:08:49,380

people and when everything located the

191

00:08:53,360 --> 00:08:51,269

company there they asked me local people

192

00:08:56,269 --> 00:08:53,370

why do you want to be here in Maddock I

193

00:08:58,130 --> 00:08:56,279

said why not I said we're we're

194

00:09:00,500 --> 00:08:58,140

connected everywhere I can hook onto the

195

00:09:02,180 --> 00:09:00,510

internet and and be anywhere in the

196

00:09:04,490 --> 00:09:02,190

world probably the most dramatic thing

197

00:09:08,120 --> 00:09:04,500

that space technology is doing right now

198

00:09:10,610 --> 00:09:08,130

is enabling people to engage in

199

00:09:12,259 --> 00:09:10,620

commercial activities that at least for

200

00:09:13,810 --> 00:09:12,269

the last few hundred years have

201

00:09:16,140 --> 00:09:13,820

primarily been angry

202

00:09:19,390 --> 00:09:16,150

in large urban areas I mean you can

203

00:09:21,430 --> 00:09:19,400

operate a business out of your home no

204

00:09:25,750 --> 00:09:21,440

matter where it is now you have modem

205

00:09:28,030 --> 00:09:25,760

fax communications pagers whatever you

206

00:09:30,610 --> 00:09:28,040

need dr. grinnell how do you think we

207

00:09:32,500 --> 00:09:30,620

might encourage not only cultural

208

00:09:36,160 --> 00:09:32,510

diversity but discussion of cultural

209

00:09:39,760 --> 00:09:36,170

questions as you alluded to to be a part

210

00:09:42,070 --> 00:09:39,770

of future space exploration and the

211

00:09:44,620 --> 00:09:42,080

space program in general and what is the

212

00:09:46,120 --> 00:09:44,630

value of including such questions and

213

00:09:47,290 --> 00:09:46,130

diversity I don't know I've heard

214

00:09:53,110 --> 00:09:47,300

somewhere before that for every action

215

00:09:54,400 --> 00:09:53,120

there's a reaction and and that that's

216

00:09:56,440 --> 00:09:54,410

going to happen with whatever they're

217

00:09:57,880 --> 00:09:56,450

doing in space and I think it's so

218

00:10:00,070 --> 00:09:57,890

important to consider all the cultures

219

00:10:02,650 --> 00:10:00,080

of the world because we're all in this

220

00:10:05,380 --> 00:10:02,660

together but I think everyone should be

221

00:10:07,540 --> 00:10:05,390

allowed to have a voice to contribute to

222

00:10:08,980 --> 00:10:07,550

what's happening to them because it's

223

00:10:12,070 --> 00:10:08,990

their future in their children's future

224

00:10:13,990 --> 00:10:12,080

I feel that to some extent the planetary

225

00:10:16,990 --> 00:10:14,000

research programs of NASA have been

226

00:10:19,960 --> 00:10:17,000

sacrificed to keep the space station

227

00:10:22,090 --> 00:10:19,970

afloat and strikes me that the planetary

228

00:10:24,310 --> 00:10:22,100

probes were very cost-effective as you

229

00:10:26,200 --> 00:10:24,320

know the voyagers were reprogrammed to

230

00:10:29,020 --> 00:10:26,210

do things for which they were not really

231

00:10:31,390 --> 00:10:29,030

designed to do and it bothers me that

232

00:10:32,860 --> 00:10:31,400

that money is being spent up by the

233

00:10:35,020 --> 00:10:32,870

space station for a number of reasons

234

00:10:37,000 --> 00:10:35,030

and first let me state I would like to

235

00:10:38,320 --> 00:10:37,010

see man on the moon and go to Mars my

236

00:10:40,180 --> 00:10:38,330

wife and I would be the first to to

237

00:10:43,120 --> 00:10:40,190

volunteer I've tables to rick's mission

238

00:10:45,220 --> 00:10:43,130

and I very much see man going into space

239

00:10:47,320 --> 00:10:45,230

I'm just not good think that the space

240

00:10:50,020 --> 00:10:47,330

station is really the way to do it

241

00:10:52,480 --> 00:10:50,030

certainly I agree that the space station

242

00:10:57,340 --> 00:10:52,490

has an enormous amount of politics

243

00:10:59,500 --> 00:10:57,350

involved but then again based on my

244

00:11:02,560 --> 00:10:59,510

observation political system is that

245

00:11:05,140 --> 00:11:02,570

canceling Space Station wouldn't would

246

00:11:08,260 --> 00:11:05,150

not of itself guarantee you the

247

00:11:10,210 --> 00:11:08,270

planetary probes that money would not be

248

00:11:11,740 --> 00:11:10,220

dedicated we would Congress would not

249

00:11:13,570 --> 00:11:11,750

say we're going to take out this two

250

00:11:15,520 --> 00:11:13,580

billion a year or whatever and we're

251
00:11:17,200 --> 00:11:15,530
going to spend that 2 billion on the

252
00:11:19,750 --> 00:11:17,210
space program they take the two billion

253
00:11:22,090 --> 00:11:19,760
away and probably would put anything in

254
00:11:24,650 --> 00:11:22,100
its place Linda give any final comments

255
00:11:29,090 --> 00:11:24,660
like you sure yes I was

256
00:11:31,610 --> 00:11:29,100
consider this a lot of my relatives I

257
00:11:33,860 --> 00:11:31,620
guess culturally Native Americans a lot

258
00:11:37,400 --> 00:11:33,870
of our legends have star stories or

259
00:11:39,199 --> 00:11:37,410
stories about the space there's also

260
00:11:42,650 --> 00:11:39,209
some tribes down in the southwest who

261
00:11:45,800 --> 00:11:42,660
have these cave drawings they were aware

262
00:11:49,040 --> 00:11:45,810
of all the interplanetary happenings in

263
00:11:51,800 --> 00:11:49,050

space long time ago way before we were

264

00:11:55,309 --> 00:11:51,810

even aware at this point now and there's

265

00:11:57,590 --> 00:11:55,319

even stories about different worlds like

266

00:11:58,790 --> 00:11:57,600

I said before I never wasn't asked and

267

00:12:01,730 --> 00:11:58,800

never was going to be able to be an

268

00:12:03,920 --> 00:12:01,740

astronaut like Rick but boy I can see a

269

00:12:05,809 --> 00:12:03,930

lot of things just as he did and a

270

00:12:07,460 --> 00:12:05,819

little different perspective but I feel

271

00:12:09,860 --> 00:12:07,470

like I'm up there right now so go with

272

00:12:12,379 --> 00:12:09,870

your dreams and let's move this

273

00:12:14,449 --> 00:12:12,389

technology to the next level I'd like to

274

00:12:16,699 --> 00:12:14,459

invite you all to join us here again

275

00:12:18,829 --> 00:12:16,709

tomorrow night when we continue this

276
00:12:44,130 --> 00:12:18,839
community conversation about what is the

277
00:12:50,740 --> 00:12:47,440
hello good evening and welcome to the

278
00:12:52,840 --> 00:12:50,750
second half of a symposium titled what

279
00:12:55,870 --> 00:12:52,850
is the value of space exploration a

280
00:12:57,490 --> 00:12:55,880
prairie symposium we're glad to have you

281
00:12:59,320 --> 00:12:57,500
with us tonight and hope that we're

282
00:13:02,170 --> 00:12:59,330
going to have as much fun and as much

283
00:13:04,390 --> 00:13:02,180
information as we did last night joining

284
00:13:08,110 --> 00:13:04,400
me here in Clifford Hall Auditorium this

285
00:13:10,540 --> 00:13:08,120
evening in our part of local Lords of

286
00:13:14,140 --> 00:13:10,550
Colton communities and along with us

287
00:13:17,560 --> 00:13:14,150
will be Tim folk editor and reporter of

288
00:13:20,250 --> 00:13:17,570

the Grand Forks Herald Vivian Myers a

289

00:13:23,740 --> 00:13:20,260

teacher from Bismarck North Dakota and

290

00:13:25,690 --> 00:13:23,750

father William Sherman a sociologist and

291

00:13:28,780 --> 00:13:25,700

pastor of st. Michael's Catholic Church

292

00:13:30,370 --> 00:13:28,790

here in Grand Forks tonight's topics

293

00:13:33,340 --> 00:13:30,380

will be the political value of space

294

00:13:35,530 --> 00:13:33,350

exploration the educational value of

295

00:13:38,920 --> 00:13:35,540

space exploration and the sociological

296

00:13:42,220 --> 00:13:38,930

value of space exploration the question

297

00:13:45,370 --> 00:13:42,230

at hand is what is the political value

298

00:13:47,770 --> 00:13:45,380

of space exploration and i must confess

299

00:13:51,070 --> 00:13:47,780

that that i'm going to throw a lot of

300

00:13:53,290 --> 00:13:51,080

cold water on on on things tonight i

301
00:13:55,390 --> 00:13:53,300
think the evidence at hand suggests that

302
00:13:57,400 --> 00:13:55,400
there isn't much political value to

303
00:14:00,850 --> 00:13:57,410
space exploration but that's not to

304
00:14:02,200 --> 00:14:00,860
suggest that there couldn't be and i

305
00:14:05,110 --> 00:14:02,210
think that that what i'd like to do is

306
00:14:06,579 --> 00:14:05,120
take a couple minutes to to think about

307
00:14:09,370 --> 00:14:06,589
the circumstances under which there

308
00:14:10,990 --> 00:14:09,380
could be one thing that might happen is

309
00:14:13,150 --> 00:14:11,000
that there might be a resurgence of

310
00:14:16,380 --> 00:14:13,160
economic nationalism another set of

311
00:14:19,630 --> 00:14:16,390
circumstances might be a resurgence of

312
00:14:23,250 --> 00:14:19,640
redistributed economics space might be

313
00:14:27,340 --> 00:14:23,260

considered a sort of grand public work

314

00:14:32,040 --> 00:14:27,350

that would employ people and finally

315

00:14:34,420 --> 00:14:32,050

grimly there might be a resurgence of

316

00:14:37,390 --> 00:14:34,430

political interest in space as a result

317

00:14:39,579 --> 00:14:37,400

of military threats but I don't think

318

00:14:41,519 --> 00:14:39,589

that that over the long run those of us

319

00:14:45,579 --> 00:14:41,529

who believe that space is a noble thing

320

00:14:49,690 --> 00:14:45,589

and that we ought to be going further

321

00:14:51,130 --> 00:14:49,700

and without to be going period I don't

322

00:14:52,449 --> 00:14:51,140

think that in the long run we're going

323

00:14:55,960 --> 00:14:52,459

to be satisfied with these circumstances

324

00:14:58,840 --> 00:14:55,970

space education and exploration is a

325

00:15:04,059 --> 00:14:58,850

perfect Avenue for the students of the

326

00:15:06,879 --> 00:15:04,069

90s for they have before them a world of

327

00:15:09,999 --> 00:15:06,889

unknowns there are in unpredictable

328

00:15:12,939 --> 00:15:10,009

hazards and occupations yet to be

329

00:15:14,800 --> 00:15:12,949

discovered these kids have to be

330

00:15:18,189 --> 00:15:14,810

equipped with higher level thinking

331

00:15:20,769 --> 00:15:18,199

skills more so than ever before space

332

00:15:23,710 --> 00:15:20,779

exploration is a unique opportunity for

333

00:15:26,439 --> 00:15:23,720

this avenue of learning think for a

334

00:15:30,610 --> 00:15:26,449

minute students trying to project into

335

00:15:33,639 --> 00:15:30,620

the future trying to visualize what it

336

00:15:37,980 --> 00:15:33,649

would be like to live in space to create

337

00:15:41,259 --> 00:15:37,990

a space camp or to solve problems of

338

00:15:43,929 --> 00:15:41,269

garbage in space these are the kinds of

339

00:15:46,869 --> 00:15:43,939

questions that we go through when we go

340

00:15:49,240 --> 00:15:46,879

through units of space exploration kids

341

00:15:51,429 --> 00:15:49,250

are turned on about about these ideas

342

00:15:54,639 --> 00:15:51,439

and they are futuristic in their

343

00:15:58,119 --> 00:15:54,649

thinking maybe that's what space can do

344

00:16:01,590 --> 00:15:58,129

is remind us as people who sort of fall

345

00:16:05,290 --> 00:16:01,600

into easy habits but God is beyond us

346

00:16:07,809 --> 00:16:05,300

God is the god of the universe we see

347

00:16:10,389 --> 00:16:07,819

the pictures of the earth floating

348

00:16:13,210 --> 00:16:10,399

around as sort of a little part of a

349

00:16:16,389 --> 00:16:13,220

vast universe maybe that's why the good

350

00:16:20,499 --> 00:16:16,399

Lord looking at it from a perspective of

351

00:16:23,350 --> 00:16:20,509

faith brought aerospace into our world

352

00:16:26,319 --> 00:16:23,360

the reminders of that other dimension of

353

00:16:29,439 --> 00:16:26,329

God God isn't something to be discarded

354

00:16:31,900 --> 00:16:29,449

to be set aside to be ignored the power

355

00:16:33,670 --> 00:16:31,910

and the majesty of it all and some of

356

00:16:36,009 --> 00:16:33,680

you remember that in the Holy Scripture

357

00:16:40,720 --> 00:16:36,019

it says something like this the fear of

358

00:16:42,369 --> 00:16:40,730

God the awesomeness of God before the

359

00:16:44,799 --> 00:16:42,379

presence of God is the beginning of

360

00:16:47,110 --> 00:16:44,809

wisdom if you were the director of NASA

361

00:16:49,269 --> 00:16:47,120

what would your priorities in future for

362

00:16:51,879 --> 00:16:49,279

NASA what would that be I'd say that

363

00:16:54,889 --> 00:16:51,889

that the strategy ought to be survival I

364

00:16:58,600 --> 00:16:54,899

think that the tactics ought to be too

365

00:17:01,819 --> 00:16:58,610

get rid of as many missions that involve

366

00:17:04,760 --> 00:17:01,829

exploitation consolidation and filling

367

00:17:10,220 --> 00:17:04,770

in what's left behind and try to find a

368

00:17:13,789 --> 00:17:10,230

single mission that that could have a

369

00:17:17,059 --> 00:17:13,799

fairly broad constituency economically

370

00:17:20,600 --> 00:17:17,069

and that could could be as inspiring as

371

00:17:22,250 --> 00:17:20,610

possible I think I do the public

372

00:17:26,750 --> 00:17:22,260

relations job I don't know how it is

373

00:17:29,090 --> 00:17:26,760

maybe enlist the hollywood and get them

374

00:17:31,510 --> 00:17:29,100

on their side they seem to have a

375

00:17:37,610 --> 00:17:31,520

spokesman for everything out there and

376

00:17:40,490 --> 00:17:37,620

just dramatize it I think they do a good

377

00:17:42,409 --> 00:17:40,500

job maybe even a great job but one of

378

00:17:45,529 --> 00:17:42,419

the things that I would change would be

379

00:17:47,330 --> 00:17:45,539

to get to advertise themselves more and

380

00:17:49,370 --> 00:17:47,340

maybe what the father here was talking

381

00:17:52,909 --> 00:17:49,380

about to enlist Holly which isn't such a

382

00:17:56,690 --> 00:17:52,919

bad idea it seems as though whatever the

383

00:17:58,370 --> 00:17:56,700

media presses we get question for the

384

00:18:01,210 --> 00:17:58,380

entire panel I would like to answer them

385

00:18:04,630 --> 00:18:01,220

their opinion about the potential for

386

00:18:06,830 --> 00:18:04,640

access to space by ordinary citizens and

387

00:18:09,529 --> 00:18:06,840

depending on what your opinion is how

388

00:18:11,450 --> 00:18:09,539

does that how's that reflect on the

389

00:18:13,880 --> 00:18:11,460

value of space exploration as perceived

390

00:18:16,490 --> 00:18:13,890

by the general populace it just seems

391

00:18:18,649 --> 00:18:16,500

that it that that the cost would be so

392

00:18:22,730 --> 00:18:18,659

great that it's hard to imagine that in

393

00:18:25,070 --> 00:18:22,740

my lifetime people of my generation will

394

00:18:27,560 --> 00:18:25,080

get to fly in great numbers so I think

395

00:18:30,169 --> 00:18:27,570

that you'd have to look elsewhere to

396

00:18:31,919 --> 00:18:30,179

find the value in space exploration

397

00:18:34,769 --> 00:18:31,929

other than

398

00:18:36,659 --> 00:18:34,779

and you're not going to get it from the

399

00:18:39,320 --> 00:18:36,669

kick of flying but somehow if we could

400

00:18:42,869 --> 00:18:39,330

capture the imagination of the nation

401
00:18:45,480 --> 00:18:42,879
with spectacular things maybe what was

402
00:18:47,629 --> 00:18:45,490
Tim was talking about a fix on something

403
00:18:50,549 --> 00:18:47,639
that has all sorts of ramifications and

404
00:18:53,220 --> 00:18:50,559
we'll go along and will support it I

405
00:18:55,320 --> 00:18:53,230
have a question for Vivian should there

406
00:18:58,859 --> 00:18:55,330
be a teacher in space especially after

407
00:19:03,629 --> 00:18:58,869
the Challenger problem and Christa was

408
00:19:06,989 --> 00:19:03,639
on board yes I do I think that if there

409
00:19:09,960 --> 00:19:06,999
is someone that once is willing is

410
00:19:12,989 --> 00:19:09,970
prepared as much as anyone else out

411
00:19:14,609 --> 00:19:12,999
there that would have to go through you

412
00:19:19,320 --> 00:19:14,619
know all the preparation that it would

413
00:19:20,879 --> 00:19:19,330

take if they feel that that they would

414

00:19:23,759 --> 00:19:20,889

like to and that it would be

415

00:19:26,310 --> 00:19:23,769

advantageous to both sectors of society

416

00:19:27,359 --> 00:19:26,320

I think that that they should Tim do you

417

00:19:29,940 --> 00:19:27,369

think the news media has

418

00:19:32,609 --> 00:19:29,950

responsibilities associated with selling

419

00:19:35,359 --> 00:19:32,619

space to the masses I think a lot more a

420

00:19:38,129 --> 00:19:35,369

lot more newspapers and journalists

421

00:19:41,399 --> 00:19:38,139

ought to be eager about space there not

422

00:19:44,039 --> 00:19:41,409

to be more information about space but

423

00:19:46,440 --> 00:19:44,049

I'm not sure that that I'd assigned the

424

00:19:48,359 --> 00:19:46,450

press a responsibility well our concept

425

00:19:50,430 --> 00:19:48,369

of God change at all when we get an

426

00:19:52,259 --> 00:19:50,440

outer space and we're not no we're not

427

00:19:54,600 --> 00:19:52,269

down here on mother earth anymore and we

428

00:19:58,560 --> 00:19:54,610

look you know when we look to these to

429

00:20:00,509 --> 00:19:58,570

the to the universe is our idea of God

430

00:20:04,669 --> 00:20:00,519

going to be any different you can't look

431

00:20:07,470 --> 00:20:04,679

at those those pictures of the earth and

432

00:20:10,289 --> 00:20:07,480

see this horse thing is about as a bunch

433

00:20:13,200 --> 00:20:10,299

of fragmented human beings in a whole

434

00:20:16,220 --> 00:20:13,210

business of race and a national conflict

435

00:20:19,230 --> 00:20:16,230

and so it becomes so petty when we see

436

00:20:21,289 --> 00:20:19,240

what a one world it is that's one aspect

437

00:20:25,019 --> 00:20:21,299

it tells us something about man and

438

00:20:27,450 --> 00:20:25,029

women but the other I'm convinced is

439

00:20:30,859 --> 00:20:27,460

that it tells us something about the

440

00:20:35,820 --> 00:20:30,869

divine my experience with this has been

441

00:20:38,129 --> 00:20:35,830

an affirmation of why I have become a

442

00:20:41,970 --> 00:20:38,139

space professional i think my gut my

443

00:20:45,039 --> 00:20:41,980

instinct my intuition tells me that the

444

00:20:47,739 --> 00:20:45,049

value of space and space exploration

445

00:20:50,470 --> 00:20:47,749

is its ability to connect and its

446

00:20:52,960 --> 00:20:50,480

ability to bring us together and there

447

00:20:54,580 --> 00:20:52,970

is nothing i think more dramatic than

448

00:20:57,159 --> 00:20:54,590

the last two nights that proves that

449

00:21:00,930 --> 00:20:57,169

here we are spread around an entire

450

00:21:03,489 --> 00:21:00,940

state and its space technology that has

451

00:21:06,159 --> 00:21:03,499

brought us together over time and

452

00:21:08,680 --> 00:21:06,169

distance this is two time zones and an

453

00:21:11,200 --> 00:21:08,690

entire state and yet it's one experience

454

00:21:13,899 --> 00:21:11,210

and I want to thank you all and I hope