

**David Schwartz**  
Earthquake Specialist  
USGS  
Art Webb  
Marik Schwartz

# TruthFunders Radio

**HOSTS: Art Webb & Mark Schwartz**



1  
00:00:15,939 --> 00:00:02,210  
you're locked into inception radio

2  
00:00:19,310 --> 00:00:15,949  
network superior Wisconsin this is

3  
00:00:22,040 --> 00:00:19,320  
funders radio on the inception radio

4  
00:00:23,779 --> 00:00:22,050  
network a weekly audio Safari that

5  
00:00:25,790 --> 00:00:23,789  
features the newest in paranormal

6  
00:00:28,429 --> 00:00:25,800  
discoveries while highlighting the

7  
00:00:31,669 --> 00:00:28,439  
latest and not to be missed truth funder

8  
00:00:33,950 --> 00:00:31,679  
com projects for truth seekers and true

9  
00:00:42,380 --> 00:00:33,960  
believers this week's truth buggers

10  
00:00:44,900 --> 00:00:42,390  
starts now greetings Bonjour welcome

11  
00:00:46,910 --> 00:00:44,910  
everybody the truth funders radio this

12  
00:00:49,549 --> 00:00:46,920  
is mark schwartz i'm the CEO of truth

13  
00:00:52,189 --> 00:00:49,559

funders and usually with me as always as

14

00:00:54,020 --> 00:00:52,199

art but it appears that art is nowhere

15

00:00:56,990 --> 00:00:54,030

to be found he is somewhere too lost in

16

00:00:59,900 --> 00:00:57,000

the abyss today and you know i think art

17

00:01:03,110 --> 00:00:59,910

started a new job today so he should be

18

00:01:05,719 --> 00:01:03,120

here but he might be driving home and

19

00:01:07,910 --> 00:01:05,729

stuck in some torrential los angeles

20

00:01:10,370 --> 00:01:07,920

traffic because everybody knows how bad

21

00:01:12,920 --> 00:01:10,380

traffic is in LA when i try to call his

22

00:01:14,960 --> 00:01:12,930

phone it went straight to voicemail so i

23

00:01:16,999 --> 00:01:14,970

know that like he's probably freaking

24

00:01:19,340 --> 00:01:17,009

out somewhere wherever he is trying to

25

00:01:22,130 --> 00:01:19,350

get to the show and in the meantime i'm

26  
00:01:24,080 --> 00:01:22,140  
here freaking out because he's not here

27  
00:01:26,590 --> 00:01:24,090  
at the show but regardless of all that

28  
00:01:28,910 --> 00:01:26,600  
he might join us at any time he might

29  
00:01:31,460 --> 00:01:28,920  
show up and just pop in half an hour

30  
00:01:33,410 --> 00:01:31,470  
into the show maybe he doesn't show up i

31  
00:01:37,370 --> 00:01:33,420  
would love it if he did if you're out

32  
00:01:39,620 --> 00:01:37,380  
there art please join us but we're just

33  
00:01:42,380 --> 00:01:39,630  
gonna rock it and roll it because we

34  
00:01:44,719 --> 00:01:42,390  
have an incredible show for you today I

35  
00:01:47,149 --> 00:01:44,729  
mean this show is just it's going to be

36  
00:01:48,260 --> 00:01:47,159  
like nothing we've ever done before and

37  
00:01:51,050 --> 00:01:48,270  
we're going to be talking to

38  
00:01:53,840 --> 00:01:51,060

world-renowned geologist David Schwartz

39

00:01:56,330 --> 00:01:53,850

from the United States Geological Survey

40

00:01:58,100 --> 00:01:56,340

better known as the USGS and we're going

41

00:02:00,350 --> 00:01:58,110

to be talking to him about all sorts of

42

00:02:02,840 --> 00:02:00,360

things like the different myths that are

43

00:02:06,139 --> 00:02:02,850

out there can people actually predict

44

00:02:08,630 --> 00:02:06,149

earthquakes will California fall into

45

00:02:11,839 --> 00:02:08,640

the ocean and you know when is the next

46

00:02:13,380 --> 00:02:11,849

big one going to hit California or the

47

00:02:15,840 --> 00:02:13,390

rest of the world and

48

00:02:17,910 --> 00:02:15,850

and can earthquakes open up in the

49

00:02:20,580 --> 00:02:17,920

ground and swallow you whole like what's

50

00:02:23,040 --> 00:02:20,590

going on we're also going to be asking

51  
00:02:24,809 --> 00:02:23,050  
some special questions about space

52  
00:02:27,210 --> 00:02:24,819  
weather and I know a lot of you out

53  
00:02:31,050 --> 00:02:27,220  
there you know you may you may follow

54  
00:02:34,500 --> 00:02:31,060  
suspicious observer he is online he has

55  
00:02:36,330 --> 00:02:34,510  
a youtube channel with 500,000 to a

56  
00:02:38,250 --> 00:02:36,340  
million people following him he does

57  
00:02:41,610 --> 00:02:38,260  
these daily reports about space weather

58  
00:02:43,530 --> 00:02:41,620  
and how it impacts the earth and geology

59  
00:02:45,810 --> 00:02:43,540  
and so we might touch on that a little

60  
00:02:47,670 --> 00:02:45,820  
bit we also might have him on next week

61  
00:02:50,220 --> 00:02:47,680  
to talk about his side of things and

62  
00:02:53,070 --> 00:02:50,230  
what he thinks is going on but tonight

63  
00:02:55,229 --> 00:02:53,080

we have mainstream science we have

64

00:02:57,479 --> 00:02:55,239

fantastic science because even though

65

00:02:59,910 --> 00:02:57,489

stuff might be quote unquote mainstream

66

00:03:01,770 --> 00:02:59,920

it is completely exciting and it is

67

00:03:04,050 --> 00:03:01,780

really important and it's very very

68

00:03:06,180 --> 00:03:04,060

accurate I mean think about it these

69

00:03:09,930 --> 00:03:06,190

guys and scientists who have studied

70

00:03:12,449 --> 00:03:09,940

geology or space or any kind of science

71

00:03:15,900 --> 00:03:12,459

biology they've they've studied it their

72

00:03:17,759 --> 00:03:15,910

whole entire lives out of here dog out

73

00:03:20,250 --> 00:03:17,769

of here the truth minors mascot is

74

00:03:23,610 --> 00:03:20,260

shaking right now and so I'm kicking him

75

00:03:25,949 --> 00:03:23,620

out of the office um so yeah it doesn't

76

00:03:27,750 --> 00:03:25,959

matter you know if you study this you

77

00:03:30,090 --> 00:03:27,760

know you know what a lot more than

78

00:03:33,479 --> 00:03:30,100

people who just have ideas or think oh

79

00:03:35,069 --> 00:03:33,489

well it must be a conspiracy I mean some

80

00:03:37,319 --> 00:03:35,079

of that stuff is definitely true and we

81

00:03:39,449 --> 00:03:37,329

do cover it here on truth funders radio

82

00:03:41,400 --> 00:03:39,459

and we do like to uncover it but it's

83

00:03:44,340 --> 00:03:41,410

also important to hear both sides of the

84

00:03:46,140 --> 00:03:44,350

coin so the real science and then the

85

00:03:50,460 --> 00:03:46,150

other science that is real science but

86

00:03:51,960 --> 00:03:50,470

might be done by not as you know I don't

87

00:03:53,160 --> 00:03:51,970

know there's there's just all their

88

00:03:55,130 --> 00:03:53,170

stuff everywhere there's science

89

00:03:57,930 --> 00:03:55,140

everywhere and there's people there's

90

00:04:00,509 --> 00:03:57,940

studying astronomy by themselves you

91

00:04:02,430 --> 00:04:00,519

know and then there's people who learn

92

00:04:04,710 --> 00:04:02,440

it and are schooled in the classrooms

93

00:04:06,720 --> 00:04:04,720

and have studied it and go on to do more

94

00:04:11,520 --> 00:04:06,730

with it does one know more than the

95

00:04:13,680 --> 00:04:11,530

other well probably however we this is a

96

00:04:15,479 --> 00:04:13,690

classroom and so we want to learn and we

97

00:04:17,940 --> 00:04:15,489

want you to learn here on truth funders

98

00:04:21,180 --> 00:04:17,950

radio and to make the decisions for

99

00:04:24,300 --> 00:04:21,190

yourself how do you feel about it so I

100

00:04:27,030 --> 00:04:24,310

am really really excited to bring on dr.

101  
00:04:30,360 --> 00:04:27,040  
David Schwartz like I said he

102  
00:04:33,240 --> 00:04:30,370  
is a from the USGS he is a geologist and

103  
00:04:36,570 --> 00:04:33,250  
works in menlo park california he also

104  
00:04:39,360 --> 00:04:36,580  
has been on 60 minutes he's been on the

105  
00:04:40,770 --> 00:04:39,370  
national geographic he's been in the

106  
00:04:43,350 --> 00:04:40,780  
National Geographic they've actually

107  
00:04:45,570 --> 00:04:43,360  
written about his study he has been on

108  
00:04:48,570 --> 00:04:45,580  
the Discovery Channel and I actually

109  
00:04:51,930 --> 00:04:48,580  
worked with him on a program on the

110  
00:04:54,870 --> 00:04:51,940  
Discovery Channel I was an assistant to

111  
00:04:57,180 --> 00:04:54,880  
the cameraman at that point and mr.

112  
00:05:00,810 --> 00:04:57,190  
Schwartz dr. Schwartz was the main focus

113  
00:05:02,760 --> 00:05:00,820

of that particular documentary and it

114

00:05:06,600 --> 00:05:02,770

was about building the bridge in San

115

00:05:08,550 --> 00:05:06,610

Francisco so now without further delay I

116

00:05:10,830 --> 00:05:08,560

want to bring on dr. David Schwartz

117

00:05:14,640 --> 00:05:10,840

hello David how are you doing today I'm

118

00:05:17,010 --> 00:05:14,650

doing pretty well and I'm very happy to

119

00:05:21,120 --> 00:05:17,020

be on the show well where we are

120

00:05:23,610 --> 00:05:21,130

extremely excited to have you um and I

121

00:05:25,020 --> 00:05:23,620

apologize that our co-host isn't here

122

00:05:27,120 --> 00:05:25,030

today but I'm going to go ahead and take

123

00:05:29,610 --> 00:05:27,130

the reins and we are going to rock it

124

00:05:31,290 --> 00:05:29,620

and roll it and so David would you mind

125

00:05:34,110 --> 00:05:31,300

telling us a little bit about yourself

126

00:05:37,800 --> 00:05:34,120

or about your background and how you

127

00:05:42,300 --> 00:05:37,810

started to find your love of geology

128

00:05:46,020 --> 00:05:42,310

where did that come from well I grew up

129

00:05:47,880 --> 00:05:46,030

in New York and my grandfather used to

130

00:05:49,530 --> 00:05:47,890

take me to the American Museum of

131

00:05:52,830 --> 00:05:49,540

Natural History when it was a little kid

132

00:05:56,550 --> 00:05:52,840

and I got hooked on dinosaurs and

133

00:05:59,370 --> 00:05:56,560

fossils and rocks and minerals and they

134

00:06:02,010 --> 00:05:59,380

had rooms of Arctic and Antarctic

135

00:06:05,760 --> 00:06:02,020

exploration and was just very very

136

00:06:08,190 --> 00:06:05,770

exciting and i went to i took an earth

137

00:06:10,350 --> 00:06:08,200

science course in high school and then

138

00:06:14,460 --> 00:06:10,360

when I got to college I decided to major

139

00:06:17,280 --> 00:06:14,470

in geology and I never looked back I

140

00:06:19,620 --> 00:06:17,290

went ahead I got a master's I got a PhD

141

00:06:24,030 --> 00:06:19,630

and I've been doing this professionally

142

00:06:25,980 --> 00:06:24,040

now 4 for 40 years 40 years that's an

143

00:06:29,580 --> 00:06:25,990

awful long time that have you been at

144

00:06:32,750 --> 00:06:29,590

the at the USGS in Menlo Park the entire

145

00:06:35,430 --> 00:06:32,760

time well my first 12 years

146

00:06:38,640 --> 00:06:35,440

professionally I worked for a consulting

147

00:06:40,279 --> 00:06:38,650

company in Oakland and San Francisco and

148

00:06:42,900 --> 00:06:40,289

that was the job that

149

00:06:46,320 --> 00:06:42,910

really brought me from New York to

150

00:06:50,430 --> 00:06:46,330

California through Alaska and the

151  
00:06:53,100 --> 00:06:50,440  
Nicaragua and we finally settled out

152  
00:06:55,140 --> 00:06:53,110  
here in the east bay and I've been with

153  
00:06:57,779 --> 00:06:55,150  
the US Geological Survey now for 30

154  
00:07:00,960 --> 00:06:57,789  
years so been doing this for a long time

155  
00:07:03,689 --> 00:07:00,970  
I've had the opportunity to really look

156  
00:07:05,909 --> 00:07:03,699  
at active faults and earthquakes around

157  
00:07:10,080 --> 00:07:05,919  
the world and some very interesting

158  
00:07:12,060 --> 00:07:10,090  
remote places and I'm really happy to

159  
00:07:14,159 --> 00:07:12,070  
share whatever experience I I've

160  
00:07:20,279 --> 00:07:14,169  
developed you know during that period of

161  
00:07:22,710 --> 00:07:20,289  
time inception radio network are you a

162  
00:07:24,390 --> 00:07:22,720  
fan of inception radio network do you

163  
00:07:26,670 --> 00:07:24,400

reckon it's the best alternative talk

164

00:07:29,270 --> 00:07:26,680

radio station on the planet well if you

165

00:07:32,029 --> 00:07:29,280

do head to facebook.com forward slash

166

00:07:34,680 --> 00:07:32,039

inception radio network like the pain

167

00:07:39,540 --> 00:07:34,690

tell your friends spread the word and

168

00:07:45,400 --> 00:07:42,969

hello everyone Laurieann fenton here

169

00:07:48,730 --> 00:07:45,410

hosted the California MUFON radio show

170

00:07:51,760 --> 00:07:48,740

asking if you'd like special access to

171

00:07:55,089 --> 00:07:51,770

exclusive and amazing information about

172

00:07:58,360 --> 00:07:55,099

UFOs the paranormal and all things

173

00:08:01,990 --> 00:07:58,370

unexplained if you're nodding yes then

174

00:08:03,760 --> 00:08:02,000

join I rn's insider club as an insider

175

00:08:06,760 --> 00:08:03,770

club member you'll get an all-access

176  
00:08:09,159 --> 00:08:06,770  
pass to premier inception radio network

177  
00:08:11,680 --> 00:08:09,169  
content for only four dollars and

178  
00:08:15,550 --> 00:08:11,690  
ninety-nine cents a month this includes

179  
00:08:18,850 --> 00:08:15,560  
live UFO and paranormal conferences live

180  
00:08:21,550 --> 00:08:18,860  
streaming UFO sky watches exclusive I

181  
00:08:24,520 --> 00:08:21,560  
are in radio and TV productions and of

182  
00:08:27,249 --> 00:08:24,530  
course paying radio with MJ and Ken

183  
00:08:30,159 --> 00:08:27,259  
starch so don't wait any longer visit

184  
00:08:33,490 --> 00:08:30,169  
inception radio network calm and click

185  
00:08:39,700 --> 00:08:33,500  
on member login to join I rn's insider

186  
00:08:43,720 --> 00:08:41,890  
don't have a computer is your internet

187  
00:08:45,520 --> 00:08:43,730  
connection down don't worry use your

188  
00:08:48,580 --> 00:08:45,530

trusty cellphone or landline and call in

189

00:08:50,740 --> 00:08:48,590

to our list in line at 401 to a 367 00

190

00:08:54,700 --> 00:08:50,750

to listen to the inception radio network

191

00:08:58,000 --> 00:08:54,710

24-7 again that Colin number is 40 1 2 a

192

00:09:02,639 --> 00:08:58,010

3 6 700 for the inception radio network

193

00:09:08,199 --> 00:09:05,439

hello inception radio network listeners

194

00:09:10,059 --> 00:09:08,209

this is Amanda remember you can take

195

00:09:12,189 --> 00:09:10,069

your inception radio shows on the go

196

00:09:15,009 --> 00:09:12,199

just download the inception radio

197

00:09:17,619 --> 00:09:15,019

network app for your iPhone iPad or

198

00:09:20,139 --> 00:09:17,629

Android smartphones and access live

199

00:09:22,629 --> 00:09:20,149

shows past shows guest lineups and much

200

00:09:24,399 --> 00:09:22,639

more just visit the itunes store or the

201  
00:09:29,949 --> 00:09:24,409  
google play marketplace and download it

202  
00:09:32,019 --> 00:09:29,959  
today for free you didn't forget what's

203  
00:09:33,729 --> 00:09:32,029  
coming up tonight did you hi inception

204  
00:09:35,559 --> 00:09:33,739  
radio network listeners this is Amanda

205  
00:09:37,119 --> 00:09:35,569  
never miss that interview you were

206  
00:09:39,909 --> 00:09:37,129  
looking forward to or the show on your

207  
00:09:42,999 --> 00:09:39,919  
favorite topic follow irn on twitter i

208  
00:09:44,799 --> 00:09:43,009  
underscore our underscore n and get

209  
00:09:46,539 --> 00:09:44,809  
reminders about the evenings live shows

210  
00:09:48,969 --> 00:09:46,549  
as well as fun and important updates

211  
00:09:51,609 --> 00:09:48,979  
throughout the week that's i underscore

212  
00:10:03,100 --> 00:09:51,619  
our underscore n and never miss a great

213  
00:10:08,110 --> 00:10:06,040

hello Irene listeners this is MJ saying

214

00:10:10,949 --> 00:10:08,120

hello and sharing an awesome secret I

215

00:10:13,780 --> 00:10:10,959

discovered it's called dream lodge calm

216

00:10:16,180 --> 00:10:13,790

fresh raw organic ingredients are used

217

00:10:18,370 --> 00:10:16,190

to create all their products they are

218

00:10:21,100 --> 00:10:18,380

made in very small batches to ensure

219

00:10:24,130 --> 00:10:21,110

quality and freshness and made in the

220

00:10:25,769 --> 00:10:24,140

USA each product is created with care

221

00:10:28,300 --> 00:10:25,779

and with the finest organic ingredients

222

00:10:31,120 --> 00:10:28,310

there are no preservatives dyes or

223

00:10:36,160 --> 00:10:31,130

chemicals in any product stop by dream

224

00:10:46,000 --> 00:10:36,170

lodge and relax that's dr.e am and you a

225

00:10:49,210 --> 00:10:46,010

GE com simple raw organic you're locked

226

00:10:52,300 --> 00:10:49,220

into inception radio network superior

227

00:10:59,920 --> 00:10:52,310

Wisconsin truth funders radio on the

228

00:11:02,710 --> 00:10:59,930

inception radio network and welcome back

229

00:11:07,360 --> 00:11:02,720

to choose funders radio it is Wednesday

230

00:11:10,240 --> 00:11:07,370

and it is 630pm pacific standard time or

231

00:11:13,030 --> 00:11:10,250

930 eastern standard time once they may

232

00:11:15,970 --> 00:11:13,040

6 2015 and you are listening to truth

233

00:11:18,579 --> 00:11:15,980

funders radio i am mark schwartz CEO

234

00:11:22,030 --> 00:11:18,589

truth funders radio art is currently

235

00:11:24,819 --> 00:11:22,040

unavailable but somewhere and today our

236

00:11:26,590 --> 00:11:24,829

guest is dr. david schwartz from the

237

00:11:28,930 --> 00:11:26,600

united states geological survey and we

238

00:11:31,079 --> 00:11:28,940

were on in the middle of our

239

00:11:33,130 --> 00:11:31,089

conversation suddenly it cut out and

240

00:11:35,650 --> 00:11:33,140

technology has a way of doing that

241

00:11:37,840 --> 00:11:35,660

sometime so we apologize of course MJ

242

00:11:39,340 --> 00:11:37,850

jumped in the mix and through on the

243

00:11:40,990 --> 00:11:39,350

commercials so thank you guys for

244

00:11:42,630 --> 00:11:41,000

staying put and listening because i

245

00:11:45,189 --> 00:11:42,640

guarantee this is going to be a very

246

00:11:48,639 --> 00:11:45,199

fascinating interesting learning

247

00:11:51,100 --> 00:11:48,649

experience today so so david right

248

00:11:52,900 --> 00:11:51,110

before I disappeared you were talking

249

00:11:55,930 --> 00:11:52,910

about your love and your interest in

250

00:11:58,420 --> 00:11:55,940

geology and that you have worked at the

251  
00:12:00,460 --> 00:11:58,430  
USGS for 40 years and before that you

252  
00:12:03,639 --> 00:12:00,470  
said you were working where well I

253  
00:12:06,630 --> 00:12:03,649  
worked at a consulting company for 12

254  
00:12:09,370 --> 00:12:06,640  
years and now I've been at the USGS for

255  
00:12:12,040 --> 00:12:09,380  
30 years so actually I've been doing

256  
00:12:15,639 --> 00:12:12,050  
this stuff professionally for for about

257  
00:12:16,510 --> 00:12:15,649  
forty two years and I've learned a lot

258  
00:12:18,490 --> 00:12:16,520  
about earthquake

259  
00:12:22,000 --> 00:12:18,500  
and I've also learned that there's a lot

260  
00:12:24,370 --> 00:12:22,010  
we really don't know yet and you know

261  
00:12:26,230 --> 00:12:24,380  
that's that's something to to talk about

262  
00:12:28,750 --> 00:12:26,240  
the stuff that we don't know yet because

263  
00:12:31,600 --> 00:12:28,760

I know a lot of our listeners are really

264

00:12:34,420 --> 00:12:31,610

interested in that when it comes to the

265

00:12:38,560 --> 00:12:34,430

study of geology are there things out

266

00:12:40,480 --> 00:12:38,570

there that people I guess that you have

267

00:12:42,790 --> 00:12:40,490

not had a chance to try that you're very

268

00:12:46,930 --> 00:12:42,800

curious about or is a lot of the

269

00:12:48,850 --> 00:12:46,940

research pretty straightforward and and

270

00:12:51,190 --> 00:12:48,860

has it changed and evolved over the past

271

00:12:53,650 --> 00:12:51,200

40 years that you see oh it's really

272

00:12:57,430 --> 00:12:53,660

changed and evolved when I started doing

273

00:13:00,340 --> 00:12:57,440

this work people had a lot of questions

274

00:13:03,790 --> 00:13:00,350

about false and how thoughts worked and

275

00:13:07,690 --> 00:13:03,800

how often they moved and how large past

276

00:13:11,890 --> 00:13:07,700

earthquakes were on Falls and how large

277

00:13:13,990 --> 00:13:11,900

future earthquakes would be and I sort

278

00:13:17,050 --> 00:13:14,000

of got in at the beginning of the

279

00:13:20,170 --> 00:13:17,060

science that we call excuse me paleo

280

00:13:25,050 --> 00:13:20,180

seismology it's like paleontology it's

281

00:13:28,450 --> 00:13:25,060

instead of the study of past or fossil

282

00:13:32,710 --> 00:13:28,460

animals it's a study of fossil

283

00:13:35,170 --> 00:13:32,720

earthquake so we now are able to go to a

284

00:13:38,470 --> 00:13:35,180

fault like the san andreas fault or the

285

00:13:41,260 --> 00:13:38,480

Hayward Fault and we can excavate with a

286

00:13:43,930 --> 00:13:41,270

backhoe we can excavate a trench across

287

00:13:48,520 --> 00:13:43,940

the fault and that trench might be nine

288

00:13:53,380 --> 00:13:48,530

feet or 12 feet or 15 feet deep and we

289

00:13:56,020 --> 00:13:53,390

put in we put in shores I draw shores or

290

00:13:57,820 --> 00:13:56,030

Jack's to keep the walls from collapsing

291

00:14:00,220 --> 00:13:57,830

because the last thing you want is to be

292

00:14:03,820 --> 00:14:00,230

in a trenchant and have it collapse on

293

00:14:06,310 --> 00:14:03,830

you yes and and the top of the trenches

294

00:14:08,400 --> 00:14:06,320

today and as you look down the wall of

295

00:14:11,590 --> 00:14:08,410

the trench you see different layers and

296

00:14:14,500 --> 00:14:11,600

as you're going down deeper and deeper

297

00:14:17,320 --> 00:14:14,510

you going back into time and when a

298

00:14:20,470 --> 00:14:17,330

large earthquake occurs it generally

299

00:14:23,590 --> 00:14:20,480

breaks to the Earth's surface and if

300

00:14:27,460 --> 00:14:23,600

it's in the right place that breakage

301

00:14:28,480 --> 00:14:27,470

can then be buried say by a stream

302

00:14:32,320 --> 00:14:28,490

ringing

303

00:14:34,030 --> 00:14:32,330

and and depositing it over the over the

304

00:14:36,370 --> 00:14:34,040

rupture at the surface and it gets

305

00:14:39,100 --> 00:14:36,380

preserved and it's like a fossil and

306

00:14:41,019 --> 00:14:39,110

then another earthquake occurs and it

307

00:14:44,019 --> 00:14:41,029

breaks up to the new ground surface and

308

00:14:47,460 --> 00:14:44,029

this process keeps repeating well we can

309

00:14:51,130 --> 00:14:47,470

see this process in the trench and using

310

00:14:54,310 --> 00:14:51,140

dating techniques like carbon 14 we can

311

00:14:58,780 --> 00:14:54,320

date little pieces of charcoal or seeds

312

00:15:01,000 --> 00:14:58,790

or pieces of wood or pieces of bone it

313

00:15:05,889 --> 00:15:01,010

can give us the age of that earthquake

314

00:15:09,370 --> 00:15:05,899

within 10 or 20 or 30 years so we now

315

00:15:13,449 --> 00:15:09,380

have the ability to work out the history

316

00:15:17,710 --> 00:15:13,459

of the past earthquakes on large Falls

317

00:15:19,780 --> 00:15:17,720

and we use that past history to say

318

00:15:23,290 --> 00:15:19,790

something about what's going to happen

319

00:15:26,050 --> 00:15:23,300

in the future 40 years ago this was just

320

00:15:28,480 --> 00:15:26,060

beginning in the past 40 years we made

321

00:15:31,060 --> 00:15:28,490

incredible progress in different

322

00:15:34,960 --> 00:15:31,070

techniques for dating in different

323

00:15:39,340 --> 00:15:34,970

approaches for imaging the fall so we've

324

00:15:43,569 --> 00:15:39,350

really really come a long way and we're

325

00:15:46,180 --> 00:15:43,579

using this information really to help

326

00:15:49,750 --> 00:15:46,190

develop building codes to make stronger

327

00:15:51,699 --> 00:15:49,760

buildings to say how strong the ground

328

00:15:55,120 --> 00:15:51,709

shaking is going to be in different

329

00:15:58,420 --> 00:15:55,130

places and its really been fabulous for

330

00:16:01,090 --> 00:15:58,430

me personally to be involved in watching

331

00:16:03,010 --> 00:16:01,100

all this progress and watching these

332

00:16:06,190 --> 00:16:03,020

changes that I feel like an old guy now

333

00:16:09,660 --> 00:16:06,200

and there are young scientists coming

334

00:16:12,730 --> 00:16:09,670

coming I into the field I can do things

335

00:16:16,769 --> 00:16:12,740

technologically that you know just leave

336

00:16:20,170 --> 00:16:16,779

me way behind so yeah a lot of people

337

00:16:24,360 --> 00:16:20,180

have have called you the Indiana Jones

338

00:16:28,389 --> 00:16:24,370

of geology is that something that you uh

339

00:16:30,340 --> 00:16:28,399

you would agree with ya I don't know if

340

00:16:33,069 --> 00:16:30,350

I would go that far but you know I I

341

00:16:36,510 --> 00:16:33,079

have had the opportunity to to study

342

00:16:41,170 --> 00:16:36,520

some really interesting Falls and

343

00:16:41,929 --> 00:16:41,180

isolated and remote places I've been to

344

00:16:45,979 --> 00:16:41,939

[h\_\_\h]

345

00:16:49,219 --> 00:16:45,989

have five times to study the faults that

346

00:16:52,969 --> 00:16:49,229

produce the great 1957 Gobi Altai

347

00:16:55,009 --> 00:16:52,979

earthquake that's in the in the northern

348

00:16:57,589 --> 00:16:55,019

Gobi Desert and that was the largest

349

00:17:00,949 --> 00:16:57,599

earthquake in the western hemisphere is

350

00:17:04,879 --> 00:17:00,959

that correct no it was but it was it was

351

00:17:08,360 --> 00:17:04,889

big it was a magnitude 7.8 or 7.9 and

352

00:17:11,329 --> 00:17:08,370

then we been to northern Mongolia just

353

00:17:13,819 --> 00:17:11,339

just south of the Siberian border to

354

00:17:18,549 --> 00:17:13,829

look at a fall called bol na i fall

355

00:17:23,419 --> 00:17:18,559

which in 1905 produced a magnitude

356

00:17:28,100 --> 00:17:23,429

magnitude 8.1 earthquake and so it moves

357

00:17:31,730 --> 00:17:28,110

around 25 feet sideways over a distance

358

00:17:34,610 --> 00:17:31,740

of about 300 miles so that's something

359

00:17:36,440 --> 00:17:34,620

that I I want to touch on to um you know

360

00:17:40,129 --> 00:17:36,450

for four people out there who aren't

361

00:17:42,049 --> 00:17:40,139

familiar with geology when it comes to I

362

00:17:44,419 --> 00:17:42,059

want to talk about some of the myths so

363

00:17:47,119 --> 00:17:44,429

so what exactly when you're building a

364

00:17:49,039 --> 00:17:47,129

trench or when you're digging a trench a

365

00:17:51,649 --> 00:17:49,049

lot of people think that the ground

366

00:17:54,470 --> 00:17:51,659

opens up and that there you know there's

367

00:17:57,769 --> 00:17:54,480

this wide gap and you go down into that

368

00:17:59,930 --> 00:17:57,779

crack and you're able to see what's been

369

00:18:01,970 --> 00:17:59,940

going on and go through time and see all

370

00:18:05,779 --> 00:18:01,980

the different changes but is it more

371

00:18:07,909 --> 00:18:05,789

along the lines of you actually dig the

372

00:18:10,430 --> 00:18:07,919

trench and everybody digs the trench and

373

00:18:12,289 --> 00:18:10,440

and they're able to walk down and see

374

00:18:14,450 --> 00:18:12,299

see what it is it's not that the earth

375

00:18:17,119 --> 00:18:14,460

actually opens up and you go what we

376

00:18:20,450 --> 00:18:17,129

want we ready when we excavate a trench

377

00:18:24,350 --> 00:18:20,460

we generally do it with if we can with a

378

00:18:30,499 --> 00:18:24,360

big back oh that will that will you know

379

00:18:34,009 --> 00:18:30,509

dig and a very straight and straight

380

00:18:35,720 --> 00:18:34,019

sided exposure of the fall for us well

381

00:18:38,570 --> 00:18:35,730

we're in places like Mongolia we don't

382

00:18:42,169 --> 00:18:38,580

have backhoes and so we we do it by hand

383

00:18:45,680 --> 00:18:42,179

but you know that's just an excavation

384

00:18:48,379 --> 00:18:45,690

there is a real myth and I think it's

385

00:18:50,060 --> 00:18:48,389

been generated by Hollywood that when

386

00:18:54,740 --> 00:18:50,070

you have a big earthquake on the fault

387

00:18:58,070 --> 00:18:54,750

somehow the ground just splits apart

388

00:19:00,770 --> 00:18:58,080

buildings topple in dinosaurs jump out

389

00:19:04,820 --> 00:19:00,780

and you know all these crazy things

390

00:19:07,040 --> 00:19:04,830

happen but what people should really

391

00:19:09,050 --> 00:19:07,050

think about or these faults and I'm

392

00:19:12,710 --> 00:19:09,060

talking about and that we worry about

393

00:19:16,490 --> 00:19:12,720

because when a fault moves it releases

394

00:19:18,920 --> 00:19:16,500

stress and that that produces the

395

00:19:21,770 --> 00:19:18,930

earthquake the shaking this false has

396

00:19:25,340 --> 00:19:21,780

simply cracks in the Earth's crust and

397

00:19:29,090 --> 00:19:25,350

they extend from the surface down six or

398

00:19:32,620 --> 00:19:29,100

seven or eight miles and it's because

399

00:19:35,960 --> 00:19:32,630

they're so narrow that we can actually

400

00:19:37,940 --> 00:19:35,970

study them expose them but this idea

401  
00:19:41,900 --> 00:19:37,950  
that you have these great fissures

402  
00:19:43,640 --> 00:19:41,910  
opening up and things falling in that's

403  
00:19:48,350 --> 00:19:43,650  
not the way it works and I happen to

404  
00:19:54,290 --> 00:19:48,360  
catch the ideas new movie come here in

405  
00:19:56,480 --> 00:19:54,300  
May equal san andreas yes and I caught

406  
00:19:59,660 --> 00:19:56,490  
the trailer to that and I was just I was

407  
00:20:03,650 --> 00:19:59,670  
just laughing hysterically because they

408  
00:20:06,860 --> 00:20:03,660  
show this huge Fisher opening up as the

409  
00:20:08,570 --> 00:20:06,870  
phone faltas rupturing and I'm sure

410  
00:20:11,300 --> 00:20:08,580  
they're going to have half of California

411  
00:20:14,810 --> 00:20:11,310  
sliding into the Pacific Ocean and then

412  
00:20:17,690 --> 00:20:14,820  
they has big buildings high-rise steel

413  
00:20:21,830 --> 00:20:17,700

structures just breaking it in half and

414

00:20:25,310 --> 00:20:21,840

falling over you know and that that will

415

00:20:28,400 --> 00:20:25,320

not happen really in a modern city but

416

00:20:30,020 --> 00:20:28,410

more importantly the fault will not you

417

00:20:32,150 --> 00:20:30,030

know do what they show I'm really

418

00:20:34,520 --> 00:20:32,160

looking forward to seeing the movie and

419

00:20:37,040 --> 00:20:34,530

having a good time and I know that most

420

00:20:40,850 --> 00:20:37,050

of what they have in there is is not

421

00:20:43,220 --> 00:20:40,860

true and it's not the way things work so

422

00:20:45,950 --> 00:20:43,230

so in that brings up a good point and

423

00:20:47,510 --> 00:20:45,960

and I can get back to entertainment and

424

00:20:49,310 --> 00:20:47,520

earthquakes and I think we should circle

425

00:20:53,050 --> 00:20:49,320

back to that later because that's always

426

00:20:56,000 --> 00:20:53,060

a fun fun topic but specifically

427

00:20:59,420 --> 00:20:56,010

California falling into the ocean now

428

00:21:01,850 --> 00:20:59,430

I've gone on a lot of different news

429

00:21:03,860 --> 00:21:01,860

news articles and whenever there's a

430

00:21:05,510 --> 00:21:03,870

news article about an earthquake and I

431

00:21:08,509 --> 00:21:05,520

guess I'm sensitive because I live in

432

00:21:09,919 --> 00:21:08,519

California and a lot of people

433

00:21:12,049 --> 00:21:09,929

you know listening the show there's

434

00:21:14,419 --> 00:21:12,059

probably several people that list that

435

00:21:16,909 --> 00:21:14,429

live in California and when we live here

436

00:21:18,649 --> 00:21:16,919

we feel earthquakes you know there are

437

00:21:21,019 --> 00:21:18,659

two point o's therefore point knows

438

00:21:22,969 --> 00:21:21,029

they're sometimes five point OS and

439

00:21:25,039 --> 00:21:22,979

sometimes they give a good jolt but you

440

00:21:26,959 --> 00:21:25,049

learn to live with it and it's just you

441

00:21:29,959 --> 00:21:26,969

know part of the natural surroundings

442

00:21:32,690 --> 00:21:29,969

and we're not too afraid at least the

443

00:21:34,310 --> 00:21:32,700

people aren't afraid who who weren't in

444

00:21:36,019 --> 00:21:34,320

some of the bigger ones like others in

445

00:21:38,930 --> 00:21:36,029

the loma prieta earthquake when i was a

446

00:21:42,680 --> 00:21:38,940

young child a lot of people have stories

447

00:21:45,589 --> 00:21:42,690

about that but this idea that Cal I

448

00:21:47,599 --> 00:21:45,599

always see in these stories they there's

449

00:21:49,810 --> 00:21:47,609

always people writing oh I can't wait

450

00:21:51,589 --> 00:21:49,820

till California falls into the ocean Oh

451  
00:21:54,560 --> 00:21:51,599  
California is going to fall into the

452  
00:21:56,810 --> 00:21:54,570  
ocean Arizona is beachfront property and

453  
00:22:01,009 --> 00:21:56,820  
it's kind of it's kind of a joke but I

454  
00:22:03,529 --> 00:22:01,019  
have the fear that and people actually

455  
00:22:08,529 --> 00:22:03,539  
think that or that that actually might

456  
00:22:11,149 --> 00:22:08,539  
happen so alleviate my fierce well uh

457  
00:22:13,099 --> 00:22:11,159  
tomorrow California is probably just

458  
00:22:16,129 --> 00:22:13,109  
gonna fall into the ocean no in all

459  
00:22:20,199 --> 00:22:16,139  
seriousness I think that comes from the

460  
00:22:23,869 --> 00:22:20,209  
fact that the san andreas fault system

461  
00:22:26,930 --> 00:22:23,879  
extends through all of the state and it

462  
00:22:31,879 --> 00:22:26,940  
goes from the Gulf of California on the

463  
00:22:34,759 --> 00:22:31,889

sound all the way up to near the Oregon

464

00:22:37,489 --> 00:22:34,769

border and there is the main San Andreas

465

00:22:40,069 --> 00:22:37,499

Fault which produced the 1906 happen

466

00:22:43,699 --> 00:22:40,079

Cisco earthquake and a big earthquake in

467

00:22:47,479 --> 00:22:43,709

southern california in 1857 and they're

468

00:22:50,509 --> 00:22:47,489

all of the secondary with subsidiary

469

00:22:53,389 --> 00:22:50,519

faults that are parallel to it so there

470

00:22:56,509 --> 00:22:53,399

is a big fault zone that runs through

471

00:23:00,949 --> 00:22:56,519

the whole central part of California and

472

00:23:04,999 --> 00:23:00,959

the eastern part of the state is moving

473

00:23:07,430 --> 00:23:05,009

to the south and the western part which

474

00:23:09,680 --> 00:23:07,440

is the Pacific plate the eastern parts

475

00:23:13,069 --> 00:23:09,690

of the North American plate the Pacific

476

00:23:15,919 --> 00:23:13,079

plate is moving northward and they're

477

00:23:19,430 --> 00:23:15,929

doing this at about on average two

478

00:23:22,490 --> 00:23:19,440

inches a year you can't really see that

479

00:23:27,530 --> 00:23:22,500

but when there are earthquakes that

480

00:23:30,410 --> 00:23:27,540

the ground shifts and over time one side

481

00:23:34,130 --> 00:23:30,420

it is moving relative to the other so if

482

00:23:37,640 --> 00:23:34,140

we wait around six or seven or eight

483

00:23:40,970 --> 00:23:37,650

million years Los Angeles will be close

484

00:23:42,860 --> 00:23:40,980

to San Francisco but that's really not

485

00:23:45,980 --> 00:23:42,870

what they wouldn't need the bullet train

486

00:23:50,870 --> 00:23:45,990

then that's that they're building you

487

00:23:53,720 --> 00:23:50,880

wouldn't need a bullet train no so so

488

00:23:57,260 --> 00:23:53,730

you know this is really not a concern of

489

00:24:00,500 --> 00:23:57,270

ours in the short term it is a long term

490

00:24:04,400 --> 00:24:00,510

process it's part of what we call plate

491

00:24:07,880 --> 00:24:04,410

tectonics and when we look around planet

492

00:24:09,920 --> 00:24:07,890

there are different plates moving in

493

00:24:12,200 --> 00:24:09,930

different directions at different rates

494

00:24:15,860 --> 00:24:12,210

and the boundaries between these

495

00:24:18,680 --> 00:24:15,870

different plates are big fault zones

496

00:24:21,170 --> 00:24:18,690

that produce earthquakes now what is a

497

00:24:24,350 --> 00:24:21,180

plate like can you explain plate and

498

00:24:26,690 --> 00:24:24,360

what that means well what what is a

499

00:24:29,510 --> 00:24:26,700

plate and how many there might be there

500

00:24:34,250 --> 00:24:29,520

there are seven or eight major plates

501  
00:24:37,430 --> 00:24:34,260  
that sit on on earth the Pacific plate

502  
00:24:40,550 --> 00:24:37,440  
North American plate so if you if you

503  
00:24:42,590 --> 00:24:40,560  
were to take a look at a globe and look

504  
00:24:45,500 --> 00:24:42,600  
at the Pacific Ocean and you look at the

505  
00:24:47,870 --> 00:24:45,510  
boundary between the Pacific Ocean and

506  
00:24:50,810 --> 00:24:47,880  
South America Pacific Ocean in north

507  
00:24:56,540 --> 00:24:50,820  
america pacific ocean and alaska pacific

508  
00:24:59,000 --> 00:24:56,550  
ocean and asia that area within that

509  
00:25:05,390 --> 00:24:59,010  
boundary is the Pacific plate and that's

510  
00:25:07,790 --> 00:25:05,400  
a big piece of crust and what we call

511  
00:25:12,710 --> 00:25:07,800  
lithosphere and these plates are for

512  
00:25:15,170 --> 00:25:12,720  
being driven by what we call convection

513  
00:25:18,650 --> 00:25:15,180

cells this is movement in the deeper

514

00:25:21,950 --> 00:25:18,660

part of the earth where material is

515

00:25:26,090 --> 00:25:21,960

flowing and circulating and the

516

00:25:30,770 --> 00:25:26,100

circulation drives the thinner crust up

517

00:25:35,060 --> 00:25:30,780

on top and over time these plates move

518

00:25:36,530 --> 00:25:35,070

around at one time there was one single

519

00:25:41,480 --> 00:25:36,540

super

520

00:25:44,870 --> 00:25:41,490

and one gone Wonderland and over time it

521

00:25:48,560 --> 00:25:44,880

broke up and these currents was in the

522

00:25:52,730 --> 00:25:48,570

earth just moved the broken parts around

523

00:25:55,550 --> 00:25:52,740

into their present position and in terms

524

00:25:59,450 --> 00:25:55,560

of earthquakes for in the United States

525

00:26:03,410 --> 00:25:59,460

the western part of the continent is the

526  
00:26:05,420 --> 00:26:03,420  
boundary between the Pacific plate and

527  
00:26:08,630 --> 00:26:05,430  
the North American plate and so in

528  
00:26:10,910 --> 00:26:08,640  
California we have the major part of the

529  
00:26:14,030 --> 00:26:10,920  
boundary and the plates moves sideways

530  
00:26:16,610 --> 00:26:14,040  
and we call this strike slip fault so if

531  
00:26:20,000 --> 00:26:16,620  
you move from California and go a little

532  
00:26:23,720 --> 00:26:20,010  
bit to the east in Nevada and Utah and

533  
00:26:25,670 --> 00:26:23,730  
Montana and Wyoming it that's also part

534  
00:26:28,640 --> 00:26:25,680  
of the boundary but there the crust is

535  
00:26:31,280 --> 00:26:28,650  
being pulled apart and the faulting is

536  
00:26:32,570 --> 00:26:31,290  
different so if you love skiing and

537  
00:26:35,420 --> 00:26:32,580  
you'd like to go to the Wasatch

538  
00:26:37,550 --> 00:26:35,430

Mountains that's great the Wasatch

539

00:26:40,240 --> 00:26:37,560

Mountains are there and there are ten

540

00:26:43,130 --> 00:26:40,250

eleven thousand feet high because

541

00:26:45,590 --> 00:26:43,140

they're being pushed up by a different

542

00:26:47,300 --> 00:26:45,600

type of fault and you go further to the

543

00:26:49,910 --> 00:26:47,310

east and you get into the Rocky

544

00:26:52,010 --> 00:26:49,920

Mountains and it gets quieter and then

545

00:26:55,100 --> 00:26:52,020

you get into the central and eastern US

546

00:26:57,230 --> 00:26:55,110

and overall that's a very that's still

547

00:27:01,280 --> 00:26:57,240

part of the North American plate but

548

00:27:03,430 --> 00:27:01,290

it's it's a very quiet part except for

549

00:27:07,220 --> 00:27:03,440

what we call the New Madrid Seismic zone

550

00:27:12,260 --> 00:27:07,230

which runs through Missouri and

551  
00:27:15,200 --> 00:27:12,270  
Tennessee and so what are the one of the

552  
00:27:18,290 --> 00:27:15,210  
quiet States just two or three the top

553  
00:27:21,430 --> 00:27:18,300  
the quietest earthquake states because

554  
00:27:24,740 --> 00:27:21,440  
there's a lot of people that say that um

555  
00:27:27,410 --> 00:27:24,750  
that fracking is going on and that's

556  
00:27:30,410 --> 00:27:27,420  
what causing is what is causing some of

557  
00:27:32,960 --> 00:27:30,420  
the earthquakes in these places that

558  
00:27:35,360 --> 00:27:32,970  
never before have earthquake this is

559  
00:27:39,350 --> 00:27:35,370  
this this is true this is the real issue

560  
00:27:42,200 --> 00:27:39,360  
right now it's both the scientific issue

561  
00:27:47,840 --> 00:27:42,210  
and it's a political issue and it's an

562  
00:27:49,760 --> 00:27:47,850  
economic issue there is heart fracking

563  
00:27:55,490 --> 00:27:49,770

or hydro cracker and

564

00:27:59,420 --> 00:27:55,500

where companies are trying to get

565

00:28:03,170 --> 00:27:59,430

natural gas out of certain rock

566

00:28:05,810 --> 00:28:03,180

formations and they pump in fluids and

567

00:28:09,230 --> 00:28:05,820

they break the rock and they create

568

00:28:12,740 --> 00:28:09,240

fractures to allow oil and gas to flow

569

00:28:17,480 --> 00:28:12,750

and and they capture that and they've

570

00:28:19,550 --> 00:28:17,490

been doing this for a long time there is

571

00:28:22,010 --> 00:28:19,560

wastewater associated with the whole

572

00:28:26,560 --> 00:28:22,020

process and that gets pumped back into

573

00:28:31,490 --> 00:28:26,570

the ground and it's this wastewater that

574

00:28:36,650 --> 00:28:31,500

seems to be affecting the rocks and the

575

00:28:41,170 --> 00:28:36,660

stress and we've known since the 1970s

576

00:28:44,690 --> 00:28:41,180

that if you pump fluids into the ground

577

00:28:47,750 --> 00:28:44,700

they will the result of that will be in

578

00:28:50,150 --> 00:28:47,760

places the production of small

579

00:28:53,120 --> 00:28:50,160

earthquakes you change the local stress

580

00:28:58,220 --> 00:28:53,130

and so these earthquakes in Oklahoma and

581

00:29:01,250 --> 00:28:58,230

Texas and Pennsylvania and other places

582

00:29:04,250 --> 00:29:01,260

were they're doing a lot of fracking for

583

00:29:07,550 --> 00:29:04,260

oil and gas they're also producing these

584

00:29:10,010 --> 00:29:07,560

these moderate earthquakes and so far

585

00:29:11,450 --> 00:29:10,020

most of these earthquakes have been on

586

00:29:15,200 --> 00:29:11,460

the small side they've been in the

587

00:29:18,290 --> 00:29:15,210

magnitude 3 and 4 range it and the

588

00:29:21,610 --> 00:29:18,300

concern is that you're going to change

589

00:29:26,480 --> 00:29:21,620

the local stress enough that somehow

590

00:29:30,770 --> 00:29:26,490

you're going to set off a magnitude 6 or

591

00:29:33,860 --> 00:29:30,780

6 and a half is that possible yes it's

592

00:29:37,250 --> 00:29:33,870

possible we haven't seen an earthquake

593

00:29:39,470 --> 00:29:37,260

of that size generated by the fracking

594

00:29:42,560 --> 00:29:39,480

process but there is concern that this

595

00:29:48,590 --> 00:29:42,570

can happen and if you're in California

596

00:29:50,720 --> 00:29:48,600

building codes have been such that new

597

00:29:53,900 --> 00:29:50,730

buildings you know have really been

598

00:29:56,660 --> 00:29:53,910

constructed with earthquake standards in

599

00:29:59,630 --> 00:29:56,670

mind sure many parts of the country

600

00:30:01,550 --> 00:29:59,640

there are no earthquake standards so in

601  
00:30:03,410 --> 00:30:01,560  
Texas they don't really care about

602  
00:30:05,450 --> 00:30:03,420  
earthquakes in their building codes

603  
00:30:07,910 --> 00:30:05,460  
in Pennsylvania they don't care and

604  
00:30:10,510 --> 00:30:07,920  
Oklahoma you know they don't have it so

605  
00:30:13,340 --> 00:30:10,520  
this places are all very very vulnerable

606  
00:30:17,600 --> 00:30:13,350  
to strong shaking so if you get a six

607  
00:30:20,210 --> 00:30:17,610  
and a half which would do some damage in

608  
00:30:23,300 --> 00:30:20,220  
California but would be more of a big

609  
00:30:26,000 --> 00:30:23,310  
topic of discussion in another part of

610  
00:30:30,230 --> 00:30:26,010  
the country could do a significant

611  
00:30:32,570 --> 00:30:30,240  
damage so it is to you and there's a lot

612  
00:30:36,380 --> 00:30:32,580  
of discussion about that right so you

613  
00:30:39,200 --> 00:30:36,390

had a sort of I'm not necessarily

614

00:30:43,070 --> 00:30:39,210

veering off topic but you had a really

615

00:30:46,060 --> 00:30:43,080

big study that was released and it was

616

00:30:49,850 --> 00:30:46,070

back I think was back in the late 90s

617

00:30:52,120 --> 00:30:49,860

that there was a good chance that the

618

00:30:55,370 --> 00:30:52,130

big one was going to hit San Francisco

619

00:30:56,750 --> 00:30:55,380

within the next like 20 or 25 years it

620

00:30:59,360 --> 00:30:56,760

was like can you can you can be the

621

00:31:01,250 --> 00:30:59,370

actual data for that it was a sixty

622

00:31:07,040 --> 00:31:01,260

percent chance or something around there

623

00:31:08,860 --> 00:31:07,050

yeah we started a study in 1999 and we

624

00:31:14,840 --> 00:31:08,870

had an early version and that we

625

00:31:18,490 --> 00:31:14,850

released a major study in 2003 and we

626  
00:31:21,740 --> 00:31:18,500  
were looking at the probability of

627  
00:31:25,850 --> 00:31:21,750  
future earthquakes on The Fault in the

628  
00:31:28,610 --> 00:31:25,860  
San Francisco Bay Area and we estimated

629  
00:31:33,350 --> 00:31:28,620  
at that time that in the next 30 years

630  
00:31:38,270 --> 00:31:33,360  
there was a sixty-two percent chance of

631  
00:31:42,620 --> 00:31:38,280  
the magnitude 6.7 or larger on one of

632  
00:31:46,160 --> 00:31:42,630  
the primary Bay Area falls and then that

633  
00:31:49,790 --> 00:31:46,170  
work was redone as part of a California

634  
00:31:51,590 --> 00:31:49,800  
wide study in 2008 and they changed the

635  
00:31:54,830 --> 00:31:51,600  
probability of the sixty-three percent

636  
00:31:57,010 --> 00:31:54,840  
and then last year another study came

637  
00:32:00,020 --> 00:31:57,020  
out and the probability went up to

638  
00:32:02,360 --> 00:32:00,030

seventy-two percent so however you look

639

00:32:04,850 --> 00:32:02,370

at it whatever we've done with different

640

00:32:06,560 --> 00:32:04,860

approaches and different methods we've

641

00:32:08,740 --> 00:32:06,570

come up with this kind of two out of

642

00:32:12,880 --> 00:32:08,750

three chance that in the next 30 years

643

00:32:15,680 --> 00:32:12,890

one of the big falls in the bay area

644

00:32:19,009 --> 00:32:15,690

will have a large earthquake and a real

645

00:32:22,490 --> 00:32:19,019

sure is the Hayward Fault right and and

646

00:32:25,310 --> 00:32:22,500

so and that that was a big study right

647

00:32:27,889 --> 00:32:25,320

when that was released because it

648

00:32:32,509 --> 00:32:27,899

affected or could have affected the

649

00:32:37,549 --> 00:32:32,519

value of houses in the Bay Area well go

650

00:32:42,249 --> 00:32:37,559

ahead I think that um it didn't really

651  
00:32:44,869 --> 00:32:42,259  
have an impact on the housing market and

652  
00:32:46,700 --> 00:32:44,879  
very little seems to actually have an

653  
00:32:50,419 --> 00:32:46,710  
impact on the housing market if the way

654  
00:32:52,460 --> 00:32:50,429  
price is continuing to go up but you

655  
00:32:55,430 --> 00:32:52,470  
know what we were trying to do was to

656  
00:32:58,190 --> 00:32:55,440  
just make people aware of what the

657  
00:33:02,029 --> 00:32:58,200  
hazard was so that they could prepare

658  
00:33:04,580 --> 00:33:02,039  
and that's the that's the real that's a

659  
00:33:07,490 --> 00:33:04,590  
major motivation for a lot of what we do

660  
00:33:10,460 --> 00:33:07,500  
because we can't predict earthquakes you

661  
00:33:16,580 --> 00:33:10,470  
know it'd be nice to say okay more you

662  
00:33:19,330 --> 00:33:16,590  
know at sunday afternoon at 253 and 25

663  
00:33:21,919 --> 00:33:19,340

seconds there's going to be a magnitude

664

00:33:25,399 --> 00:33:21,929

7.1 earthquake on the San Andreas Fault

665

00:33:27,470 --> 00:33:25,409

we can't do that right what we can do

666

00:33:30,830 --> 00:33:27,480

and everything we've learned in the last

667

00:33:33,830 --> 00:33:30,840

40 years is to be able to come up with

668

00:33:37,460 --> 00:33:33,840

information on how we think false work

669

00:33:40,970 --> 00:33:37,470

on average from this geological work

670

00:33:43,940 --> 00:33:40,980

we've done and we use those averages to

671

00:33:47,539 --> 00:33:43,950

try and say something about average

672

00:33:50,480 --> 00:33:47,549

behavior in the future and some

673

00:33:53,210 --> 00:33:50,490

earthquake probabilities or have become

674

00:33:56,600 --> 00:33:53,220

very important and they're now used by

675

00:33:59,629 --> 00:33:56,610

the insurance company is in California

676

00:34:03,049 --> 00:33:59,639

to help set insurance rates and they

677

00:34:06,409 --> 00:34:03,059

give people an idea just how potentially

678

00:34:10,099 --> 00:34:06,419

dangerous you know a region is so I I

679

00:34:11,629 --> 00:34:10,109

have to ask then just for for this

680

00:34:14,780 --> 00:34:11,639

particular audience because I know that

681

00:34:16,909 --> 00:34:14,790

they they care about this when you're

682

00:34:18,970 --> 00:34:16,919

doing a study like that and you're going

683

00:34:22,220 --> 00:34:18,980

to release it and it's going to

684

00:34:24,710 --> 00:34:22,230

potentially affect things it could

685

00:34:28,680 --> 00:34:24,720

potentially affect house values and in

686

00:34:34,440 --> 00:34:28,690

this case it didn't necessarily but

687

00:34:35,879 --> 00:34:34,450

you do you come out with that do you do

688

00:34:38,280 --> 00:34:35,889

you come out with that study right away

689

00:34:41,430 --> 00:34:38,290

and let everybody know instantly or is

690

00:34:44,579 --> 00:34:41,440

that something that you guys do you do

691

00:34:47,099 --> 00:34:44,589

you hold it in and wait till it's the

692

00:34:49,559 --> 00:34:47,109

right time to to release it or wait

693

00:34:52,309 --> 00:34:49,569

until all the science is perfectly sound

694

00:34:54,389 --> 00:34:52,319

and then release it what's the sort of

695

00:34:56,280 --> 00:34:54,399

okay we need to let the public know

696

00:34:58,470 --> 00:34:56,290

about this oh yeah can they view it

697

00:35:01,170 --> 00:34:58,480

that's a really that's a good question

698

00:35:04,380 --> 00:35:01,180

well the first thing is to really try

699

00:35:06,960 --> 00:35:04,390

and get the science as sound as we can

700

00:35:10,109 --> 00:35:06,970

make it and one of the things we've

701  
00:35:12,720 --> 00:35:10,119  
tried to do is to incorporate as much

702  
00:35:15,150 --> 00:35:12,730  
uncertainty this is a huge amount of

703  
00:35:19,589 --> 00:35:15,160  
uncertainty and how the earthworks and

704  
00:35:24,180 --> 00:35:19,599  
when that science is ready we put it

705  
00:35:27,990 --> 00:35:24,190  
together and we'll have you know a

706  
00:35:31,040 --> 00:35:28,000  
general release we generally don't let

707  
00:35:34,980 --> 00:35:31,050  
little bits and pieces at ahead of time

708  
00:35:38,370 --> 00:35:34,990  
but we'll have a we'll have a press

709  
00:35:41,970 --> 00:35:38,380  
conference will have the scientific

710  
00:35:44,970 --> 00:35:41,980  
report that comes out we'll have popular

711  
00:35:46,859 --> 00:35:44,980  
versions of that so that the general

712  
00:35:51,089 --> 00:35:46,869  
public can understand what we've done

713  
00:35:53,910 --> 00:35:51,099

and we try and disseminate the

714

00:35:56,400 --> 00:35:53,920

information you know at different levels

715

00:36:00,300 --> 00:35:56,410

to different groups but it's generally

716

00:36:03,420 --> 00:36:00,310

done at one time once we think the

717

00:36:08,490 --> 00:36:03,430

science is as Sam as we can make it at

718

00:36:10,260 --> 00:36:08,500

the moment that's great thank you and so

719

00:36:11,880 --> 00:36:10,270

and I want to get back gosh there's so

720

00:36:13,050 --> 00:36:11,890

many questions i'm just trying to jump

721

00:36:15,059 --> 00:36:13,060

around because there's so much

722

00:36:19,140 --> 00:36:15,069

information and we have such a short

723

00:36:22,290 --> 00:36:19,150

amount of time regarding the the big

724

00:36:24,960 --> 00:36:22,300

quake so there's the sixty-two percent

725

00:36:27,660 --> 00:36:24,970

chance or the 63 or potentially the

726  
00:36:29,849 --> 00:36:27,670  
seventy percent chance that the big one

727  
00:36:33,270 --> 00:36:29,859  
will hit within the next 30 years is

728  
00:36:35,190 --> 00:36:33,280  
there anything wrong and a big one a big

729  
00:36:37,980 --> 00:36:35,200  
one that's that's what thank you for

730  
00:36:41,940 --> 00:36:37,990  
correcting me is there anything that we

731  
00:36:42,570 --> 00:36:41,950  
could do to offset that like to release

732  
00:36:45,330 --> 00:36:42,580  
the press

733  
00:36:46,950 --> 00:36:45,340  
I know a lot of people talk about if you

734  
00:36:49,830 --> 00:36:46,960  
can release the pressure in a certain

735  
00:36:53,100 --> 00:36:49,840  
way then there will be less earthquakes

736  
00:36:57,330 --> 00:36:53,110  
is that true or is there some way to do

737  
00:36:59,100 --> 00:36:57,340  
that that's a great urban myth um you

738  
00:37:01,530 --> 00:36:59,110

know people will say oh there have been

739

00:37:03,540 --> 00:37:01,540

a bunch of small earthquakes oh that's

740

00:37:06,420 --> 00:37:03,550

really good because it's released the

741

00:37:08,310 --> 00:37:06,430

release the stress for the big one but

742

00:37:10,350 --> 00:37:08,320

that's not the case when we have a lot

743

00:37:15,600 --> 00:37:10,360

of these smaller earthquakes in general

744

00:37:20,490 --> 00:37:15,610

like since last Sunday close to where I

745

00:37:23,880 --> 00:37:20,500

live in the east bay the concord fault

746

00:37:27,000 --> 00:37:23,890

has produced 17 or 18 small earthquakes

747

00:37:30,810 --> 00:37:27,010

and so people raise that issue does this

748

00:37:33,030 --> 00:37:30,820

mean that the big one has on the concord

749

00:37:34,890 --> 00:37:33,040

fault has a small chance of occurring

750

00:37:37,230 --> 00:37:34,900

and the answer is no it's the small

751  
00:37:39,030 --> 00:37:37,240  
earthquakes of just an indication that

752  
00:37:42,330 --> 00:37:39,040  
the level of stress in the Earth's crust

753  
00:37:46,110 --> 00:37:42,340  
is high and small little falls little

754  
00:37:49,140 --> 00:37:46,120  
patches weak patches sitting at 56 miles

755  
00:37:51,150 --> 00:37:49,150  
below the surface just decide to they've

756  
00:37:54,090 --> 00:37:51,160  
been tweaked and they and and they move

757  
00:38:00,630 --> 00:37:54,100  
a little bit in terms of doing anything

758  
00:38:04,080 --> 00:38:00,640  
technically to somehow release stress in

759  
00:38:09,990 --> 00:38:04,090  
a broad area so that a big earthquake

760  
00:38:12,780 --> 00:38:10,000  
like 1906 or the 1868 Hayward earthquake

761  
00:38:16,200 --> 00:38:12,790  
you know doesn't happen there's nothing

762  
00:38:19,500 --> 00:38:16,210  
there's nothing technical at all we can

763  
00:38:21,510 --> 00:38:19,510

do to try and release the stress so no

764

00:38:24,410 --> 00:38:21,520

fracking in certain areas that won't

765

00:38:27,540 --> 00:38:24,420

make a difference no then again the

766

00:38:31,050 --> 00:38:27,550

hydrocracking because they pump water

767

00:38:33,360 --> 00:38:31,060

back into the ground it changes the

768

00:38:37,050 --> 00:38:33,370

stress and it produces you know the

769

00:38:39,030 --> 00:38:37,060

small earthquakes but that doesn't that

770

00:38:43,440 --> 00:38:39,040

doesn't release stress for us for

771

00:38:46,920 --> 00:38:43,450

something larger so the whole idea of

772

00:38:50,250 --> 00:38:46,930

releasing stress somehow to put off the

773

00:38:52,800 --> 00:38:50,260

big one you know it's a great question

774

00:38:56,339 --> 00:38:52,810

and you know maybe that's a great movie

775

00:38:58,799 --> 00:38:56,349

that somebody wants to star in but

776

00:39:02,430 --> 00:38:58,809

right now scientifically is something

777

00:39:05,219 --> 00:39:02,440

that that we can't do so I'm talking

778

00:39:09,599 --> 00:39:05,229

about movies Dante's Peak what was your

779

00:39:14,099 --> 00:39:09,609

thought about Dante's Peak well you know

780

00:39:17,160 --> 00:39:14,109

that was really about volcanoes and a

781

00:39:19,979 --> 00:39:17,170

friend of mine at the USGS was the

782

00:39:22,049 --> 00:39:19,989

consultant on that and I think they

783

00:39:23,960 --> 00:39:22,059

actually did they did a pretty good job

784

00:39:28,380 --> 00:39:23,970

they made a geologist a hero

785

00:39:31,109 --> 00:39:28,390

good-looking guy and you know so you

786

00:39:33,089 --> 00:39:31,119

can't really you can't really complain I

787

00:39:35,910 --> 00:39:33,099

think the only problem was he had some

788

00:39:39,630 --> 00:39:35,920

sort of the vehicle that simply was able

789

00:39:41,910 --> 00:39:39,640

to ride on on everything and I wouldn't

790

00:39:45,180 --> 00:39:41,920

mind having that vehicle myself for

791

00:39:47,729 --> 00:39:45,190

field work I would take a DeLorean from

792

00:39:51,960 --> 00:39:47,739

Back to the Future any day myself that's

793

00:39:54,960 --> 00:39:51,970

my that's my dream car right there so

794

00:39:57,660 --> 00:39:54,970

okay well well this is all fantastic now

795

00:40:01,769 --> 00:39:57,670

there's a couple of other questions that

796

00:40:04,680 --> 00:40:01,779

I have regarding new systems that the

797

00:40:07,829 --> 00:40:04,690

USGS is putting into place so I've heard

798

00:40:10,140 --> 00:40:07,839

to that there's a new warning system

799

00:40:13,229 --> 00:40:10,150

that's happening and you said that you

800

00:40:14,999 --> 00:40:13,239

can't predict earthquakes now I know

801

00:40:16,859 --> 00:40:15,009

that there's people out there who say

802

00:40:20,130 --> 00:40:16,869

that they've predicted earthquakes or

803

00:40:22,680 --> 00:40:20,140

that you know they they've done mass

804

00:40:24,509 --> 00:40:22,690

predictions over it and I can't think of

805

00:40:26,729 --> 00:40:24,519

any names right now so if anybody in the

806

00:40:30,089 --> 00:40:26,739

chat room those are many names feel free

807

00:40:32,400 --> 00:40:30,099

to write them and also we will be taking

808

00:40:34,529 --> 00:40:32,410

calls today with David is that alright

809

00:40:37,109 --> 00:40:34,539

with you David if we take calls a little

810

00:40:39,329 --> 00:40:37,119

later in the in the show do a little bit

811

00:40:41,849 --> 00:40:39,339

group great so we will be doing that

812

00:40:43,739 --> 00:40:41,859

after the next break so get ready i'll

813

00:40:45,420 --> 00:40:43,749

give you the phone number or you can ask

814

00:40:47,459 --> 00:40:45,430

them in the chat room but we would love

815

00:40:50,849 --> 00:40:47,469

to hear your voice so go ahead and call

816

00:40:53,219 --> 00:40:50,859

in then but there is a new warning

817

00:40:55,319 --> 00:40:53,229

system that's that's taking place and

818

00:40:57,239 --> 00:40:55,329

you said earlier that people can't

819

00:40:58,920 --> 00:40:57,249

predict earthquakes you can't call me up

820

00:41:01,109 --> 00:40:58,930

and say hey Mark there's going to be an

821

00:41:03,989 --> 00:41:01,119

earthquake in about three hours so

822

00:41:05,849 --> 00:41:03,999

prepare yourself so what is this new

823

00:41:07,890 --> 00:41:05,859

warning system and move and how does

824

00:41:08,339 --> 00:41:07,900

that exactly work okay it's called the

825

00:41:11,700 --> 00:41:08,349

earth

826

00:41:14,039 --> 00:41:11,710

early warning and it's actually a system

827

00:41:16,319 --> 00:41:14,049

or this is a variation of system that's

828

00:41:20,940 --> 00:41:16,329

being used in other parts of the world

829

00:41:25,680 --> 00:41:20,950

in in actually in japan in mexico city

830

00:41:28,279 --> 00:41:25,690

in some locations in europe and when an

831

00:41:32,130 --> 00:41:28,289

earthquake when an earthquake happens

832

00:41:34,849 --> 00:41:32,140

the the earth's crust moves it snaps if

833

00:41:37,710 --> 00:41:34,859

you just push your fingers together

834

00:41:40,440 --> 00:41:37,720

you'll feel there's friction there and

835

00:41:44,609 --> 00:41:40,450

you keep pushing and you snap and hear

836

00:41:47,700 --> 00:41:44,619

the snap and your fingers have slid well

837

00:41:51,210 --> 00:41:47,710

the earth does the same thing and one

838

00:41:54,390 --> 00:41:51,220

part slides past the other it snaps it

839

00:41:57,509 --> 00:41:54,400

releases stress and that vibrates out

840

00:42:00,359 --> 00:41:57,519

and that causes the earth move and there

841

00:42:03,180 --> 00:42:00,369

are different kinds of waves and the

842

00:42:06,269 --> 00:42:03,190

first wave is called the P wave and it

843

00:42:09,329 --> 00:42:06,279

moves the earth back and forth and it

844

00:42:12,269 --> 00:42:09,339

moves very fast and it's followed by a

845

00:42:16,829 --> 00:42:12,279

slower way of calling S wave that moves

846

00:42:18,479 --> 00:42:16,839

the crust up and down and you know

847

00:42:20,910 --> 00:42:18,489

sometimes people who have felt

848

00:42:23,160 --> 00:42:20,920

earthquakes will say oh I felt things

849

00:42:25,319 --> 00:42:23,170

kind of move sideways and then I felt a

850

00:42:27,509 --> 00:42:25,329

pop underneath those are the two

851

00:42:31,799 --> 00:42:27,519

different kinds of earthquake waves

852

00:42:34,499 --> 00:42:31,809

coming in and so they've developed a way

853

00:42:37,579 --> 00:42:34,509

of analyzing this where all of the

854

00:42:41,459 --> 00:42:37,589

seismographs that are sit around

855

00:42:45,660 --> 00:42:41,469

particularly in California detect the P

856

00:42:50,519 --> 00:42:45,670

wave as it starts from the fault when

857

00:42:52,769 --> 00:42:50,529

the earthquake occurs and based on where

858

00:42:56,880 --> 00:42:52,779

it's detected and how quickly it's

859

00:43:00,749 --> 00:42:56,890

detected it can estimate how large the

860

00:43:03,120 --> 00:43:00,759

earthquake is going to be and how long

861

00:43:06,059 --> 00:43:03,130

it will take the S wave which does most

862

00:43:09,479 --> 00:43:06,069

of the damage to arrive at different

863

00:43:14,029 --> 00:43:09,489

places so for instance if you live in

864

00:43:18,779 --> 00:43:14,039

San Francisco and an earthquake starts

865

00:43:21,120 --> 00:43:18,789

on the San Andreas Fault at a place

866

00:43:21,890 --> 00:43:21,130

called point raised which is maybe a

867

00:43:25,150 --> 00:43:21,900

hundred

868

00:43:27,680 --> 00:43:25,160

miles to the north and and the and the

869

00:43:30,740 --> 00:43:27,690

earthquake sort of moves toward San

870

00:43:36,290 --> 00:43:30,750

Francisco with this system you might

871

00:43:41,240 --> 00:43:36,300

have 20 25 30 seconds of warning that

872

00:43:45,410 --> 00:43:41,250

strong shaking is coming and that'll

873

00:43:48,890 --> 00:43:45,420

give it's already being used by the bay

874

00:43:53,270 --> 00:43:48,900

area rapid transit system the bark shark

875

00:43:54,860 --> 00:43:53,280

now it automatically shuts down it when

876

00:43:58,700 --> 00:43:54,870

it's in school you're going to have this

877

00:44:00,620 --> 00:43:58,710

on your on your smartphone and what

878

00:44:03,590 --> 00:44:00,630

you're going to hear I mean I've seen

879

00:44:05,270 --> 00:44:03,600

the beta versions on computers suddenly

880

00:44:11,630 --> 00:44:05,280

you'll hear out of nowhere it'll say

881

00:44:14,600 --> 00:44:11,640

earthquake 17 16 15 14 earthquake 12 11

882

00:44:19,340 --> 00:44:14,610

10 it'll actually count down the sec

883

00:44:22,640 --> 00:44:19,350

yeah oh you feel that that strong really

884

00:44:25,640 --> 00:44:22,650

strong shaking coming in it'll be in

885

00:44:28,010 --> 00:44:25,650

school so kids out that'll get it under

886

00:44:30,920 --> 00:44:28,020

learjet just enough time to get under

887

00:44:32,390 --> 00:44:30,930

their desk to run outside or do what

888

00:44:35,900 --> 00:44:32,400

they need to do wow that's pretty that's

889

00:44:38,420 --> 00:44:35,910

been credible I think of it in hospitals

890

00:44:41,150 --> 00:44:38,430

just before the surgeon is going to put

891

00:44:44,030 --> 00:44:41,160

a scalpel into you he hears this and he

892

00:44:47,560 --> 00:44:44,040

stops I mean there are so many practical

893

00:44:50,420 --> 00:44:47,570

uses um it's not going to help everybody

894

00:44:53,690 --> 00:44:50,430

everywhere if the earthquake is right

895

00:44:56,840 --> 00:44:53,700

below you it's not going to give you any

896

00:44:59,180 --> 00:44:56,850

warning time but it really will have I

897

00:45:01,310 --> 00:44:59,190

think a positive effect not only in

898

00:45:04,010 --> 00:45:01,320

California but throughout throughout the

899

00:45:05,870 --> 00:45:04,020

u.s. so how far away would you would you

900

00:45:07,640 --> 00:45:05,880

have to be you said if it's right

901  
00:45:10,370 --> 00:45:07,650  
underneath you you don't have a shot

902  
00:45:13,010 --> 00:45:10,380  
it's just going to go that route if

903  
00:45:16,160 --> 00:45:13,020  
you're 20 miles three miles 40 miles

904  
00:45:20,320 --> 00:45:16,170  
from the epicenter of the earthquake you

905  
00:45:23,060 --> 00:45:20,330  
get you get time San Francisco was about

906  
00:45:28,460 --> 00:45:23,070  
30 miles from Napa when they had an

907  
00:45:31,610 --> 00:45:28,470  
earthquake last September and the system

908  
00:45:35,240 --> 00:45:31,620  
would have given people 10 12 seconds of

909  
00:45:39,110 --> 00:45:35,250  
warning in San Francisco but again

910  
00:45:41,960 --> 00:45:39,120  
when you if you start to train to

911  
00:45:44,090 --> 00:45:41,970  
respond to these warnings then you know

912  
00:45:45,830 --> 00:45:44,100  
what to do and I think down the road

913  
00:45:49,430 --> 00:45:45,840

it's just going to be a marvelous

914

00:45:51,260 --> 00:45:49,440

improvement um and so another warning

915

00:45:54,230 --> 00:45:51,270

sign that a lot of people say that

916

00:45:58,730 --> 00:45:54,240

they've they've experienced in the past

917

00:46:00,590 --> 00:45:58,740

is that their animals tell them when an

918

00:46:03,200 --> 00:46:00,600

earthquake is coming or their animals

919

00:46:05,840 --> 00:46:03,210

start to act funny when there's an

920

00:46:07,580 --> 00:46:05,850

earthquake is there any correlation or

921

00:46:10,850 --> 00:46:07,590

have there been studies done with that

922

00:46:12,830 --> 00:46:10,860

idea it's a myth for a reason right so

923

00:46:16,340 --> 00:46:12,840

so maybe things have happened in the

924

00:46:19,250 --> 00:46:16,350

past what do you know about that type of

925

00:46:24,380 --> 00:46:19,260

activity well in general I mean I think

926

00:46:28,760 --> 00:46:24,390

that yes sort of relying on on animal

927

00:46:31,760 --> 00:46:28,770

behavior you'll really be fooled yeah my

928

00:46:33,620 --> 00:46:31,770

dog he acts crazy all the time so I

929

00:46:36,110 --> 00:46:33,630

don't I don't think he could be like

930

00:46:37,850 --> 00:46:36,120

Lassie and tell me you know that someone

931

00:46:42,010 --> 00:46:37,860

stuck in a well or that an earthquake is

932

00:46:44,300 --> 00:46:42,020

coming he just parked for food yeah

933

00:46:46,310 --> 00:46:44,310

there are a lot of there are a lot of

934

00:46:47,660 --> 00:46:46,320

cases though where you just have to say

935

00:46:49,430 --> 00:46:47,670

well you know maybe there could be

936

00:46:53,300 --> 00:46:49,440

something there and I can remember after

937

00:46:54,910 --> 00:46:53,310

the loma prieta earthquake in 1989 i was

938

00:46:58,490 --> 00:46:54,920

working up in the Santa Cruz Mountains

939

00:47:01,580 --> 00:46:58,500

and I was talking to this rancher who

940

00:47:04,940 --> 00:47:01,590

had horses and she said that about a

941

00:47:07,450 --> 00:47:04,950

half an hour before the earthquake one

942

00:47:10,640 --> 00:47:07,460

particular mayor who was always

943

00:47:14,990 --> 00:47:10,650

completely Kong just got incredibly

944

00:47:17,720 --> 00:47:15,000

excited and they couldn't exam and then

945

00:47:21,800 --> 00:47:17,730

you know 25 minutes later the earthquake

946

00:47:28,070 --> 00:47:21,810

occurred now she thinks the mayor said

947

00:47:32,480 --> 00:47:28,080

something and and and maybe maybe she

948

00:47:35,210 --> 00:47:32,490

did when when rocks start to break when

949

00:47:38,390 --> 00:47:35,220

the fall starts to move minerals and

950

00:47:41,330 --> 00:47:38,400

rocks break and roughs have minerals

951  
00:47:42,890 --> 00:47:41,340  
like warts have electrical properties so

952  
00:47:46,190 --> 00:47:42,900  
maybe they give off some sort of

953  
00:47:49,140 --> 00:47:46,200  
electrical current there may be sound

954  
00:47:52,079 --> 00:47:49,150  
because there is sound associated

955  
00:47:56,849 --> 00:47:52,089  
some earthquakes and it may occur you

956  
00:48:01,500 --> 00:47:56,859  
know at a level that we can't hear the

957  
00:48:04,549 --> 00:48:01,510  
cert animals can hear it so I wouldn't

958  
00:48:08,910 --> 00:48:04,559  
say a hundred percent that there's

959  
00:48:13,049 --> 00:48:08,920  
nothing to you know animals some animals

960  
00:48:17,190 --> 00:48:13,059  
sometimes sensing some sort of changes

961  
00:48:21,120 --> 00:48:17,200  
but overall animal behavior is no guide

962  
00:48:23,579 --> 00:48:21,130  
to when an earthquake is going to occur

963  
00:48:26,370 --> 00:48:23,589

there was a there was a geologist in the

964

00:48:30,510 --> 00:48:26,380

Bay Area who used to predict earthquakes

965

00:48:33,329 --> 00:48:30,520

based on reports in the newspaper of

966

00:48:35,609 --> 00:48:33,339

people's pets disappearing you know well

967

00:48:38,370 --> 00:48:35,619

my cat ran off means we're going to have

968

00:48:43,109 --> 00:48:38,380

a big earthquake it doesn't it doesn't

969

00:48:45,359 --> 00:48:43,119

work that way so and and is there it's

970

00:48:49,650 --> 00:48:45,369

really nice to hear you you talk about

971

00:48:52,289 --> 00:48:49,660

this because you know I think I feel

972

00:48:54,680 --> 00:48:52,299

especially this this community the

973

00:48:57,990 --> 00:48:54,690

paranormal community feels that

974

00:49:00,000 --> 00:48:58,000

scientists need to be open and listen to

975

00:49:03,059 --> 00:49:00,010

all that's around them because you never

976

00:49:05,460 --> 00:49:03,069

know what is it is affecting what and by

977

00:49:08,700 --> 00:49:05,470

the things that you are talking about

978

00:49:12,299 --> 00:49:08,710

now I mean it's not like it's a yes or

979

00:49:15,210 --> 00:49:12,309

no answer it's because you know we don't

980

00:49:19,260 --> 00:49:15,220

know and so it's really nice to hear

981

00:49:22,890 --> 00:49:19,270

that coming from you is there you know

982

00:49:25,500 --> 00:49:22,900

it is there a reason that the USGS would

983

00:49:28,260 --> 00:49:25,510

not study that type of animal behavior

984

00:49:30,630 --> 00:49:28,270

or is it just purely because it really

985

00:49:32,789 --> 00:49:30,640

does not have an effect or or have they

986

00:49:35,029 --> 00:49:32,799

have they studied it they did I mean

987

00:49:39,569 --> 00:49:35,039

they did at one time there early studies

988

00:49:42,359 --> 00:49:39,579

on animal behavior and you know variety

989

00:49:46,190 --> 00:49:42,369

of statistical analyses and you know it

990

00:49:48,630 --> 00:49:46,200

just didn't go anywhere so sure

991

00:49:52,490 --> 00:49:48,640

particularly in the early days of the

992

00:49:56,370 --> 00:49:52,500

earthquake hazards program in the in the

993

00:49:59,309 --> 00:49:56,380

nineteen early 1970s I mean a lot of

994

00:50:01,850 --> 00:49:59,319

these things were we looked at but but

995

00:50:04,310 --> 00:50:01,860

they didn't lead to anything

996

00:50:06,830 --> 00:50:04,320

really positive and more important

997

00:50:08,720 --> 00:50:06,840

things were put on the table and there's

998

00:50:12,290 --> 00:50:08,730

only a certain amount of money and

999

00:50:14,600 --> 00:50:12,300

resources and and people to you know to

1000

00:50:18,470 --> 00:50:14,610

do this kind of work and I think that's

1001  
00:50:20,900 --> 00:50:18,480  
a really big thing to mention now

1002  
00:50:22,460 --> 00:50:20,910  
we're about to go on a break and in one

1003  
00:50:24,740 --> 00:50:22,470  
minute and when we come back to the

1004  
00:50:26,870 --> 00:50:24,750  
break we're going to start taking

1005  
00:50:29,420 --> 00:50:26,880  
questions from the audience so please

1006  
00:50:31,220 --> 00:50:29,430  
people feel free to call in I will give

1007  
00:50:34,700 --> 00:50:31,230  
that number out after the break I also

1008  
00:50:37,160 --> 00:50:34,710  
have a question for you from someone

1009  
00:50:39,380 --> 00:50:37,170  
that that I would love your answer to

1010  
00:50:42,110 --> 00:50:39,390  
and it's sort of it's about I'm solar

1011  
00:50:45,290 --> 00:50:42,120  
flares magnetic storms and space weather

1012  
00:50:47,180 --> 00:50:45,300  
and that sort of what impact is that F

1013  
00:50:50,180 --> 00:50:47,190

on earthquakes so we'll talk about that

1014

00:50:52,520 --> 00:50:50,190

after the break but one thing that I

1015

00:50:55,820 --> 00:50:52,530

want to hit on is is just what you said

1016

00:50:57,830 --> 00:50:55,830

you know I think that the the world

1017

00:51:00,710 --> 00:50:57,840

thinks that there's a whole lot of money

1018

00:51:02,390 --> 00:51:00,720

and you know we should know everything

1019

00:51:04,760 --> 00:51:02,400

and we should be able to test everything

1020

00:51:08,900 --> 00:51:04,770

and have the answers everywhere but the

1021

00:51:12,190 --> 00:51:08,910

USGS it's one of the places that it has

1022

00:51:15,890 --> 00:51:12,200

I guess less money than other government

1023

00:51:17,990 --> 00:51:15,900

operations is that true so it makes it

1024

00:51:19,700 --> 00:51:18,000

harder and you have to delegate what it

1025

00:51:22,970 --> 00:51:19,710

is you're actually going to study they

1026  
00:51:25,070 --> 00:51:22,980  
don't just give you tons of money to do

1027  
00:51:27,590 --> 00:51:25,080  
these type of real i do these type of

1028  
00:51:30,740 --> 00:51:27,600  
test I wish they did give us tons of

1029  
00:51:34,520 --> 00:51:30,750  
money no budgets budgets have become

1030  
00:51:37,850 --> 00:51:34,530  
very tight and you know very restricted

1031  
00:51:40,760 --> 00:51:37,860  
and there are a lot of things we could

1032  
00:51:44,390 --> 00:51:40,770  
do a lot of additional work if we if we

1033  
00:51:45,440 --> 00:51:44,400  
had the funds but and I'm sorry but

1034  
00:51:46,970 --> 00:51:45,450  
David we're going to have to go ahead

1035  
00:51:48,680 --> 00:51:46,980  
and cut to break right now so we can

1036  
00:51:51,620 --> 00:51:48,690  
pick that up as soon as we get back

1037  
00:51:53,180 --> 00:51:51,630  
you're listening to inception radio and

1038  
00:51:55,970 --> 00:51:53,190

truth funders on the inception radio

1039

00:51:58,910 --> 00:51:55,980

network you can download their podcast

1040

00:52:01,730 --> 00:51:58,920

you can download their you can listen to

1041

00:52:03,860 --> 00:52:01,740

inception radio on roku on your computer

1042

00:52:07,100 --> 00:52:03,870

you can download the app it's an awesome

1043

00:52:08,720 --> 00:52:07,110

app I listen to it all the time so we're

1044

00:52:11,210 --> 00:52:08,730

going to go ahead and cut to break and

1045

00:52:14,120 --> 00:52:11,220

we'll see you on the other side

1046

00:52:17,390 --> 00:52:14,130

funders radio on the inception radio

1047

00:52:19,370 --> 00:52:17,400

network are you a fan of inception radio

1048

00:52:21,140 --> 00:52:19,380

network do you reckon it's the best

1049

00:52:23,420 --> 00:52:21,150

alternative talk radio station on the

1050

00:52:26,089 --> 00:52:23,430

planet well if you do head to

1051  
00:52:28,970 --> 00:52:26,099  
facebook.com forward slash inception

1052  
00:52:30,800 --> 00:52:28,980  
radio network like the page tell your

1053  
00:52:36,830 --> 00:52:30,810  
friends spread the word and keep

1054  
00:52:39,410 --> 00:52:36,840  
listening to the best hello everyone

1055  
00:52:42,290 --> 00:52:39,420  
Lori and Fenton here hosted the

1056  
00:52:44,810 --> 00:52:42,300  
California MUFON radio show asking if

1057  
00:52:48,920 --> 00:52:44,820  
you'd like special access to exclusive

1058  
00:52:52,609 --> 00:52:48,930  
and amazing information about UFOs the

1059  
00:52:55,250 --> 00:52:52,619  
paranormal and all things unexplained if

1060  
00:52:58,580 --> 00:52:55,260  
you're nodding yes then join our ends

1061  
00:53:01,040 --> 00:52:58,590  
insider club as an insider club member

1062  
00:53:03,920 --> 00:53:01,050  
you'll get an all-access pass to premier

1063  
00:53:06,080 --> 00:53:03,930

inception radio network content for only

1064

00:53:09,349 --> 00:53:06,090

four dollars and ninety-nine cents a

1065

00:53:11,870 --> 00:53:09,359

month this includes live UFO and

1066

00:53:15,500 --> 00:53:11,880

paranormal conferences live streaming

1067

00:53:18,650 --> 00:53:15,510

UFO sky watches exclusive I are in radio

1068

00:53:21,680 --> 00:53:18,660

and TV productions and of course pay

1069

00:53:24,110 --> 00:53:21,690

Radio with MJ and Ken Storch so don't

1070

00:53:27,920 --> 00:53:24,120

wait any longer visit inception radio

1071

00:53:30,860 --> 00:53:27,930

network com and click on member login to

1072

00:53:35,400 --> 00:53:30,870

join our ends insider club and get your

1073

00:53:39,450 --> 00:53:37,440

don't have a computer is your internet

1074

00:53:41,279 --> 00:53:39,460

connection down don't worry use your

1075

00:53:44,880 --> 00:53:41,289

trusty cellphone or landline and call in

1076  
00:53:46,500 --> 00:53:44,890  
to our listen line at 40 128 367 00 to

1077  
00:53:50,430 --> 00:53:46,510  
listen to the inception radio network

1078  
00:53:53,730 --> 00:53:50,440  
24-7 again that Colin number is 401 to a

1079  
00:53:58,420 --> 00:53:53,740  
360 700 for the inception radio network

1080  
00:54:04,010 --> 00:54:01,220  
hello inception radio network listeners

1081  
00:54:05,840 --> 00:54:04,020  
this is Amanda remember you can take

1082  
00:54:08,000 --> 00:54:05,850  
your inception radio shows on the go

1083  
00:54:10,820 --> 00:54:08,010  
just download the inception radio

1084  
00:54:13,430 --> 00:54:10,830  
network app for your iPhone iPad or

1085  
00:54:15,920 --> 00:54:13,440  
Android smartphones and access live

1086  
00:54:18,440 --> 00:54:15,930  
shows past shows guest lineups and much

1087  
00:54:20,210 --> 00:54:18,450  
more just visit the itunes store or the

1088  
00:54:25,760 --> 00:54:20,220

google play marketplace and download it

1089

00:54:27,860 --> 00:54:25,770

today for free you didn't forget what's

1090

00:54:29,570 --> 00:54:27,870

coming up tonight did you hi inception

1091

00:54:31,400 --> 00:54:29,580

radio network listeners this is Amanda

1092

00:54:32,930 --> 00:54:31,410

never miss that interview you were

1093

00:54:35,750 --> 00:54:32,940

looking forward to or the show on your

1094

00:54:38,840 --> 00:54:35,760

favorite topic follow irn on twitter i

1095

00:54:40,610 --> 00:54:38,850

underscore our underscore n and get

1096

00:54:42,350 --> 00:54:40,620

reminders about the evenings live shows

1097

00:54:44,810 --> 00:54:42,360

as well as fun and important updates

1098

00:54:47,420 --> 00:54:44,820

throughout the week that's i underscore

1099

00:54:58,380 --> 00:54:47,430

our underscore n and never miss a great

1100

00:55:03,940 --> 00:55:01,870

hello Irene listeners this is MJ saying

1101  
00:55:06,780 --> 00:55:03,950  
hello and sharing an awesome secret I

1102  
00:55:09,610 --> 00:55:06,790  
discovered it's called dream lodge calm

1103  
00:55:12,010 --> 00:55:09,620  
fresh raw organic ingredients are used

1104  
00:55:14,200 --> 00:55:12,020  
to create all their products they are

1105  
00:55:16,930 --> 00:55:14,210  
made in very small batches to ensure

1106  
00:55:19,960 --> 00:55:16,940  
quality and freshness and made in the

1107  
00:55:21,600 --> 00:55:19,970  
USA each product is created with care

1108  
00:55:24,130 --> 00:55:21,610  
and with the finest organic ingredients

1109  
00:55:26,950 --> 00:55:24,140  
there are no preservatives dyes or

1110  
00:55:31,990 --> 00:55:26,960  
chemicals in any product stop by dream

1111  
00:55:40,680 --> 00:55:32,000  
lodge and relax that's dream and you a

1112  
00:55:47,380 --> 00:55:43,690  
you're locked into inception radio

1113  
00:55:55,090 --> 00:55:47,390

network superior Wisconsin truth funders

1114

00:55:57,490 --> 00:55:55,100

radio on the inception radio network hi

1115

00:55:59,710 --> 00:55:57,500

we're back you're listening to choose

1116

00:56:03,670 --> 00:55:59,720

funders radio this is mark schwartz CEO

1117

00:56:06,220 --> 00:56:03,680

true funders and on the phone today we

1118

00:56:08,380 --> 00:56:06,230

have dr. david schwartz from the United

1119

00:56:11,470 --> 00:56:08,390

States Geological Survey he's been

1120

00:56:15,640 --> 00:56:11,480

talking about earthquakes earthquake

1121

00:56:17,440 --> 00:56:15,650

myths earthquake legends and the big

1122

00:56:19,360 --> 00:56:17,450

ones that are happening so now is the

1123

00:56:22,840 --> 00:56:19,370

part of the show where we are going to

1124

00:56:24,850 --> 00:56:22,850

take calls from the public so if you get

1125

00:56:28,900 --> 00:56:24,860

this if you're listening live feel free

1126

00:56:35,320 --> 00:56:28,910

to call in or telephone number is 8 8 8

1127

00:56:38,260 --> 00:56:35,330

9 192 355 and it is Wednesday May 6 2015

1128

00:56:44,770 --> 00:56:38,270

and you can go ahead and call in at 8 8

1129

00:56:46,540 --> 00:56:44,780

8 9 192 355 so now there's a couple of

1130

00:56:49,780 --> 00:56:46,550

questions that are coming in some of

1131

00:56:51,400 --> 00:56:49,790

them you might think are silly or some

1132

00:56:53,050 --> 00:56:51,410

of them you might not want to answer or

1133

00:56:54,820 --> 00:56:53,060

you don't know the answer to but I'm

1134

00:56:57,310 --> 00:56:54,830

just going to go ahead and and lead them

1135

00:57:00,940 --> 00:56:57,320

out so feel free to answer them as best

1136

00:57:03,370 --> 00:57:00,950

as you can so this one I think you might

1137

00:57:06,490 --> 00:57:03,380

find it a little bit interesting David

1138

00:57:12,510 --> 00:57:06,500

I'm just scrolling down the chat room

1139

00:57:15,970 --> 00:57:12,520

right here but it is dumb dumb to dumb

1140

00:57:18,010 --> 00:57:15,980

question from Sky 33 does the guests

1141

00:57:22,930 --> 00:57:18,020

feel that there is any correlation in

1142

00:57:25,390 --> 00:57:22,940

sightings of ufos and earthquakes i can

1143

00:57:31,120 --> 00:57:25,400

be very very brief with that and the

1144

00:57:36,940 --> 00:57:31,130

answers did the answer is nope all right

1145

00:57:41,290 --> 00:57:36,950

all right good answer ok and then let's

1146

00:57:47,170 --> 00:57:41,300

see what else here we have scrolling

1147

00:57:49,990 --> 00:57:47,180

down the platform here so do solar

1148

00:57:53,160 --> 00:57:50,000

flares magnetic storms and space weather

1149

00:57:54,620 --> 00:57:53,170

have an impact on earthquakes you know

1150

00:57:59,730 --> 00:57:54,630

that's a that's an interesting question

1151  
00:58:03,470 --> 00:57:59,740  
and it has been discussed and debated I

1152  
00:58:06,990 --> 00:58:03,480  
think that the prevailing idea is that

1153  
00:58:09,690 --> 00:58:07,000  
there really is no impact on earthquakes

1154  
00:58:12,960 --> 00:58:09,700  
earthquakes occur all the times there is

1155  
00:58:16,980 --> 00:58:12,970  
a lot of variability and we in in the

1156  
00:58:19,260 --> 00:58:16,990  
occurrence of solar flares and magnetic

1157  
00:58:22,140 --> 00:58:19,270  
storms and again there's been some

1158  
00:58:26,819 --> 00:58:22,150  
statistical work done on the timing of

1159  
00:58:31,440 --> 00:58:26,829  
these relative to the occurrence of you

1160  
00:58:36,079 --> 00:58:31,450  
know large earthquakes and people can't

1161  
00:58:38,579 --> 00:58:36,089  
really find a very strong correlation

1162  
00:58:40,829 --> 00:58:38,589  
it's the same thing with with earth

1163  
00:58:42,870 --> 00:58:40,839

tides people have looked at the

1164

00:58:46,440 --> 00:58:42,880

relationship of tides to earthquakes

1165

00:58:50,220 --> 00:58:46,450

quick hide who who has done some of

1166

00:58:54,170 --> 00:58:50,230

these studies IRL I can't these are

1167

00:58:57,900 --> 00:58:54,180

mostly University University scientists

1168

00:59:02,640 --> 00:58:57,910

and you can go online and I think you

1169

00:59:04,500 --> 00:59:02,650

can probably the listeners can google

1170

00:59:08,069 --> 00:59:04,510

you know solar flares and earthquakes

1171

00:59:10,349 --> 00:59:08,079

and really be brought to the list of

1172

00:59:16,049 --> 00:59:10,359

references that you know have some of

1173

00:59:20,039 --> 00:59:16,059

this technical information in them all

1174

00:59:23,190 --> 00:59:20,049

right great um and let's see some other

1175

00:59:24,839 --> 00:59:23,200

some other myths that we have some

1176

00:59:26,640 --> 00:59:24,849

people think that the earth is hollow

1177

00:59:28,289 --> 00:59:26,650

there are people out there and you know

1178

00:59:29,880 --> 00:59:28,299

Columbus once thought that the earth was

1179

00:59:32,099 --> 00:59:29,890

or people thought that the earth was

1180

00:59:35,130 --> 00:59:32,109

flat and Columbus went to go sail out

1181

00:59:38,579 --> 00:59:35,140

and and prove that that was wrong there

1182

00:59:41,010 --> 00:59:38,589

are people as silly as it sounds to to

1183

00:59:45,930 --> 00:59:41,020

mainstream science that think that the

1184

00:59:48,150 --> 00:59:45,940

earth is hollow so well as a geologist

1185

00:59:51,030 --> 00:59:48,160

you know and you could studying this

1186

00:59:53,549 --> 00:59:51,040

stuff for 40 years do you know what the

1187

00:59:56,400 --> 00:59:53,559

the core of the earth is made of or what

1188

00:59:58,470 --> 00:59:56,410

is the core of what generates the core

1189

01:00:03,089 --> 00:59:58,480

of the earth what's the dollar the you

1190

01:00:05,799 --> 01:00:03,099

know the different layers within the

1191

01:00:11,309 --> 01:00:05,809

earth the the crust Samantha

1192

01:00:17,039 --> 01:00:11,319

or all developed as as the earth

1193

01:00:21,729 --> 01:00:17,049

initially harmed and it's a core of

1194

01:00:26,199 --> 01:00:21,739

basically iron nickel and we know it's

1195

01:00:32,069 --> 01:00:26,209

it's not Hollow because simply by the

1196

01:00:35,019 --> 01:00:32,079

way we can record and see seismic waves

1197

01:00:40,390 --> 01:00:35,029

from earthquakes earthquakes are just a

1198

01:00:43,089 --> 01:00:40,400

natural you know source of looking at at

1199

01:00:46,059 --> 01:00:43,099

what seismic waves do and some travel

1200

01:00:48,609 --> 01:00:46,069

around the earth on the surface and

1201  
01:00:51,069 --> 01:00:48,619  
other ways travel through the earth and

1202  
01:00:54,880 --> 01:00:51,079  
they travel at different speeds and

1203  
01:00:57,459 --> 01:00:54,890  
different material and because of this

1204  
01:01:03,959 --> 01:00:57,469  
we know that you know the earth is

1205  
01:01:06,759 --> 01:01:03,969  
layered and fundamentally you know lalo

1206  
01:01:11,589 --> 01:01:06,769  
you know all the way all the way through

1207  
01:01:14,169 --> 01:01:11,599  
so I think it's an interesting idea if

1208  
01:01:15,459 --> 01:01:14,179  
you only have the surface to look at you

1209  
01:01:17,859 --> 01:01:15,469  
know maybe you can find a little

1210  
01:01:21,219 --> 01:01:17,869  
trapdoor somewhere and drop through to

1211  
01:01:23,529 --> 01:01:21,229  
the other side but we simply know like

1212  
01:01:27,579 --> 01:01:23,539  
Felix the cat's magical bag of tricks

1213  
01:01:30,429 --> 01:01:27,589

you can jump bandhan so here's it here's

1214

01:01:33,939 --> 01:01:30,439

another question this is from Michael he

1215

01:01:35,859 --> 01:01:33,949

asks how much do land tied as opposed to

1216

01:01:40,989 --> 01:01:35,869

ocean tides effects stresses in the

1217

01:01:45,849 --> 01:01:40,999

plates I'm not quite sure what he means

1218

01:01:49,269 --> 01:01:45,859

by bile and tides um or how about just

1219

01:01:53,939 --> 01:01:49,279

ocean tides well people have really

1220

01:01:58,929 --> 01:01:53,949

looked at the relationship of tides of

1221

01:02:08,109 --> 01:01:58,939

the moon lunar effects on earthquakes

1222

01:02:11,289 --> 01:02:08,119

because tides do result in in stress

1223

01:02:14,489 --> 01:02:11,299

changes and again I couldn't say that

1224

01:02:18,960 --> 01:02:14,499

there is no relationship and sometimes a

1225

01:02:21,210 --> 01:02:18,970

certain time you know winds up

1226

01:02:25,830 --> 01:02:21,220

just increasing stress on a Fault in

1227

01:02:29,520 --> 01:02:25,840

such a way that it pops off but there is

1228

01:02:35,520 --> 01:02:29,530

no major statistical relationship

1229

01:02:37,740 --> 01:02:35,530

between high tides low tides and with

1230

01:02:40,410 --> 01:02:37,750

earthquake activity and the earthquake

1231

01:02:43,010 --> 01:02:40,420

act me remember earthquakes most of the

1232

01:02:47,640 --> 01:02:43,020

earthquakes that we're concerned about

1233

01:02:49,770 --> 01:02:47,650

start at six seven eight miles below the

1234

01:02:53,790 --> 01:02:49,780

surface and those are for earthquakes

1235

01:02:57,180 --> 01:02:53,800

that occur on false like the San Andreas

1236

01:03:01,890 --> 01:02:57,190

Fault if you look around the Pacific in

1237

01:03:05,370 --> 01:03:01,900

what we call subduction zones around the

1238

01:03:06,990 --> 01:03:05,380

ring of fire oh and what is the rain of

1239

01:03:09,930 --> 01:03:07,000

fire for those people who don't know

1240

01:03:13,080 --> 01:03:09,940

it's the it's the area around the

1241

01:03:16,860 --> 01:03:13,090

outside of the Pacific Ocean where the

1242

01:03:21,500 --> 01:03:16,870

material in the ocean the oceanic plate

1243

01:03:25,290 --> 01:03:21,510

is diving beneath the continents and the

1244

01:03:28,560 --> 01:03:25,300

sliding of the oceanic plate against the

1245

01:03:30,630 --> 01:03:28,570

continental plate produces large

1246

01:03:33,270 --> 01:03:30,640

earthquakes and features called

1247

01:03:36,270 --> 01:03:33,280

subduction zones and when the crust gets

1248

01:03:39,630 --> 01:03:36,280

down to a certain a certain depth the

1249

01:03:41,760 --> 01:03:39,640

the temperature is high enough the

1250

01:03:44,790 --> 01:03:41,770

pressure is great enough that it melts

1251

01:03:47,910 --> 01:03:44,800

and that melt works its way up to the

1252

01:03:50,400 --> 01:03:47,920

surface to become the line of volcanoes

1253

01:03:52,860 --> 01:03:50,410

so you look along again the Pacific

1254

01:03:58,140 --> 01:03:52,870

coast of South America up through

1255

01:04:00,030 --> 01:03:58,150

Central America North America Alaska you

1256

01:04:03,330 --> 01:04:00,040

have all of these volcanoes and that's

1257

01:04:05,700 --> 01:04:03,340

where the ocean is colliding with the

1258

01:04:07,860 --> 01:04:05,710

continent and is diving down and those

1259

01:04:10,020 --> 01:04:07,870

are the places are on the planet that

1260

01:04:13,740 --> 01:04:10,030

produced the largest earthquake so

1261

01:04:18,840 --> 01:04:13,750

chilly in 1960 there was a magnitude 9.5

1262

01:04:22,680 --> 01:04:18,850

the alaska earthquake in nineteen

1263

01:04:26,280 --> 01:04:22,690

nineteen sixty four uh you know was like

1264

01:04:30,720 --> 01:04:26,290

a 9.3 we just had that earthquake in

1265

01:04:33,050 --> 01:04:30,730

japan was a magnitude nine sumatra

1266

01:04:38,220 --> 01:04:33,060

earthquake in

1267

01:04:41,880 --> 01:04:38,230

a few years ago was was you know a 9.1

1268

01:04:44,070 --> 01:04:41,890

so these these subduction zones are

1269

01:04:46,440 --> 01:04:44,080

places where we're really large

1270

01:04:49,850 --> 01:04:46,450

earthquakes occur and and what I wanted

1271

01:04:55,820 --> 01:04:49,860

to point out there we were talking about

1272

01:05:00,390 --> 01:04:55,830

Thai changes those start at maybe 30 or

1273

01:05:04,520 --> 01:05:00,400

40 or 50 miles below the citizens and so

1274

01:05:07,680 --> 01:05:04,530

the the Thai changes are much more

1275

01:05:10,410 --> 01:05:07,690

sufficient and just don't seem to

1276

01:05:13,200 --> 01:05:10,420

influence the places where these large

1277

01:05:17,160 --> 01:05:13,210

earthquakes actually start is there a

1278

01:05:19,290 --> 01:05:17,170

particular area that that all the

1279

01:05:24,360 --> 01:05:19,300

earthquakes happen more so than another

1280

01:05:28,170 --> 01:05:24,370

area well we I think I mentioned during

1281

01:05:32,420 --> 01:05:28,180

the course of the discussion that you

1282

01:05:34,950 --> 01:05:32,430

know there are parts of the earth where

1283

01:05:39,600 --> 01:05:34,960

plate movement is faster than other

1284

01:05:42,620 --> 01:05:39,610

parts and activity occurs at a higher

1285

01:05:46,650 --> 01:05:42,630

rate so again around the circum sick

1286

01:05:51,780 --> 01:05:46,660

that's probably the most dangerous

1287

01:05:54,360 --> 01:05:51,790

earthquake area in the world in terms of

1288

01:05:56,550 --> 01:05:54,370

frequency but we can look look around

1289

01:06:01,950 --> 01:05:56,560

and what just happened last week in

1290

01:06:04,470 --> 01:06:01,960

Nepal so that's an area where India the

1291

01:06:08,940 --> 01:06:04,480

continent of India is colliding with

1292

01:06:13,260 --> 01:06:08,950

Asia and it's pushing down below Asia

1293

01:06:17,670 --> 01:06:13,270

and as a result that that movement is

1294

01:06:18,990 --> 01:06:17,680

occurring on a whole series of false and

1295

01:06:20,730 --> 01:06:19,000

and they're different they're a

1296

01:06:23,310 --> 01:06:20,740

different kind of politic all thrust

1297

01:06:25,800 --> 01:06:23,320

faults and the Himalayas are going up

1298

01:06:29,340 --> 01:06:25,810

that's why now Everest is there and

1299

01:06:33,450 --> 01:06:29,350

that's an area where magnitude 7.8

1300

01:06:37,260 --> 01:06:33,460

magnitude 8.3 earthquakes occur and they

1301  
01:06:41,750 --> 01:06:37,270  
occur with you with great frequency and

1302  
01:06:48,049 --> 01:06:44,150  
but I have to say in turn

1303  
01:06:52,309 --> 01:06:48,059  
so urbanized areas California probably

1304  
01:06:55,910 --> 01:06:52,319  
is the most active urbanized region you

1305  
01:06:57,829 --> 01:06:55,920  
know in the world you have other places

1306  
01:06:59,960 --> 01:06:57,839  
like the North Anatolian fault and

1307  
01:07:02,809 --> 01:06:59,970  
Turkey which is similar to the San

1308  
01:07:08,529 --> 01:07:02,819  
Andreas Fault yeah so there there are

1309  
01:07:11,839 --> 01:07:08,539  
there are you know very active areas but

1310  
01:07:15,289 --> 01:07:11,849  
California we can claim we can claim to

1311  
01:07:19,010 --> 01:07:15,299  
be number one all right I will take that

1312  
01:07:20,599 --> 01:07:19,020  
title one last question will actually we

1313  
01:07:24,230 --> 01:07:20,609

have two last questions one that popped

1314

01:07:26,569 --> 01:07:24,240

up here is every attempt to show that

1315

01:07:29,960 --> 01:07:26,579

solar activity triggers earthquakes has

1316

01:07:36,049 --> 01:07:29,970

focused on solar flares sunspots or

1317

01:07:41,089 --> 01:07:36,059

geomagnetic activity ah let's see and

1318

01:07:46,630 --> 01:07:41,099

current observations are there so you

1319

01:07:54,559 --> 01:07:50,329

will bring this up later on or i will

1320

01:07:56,870 --> 01:07:54,569

send it to you and and you can answer it

1321

01:07:59,289 --> 01:07:56,880

off air and all i can let let people

1322

01:08:03,289 --> 01:07:59,299

know but who you would you be willing to

1323

01:08:05,390 --> 01:08:03,299

discuss mecnun um yeah I guess we

1324

01:08:07,609 --> 01:08:05,400

touched on space weather a little bit so

1325

01:08:10,089 --> 01:08:07,619

I'm not sure I understand this question

1326

01:08:13,160 --> 01:08:10,099

and I'd have to to get it back to you so

1327

01:08:14,870 --> 01:08:13,170

so okay and now we're getting to the end

1328

01:08:16,849 --> 01:08:14,880

of the show I want to thank everybody so

1329

01:08:18,890 --> 01:08:16,859

much we're really sorry I see in the

1330

01:08:20,630 --> 01:08:18,900

chat room you guys were really in the

1331

01:08:22,430 --> 01:08:20,640

middle of the show and it was super

1332

01:08:25,729 --> 01:08:22,440

exciting and you were into it and

1333

01:08:27,890 --> 01:08:25,739

suddenly it cut out once again you know

1334

01:08:29,539 --> 01:08:27,900

we apologize for that we'll look into it

1335

01:08:32,780 --> 01:08:29,549

and see what happens it's probably skype

1336

01:08:35,479 --> 01:08:32,790

or you know the crazy skype spies

1337

01:08:38,630 --> 01:08:35,489

listening to us somewhere not wanting us

1338

01:08:43,039 --> 01:08:38,640

to spread the truth about geology to the

1339

01:08:46,459 --> 01:08:43,049

world but David what is your before we

1340

01:08:49,459 --> 01:08:46,469

leave here today what is your favorite G

1341

01:08:50,959 --> 01:08:49,469

geological movie of all times hands down

1342

01:08:53,300 --> 01:08:50,969

what would you recommend everybody

1343

01:08:56,510 --> 01:08:53,310

listening to go see that does a good job

1344

01:08:57,979 --> 01:08:56,520

of explaining earthquakes or at least is

1345

01:09:00,169 --> 01:08:57,989

a fun kick in the pain

1346

01:09:03,529 --> 01:09:00,179

it's about earthquakes I think my

1347

01:09:06,649 --> 01:09:03,539

favorite so the geology movie and

1348

01:09:12,640 --> 01:09:06,659

earthquake movie is earthquake which was

1349

01:09:15,859 --> 01:09:12,650

made in 1974 at the time it was released

1350

01:09:17,660 --> 01:09:15,869

they had a process called surround sound

1351

01:09:20,660 --> 01:09:17,670

so when you were in a movie theater they

1352

01:09:23,569 --> 01:09:20,670

had his huge bass speakers and when they

1353

01:09:26,089 --> 01:09:23,579

had the earthquake the speakers would

1354

01:09:27,979 --> 01:09:26,099

would Rumble and you'd feel the theater

1355

01:09:30,529 --> 01:09:27,989

kind of shake so they try to make you

1356

01:09:34,009 --> 01:09:30,539

feel like you were part of the movie and

1357

01:09:36,890 --> 01:09:34,019

in some ways it's one of the best bad

1358

01:09:38,779 --> 01:09:36,900

movies ever made but I think they did a

1359

01:09:41,809 --> 01:09:38,789

great job and this was nineteen

1360

01:09:44,029 --> 01:09:41,819

seventy-four special effects of showing

1361

01:09:49,939 --> 01:09:44,039

what an earthquake was like an urban

1362

01:09:52,099 --> 01:09:49,949

area and it it's really good so I I

1363

01:09:54,649 --> 01:09:52,109

think if people want to have a fun time

1364

01:09:58,700 --> 01:09:54,659

the science is not there that it's all

1365

01:10:02,479 --> 01:09:58,710

real really good geological consultants

1366

01:10:06,140 --> 01:10:02,489

at the time hope with them it's got an

1367

01:10:11,390 --> 01:10:06,150

amazing cast of people who most of whom

1368

01:10:17,000 --> 01:10:11,400

have passed on but it's a great movie

1369

01:10:19,489 --> 01:10:17,010

earthquake 1974 find it somewhere scream

1370

01:10:22,489 --> 01:10:19,499

it rented whatever it's worth it's worth

1371

01:10:25,189 --> 01:10:22,499

a lot excellent well hey thank you so

1372

01:10:26,540 --> 01:10:25,199

much I want to thank you dr. David

1373

01:10:28,549 --> 01:10:26,550

Schwartz from the United States

1374

01:10:30,379 --> 01:10:28,559

Geological Survey thank you for coming

1375

01:10:32,239 --> 01:10:30,389

on the show I know it's a little bit of

1376

01:10:34,700 --> 01:10:32,249

a different show rather it's not it's

1377

01:10:37,879 --> 01:10:34,710

not 60 minutes it's true miners radio

1378

01:10:40,879 --> 01:10:37,889

but we really appreciate it I think it's

1379

01:10:44,180 --> 01:10:40,889

just important to to let people know the

1380

01:10:46,279 --> 01:10:44,190

the myths like what is what is real and

1381

01:10:48,649 --> 01:10:46,289

what is not and what is real science and

1382

01:10:50,810 --> 01:10:48,659

what is not that it's just important for

1383

01:10:53,419 --> 01:10:50,820

for everyone in the listening public to

1384

01:10:55,220 --> 01:10:53,429

know so I really once again want to

1385

01:10:56,779 --> 01:10:55,230

thank you so much and we will talk to

1386

01:10:59,569 --> 01:10:56,789

you soon don't be a stranger to the show

1387

01:11:05,290 --> 01:10:59,579

that sounds great i'll listen to the

1388

01:11:08,330 --> 01:11:05,300

next one all right take care so goodbye

1389

01:11:10,279 --> 01:11:08,340

all right everybody well that's it for

1390

01:11:11,840 --> 01:11:10,289

today thank you so much for joining us

1391

01:11:13,340 --> 01:11:11,850

who really appreciate it

1392

01:11:16,420 --> 01:11:13,350

you know one thing that I didn't get a

1393

01:11:18,890 --> 01:11:16,430

chance to ask David was a question from

1394

01:11:20,840 --> 01:11:18,900

some of you might know him as a

1395

01:11:22,670 --> 01:11:20,850

suspicious observer and he sent me a

1396

01:11:25,400 --> 01:11:22,680

really great question but we kind of

1397

01:11:28,220 --> 01:11:25,410

touched a little bit about it talking

1398

01:11:32,150 --> 01:11:28,230

about space weather and he's he's

1399

01:11:33,980 --> 01:11:32,160

fantastic too his name is if you haven't

1400

01:11:37,160 --> 01:11:33,990

been to his website you could go to

1401  
01:11:39,290 --> 01:11:37,170  
youtube and you could go to suspicious

1402  
01:11:41,480 --> 01:11:39,300  
of the server and his name is Ben

1403  
01:11:42,920 --> 01:11:41,490  
fantastic guy he we're going to get him

1404  
01:11:44,870 --> 01:11:42,930  
on the show for next week and he's going

1405  
01:11:47,060 --> 01:11:44,880  
to talk a little bit about the other

1406  
01:11:48,860 --> 01:11:47,070  
side of the coin so we talked to David

1407  
01:11:50,630 --> 01:11:48,870  
Schwartz day and we talked about myths

1408  
01:11:53,690 --> 01:11:50,640  
and we talked about real science and

1409  
01:11:55,690 --> 01:11:53,700  
earthquakes and and and how it works and

1410  
01:12:02,270 --> 01:11:55,700  
now we're going to go to another

1411  
01:12:06,230 --> 01:12:02,280  
division which is you know space do

1412  
01:12:09,050 --> 01:12:06,240  
solar flares affect earth and and

1413  
01:12:10,610 --> 01:12:09,060

geology and you know there I didn't want

1414

01:12:13,160 --> 01:12:10,620

to have them both on the same show

1415

01:12:15,050 --> 01:12:13,170

because i think that there's different

1416

01:12:17,840 --> 01:12:15,060

science or different things going on

1417

01:12:19,490 --> 01:12:17,850

here and I want to hear both sides and

1418

01:12:22,400 --> 01:12:19,500

both opinions and give them both their

1419

01:12:25,610 --> 01:12:22,410

own amount of time to talk about all the

1420

01:12:27,980 --> 01:12:25,620

stuff and you know let you as an

1421

01:12:30,080 --> 01:12:27,990

informed listener make a decision so

1422

01:12:32,540 --> 01:12:30,090

we'll be doing that next time so until

1423

01:12:35,750 --> 01:12:32,550

next time you can download the inception

1424

01:12:38,180 --> 01:12:35,760

radio app it's fantastic go ahead and go

1425

01:12:40,940 --> 01:12:38,190

to the iTunes Store and download it you

1426

01:12:42,530 --> 01:12:40,950

can also go to Roku and listen to the

1427

01:12:45,020 --> 01:12:42,540

roku channel download the inception

1428

01:12:48,050 --> 01:12:45,030

radio network roku channel you can

1429

01:12:51,110 --> 01:12:48,060

stream online go ahead you know what do

1430

01:12:53,180 --> 01:12:51,120

us a favor login become one of the

1431

01:12:55,100 --> 01:12:53,190

members it's totally free you can log

1432

01:12:58,250 --> 01:12:55,110

into inception radio you could download

1433

01:13:00,650 --> 01:12:58,260

all of our old or stream all of truth

1434

01:13:02,600 --> 01:13:00,660

funders old radio shows when arts here

1435

01:13:04,670 --> 01:13:02,610

we have a total ball we're kick in the

1436

01:13:07,040 --> 01:13:04,680

pants we talk about stuff from Mad

1437

01:13:12,560 --> 01:13:07,050

Magazine and Star Wars and 80s movies

1438

01:13:15,050 --> 01:13:12,570

too deep stuff you know like paranormal

1439

01:13:17,000 --> 01:13:15,060

things to real science I mean we're all

1440

01:13:18,980 --> 01:13:17,010

over the board it's a really fun show so

1441

01:13:20,930 --> 01:13:18,990

we love for you guys to join us we'd

1442

01:13:24,110 --> 01:13:20,940

love for you to call into don't be a

1443

01:13:25,730 --> 01:13:24,120

stranger so go ahead call in next time

1444

01:13:28,130 --> 01:13:25,740

and tune in next time

1445

01:13:30,980 --> 01:13:28,140

to truth funders radio it is every

1446

01:13:33,920 --> 01:13:30,990

wednesday at seven o'clock six o'clock

1447

01:13:36,140 --> 01:13:33,930

p.m. pacific standard time and nine

1448

01:13:37,730 --> 01:13:36,150

o'clock p.m. eastern standard time so

1449

01:13:40,610 --> 01:13:37,740

thanks so much and we will talk to you