

Carbondale, IL



1
00:00:08,770 --> 00:00:05,860
through the eyes of NASA today we start

2
00:00:11,530 --> 00:00:08,780
with a view of the coast of Oregon from

3
00:00:14,620 --> 00:00:11,540
Gulfstream three aircraft out of NASA's

4
00:00:16,749 --> 00:00:14,630
Armstrong Flight Research Center this

5
00:00:20,050 --> 00:00:16,759
coastline is where the Eclipse will soon

6
00:00:22,300 --> 00:00:20,060
begin starting on the west coast then

7
00:00:24,489 --> 00:00:22,310
tracking the Eclipse as it moves to the

8
00:00:28,059 --> 00:00:24,499
east coast we will bring you the

9
00:00:33,220 --> 00:00:28,069
experience of 2017 eclipse across

10
00:00:36,130 --> 00:00:33,230
America we invite you to join us for

11
00:00:43,060 --> 00:00:36,140
exclusive Eclipse programming from coast

12
00:00:45,369 --> 00:00:43,070
to coast across the country welcome to

13
00:00:47,410 --> 00:00:45,379

NASA's pre-show coverage of total solar

14

00:00:49,869 --> 00:00:47,420

eclipse of 2017

15

00:00:52,090 --> 00:00:49,879

we're coming to you live from NASA

16

00:00:56,139 --> 00:00:52,100

Eclipse central at the College of

17

00:00:58,509 --> 00:00:56,149

Charleston in South Carolina over the

18

00:01:01,630 --> 00:00:58,519

next four hours be prepared for an

19

00:01:06,010 --> 00:01:01,640

amazing journey through the eyes of NASA

20

00:01:08,410 --> 00:01:06,020

now onto our pre-show host Karen Fox and

21

00:01:12,800 --> 00:01:08,420

saw Anne Potter guys take it away

22

00:01:19,050 --> 00:01:14,540

[Applause]

23

00:01:21,510 --> 00:01:19,060

thank swing Thank You Dwayne we have a

24

00:01:23,790 --> 00:01:21,520

great show for you today I can't wait no

25

00:01:24,980 --> 00:01:23,800

me either right yeah you're those bells

26

00:01:27,980 --> 00:01:24,990

that means it's Eclipse time right

27

00:01:31,650 --> 00:01:27,990

welcome to NASA TVs broadcast at the

28

00:01:33,840 --> 00:01:31,660

2017 solar eclipse I am Karen Fox NASA's

29

00:01:36,480 --> 00:01:33,850

communications lead for what we call

30

00:01:39,090 --> 00:01:36,490

Helio physics that's the study of the

31

00:01:40,800 --> 00:01:39,100

Sun and how it affects space and I'm

32

00:01:42,540 --> 00:01:40,810

Sean Potter from NASA's Office of

33

00:01:44,670 --> 00:01:42,550

Communications I'm also a certified

34

00:01:46,590 --> 00:01:44,680

broadcast meteorologist so today I'll

35

00:01:49,140 --> 00:01:46,600

also be tracking our eclipse weather for

36

00:01:51,180 --> 00:01:49,150

you and as you can see we are at the

37

00:01:54,120 --> 00:01:51,190

College of Charleston in South Carolina

38

00:01:56,100 --> 00:01:54,130

at NASA Eclipse Central from right here

39

00:01:57,660 --> 00:01:56,110
starting at 1:00 p.m. we will be

40

00:02:02,580 --> 00:01:57,670
tracking and covering today's big event

41

00:02:04,800 --> 00:02:02,590
Eclipse 2017 today millions of people

42

00:02:07,590 --> 00:02:04,810
across the United States will witness a

43

00:02:10,320 --> 00:02:07,600
spectacular event a total solar eclipse

44

00:02:12,530 --> 00:02:10,330
as the moon crosses the face of our Sun

45

00:02:15,270 --> 00:02:12,540
we're going to be bringing you real-time

46

00:02:17,370 --> 00:02:15,280
breathtaking images in locations across

47

00:02:20,070 --> 00:02:17,380
the country NASA TV has cameras

48

00:02:22,199 --> 00:02:20,080
telescopes balloons aircraft and even

49

00:02:24,690 --> 00:02:22,209
spacecraft standing by to bring you

50

00:02:26,750 --> 00:02:24,700
views of this natural phenomenon so get

51
00:02:29,610 --> 00:02:26,760
ready to look through the eyes of NASA

52
00:02:32,250 --> 00:02:29,620
Plus coming up at our 1 p.m. broadcast

53
00:02:34,290 --> 00:02:32,260
we have NASA experts standing by at

54
00:02:35,580 --> 00:02:34,300
locations across the country they're

55
00:02:37,650 --> 00:02:35,590
going to be highlighting views of the

56
00:02:40,199 --> 00:02:37,660
Eclipse and also pointing out how NASA

57
00:02:42,540 --> 00:02:40,209
is using the Eclipse to study not only

58
00:02:43,080 --> 00:02:42,550
the Sun but also our earth and its

59
00:02:45,930 --> 00:02:43,090
atmosphere

60
00:02:47,790 --> 00:02:45,940
now all of North America will experience

61
00:02:50,430 --> 00:02:47,800
a partial eclipse that's where the moon

62
00:02:52,500 --> 00:02:50,440
blocks only part of the Sun a total

63
00:02:54,720 --> 00:02:52,510

solar eclipse is going to sweep across

64

00:02:56,760 --> 00:02:54,730

the nation along a 70 mile wide path

65

00:02:59,460 --> 00:02:56,770

arching from Oregon to South Carolina

66

00:03:01,530 --> 00:02:59,470

this is called the path of totality and

67

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

people along that path are going to

68

00:03:06,570 --> 00:03:03,550

experience the glorious sight of a fully

69

00:03:08,310 --> 00:03:06,580

eclipsed Sun but first I want to take

70

00:03:10,470 --> 00:03:08,320

just a moment to remind you of some very

71

00:03:12,750 --> 00:03:10,480

important Eclipse safety tips first of

72

00:03:15,210 --> 00:03:12,760

all never ever look directly at the Sun

73

00:03:17,250 --> 00:03:15,220

it's not safe for your eyes and could

74

00:03:18,810 --> 00:03:17,260

cause damage it's really important and

75

00:03:20,670 --> 00:03:18,820

we're gonna keep sharing safety tips

76

00:03:22,319 --> 00:03:20,680

throughout the broadcast but for now

77

00:03:24,090 --> 00:03:22,329

let's take a look at today is whether

78

00:03:25,470 --> 00:03:24,100

that's great ok so what we're gonna do

79

00:03:28,589 --> 00:03:25,480

right now is we're gonna show you an

80

00:03:30,449 --> 00:03:28,599

from the ghost 16 satellite this is the

81

00:03:32,370 --> 00:03:30,459

latest and greatest weather satellite

82

00:03:33,870 --> 00:03:32,380

that NASA built and launched for our

83

00:03:36,120 --> 00:03:33,880

partners at NOAA the National Oceanic

84

00:03:37,050 --> 00:03:36,130

and Atmospheric Administration just last

85

00:03:39,120 --> 00:03:37,060

year and it's gonna revolutionize

86

00:03:40,949 --> 00:03:39,130

weather forecast and you can see it's a

87

00:03:43,140 --> 00:03:40,959

very detailed picture of cloud cover

88

00:03:44,400 --> 00:03:43,150

across the country and actually for the

89

00:03:46,380 --> 00:03:44,410

path of totality which remember

90

00:03:48,050 --> 00:03:46,390

stretches from Oregon across the

91

00:03:50,640 --> 00:03:48,060

midsection through Nebraska and Missouri

92

00:03:53,220 --> 00:03:50,650

into parts of Kentucky and Tennessee and

93

00:03:54,600 --> 00:03:53,230

then exiting the u.s. here in Charleston

94

00:03:56,850 --> 00:03:54,610

looks pretty good except for the

95

00:03:59,759 --> 00:03:56,860

midsection of the country maybe Nebraska

96

00:04:01,199 --> 00:03:59,769

and parts of Missouri might see some

97

00:04:02,970 --> 00:04:01,209

cloud cover and then as you get here

98

00:04:04,770 --> 00:04:02,980

toward the coast and Charleston as we

99

00:04:06,150 --> 00:04:04,780

look up we do see some clouds so we'll

100

00:04:07,949 --> 00:04:06,160

keep an eye on that and have more for

101
00:04:10,860 --> 00:04:07,959
you later in the broadcast crossing

102
00:04:14,160 --> 00:04:10,870
fingers for weather year and eclipse is

103
00:04:16,170 --> 00:04:14,170
is something called a transit it's a

104
00:04:18,300 --> 00:04:16,180
transit is when one celestial body

105
00:04:20,909 --> 00:04:18,310
appears to move across the face of

106
00:04:23,010 --> 00:04:20,919
another celestial body and today that is

107
00:04:25,020 --> 00:04:23,020
our Moon moving across the face of the

108
00:04:28,230 --> 00:04:25,030
Sun and it's almost time for that

109
00:04:30,870 --> 00:04:28,240
transit to begin 12:05 p.m. Eastern Time

110
00:04:33,240 --> 00:04:30,880
that's 9:05 a.m. Pacific time will mark

111
00:04:33,690 --> 00:04:33,250
the beginning of the Eclipse over US

112
00:04:36,779 --> 00:04:33,700
soil

113
00:04:38,850 --> 00:04:36,789

so let's go right now to Salem Oregon to

114

00:04:41,310 --> 00:04:38,860

hopefully catch ugly there's a large

115

00:04:43,770 --> 00:04:41,320

celebration underway coordinated by the

116

00:04:45,659 --> 00:04:43,780

Borah Museum of Science and Industry hi

117

00:04:49,110 --> 00:04:45,669

Jessi carpenter from NASA's Ames

118

00:04:50,909 --> 00:04:49,120

Research Center is standing by Corona is

119

00:04:52,980 --> 00:04:50,919

so hot that's like if you were standing

120

00:04:56,850 --> 00:04:52,990

next to a fireplace and as you moved

121

00:04:58,740 --> 00:04:56,860

away it got hotter which is crazy but we

122

00:05:02,330 --> 00:04:58,750

know that it's from those dynamic

123

00:05:05,939 --> 00:05:02,340

magnetic fields that we're seeing here

124

00:05:12,779 --> 00:05:05,949

okay hi I just got word that we haven't

125

00:05:19,159 --> 00:05:12,789

started okay okay I guess we're going

126
00:05:22,589 --> 00:05:19,169
from the top all right thank you to Ames

127
00:05:24,659 --> 00:05:22,599
thanks Jesse and so we begin our eclipse

128
00:05:26,519 --> 00:05:24,669
coverage also coming to us from Oregon

129
00:05:29,059 --> 00:05:26,529
is this stunning image from a telescope

130
00:05:31,980 --> 00:05:29,069
located in the town of Madras in

131
00:05:34,080 --> 00:05:31,990
partnership with NASA the Exploratorium

132
00:05:35,459 --> 00:05:34,090
is providing telescope feeds available

133
00:05:37,379 --> 00:05:35,469
as a livestream

134
00:05:38,489 --> 00:05:37,389
this makes spectacular views available

135
00:05:40,709 --> 00:05:38,499
to everyone

136
00:05:42,329 --> 00:05:40,719
now the Exploratorium is a public

137
00:05:44,610 --> 00:05:42,339
learning laboratory that explores the

138
00:05:47,010 --> 00:05:44,620

world through science art and human

139

00:05:50,309 --> 00:05:47,020

perception let's talk a little more

140

00:05:51,360 --> 00:05:50,319

about that science that and what it is

141

00:05:53,760 --> 00:05:51,370

that we're actually gonna be learning

142

00:05:55,649 --> 00:05:53,770

today a lot of people think that space

143

00:05:57,689 --> 00:05:55,659

is completely empty right you have a lot

144

00:05:59,610 --> 00:05:57,699

of people and it's not quite true we

145

00:06:03,029 --> 00:05:59,620

actually live in the extended atmosphere

146

00:06:05,939 --> 00:06:03,039

of an active star Helio physics is the

147

00:06:08,100 --> 00:06:05,949

study of our star the Sun and its

148

00:06:10,409 --> 00:06:08,110

effects on space so the Sun sends out

149

00:06:12,869 --> 00:06:10,419

solar material and it helps drive this

150

00:06:14,969 --> 00:06:12,879

constantly writhing magnetic system

151

00:06:17,070 --> 00:06:14,979

throughout space and this system

152

00:06:19,230 --> 00:06:17,080

surrounds earth and the planet and

153

00:06:21,839 --> 00:06:19,240

extends far out into the solar system

154

00:06:23,610 --> 00:06:21,849

so NASA studies this system not only to

155

00:06:25,469 --> 00:06:23,620

help us understand more about our place

156

00:06:27,480 --> 00:06:25,479

in the universe but it also helps

157

00:06:29,939 --> 00:06:27,490

protect our technology and astronauts in

158

00:06:32,279 --> 00:06:29,949

space so now let's go to Carbondale

159

00:06:34,230 --> 00:06:32,289

Illinois where NASA edge is standing by

160

00:06:36,179 --> 00:06:34,240

to tell us more actually we're gonna

161

00:06:38,279 --> 00:06:36,189

stay right here at a clip central in

162

00:06:39,899 --> 00:06:38,289

Charleston so Karen I'm gonna send it

163

00:06:41,639 --> 00:06:39,909

back over to you so this is a good time

164

00:06:44,939 --> 00:06:41,649

to take another moment to talk about

165

00:06:47,760 --> 00:06:44,949

safety now first and foremost never look

166

00:06:49,679 --> 00:06:47,770

directly at the Sun it's not safe and it

167

00:06:51,749 --> 00:06:49,689

can cause damage but there are lots of

168

00:06:54,029 --> 00:06:51,759

ways to safely view the Eclipse without

169

00:06:57,929 --> 00:06:54,039

looking directly at the Sun be sure to

170

00:06:59,999 --> 00:06:57,939

visit Eclipse 2017 nasa.gov for detailed

171

00:07:02,279 --> 00:07:00,009

instructions and advice now you may have

172

00:07:04,649 --> 00:07:02,289

seen these eclipse classes right got my

173

00:07:07,739 --> 00:07:04,659

pair they are designed with special

174

00:07:09,989 --> 00:07:07,749

purpose solar filter so ordinary

175

00:07:12,290 --> 00:07:09,999

sunglasses even very dark ones are not

176

00:07:13,790 --> 00:07:12,300

safe for looking at the Sun

177

00:07:15,830 --> 00:07:13,800

no even if you don't have glasses you

178

00:07:17,990 --> 00:07:15,840

have options for one thing you can share

179

00:07:21,110 --> 00:07:18,000

glasses right this event you have to

180

00:07:25,070 --> 00:07:21,120

take my glass here this event lasts for

181

00:07:26,749 --> 00:07:25,080

hours now you can also make a pinhole

182

00:07:28,730 --> 00:07:26,759

projector is a simple you can literally

183

00:07:31,129 --> 00:07:28,740

just take a piece of paper you take a

184

00:07:32,480 --> 00:07:31,139

pencil and you punch a hole in it you

185

00:07:34,249 --> 00:07:32,490

put the Sun behind you

186

00:07:36,439 --> 00:07:34,259

you hold up your paper down like this

187

00:07:37,670 --> 00:07:36,449

and you're gonna deal with asti and

188

00:07:40,309 --> 00:07:37,680

image of the eclipse

189

00:07:42,379 --> 00:07:40,319

on the ground or maybe on a on a wall if

190

00:07:44,990 --> 00:07:42,389

you project it onto a wall it's really

191

00:07:46,430 --> 00:07:45,000

simple to watch the Sun safely lots of

192

00:07:48,379 --> 00:07:46,440

options available to you no matter where

193

00:07:50,149 --> 00:07:48,389

you are there's lots more information

194

00:07:54,350 --> 00:07:50,159

about how to watch an eclipse again that

195

00:07:56,809 --> 00:07:54,360

website address is Eclipse 2017 nasa.gov

196

00:07:58,999 --> 00:07:56,819

it's the only time the only time that's

197

00:08:00,589 --> 00:07:59,009

safe to take these glasses off when

198

00:08:02,629 --> 00:08:00,599

you're looking at the Eclipse is if

199

00:08:04,490 --> 00:08:02,639

you're in the path of totality during

200

00:08:06,830 --> 00:08:04,500

the brief a few minutes that the moon

201
00:08:09,550 --> 00:08:06,840
completely blocks the Sun let's watch

202
00:09:28,780 --> 00:08:09,560
this video to learn more

203
00:09:35,540 --> 00:09:33,170
on August 21st 2017 the earth will cross

204
00:09:38,870 --> 00:09:35,550
the shadow of the moon creating a total

205
00:09:41,740 --> 00:09:38,880
solar eclipse eclipse has happened about

206
00:09:44,330 --> 00:09:41,750
every six months but this one is special

207
00:09:47,450 --> 00:09:44,340
for the first time in almost 40 years

208
00:09:50,110 --> 00:09:47,460
the path of the moon's shadow passes

209
00:09:52,280 --> 00:09:50,120
through the continental United States

210
00:09:55,220 --> 00:09:52,290
everyone here will see the moon at least

211
00:09:58,210 --> 00:09:55,230
partially blocked the Sun people within

212
00:10:02,270 --> 00:09:58,220
the path of totality shown here in red

213
00:10:03,980 --> 00:10:02,280

will witness a total solar eclipse for

214

00:10:05,540 --> 00:10:03,990

them the moon will cover the Sun

215

00:10:08,030 --> 00:10:05,550

entirely

216

00:10:11,329 --> 00:10:08,040

the sky will become Twilight the air

217

00:10:12,949 --> 00:10:11,339

will cool the stars will appear and the

218

00:10:15,500 --> 00:10:12,959

black disk of the moon will be

219

00:10:17,810 --> 00:10:15,510

surrounded by the pale streaming halo of

220

00:10:20,310 --> 00:10:17,820

the Sun's corona

221

00:10:22,410 --> 00:10:20,320

totality will last for two minutes or a

222

00:10:24,660 --> 00:10:22,420

little more and it would be visible

223

00:10:28,470 --> 00:10:24,670

along a swath that crosses the continent

224

00:10:32,730 --> 00:10:28,480

from Oregon to South Carolina for some

225

00:10:38,710 --> 00:10:32,740

it will be the spectacle of a lifetime

226

00:11:33,880 --> 00:10:51,480

[Music]

227

00:11:35,620 --> 00:11:33,890

coming up during our 1 p.m. broadcast we

228

00:11:37,780 --> 00:11:35,630

will have a live demonstration with a

229

00:11:39,190 --> 00:11:37,790

pinhole viewer and more ways to safely

230

00:11:41,230 --> 00:11:39,200

view today's eclipse

231

00:11:43,420 --> 00:11:41,240

NASA TV is gonna be bringing you

232

00:11:45,190 --> 00:11:43,430

real-time breathtaking images in

233

00:11:47,319 --> 00:11:45,200

locations across the country we have

234

00:11:49,660 --> 00:11:47,329

cameras and telescopes balloons an

235

00:11:51,699 --> 00:11:49,670

aircraft and even spare spacecraft

236

00:11:53,500 --> 00:11:51,709

standing by to bring you views of this

237

00:11:54,850 --> 00:11:53,510

natural phenomenon got it all I can't

238

00:11:56,860 --> 00:11:54,860

wait but right now let's take a minute

239

00:11:58,990 --> 00:11:56,870

to learn about one of the aircraft being

240

00:12:01,810 --> 00:11:59,000

used today NASA's Armstrong Flight

241

00:12:03,850 --> 00:12:01,820

Research Center operates a Gulfstream 3

242

00:12:06,519 --> 00:12:03,860

airplane for aerodynamics research and

243

00:12:08,740 --> 00:12:06,529

mission support today their flight path

244

00:12:10,840 --> 00:12:08,750

is taking them over the Pacific Ocean to

245

00:12:12,850 --> 00:12:10,850

see the very first view of the total

246

00:12:14,530 --> 00:12:12,860

solar eclipse as it begins to cross the

247

00:12:18,540 --> 00:12:14,540

country let's watch this video to learn

248

00:12:23,530 --> 00:12:21,550

NASA's g3 aircraft out of Armstrong

249

00:12:26,260 --> 00:12:23,540

Flight Research Center will feed the

250

00:12:28,120 --> 00:12:26,270

world live video coverage of the Eclipse

251
00:12:31,210 --> 00:12:28,130
from the west coast of Oregon as it

252
00:12:33,069 --> 00:12:31,220
begins its path across America so we

253
00:12:36,460 --> 00:12:33,079
hope to bring that view through the eyes

254
00:12:38,470 --> 00:12:36,470
of NASA we go out there and modify

255
00:12:41,410 --> 00:12:38,480
aircraft all the time so we can go out

256
00:12:46,510 --> 00:12:41,420
there and do NASA science it's what we

257
00:12:51,050 --> 00:12:49,070
in the case of this aircraft we've gone

258
00:12:53,540 --> 00:12:51,060
out there and taken the normal passenger

259
00:12:56,540 --> 00:12:53,550
windows and replace them with optical

260
00:12:57,920 --> 00:12:56,550
grade windows plus put in its lemon tree

261
00:13:01,820 --> 00:12:57,930
system so we can go out there and

262
00:13:05,060 --> 00:13:01,830
provide real-time video with these

263
00:13:07,220 --> 00:13:05,070

optical gray windows it allows our photo

264

00:13:11,390 --> 00:13:07,230

and video teams to go out there and

265

00:13:13,460 --> 00:13:11,400

capture high-resolution video at 35,000

266

00:13:16,220 --> 00:13:13,470

feet to present to the world this rare

267

00:13:18,380 --> 00:13:16,230

event and using this event to go out

268

00:13:22,880 --> 00:13:18,390

there and educate people I think is an

269

00:13:24,860 --> 00:13:22,890

exciting proposition all right just

270

00:13:27,019 --> 00:13:24,870

about the term would be almost from a

271

00:13:29,030 --> 00:13:27,029

pilot's perspective we want to make sure

272

00:13:30,350 --> 00:13:29,040

we're to the right spot and also there

273

00:13:33,440 --> 00:13:30,360

are limitations for what our

274

00:13:35,870 --> 00:13:33,450

photographers can do we roll out here we

275

00:13:37,790 --> 00:13:35,880

pushed it as far west as we could go so

276
00:13:39,800 --> 00:13:37,800
we get that as early as possible that is

277
00:13:42,829 --> 00:13:39,810
low in the horizon as possible and that

278
00:13:43,310 --> 00:13:42,839
put us at about about Lincoln City

279
00:13:45,530 --> 00:13:43,320
Oregon

280
00:13:47,990 --> 00:13:45,540
which is the farthest west point right

281
00:13:49,790 --> 00:13:48,000
on the west coast so we set up a holding

282
00:13:51,949 --> 00:13:49,800
pattern or a racetrack pattern right

283
00:13:55,010 --> 00:13:51,959
over Lincoln City we know exactly the

284
00:13:57,140 --> 00:13:55,020
width of the totality swath with that we

285
00:13:58,699 --> 00:13:57,150
did some mission planning again to make

286
00:14:00,530 --> 00:13:58,709
sure we know what the stall speeds are

287
00:14:02,720 --> 00:14:00,540
the slowest speeds the safest speeds to

288
00:14:06,079 --> 00:14:02,730

fly the speeds that will give us the

289

00:14:08,180 --> 00:14:06,089

most time inside the totality region we

290

00:14:09,680 --> 00:14:08,190

can slip the airplane that'll give us

291

00:14:12,650 --> 00:14:09,690

some more Bank angle which lets our

292

00:14:14,390 --> 00:14:12,660

cameras see a little bit higher so all

293

00:14:16,699 --> 00:14:14,400

of those kinds of things were what went

294

00:14:18,680 --> 00:14:16,709

into the from a pilot standpoint

295

00:14:20,360 --> 00:14:18,690

planning this out all right you guys

296

00:14:22,220 --> 00:14:20,370

ready to turn you to get for a partial I

297

00:14:24,260 --> 00:14:22,230

think it makes us proud of what we do

298

00:14:25,670 --> 00:14:24,270

and that were able to share it with with

299

00:14:28,070 --> 00:14:25,680

everybody around the world in this case

300

00:14:33,300 --> 00:14:28,080

do do the modification for the airplane

301

00:14:38,369 --> 00:14:36,329

great I can't wait to see what that g3

302

00:14:40,590 --> 00:14:38,379

is gonna show us today that was amazing

303

00:14:43,050 --> 00:14:40,600

and it's gonna be an incredible view the

304

00:14:44,610 --> 00:14:43,060

first view of the solar eclipse as it's

305

00:14:46,499 --> 00:14:44,620

literally crossing into the United

306

00:14:48,600 --> 00:14:46,509

States so basically it is off the west

307

00:14:50,670 --> 00:14:48,610

coast right now so it's getting a view

308

00:14:52,920 --> 00:14:50,680

of the Eclipse before we even get a view

309

00:14:55,110 --> 00:14:52,930

from land right partial our class and

310

00:14:57,600 --> 00:14:55,120

that g3 it's one of just one of a fleet

311

00:15:00,059 --> 00:14:57,610

of NASA aircraft and observation

312

00:15:02,549 --> 00:15:00,069

platforms that we have we've got as we

313

00:15:04,049 --> 00:15:02,559

mentioned earlier satellites both ours

314

00:15:06,179 --> 00:15:04,059

and some from some of our partner

315

00:15:07,739 --> 00:15:06,189

agencies aircraft they're balloons that

316

00:15:09,720 --> 00:15:07,749

we've got and we'll be telling you more

317

00:15:11,579 --> 00:15:09,730

about that and our 1:00 p.m. broadcast

318

00:15:14,699 --> 00:15:11,589

as well but we've got you covered here

319

00:15:16,110 --> 00:15:14,709

it's in terms of you know eclipse not

320

00:15:18,749 --> 00:15:16,120

only looking at from the ground looking

321

00:15:20,249 --> 00:15:18,759

at it from from the sky looking at it

322

00:15:21,449 --> 00:15:20,259

from even from space and really get a

323

00:15:22,860 --> 00:15:21,459

little preview of that great you know

324

00:15:24,600 --> 00:15:22,870

what I just heard we bought the Salem

325

00:15:26,610 --> 00:15:24,610

Oregon a clip a warning this is the

326

00:15:31,439 --> 00:15:26,620

partial transit and we're going to the

327

00:15:33,540 --> 00:15:31,449

g3 now to see what they dream we've got

328

00:15:35,999 --> 00:15:33,550

an exclusive feed as they fly over the

329

00:15:37,769 --> 00:15:36,009

Pacific Ocean and Kevin roar from NASA's

330

00:15:41,400 --> 00:15:37,779

Armstrong Flight Research Center is

331

00:15:46,199 --> 00:15:44,129

okay all right you're gonna be up soon

332

00:15:47,909 --> 00:15:46,209

you can see and we actually monitored

333

00:15:49,229 --> 00:15:47,919

here on set in Charleston so we can

334

00:15:51,179 --> 00:15:49,239

actually see what they're seeing live

335

00:15:53,519 --> 00:15:51,189

and you can see the transit beginning as

336

00:15:55,829 --> 00:15:53,529

the moon is just starting to eclipse the

337

00:15:57,179 --> 00:15:55,839

Sun is that incredible image Karen no

338

00:15:58,710 --> 00:15:57,189

it's beautiful and so just to be clear

339

00:16:00,989 --> 00:15:58,720

what you see on the screen right now

340

00:16:03,869 --> 00:16:00,999

right is that partial transit the

341

00:16:05,460 --> 00:16:03,879

partial transit can take the partial

342

00:16:07,019 --> 00:16:05,470

eclipse can take you know up to three

343

00:16:09,210 --> 00:16:07,029

hours a little bit longer in any one

344

00:16:11,339 --> 00:16:09,220

location whereas the total eclipse

345

00:16:12,839 --> 00:16:11,349

that's only about a minute a half two

346

00:16:14,759 --> 00:16:12,849

minutes right what a lot of people talk

347

00:16:17,009 --> 00:16:14,769

about the totality only lasts a maybe at

348

00:16:19,109 --> 00:16:17,019

most two minutes or so but sometimes

349

00:16:21,089 --> 00:16:19,119

people don't realize that in terms of

350

00:16:22,589 --> 00:16:21,099

the entire eclipse from the very

351
00:16:24,419 --> 00:16:22,599
beginning of when the moon starts to

352
00:16:29,999 --> 00:16:24,429
cross over the Sun surface until the end

353
00:16:31,859 --> 00:16:30,009
is actually much longer okay okay

354
00:16:33,089 --> 00:16:31,869
so so let's talk a little bit more about

355
00:16:34,559 --> 00:16:33,099
these eclipses cuz I want to tell you

356
00:16:35,999 --> 00:16:34,569
one of things that I think is one of the

357
00:16:38,489 --> 00:16:36,009
cool things about total solar eclipses

358
00:16:40,469 --> 00:16:38,499
we're the only planet in the entire

359
00:16:42,179 --> 00:16:40,479
solar system that can see them you only

360
00:16:43,979 --> 00:16:42,189
want the only one earth is the only

361
00:16:46,649 --> 00:16:43,989
planet where the moon appears to be the

362
00:16:48,059 --> 00:16:46,659
same size in the sky as the foot and and

363
00:16:49,019 --> 00:16:48,069

that's really just a great cosmic

364

00:16:50,819 --> 00:16:49,029

coincidence

365

00:16:53,129 --> 00:16:50,829

that's right Karen the Sun believe it or

366

00:16:55,590 --> 00:16:53,139

not is about 400 times wider than the

367

00:16:57,899 --> 00:16:55,600

moon but it's also about 400 times

368

00:16:59,639 --> 00:16:57,909

farther away now that geometry means

369

00:17:00,449 --> 00:16:59,649

that when they line up just right as

370

00:17:02,699 --> 00:17:00,459

they are today

371

00:17:05,579 --> 00:17:02,709

the moon blocks the sun's entire surface

372

00:17:07,379 --> 00:17:05,589

creating a total solar eclipse let's

373

00:17:09,810 --> 00:17:07,389

take a moment to learn more about that

374

00:17:14,550 --> 00:17:09,820

geometry

375

00:17:16,650 --> 00:17:14,560

a solar eclipse occurs when the moon

376

00:17:18,990 --> 00:17:16,660

moves between the Earth and the Sun

377

00:17:21,540 --> 00:17:19,000

blocks the sun's light and casts a

378

00:17:23,370 --> 00:17:21,550

shadow on the earth when the moon

379

00:17:26,670 --> 00:17:23,380

completely covers the bright disk of the

380

00:17:28,350 --> 00:17:26,680

Sun that's a total solar eclipse and it

381

00:17:31,500 --> 00:17:28,360

happens roughly every year and a half

382

00:17:33,900 --> 00:17:31,510

somewhere on earth a partial solar puts

383

00:17:37,650 --> 00:17:33,910

more common happening at least twice a

384

00:17:39,480 --> 00:17:37,660

year a lunar eclipse on the other hand

385

00:17:41,880 --> 00:17:39,490

is where the moon moves behind the earth

386

00:17:44,100 --> 00:17:41,890

so it's now the earth blocking the sun's

387

00:17:47,370 --> 00:17:44,110

light on the moon creating a shadow on

388

00:17:49,050 --> 00:17:47,380

it with a red tint the easy way to

389

00:17:51,480 --> 00:17:49,060

remember the difference is to remember

390

00:17:53,850 --> 00:17:51,490

what gets darker with the solar eclipse

391

00:17:57,690 --> 00:17:53,860

the Sun gets started and during a lunar

392

00:17:59,460 --> 00:17:57,700

eclipse the moon does a solar eclipse is

393

00:18:01,590 --> 00:17:59,470

a rare event that not many get to see

394

00:18:04,710 --> 00:18:01,600

because the moon's shadow is relatively

395

00:18:06,960 --> 00:18:04,720

small this limits the locations on earth

396

00:18:09,150 --> 00:18:06,970

they get to see it you have to be on the

397

00:18:11,850 --> 00:18:09,160

sunny side of the planet and you have to

398

00:18:13,830 --> 00:18:11,860

be in the path of the moon's shadow so

399

00:18:15,960 --> 00:18:13,840

if you find your area in the path of

400

00:18:18,480 --> 00:18:15,970

totality one year you've hit the jackpot

401
00:18:20,220 --> 00:18:18,490
because on average that same spot on

402
00:18:24,350 --> 00:18:20,230
earth will only get to see a solar

403
00:18:26,630 --> 00:18:24,360
eclipse every 375 years

404
00:18:28,970 --> 00:18:26,640
during a solar eclipse moon casts a

405
00:18:31,640 --> 00:18:28,980
shadow with two parts the Umbra and

406
00:18:33,440 --> 00:18:31,650
penumbra the moon's Umbra is part of the

407
00:18:36,530 --> 00:18:33,450
moon shadow where the entire Sun is

408
00:18:39,200 --> 00:18:36,540
blocked by the moon in space it's a cone

409
00:18:41,900 --> 00:18:39,210
extending some 400,000 kilometers behind

410
00:18:44,360 --> 00:18:41,910
the moon it's when the small end of this

411
00:18:47,990 --> 00:18:44,370
cone hits the earth that we experience a

412
00:18:49,940 --> 00:18:48,000
total solar eclipse most Eclipse maps

413
00:18:52,070 --> 00:18:49,950

depicting the pan will show you a circle

414

00:18:54,470 --> 00:18:52,080

representing the shadow of the Moon but

415

00:18:56,659 --> 00:18:54,480

in actuality the true shape of the Umbra

416

00:18:59,150 --> 00:18:56,669

is more like an irregular polygon with

417

00:19:01,760 --> 00:18:59,160

slightly curved edges this is because

418

00:19:03,289 --> 00:19:01,770

the moon isn't a perfect circle it has

419

00:19:05,539 --> 00:19:03,299

mountains and valleys on its surface

420

00:19:07,960 --> 00:19:05,549

which all affect the passing sunlight

421

00:19:09,650 --> 00:19:07,970

subsequent shape of its shadow and

422

00:19:11,060 --> 00:19:09,660

scientists now have a greater

423

00:19:13,220 --> 00:19:11,070

understanding of the shape of the moon

424

00:19:15,680 --> 00:19:13,230

surface thanks to NASA's Lunar

425

00:19:17,690 --> 00:19:15,690

Reconnaissance Orbiter the unprecedented

426

00:19:20,659 --> 00:19:17,700

level of detail on the topographic maps

427

00:19:22,460 --> 00:19:20,669

photos and other data sets has allowed

428

00:19:24,470 --> 00:19:22,470

us to more precisely pinpoint the

429

00:19:28,490 --> 00:19:24,480

regions on earth falling within the path

430

00:19:29,960 --> 00:19:28,500

of totality of a solar eclipse so if you

431

00:19:32,390 --> 00:19:29,970

get the chance to witness a solar

432

00:19:39,409 --> 00:19:32,400

eclipse always remember that our little

433

00:19:42,120 --> 00:19:39,419

moon plays a role that's quite large wow

434

00:19:47,510 --> 00:19:44,700

so now we've got a live shot from that

435

00:19:49,650 --> 00:19:47,520

g3 aircraft looking out the window

436

00:19:51,780 --> 00:19:49,660

everybody begins we're gonna be seeing

437

00:19:54,870 --> 00:19:51,790

the Eclipse live from this g3 it's

438

00:19:58,289 --> 00:19:54,880

35,000 feet up in the air over the

439

00:20:00,419 --> 00:19:58,299

Pacific Ocean as the Eclipse begins very

440

00:20:03,320 --> 00:20:00,429

interesting to see how they had to sort

441

00:20:06,630 --> 00:20:03,330

of retrofitted with the special glass or

442

00:20:08,789 --> 00:20:06,640

get the best viewing possible and I'm

443

00:20:10,650 --> 00:20:08,799

sure it's an exciting a moment up there

444

00:20:12,690 --> 00:20:10,660

I can only imagine what the folks inside

445

00:20:14,220 --> 00:20:12,700

the chief we are feeling right now great

446

00:20:17,400 --> 00:20:14,230

and coming up we will have some live

447

00:20:19,740 --> 00:20:17,410

interviews from the g3 and now we are

448

00:20:22,020 --> 00:20:19,750

once again looking at the eclipse from

449

00:20:23,820 --> 00:20:22,030

Salem Oregon so to all the people who

450

00:20:25,110 --> 00:20:23,830

are out there in Oregon this is what

451
00:20:28,950 --> 00:20:25,120
they are getting to see right now that

452
00:20:30,330 --> 00:20:28,960
first little glimpse of the moon it

453
00:20:32,640 --> 00:20:30,340
almost looks like a bite out of a cookie

454
00:20:34,590 --> 00:20:32,650
right well first limb to the moon

455
00:20:36,630 --> 00:20:34,600
passing in front of the Sun now Salem is

456
00:20:39,450 --> 00:20:36,640
in the path of totality so they will

457
00:20:41,280 --> 00:20:39,460
have a chance to see the full Eclipse

458
00:20:43,440 --> 00:20:41,290
and they've got great weather from what

459
00:20:45,090 --> 00:20:43,450
I can tell and certainly a good shot

460
00:20:47,130 --> 00:20:45,100
from this telescope they're on the

461
00:20:49,560 --> 00:20:47,140
ground looking at the Eclipse it's

462
00:20:51,570 --> 00:20:49,570
amazing and just a reminder for folks we

463
00:20:54,870 --> 00:20:51,580

can't say it enough stress it enough

464

00:20:56,940 --> 00:20:54,880

the safety aspect if you are anywhere

465

00:20:59,130 --> 00:20:56,950

whether in the path of totality or not

466

00:21:00,780 --> 00:20:59,140

you've got to have those glasses even if

467

00:21:05,740 --> 00:21:00,790

you're looking at a partial eclipse even

468

00:21:10,220 --> 00:21:08,450

when depicting an eclipse path data

469

00:21:12,650 --> 00:21:10,230

visualizers have traditionally

470

00:21:15,110 --> 00:21:12,660

represented the moon's shadow as an oval

471

00:21:15,620 --> 00:21:15,120

but for today's Eclipse for the first

472

00:21:17,900 --> 00:21:15,630

time

473

00:21:19,550 --> 00:21:17,910

NASA visualizers were able to show that

474

00:21:21,920 --> 00:21:19,560

the moon's shadow is actually better

475

00:21:23,510 --> 00:21:21,930

represented as a polygon and this for

476

00:21:25,490 --> 00:21:23,520

complicated shape is based on several

477

00:21:27,890 --> 00:21:25,500

NASA observations including information

478

00:21:29,840 --> 00:21:27,900

from NASA's Lunar Reconnaissance Orbiter

479

00:21:32,450 --> 00:21:29,850

which is currently orbiting the moon as

480

00:21:34,220 --> 00:21:32,460

we speak right now the spacecraft has a

481

00:21:36,830 --> 00:21:34,230

unique view of the mountains and valleys

482

00:21:38,900 --> 00:21:36,840

that form the moon's jagged horizon

483

00:21:41,120 --> 00:21:38,910

let's learn more now about mapping

484

00:21:52,910 --> 00:21:41,130

today's Eclipse using NASA's unique data

485

00:21:56,270 --> 00:21:52,920

sets what we're talking about is several

486

00:21:58,640 --> 00:21:56,280

visualizations of the path of the moon

487

00:22:00,680 --> 00:21:58,650

shadow during the Eclipse in 2017

488

00:22:03,650 --> 00:22:00,690

everything in it is driven by the data

489

00:22:06,380 --> 00:22:03,660

so the color of the ground the position

490

00:22:08,240 --> 00:22:06,390

of the path of totality the lighting

491

00:22:11,330 --> 00:22:08,250

from the sun the sun angle all of those

492

00:22:12,950 --> 00:22:11,340

are things that are based on data a lot

493

00:22:15,380 --> 00:22:12,960

of NASA products were used to create

494

00:22:17,120 --> 00:22:15,390

this visualization I used the Lunar

495

00:22:19,730 --> 00:22:17,130

Reconnaissance Orbiter the laser

496

00:22:22,400 --> 00:22:19,740

altimetry data from that which gives us

497

00:22:24,290 --> 00:22:22,410

a digital map of the elevations on the

498

00:22:26,480 --> 00:22:24,300

moon before the earth I used something

499

00:22:28,160 --> 00:22:26,490

called SRTM this was a Raider that was

500

00:22:30,920 --> 00:22:28,170

flown on the Space Shuttle for the

501
00:22:34,430 --> 00:22:30,930
positions of the the earth the moon and

502
00:22:37,310 --> 00:22:34,440
the Sun I used a JPL ephemeris and

503
00:22:38,960 --> 00:22:37,320
femoris is just a list of positions but

504
00:22:40,970 --> 00:22:38,970
it's the most it's the most accurate

505
00:22:42,830 --> 00:22:40,980
tabulation of those positions this

506
00:22:47,090 --> 00:22:42,840
visualization is unique because it shows

507
00:22:48,860 --> 00:22:47,100
the effect of both the irregular edge of

508
00:22:51,050 --> 00:22:48,870
the moon the limb of the moon we call it

509
00:22:52,530 --> 00:22:51,060
and the elevation of the observer now

510
00:22:54,750 --> 00:22:52,540
we've known for a long time

511
00:22:57,360 --> 00:22:54,760
that the elevation of the observer

512
00:22:59,940 --> 00:22:57,370
effects where the shadow is we've also

513
00:23:02,730 --> 00:22:59,950

known that the mountains and the valleys

514

00:23:05,040 --> 00:23:02,740

along the edge of the moon effect the

515

00:23:07,860 --> 00:23:05,050

shadow so you may have seen on Eclipse

516

00:23:10,590 --> 00:23:07,870

maps in the past that the image of the

517

00:23:13,050 --> 00:23:10,600

Umbra that shape of the shadow in the

518

00:23:14,580 --> 00:23:13,060

earth is drawn as a smooth over but we

519

00:23:16,920 --> 00:23:14,590

know that the moon isn't smooth around

520

00:23:19,530 --> 00:23:16,930

the edge of the moon we have these sort

521

00:23:21,600 --> 00:23:19,540

of jagged peaks and valleys and a peak

522

00:23:23,310 --> 00:23:21,610

to block the Sun a little bit earlier

523

00:23:25,800 --> 00:23:23,320

than you thought and a valley can let

524

00:23:27,780 --> 00:23:25,810

the Sun in a few seconds longer than you

525

00:23:30,510 --> 00:23:27,790

thought the combined effect of these

526

00:23:32,610 --> 00:23:30,520

peaks and valleys is to create the shape

527

00:23:34,890 --> 00:23:32,620

that's not really an oval it's more like

528

00:23:36,930 --> 00:23:34,900

a polygon but it hasn't actually been

529

00:23:40,200 --> 00:23:36,940

seen in exactly this way before

530

00:23:42,990 --> 00:23:40,210

where we calculate those circumstances

531

00:23:45,990 --> 00:23:43,000

for every point on the map and draw that

532

00:23:48,000 --> 00:23:46,000

shape totality is that is that two

533

00:23:50,760 --> 00:23:48,010

minutes window or two and a half minutes

534

00:23:53,400 --> 00:23:50,770

when the moon completely covers the Sun

535

00:23:55,440 --> 00:23:53,410

the sudden darkness of totality is just

536

00:23:58,020 --> 00:23:55,450

something that a lot of people can't

537

00:24:00,180 --> 00:23:58,030

compare to anything else I love the idea

538

00:24:02,610 --> 00:24:00,190

that I'm giving this kind of map to

539

00:24:04,770 --> 00:24:02,620

other people and especially that it's

540

00:24:06,540 --> 00:24:04,780

more detailed and more accurate for the

541

00:24:10,860 --> 00:24:06,550

people are actually in the right place

542

00:24:12,420 --> 00:24:10,870

to see it so there's a lot of great

543

00:24:14,130 --> 00:24:12,430

science being had done today

544

00:24:17,250 --> 00:24:14,140

and this eclipse provides an opportunity

545

00:24:20,070 --> 00:24:17,260

for researchers to test innovation for

546

00:24:22,650 --> 00:24:20,080

future NASA missions to NASA scientist

547

00:24:24,090 --> 00:24:22,660

Matt gopalswamy and his team pursue

548

00:24:27,039 --> 00:24:24,100

eclipses because when the moon

549

00:24:29,289 --> 00:24:27,049

[Applause]

550

00:24:31,899 --> 00:24:29,299

it reveals the corona which is our stars

551
00:24:33,909 --> 00:24:31,909
faint outer atmosphere and this year

552
00:24:36,039 --> 00:24:33,919
scientists will test a special kind of

553
00:24:38,200 --> 00:24:36,049
camera the team will only have 120

554
00:24:40,659 --> 00:24:38,210
seconds to complete an experiment that

555
00:24:42,430 --> 00:24:40,669
may one day change the design of sun

556
00:24:44,379 --> 00:24:42,440
observing spacecraft let's learn more

557
00:24:57,399 --> 00:24:44,389
about how this team of NASA scientists

558
00:24:59,799 --> 00:24:57,409
is chasing the Sun the corner can be

559
00:25:02,680 --> 00:24:59,809
studied from ground-based telescopes on

560
00:25:04,869 --> 00:25:02,690
leave and during eclipses when our

561
00:25:09,220 --> 00:25:04,879
eclipse happens to be make use of it and

562
00:25:11,859 --> 00:25:09,230
try to test some of our idea yes we we

563
00:25:14,320 --> 00:25:11,869

have only 2 minutes to do the experiment

564

00:25:17,289 --> 00:25:14,330

and we have been preparing for maybe

565

00:25:19,419 --> 00:25:17,299

here nothing can go wrong you have

566

00:25:21,849 --> 00:25:19,429

cameras on shutdown you can't press the

567

00:25:24,909 --> 00:25:21,859

wrong button and because there's no time

568

00:25:27,489 --> 00:25:24,919

to change your mind or make alternate

569

00:25:31,210 --> 00:25:27,499

this issue we are going to set up the

570

00:25:33,450 --> 00:25:31,220

telescope and observe the total solar

571

00:25:36,129 --> 00:25:33,460

eclipse at 4 different wavelengths and

572

00:25:38,619 --> 00:25:36,139

the images taken in the in this four

573

00:25:40,720 --> 00:25:38,629

different wavelengths will be used to

574

00:25:42,279 --> 00:25:40,730

determine the temperature and flow speed

575

00:25:44,499 --> 00:25:42,289

of the corona we are planning to take

576
00:25:47,169 --> 00:25:44,509
these images using a polarization camera

577
00:25:49,690 --> 00:25:47,179
which will be a first for us I think

578
00:25:52,810 --> 00:25:49,700
it's the first for the solar physics

579
00:25:55,570 --> 00:25:52,820
community so once a moon completely

580
00:25:58,419 --> 00:25:55,580
covers the Sun the experiment begins it

581
00:26:00,970 --> 00:25:58,429
is my job to make sure that the images

582
00:26:04,840 --> 00:26:00,980
in the field of view so at the correct

583
00:26:07,509 --> 00:26:04,850
time one person has to turn the give the

584
00:26:10,119 --> 00:26:07,519
command to turn the filter wheel and for

585
00:26:12,460 --> 00:26:10,129
each filter there's a different exposure

586
00:26:15,849 --> 00:26:12,470
time so another person a straight into

587
00:26:18,370 --> 00:26:15,859
the exposure time it's a combined effort

588
00:26:22,900 --> 00:26:18,380

of six different hands

589

00:26:25,930 --> 00:26:22,910

no one person can make any errors we won

590

00:26:27,520 --> 00:26:25,940

it we do feel the pressure and also the

591

00:26:31,360 --> 00:26:27,530

excitement of the Eclipse it still we

592

00:26:34,330 --> 00:26:31,370

have to focus on our experiment gives a

593

00:26:39,280 --> 00:26:34,340

tense feeling but I believe you'll

594

00:26:41,800 --> 00:26:39,290

succeed all right we've got another

595

00:26:43,930 --> 00:26:41,810

beautiful shot here of Oregon and we're

596

00:26:46,240 --> 00:26:43,940

getting ready to start showing you

597

00:26:48,550 --> 00:26:46,250

imagery from around the country that's

598

00:26:50,740 --> 00:26:48,560

an amazing shot and right now we're

599

00:27:02,400 --> 00:26:50,750

gonna toss it to NASA edge who is

600

00:27:07,680 --> 00:27:05,230

you know honestly when I first saw the

601
00:27:09,940 --> 00:27:07,690

Eclipse

602
00:27:12,220 --> 00:27:09,950

I've seen lunar eclipses I've seen

603
00:27:14,170 --> 00:27:12,230

partial eclipses probably similar and

604
00:27:18,670 --> 00:27:14,180

experience looks like a Troy's been a

605
00:27:21,010 --> 00:27:18,680

real eclipse I'm an eclipse chasers

606
00:27:23,680 --> 00:27:21,020

but I was the first one I saw was in

607
00:27:25,810 --> 00:27:23,690

Turkey in C Day Turkey and the next one

608
00:27:29,140 --> 00:27:25,820

was in Micronesia and when the eclipse

609
00:27:30,790 --> 00:27:29,150

happened it was about 85% coverage as I

610
00:27:33,910 --> 00:27:30,800

could see with my pinhole projectors and

611
00:27:35,470 --> 00:27:33,920

my glasses at about that moment I

612
00:27:36,970 --> 00:27:35,480

noticed the sky around me started

613
00:27:38,860 --> 00:27:36,980

getting noticeably dark and the

614

00:27:40,750 --> 00:27:38,870

temperature dropped about 10 degrees we

615

00:27:41,320 --> 00:27:40,760

could use it oh my gosh we're totally

616

00:27:44,740 --> 00:27:41,330

gonna love that

617

00:27:47,320 --> 00:27:44,750

and at that right as the disk of the

618

00:27:49,300 --> 00:27:47,330

Moon covered the Sun it was phenomenal

619

00:27:51,070 --> 00:27:49,310

you're overwhelmed with an amazing

620

00:27:53,530 --> 00:27:51,080

feeling of being connected to the

621

00:27:55,090 --> 00:27:53,540

universe around you because your vision

622

00:27:57,640 --> 00:27:55,100

is check up you're seeing things

623

00:28:00,430 --> 00:27:57,650

differently the shadows are changing the

624

00:28:03,220 --> 00:28:00,440

animals are acting differently

625

00:28:05,110 --> 00:28:03,230

I do want to take a quick moment to say

626
00:28:07,060 --> 00:28:05,120
that welcome our friends from NASA TV

627
00:28:09,580 --> 00:28:07,070
who are joining us from Charleston I

628
00:28:16,780 --> 00:28:09,590
hope they have clear skies there we

629
00:28:18,400 --> 00:28:16,790
clearly are but easy to manage great to

630
00:28:20,890 --> 00:28:18,410
have you guys joining us

631
00:28:23,680 --> 00:28:20,900
now like I said you have time to check

632
00:28:26,230 --> 00:28:23,690
this out to see these cities sort of

633
00:28:28,930 --> 00:28:26,240
eclipsed views what are their strategies

634
00:28:32,140 --> 00:28:28,940
could you share with our fans to prepare

635
00:28:33,670 --> 00:28:32,150
for that Eclipse just to basically when

636
00:28:35,770 --> 00:28:33,680
the eclipse happens spend all of your

637
00:28:38,050 --> 00:28:35,780
time with all the different devices and

638
00:28:40,180 --> 00:28:38,060

pinhole projectors before and after

639

00:28:42,040 --> 00:28:40,190

totality the biggest thing that I would

640

00:28:43,630 --> 00:28:42,050

recommend is when totality happens

641

00:28:46,360 --> 00:28:43,640

unless you have a camera set up on

642

00:28:48,880 --> 00:28:46,370

automatic don't miss a second of the

643

00:28:50,740 --> 00:28:48,890

event make sure you are viewing the cue

644

00:28:52,600 --> 00:28:50,750

looking at the Eclipse now one of the

645

00:28:54,520 --> 00:28:52,610

things some people forget to take their

646

00:28:56,410 --> 00:28:54,530

Eclipse glasses off during totality and

647

00:28:58,120 --> 00:28:56,420

they miss the whole thing there because

648

00:29:00,160 --> 00:28:58,130

they think it's unsafe but you're not

649

00:29:02,020 --> 00:29:00,170

actually looking at the Sun during

650

00:29:04,090 --> 00:29:02,030

totality you're looking at the backside

651
00:29:06,010 --> 00:29:04,100
of the Moon which is pretty dark and

652
00:29:08,500 --> 00:29:06,020
it's the darkest blackness you've ever

653
00:29:11,620 --> 00:29:08,510
seen and at that moment you will see the

654
00:29:14,020 --> 00:29:11,630
corona of the Sun just magically appear

655
00:29:17,200 --> 00:29:14,030
across the sky and you'll see several

656
00:29:19,210 --> 00:29:17,210
stars today I think we have M planets so

657
00:29:21,160 --> 00:29:19,220
we have the potential to see four or

658
00:29:22,810 --> 00:29:21,170
five I believe planets and stars okay

659
00:29:24,400 --> 00:29:22,820
but you have to be pretty strategic at

660
00:29:26,290 --> 00:29:24,410
that point right now it's that's during

661
00:29:27,970 --> 00:29:26,300
totality let's drink it you're eight

662
00:29:29,380 --> 00:29:27,980
solar experience and you guys swing your

663
00:29:31,060 --> 00:29:29,390

telescope around see or will you be

664

00:29:32,860 --> 00:29:31,070

seeing them with the naked eye you can

665

00:29:34,450 --> 00:29:32,870

see with the naked eye during totality I

666

00:29:36,730 --> 00:29:34,460

recommend everybody look at it with a

667

00:29:38,950 --> 00:29:36,740

naked eye during totality but as soon as

668

00:29:40,990 --> 00:29:38,960

one bit of sunlight starts to come

669

00:29:42,760 --> 00:29:41,000

around the Sun trust me it is super

670

00:29:43,300 --> 00:29:42,770

bright and immediately put on those

671

00:29:44,830 --> 00:29:43,310

glasses

672

00:29:46,480 --> 00:29:44,840

and start using a pinhole projectors

673

00:29:48,100 --> 00:29:46,490

again that's a great point and it's

674

00:29:49,480 --> 00:29:48,110

awesome because we're getting lots and

675

00:29:51,760 --> 00:29:49,490

lots of good science and good

676
00:29:53,770 --> 00:29:51,770
observational data to prepare everyone

677
00:29:54,940 --> 00:29:53,780
for how they can experience the events

678
00:29:57,130 --> 00:29:54,950
and you know something I have to tell

679
00:29:58,810 --> 00:29:57,140
you we have a Flickr gallery that people

680
00:30:01,120 --> 00:29:58,820
are uploading many many pictures to

681
00:30:03,250 --> 00:30:01,130
right now so we would recommend and

682
00:30:06,340 --> 00:30:03,260
highly recommend that you go to the

683
00:30:08,350 --> 00:30:06,350
Eclipse 2017 NASA website you'll see the

684
00:30:09,790 --> 00:30:08,360
Flickr links there and these beautiful

685
00:30:11,530 --> 00:30:09,800
images that you're seeing right now are

686
00:30:12,509 --> 00:30:11,540
images that were already uploaded just

687
00:30:14,459 --> 00:30:12,519
over the last

688
00:30:16,469 --> 00:30:14,469

dey's what's interesting is it's not

689

00:30:18,449 --> 00:30:16,479

just you know photos from previous

690

00:30:21,329 --> 00:30:18,459

eclipses we're seeing lots of artwork

691

00:30:24,199 --> 00:30:21,339

lots of really this made of work I think

692

00:30:26,279 --> 00:30:24,209

that's spectacular and a great part of

693

00:30:28,829 --> 00:30:26,289

people of all ages are ready for this

694

00:30:31,109 --> 00:30:28,839

it's fantastic well I'll tell you what

695

00:30:33,029 --> 00:30:31,119

Troy thanks so much for coming on when

696

00:30:34,829 --> 00:30:33,039

we come back later you're gonna share

697

00:30:36,419 --> 00:30:34,839

with us the results all right and we're

698

00:30:37,829 --> 00:30:36,429

going to talk about that right right and

699

00:30:39,899 --> 00:30:37,839

get more questions great

700

00:30:42,810 --> 00:30:39,909

well right now we're gonna go inside the

701
00:30:46,289 --> 00:30:42,820
stadium to cabin voucher who's with Greg

702
00:30:48,239 --> 00:30:46,299
guzik from the Louisiana space Space

703
00:30:49,919 --> 00:30:48,249
Grant consortium and they're going to

704
00:30:51,239 --> 00:30:49,929
talk about this balloon launch that

705
00:30:53,339 --> 00:30:51,249
they're gonna provide for us so take it

706
00:30:55,649 --> 00:30:53,349
away Kevin I sure will thank you very

707
00:30:57,989 --> 00:30:55,659
much again we are standing we are

708
00:31:00,810 --> 00:30:57,999
standing on about the 30-yard line in

709
00:31:03,629 --> 00:31:00,820
Saluki Stadium and of course the stadium

710
00:31:06,749 --> 00:31:03,639
is filling up and with me now is dr.

711
00:31:09,719 --> 00:31:06,759
Gregory guzik and introduce yourself

712
00:31:11,819 --> 00:31:09,729
sign who are you with so my name is Greg

713
00:31:13,919 --> 00:31:11,829

guzik I'm a professor of physics in the

714

00:31:16,019 --> 00:31:13,929

department of physics and astronomy at

715

00:31:17,759 --> 00:31:16,029

Louisiana State University more

716

00:31:20,369 --> 00:31:17,769

importantly I'm actually the director of

717

00:31:22,469 --> 00:31:20,379

the museum space grant consortium okay

718

00:31:25,379 --> 00:31:22,479

now what is that consortium who is it

719

00:31:28,349 --> 00:31:25,389

composed of and what is its mission so

720

00:31:29,999 --> 00:31:28,359

the National Space Grant college and

721

00:31:32,609 --> 00:31:30,009

fellowship program was established by

722

00:31:34,619 --> 00:31:32,619

Congress in 1987 it's a nationwide

723

00:31:36,269 --> 00:31:34,629

effort every state in the Union plus

724

00:31:39,839 --> 00:31:36,279

Puerto Rico and Washington DC has a

725

00:31:43,469 --> 00:31:39,849

consortium and for this project there's

726

00:31:45,299 --> 00:31:43,479

a team collection of about 55 student

727

00:31:47,699 --> 00:31:45,309

teams placed from Oregon to South

728

00:31:49,199 --> 00:31:47,709

Carolina who are gonna fly balloon pail

729

00:31:52,079 --> 00:31:49,209

it's very similar to what we're gonna

730

00:31:54,419 --> 00:31:52,089

fly here from Bob Saluki Stadium and

731

00:31:56,099 --> 00:31:54,429

what I when I think weather balloons I

732

00:31:59,969 --> 00:31:56,109

have this image I think of one of my old

733

00:32:01,409 --> 00:31:59,979

time life series of books the National

734

00:32:03,389 --> 00:32:01,419

Weather Service was launching a

735

00:32:05,430 --> 00:32:03,399

monstrous balloon this balloon that are

736

00:32:07,499 --> 00:32:05,440

in my memory was like a hundred feet

737

00:32:08,759 --> 00:32:07,509

long but yours are a little bit

738

00:32:11,369 --> 00:32:08,769

different can you talk about the

739

00:32:14,249 --> 00:32:11,379

structure of these balloons so these are

740

00:32:16,109 --> 00:32:14,259

normal balloons that that the Weather

741

00:32:17,879 --> 00:32:16,119

Service actually uses hence the name

742

00:32:20,669 --> 00:32:17,889

weather balloons they're made out of

743

00:32:21,930 --> 00:32:20,679

latex rubber when they're fully inflated

744

00:32:23,220 --> 00:32:21,940

here on the ground they're about eight

745

00:32:26,310 --> 00:32:23,230

foot in diameter

746

00:32:28,470 --> 00:32:26,320

and as we go up in the stratosphere

747

00:32:31,019 --> 00:32:28,480

they'll expand to about 40 feet in

748

00:32:32,850 --> 00:32:31,029

diameter okay and if I if I believe

749

00:32:35,310 --> 00:32:32,860

right now on your television screen I

750

00:32:37,190 --> 00:32:35,320

think you are actually seeing some data

751
00:32:40,680 --> 00:32:37,200
and video from these weather balloons

752
00:32:42,570 --> 00:32:40,690
also early you told me you all right

753
00:32:43,769 --> 00:32:42,580
Thank You NASA edge from Carbondale

754
00:32:46,169 --> 00:32:43,779
Illinois I know you guys were asking

755
00:32:47,789 --> 00:32:46,179
about the cloud cover here in Charleston

756
00:32:49,560 --> 00:32:47,799
unfortunately it is starting to increase

757
00:32:51,539 --> 00:32:49,570
as predicted I don't know if you can see

758
00:32:53,220 --> 00:32:51,549
it over our shoulders here but it's

759
00:32:56,370 --> 00:32:53,230
pretty pretty cloudy right now but that

760
00:33:00,860 --> 00:32:56,380
has not bangs not done anything to the

761
00:33:06,629 --> 00:33:04,379
earlier it's ready there are 35,000 feet

762
00:33:08,789 --> 00:33:06,639
up and ready for us we have an exclusive

763
00:33:11,070 --> 00:33:08,799

feed as they fly over the Pacific Ocean

764

00:33:18,130 --> 00:33:11,080

Kevin roar from NASA's Armstrong Flight

765

00:33:23,560 --> 00:33:21,220

she's pausing hi welcome aboard

766

00:33:25,180 --> 00:33:23,570

we're on NASA Armstrong's g3 aircraft

767

00:33:26,860 --> 00:33:25,190

right above the Pacific coast

768

00:33:28,570 --> 00:33:26,870

I'm Kevin roar and I'll be your host on

769

00:33:30,880 --> 00:33:28,580

the aircraft in a big howdy and thanks

770

00:33:33,340 --> 00:33:30,890

everybody on on the ground that's making

771

00:33:35,139 --> 00:33:33,350

this shot happen we've got a fantastic

772

00:33:36,909 --> 00:33:35,149

look out the window right now we're

773

00:33:38,440 --> 00:33:36,919

circling above Lincoln City if you got a

774

00:33:40,060 --> 00:33:38,450

little bit of cloud cover down there but

775

00:33:41,710 --> 00:33:40,070

we're gonna have a fantastic view of the

776

00:33:45,100 --> 00:33:41,720

Eclipse and this should prove to be a

777

00:33:46,899 --> 00:33:45,110

wonderful day with me today is a Robert

778

00:33:48,730 --> 00:33:46,909

Lightfoot administrator of NASA as well

779

00:33:50,350 --> 00:33:48,740

as doctors of Buchan head of science and

780

00:33:51,850 --> 00:33:50,360

what we're going to do is cut to them

781

00:33:53,200 --> 00:33:51,860

really quickly so we can have a little

782

00:33:56,259 --> 00:33:53,210

discussion and what are your impressions

783

00:33:58,029 --> 00:33:56,269

today Robert thanks Kevin what a great

784

00:34:00,879 --> 00:33:58,039

morning so far over the Pacific Ocean

785

00:34:03,370 --> 00:34:00,889

where we got to see the first bites out

786

00:34:05,649 --> 00:34:03,380

of the out of the Sun from the moon just

787

00:34:06,700 --> 00:34:05,659

an incredible view so far I really want

788

00:34:09,040 --> 00:34:06,710

to thank all the teams that are out

789

00:34:10,450 --> 00:34:09,050

there all over the country helping us to

790

00:34:12,250 --> 00:34:10,460

get the science the most science we can

791

00:34:13,599 --> 00:34:12,260

get from here really going to be an

792

00:34:15,220 --> 00:34:13,609

inspirational day and hopefully inspire

793

00:34:17,139 --> 00:34:15,230

the next generation of scientists

794

00:34:18,399 --> 00:34:17,149

engineers like like me even in the

795

00:34:20,260 --> 00:34:18,409

current generation pretty inspirational

796

00:34:21,790 --> 00:34:20,270

from that standpoint volunteers

797

00:34:24,550 --> 00:34:21,800

everywhere so we're excited about what's

798

00:34:26,619 --> 00:34:24,560

going on and you know I got turned over

799

00:34:28,720 --> 00:34:26,629

to my buddy Thomas here he this is this

800

00:34:30,339 --> 00:34:28,730

is his field of field of study so Thomas

801
00:34:32,139 --> 00:34:30,349
what'd you think so far oh it's amazing

802
00:34:33,970 --> 00:34:32,149
we're already seeing it happening right

803
00:34:35,859 --> 00:34:33,980
alright how why do you think this is

804
00:34:38,109 --> 00:34:35,869
important to NASA and the United States

805
00:34:40,329 --> 00:34:38,119
well for us is a great opportunity we

806
00:34:42,399 --> 00:34:40,339
took the totality across the continent

807
00:34:44,230 --> 00:34:42,409
we're gonna learn as much as we can we

808
00:34:46,570 --> 00:34:44,240
study Helio physics and astrophysics and

809
00:34:49,270 --> 00:34:46,580
NASA and this is a great opportunity for

810
00:34:50,800 --> 00:34:49,280
us to learn even more and have every

811
00:34:52,990 --> 00:34:50,810
instrument we have out there available

812
00:34:53,919 --> 00:34:53,000
to us to to try to try to understand

813
00:34:56,530 --> 00:34:53,929

what we're going to see for the first

814

00:34:58,750 --> 00:34:56,540

time in 99 years so just very very

815

00:35:00,040 --> 00:34:58,760

exciting it to see what we can do here

816

00:35:01,780 --> 00:35:00,050

and the observations that we're going to

817

00:35:03,190 --> 00:35:01,790

get can't wait to see the science come

818

00:35:04,900 --> 00:35:03,200

in and all the different science we're

819

00:35:06,400 --> 00:35:04,910

gonna get from here so you know

820

00:35:07,480 --> 00:35:06,410

everybody's gonna learn something so you

821

00:35:09,010 --> 00:35:07,490

tell me what you think you're gonna

822

00:35:11,140 --> 00:35:09,020

learn Thomas having been studying this

823

00:35:13,720 --> 00:35:11,150

for for your whole career well look my

824

00:35:16,570 --> 00:35:13,730

eye field of study is the Sun and what's

825

00:35:19,690 --> 00:35:16,580

really unique about this time is the

826

00:35:21,970 --> 00:35:19,700

opportunity to see the solar corona the

827

00:35:23,320 --> 00:35:21,980

atmosphere of the Sun during the entire

828

00:35:26,290 --> 00:35:23,330

time of the Eclipse stitched together

829

00:35:27,490 --> 00:35:26,300

for one and a half hours and the Sun of

830

00:35:29,109 --> 00:35:27,500

course is important because it's the

831

00:35:31,760 --> 00:35:29,119

most important star everything we learn

832

00:35:33,700 --> 00:35:31,770

about other stars we learn here first

833

00:35:35,690 --> 00:35:33,710

it's also a source of sweater and

834

00:35:37,640 --> 00:35:35,700

radiation and actually onboard this

835

00:35:40,040 --> 00:35:37,650

aircraft we have two instruments one

836

00:35:41,930 --> 00:35:40,050

from Los Alamos and one from space

837

00:35:44,690 --> 00:35:41,940

environment technologies that make those

838

00:35:47,420 --> 00:35:44,700

very measurements of how this radiation

839

00:35:48,890 --> 00:35:47,430

affects us yeah I think it's important

840

00:35:50,450 --> 00:35:48,900

the more we know about the Sun more you

841

00:35:52,220 --> 00:35:50,460

know space weather will also it'll help

842

00:35:54,500 --> 00:35:52,230

us protect our own spacecraft in the

843

00:35:56,150 --> 00:35:54,510

future it'll also help us protect my

844

00:35:57,710 --> 00:35:56,160

restaurants as we sing crew further so

845

00:35:59,300 --> 00:35:57,720

and our home planet in terms of what's

846

00:36:00,320 --> 00:35:59,310

going on here so why don't you tell me

847

00:36:01,610 --> 00:36:00,330

what you think we're gonna see today

848

00:36:03,730 --> 00:36:01,620

what we're going to learn today through

849

00:36:06,800 --> 00:36:03,740

this to this in just an incredible event

850

00:36:09,650 --> 00:36:06,810

so one of the most amazing parts of this

851
00:36:11,540 --> 00:36:09,660
is I really to see the star as a

852
00:36:14,720 --> 00:36:11,550
magnetic star and now what I'm showing

853
00:36:17,210 --> 00:36:14,730
here is actually a prediction of the

854
00:36:19,610 --> 00:36:17,220
space environment off the Sun today by

855
00:36:21,410 --> 00:36:19,620
predictive sciences and 3d printed by of

856
00:36:23,690 --> 00:36:21,420
Applied Physics lab and it basically

857
00:36:25,760 --> 00:36:23,700
shows that these magnetic fields are

858
00:36:28,850 --> 00:36:25,770
there and and what's really going to be

859
00:36:31,040 --> 00:36:28,860
great today as we're able to test these

860
00:36:33,620 --> 00:36:31,050
models using observations from the

861
00:36:35,830 --> 00:36:33,630
ground that we normally don't have and

862
00:36:38,420 --> 00:36:35,840
so this is really exciting for us

863
00:36:40,520 --> 00:36:38,430

very good we've got over 11 spacecraft

864

00:36:42,290 --> 00:36:40,530

and over 50 balloons going up we've got

865

00:36:46,070 --> 00:36:42,300

airborne science like we're even doing

866

00:36:47,390 --> 00:36:46,080

here on the g3 can you explain what we

867

00:36:48,770 --> 00:36:47,400

expect to get out of the spectrograph

868

00:36:51,170 --> 00:36:48,780

we're gonna have here on the on the

869

00:36:52,700 --> 00:36:51,180

plane today so a spectrograph is

870

00:36:54,590 --> 00:36:52,710

basically taking the light of the Sun

871

00:36:56,600 --> 00:36:54,600

which is white and spreads it into its

872

00:37:00,440 --> 00:36:56,610

colors and what we're going to see is

873

00:37:03,680 --> 00:37:00,450

during the time of now and partial

874

00:37:05,240 --> 00:37:03,690

totality we basically see during a

875

00:37:06,530 --> 00:37:05,250

partial eclipse we see the radiation

876

00:37:08,120 --> 00:37:06,540

from the surface of the Sun the

877

00:37:10,070 --> 00:37:08,130

photosphere and all colors are there

878

00:37:11,660 --> 00:37:10,080

well whenever in total eclipse what

879

00:37:13,280 --> 00:37:11,670

we're gonna see is the radiation from

880

00:37:15,320 --> 00:37:13,290

the atmosphere that we normally really

881

00:37:17,720 --> 00:37:15,330

don't see that up close and that

882

00:37:20,600 --> 00:37:17,730

radiation actually has two predominant

883

00:37:22,970 --> 00:37:20,610

lines one is a really hot iron and the

884

00:37:24,530 --> 00:37:22,980

other one is you know big hot because

885

00:37:26,000 --> 00:37:24,540

it's a million degrees because of that

886

00:37:28,040 --> 00:37:26,010

magnetic field the other one is helium

887

00:37:29,870 --> 00:37:28,050

called heal and because of Helios the

888

00:37:31,370 --> 00:37:29,880

Sun in Greek so that it was actually

889

00:37:34,880 --> 00:37:31,380

discovered during eclipse let's just

890

00:37:38,570 --> 00:37:34,890

like it today very cool so here we are

891

00:37:40,310 --> 00:37:38,580

about 30 minutes away from totality but

892

00:37:41,900 --> 00:37:40,320

you can explain to me what you'd think

893

00:37:43,280 --> 00:37:41,910

from a spectrograph perspective you're

894

00:37:45,640 --> 00:37:43,290

gonna look out the window what are you

895

00:37:48,490 --> 00:37:45,650

gonna see there well so for me

896

00:37:52,390 --> 00:37:48,500

the amazing part really is that were

897

00:37:53,859 --> 00:37:52,400

able to of course see our star in its

898

00:37:56,470 --> 00:37:53,869

beauty and I'm already kind of

899

00:37:59,200 --> 00:37:56,480

emotionally attached even now but also

900

00:38:01,510 --> 00:37:59,210

we're gonna see how that eclipses that

901
00:38:03,640 --> 00:38:01,520
the lack of radiation there's perfect

902
00:38:05,650 --> 00:38:03,650
cloud that the moon makes affects the

903
00:38:07,180 --> 00:38:05,660
earth and it's turbulence and I mean I'm

904
00:38:10,000 --> 00:38:07,190
really gonna see what are we gonna feel

905
00:38:11,470 --> 00:38:10,010
it up here cool alright thanks Thomas

906
00:38:13,740 --> 00:38:11,480
and thanks for sharing everybody out

907
00:38:16,180 --> 00:38:13,750
there I tell you about 30 minutes away

908
00:38:17,799 --> 00:38:16,190
we're gonna measure as much as we can

909
00:38:19,269 --> 00:38:17,809
here and and I'm about to fight this man

910
00:38:20,769 --> 00:38:19,279
for a window seat so when you get on an

911
00:38:22,750 --> 00:38:20,779
airplane and you look for window seat

912
00:38:24,940 --> 00:38:22,760
get your glasses on we're gonna flick

913
00:38:27,370 --> 00:38:24,950

out here and we're gonna wrap up here

914

00:38:31,000 --> 00:38:27,380

from the g3 and send it back to solar

915

00:38:32,500 --> 00:38:31,010

eclipse central see you guys soon wow

916

00:38:35,079 --> 00:38:32,510

that's crazy

917

00:38:36,549 --> 00:38:35,089

thank you to those of you on the g3 to

918

00:38:38,680 --> 00:38:36,559

fill us in on what you're gonna be

919

00:38:41,200 --> 00:38:38,690

seeing from there here we are on the

920

00:38:43,569 --> 00:38:41,210

other side of the country here in

921

00:38:44,980 --> 00:38:43,579

Charleston South Carolina I want to give

922

00:38:47,640 --> 00:38:44,990

a shout out to the College of the

923

00:38:50,410 --> 00:38:47,650

students here have been so incredibly

924

00:38:53,289 --> 00:38:50,420

great for us and we are actually going

925

00:38:54,880 --> 00:38:53,299

to have a chance to go back to Salem

926

00:38:58,150 --> 00:38:54,890

Oregon and find out a little bit more

927

00:39:00,819 --> 00:38:58,160

about what they are seeing there they're

928

00:39:03,190 --> 00:39:00,829

talking about this this moon picture

929

00:39:04,990 --> 00:39:03,200

right here right we've got a live

930

00:39:05,829 --> 00:39:05,000

picture right now from Salem Oregon we

931

00:39:07,839 --> 00:39:05,839

were showing you earlier in the

932

00:39:09,099 --> 00:39:07,849

broadcast and as you can see as we

933

00:39:11,019 --> 00:39:09,109

didn't sort of describing it as the moon

934

00:39:13,839 --> 00:39:11,029

taking a bite out of the Sun that's

935

00:39:15,640 --> 00:39:13,849

that's it's continuing to happen and the

936

00:39:17,769 --> 00:39:15,650

what looks like Charon is like it's

937

00:39:19,750 --> 00:39:17,779

almost like the the Sun what we see is

938

00:39:21,010 --> 00:39:19,760

almost like a crescent moon but it's not

939

00:39:23,109 --> 00:39:21,020

it's the moon is actually the black

940

00:39:25,630 --> 00:39:23,119

portion in the upper right-hand portion

941

00:39:28,390 --> 00:39:25,640

of the Sun that's being blocked out as

942

00:39:31,750 --> 00:39:28,400

we get closer and closer toward totality

943

00:39:33,579 --> 00:39:31,760

which is Robert and and Thomas said on

944

00:39:36,970 --> 00:39:33,589

from the g3 aircraft is only about 30

945

00:39:39,640 --> 00:39:36,980

minutes away for folks in Oregon and and

946

00:39:42,490 --> 00:39:39,650

we will go right to Madras which is

947

00:39:45,160 --> 00:39:42,500

right near Oregon this is another view

948

00:39:46,900 --> 00:39:45,170

of the Eclipse what are the great things

949

00:39:49,690 --> 00:39:46,910

about this particular cliff Sean right

950

00:39:51,460 --> 00:39:49,700

is that the totality will be over land

951
00:39:54,250 --> 00:39:51,470
for so long so we're about to start

952
00:39:55,520 --> 00:39:54,260
seeing it in Oregon but normally you

953
00:39:57,470 --> 00:39:55,530
know most times you have

954
00:40:00,080 --> 00:39:57,480
a lot of it happens over the over the

955
00:40:01,490 --> 00:40:00,090
ocean right right right so for folks

956
00:40:03,470 --> 00:40:01,500
especially here in the United States

957
00:40:05,330 --> 00:40:03,480
this is the first time from coast to

958
00:40:08,150 --> 00:40:05,340
coast that we've seen a total solar

959
00:40:09,590 --> 00:40:08,160
eclipse since 1979 and so that's why for

960
00:40:11,410 --> 00:40:09,600
a lot of folks are saying about this

961
00:40:13,760 --> 00:40:11,420
being a once-in-a-lifetime opportunity

962
00:40:17,030 --> 00:40:13,770
and remember it takes about 90 minutes

963
00:40:19,100 --> 00:40:17,040

for the totality portion of the Eclipse

964

00:40:20,540 --> 00:40:19,110

to cross the United States the

965

00:40:22,880 --> 00:40:20,550

continental United States so as they

966

00:40:25,390 --> 00:40:22,890

mentioned earlier from the g3 about 30

967

00:40:28,130 --> 00:40:25,400

30 minutes from now to totality they're

968

00:40:29,750 --> 00:40:28,140

about 90 minutes to get to where we are

969

00:40:31,700 --> 00:40:29,760

here in Charleston so that means what

970

00:40:34,310 --> 00:40:31,710

about times right about two hours will

971

00:40:36,230 --> 00:40:34,320

be a totality here and we are now going

972

00:40:38,900 --> 00:40:36,240

to go to Salem Oregon where Jesse

973

00:40:47,630 --> 00:40:38,910

carpenter will be talking to Nikki viola

974

00:40:50,420 --> 00:40:47,640

solar scientists from NASA welcome back

975

00:40:55,100 --> 00:40:50,430

to Salem Oregon it is clear but yes it

976

00:40:57,800 --> 00:40:55,110

is a little bit breezy I'm joined again

977

00:41:02,180 --> 00:40:57,810

with solar NASA NASA solar physicist

978

00:41:03,950 --> 00:41:02,190

nikoline file hi hey so why don't we why

979

00:41:05,870 --> 00:41:03,960

don't we just take a look at what we've

980

00:41:07,940 --> 00:41:05,880

got going on here now that transit is

981

00:41:09,680 --> 00:41:07,950

deep under way yeah so the moon is

982

00:41:11,180 --> 00:41:09,690

crossing in front of the Sun and it's

983

00:41:13,250 --> 00:41:11,190

kind of looking like the moon is taking

984

00:41:15,950 --> 00:41:13,260

a bite out of a Sun and if you guys have

985

00:41:18,410 --> 00:41:15,960

any Colin ders with you like a kitchen

986

00:41:20,690 --> 00:41:18,420

colander strainer you can actually see

987

00:41:22,160 --> 00:41:20,700

if you let the sunlight come through

988

00:41:23,600 --> 00:41:22,170

that colander look at the shadow on the

989

00:41:26,120 --> 00:41:23,610

ground below you you'll actually be able

990

00:41:27,800 --> 00:41:26,130

to see the projected image of the moon

991

00:41:30,800 --> 00:41:27,810

taking a bite out of the Sun down on the

992

00:41:32,900 --> 00:41:30,810

ground in front of you that's cool yeah

993

00:41:35,090 --> 00:41:32,910

you can just get something from the

994

00:41:36,680 --> 00:41:35,100

kitchen and and share that with everyone

995

00:41:38,180 --> 00:41:36,690

who you're watching this with that's

996

00:41:39,710 --> 00:41:38,190

great that's right now it's the time to

997

00:41:41,720 --> 00:41:39,720

take out your pinhole cameras if you

998

00:41:44,090 --> 00:41:41,730

have those or if you have those you know

999

00:41:45,980 --> 00:41:44,100

the safety eclipse classes now it's the

1000

00:41:48,380 --> 00:41:45,990

time to get these out and make sure to

1001

00:41:50,420 --> 00:41:48,390

look at the Sun with these on that's

1002

00:41:51,740 --> 00:41:50,430

right you want to be watching safely and

1003

00:41:53,990 --> 00:41:51,750

I know we've been talking about it but

1004

00:41:55,550 --> 00:41:54,000

we really can't stress it enough it's

1005

00:41:58,280 --> 00:41:55,560

very important to be wearing these

1006

00:41:59,900 --> 00:41:58,290

glasses it's just so amazing though to

1007

00:42:01,460 --> 00:41:59,910

see the moon crossing in front of the

1008

00:42:02,829 --> 00:42:01,470

Sun I mean you never get to see anything

1009

00:42:07,640 --> 00:42:02,839

like this

1010

00:42:08,900 --> 00:42:07,650

so what are there's some basics that you

1011

00:42:10,310 --> 00:42:08,910

could share with us I know we were

1012

00:42:12,170 --> 00:42:10,320

trying to present some of that a little

1013

00:42:14,569 --> 00:42:12,180

bit earlier in the show yeah but are

1014

00:42:16,339 --> 00:42:14,579

there some things that maybe you could

1015

00:42:18,800 --> 00:42:16,349

talk a little bit about the layers of

1016

00:42:20,390 --> 00:42:18,810

the Sun yeah yeah so there's sort of

1017

00:42:21,710 --> 00:42:20,400

three outer layers of the Sun there's

1018

00:42:24,050 --> 00:42:21,720

the photosphere that's the part we're

1019

00:42:25,579 --> 00:42:24,060

seeing now there's the Koroma sphere and

1020

00:42:26,450 --> 00:42:25,589

the corona above that the chromosphere

1021

00:42:28,910 --> 00:42:26,460

in the corona

1022

00:42:31,280 --> 00:42:28,920

that's the solar atmosphere now what's

1023

00:42:32,720 --> 00:42:31,290

cool about today is that usually we get

1024

00:42:35,180 --> 00:42:32,730

to see the photosphere the visible

1025

00:42:36,710 --> 00:42:35,190

surface of the Sun but today during

1026
00:42:38,359 --> 00:42:36,720
totality we're gonna get to see the

1027
00:42:40,069 --> 00:42:38,369
atmosphere the chromosphere and the

1028
00:42:41,839 --> 00:42:40,079
corona of the Sun and we don't usually

1029
00:42:44,030 --> 00:42:41,849
get to see those because there's so much

1030
00:42:46,220 --> 00:42:44,040
less bright than the Sun it takes

1031
00:42:48,250 --> 00:42:46,230
something special like today's total

1032
00:42:52,880 --> 00:42:48,260
solar eclipse to be able to see them so

1033
00:42:57,470 --> 00:42:52,890
that's really amazing we're gonna it is

1034
00:43:00,770 --> 00:42:57,480
so cool so I I think what we're gonna be

1035
00:43:03,680 --> 00:43:00,780
doing now is sending it back to NASA's

1036
00:43:09,890 --> 00:43:03,690
Eclipse central in Charleston take it

1037
00:43:18,329 --> 00:43:14,700
[Applause]

1038
00:43:20,730 --> 00:43:18,339

for us I've had the chance to interview

1039

00:43:22,109 --> 00:43:20,740

style then just a few days ago the

1040

00:43:24,000 --> 00:43:22,119

college of Towson students are excited

1041

00:43:33,780 --> 00:43:24,010

and I wanted to find out what they knew

1042

00:43:40,589 --> 00:43:33,790

about the clips so right now what we're

1043

00:43:43,980 --> 00:43:40,599

looking at on your screen is hello I am

1044

00:43:45,810 --> 00:43:43,990

Karen Fox with NASA TV I'm here at the

1045

00:43:48,930 --> 00:43:45,820

College of Charleston in Charleston

1046

00:43:51,180 --> 00:43:48,940

South Carolina and we are going to spend

1047

00:43:53,370 --> 00:43:51,190

some time interviewing students to find

1048

00:43:57,930 --> 00:43:53,380

out what they know about the total

1049

00:44:00,089 --> 00:43:57,940

eclipse of 2017 what's happening on

1050

00:44:05,880 --> 00:44:00,099

Monday the solar eclipse is happening

1051
00:44:15,960 --> 00:44:08,040
oh I'm pons I've been talking about it

1052
00:44:17,849 --> 00:44:15,970
all summer what is an eclipse it's when

1053
00:44:20,820 --> 00:44:17,859
the moon passes in front of the Sun and

1054
00:44:26,540 --> 00:44:20,830
creates a shadow on earth what is the

1055
00:44:29,790 --> 00:44:26,550
closest star to earth the Sun the Sun

1056
00:44:35,730 --> 00:44:29,800
very nice will you demonstrate for me

1057
00:44:36,750 --> 00:44:35,740
putting these on the music to associate

1058
00:44:37,710 --> 00:44:36,760
with the Eclipse what have you been

1059
00:44:40,470 --> 00:44:37,720
listening to you when you're going to

1060
00:44:41,460 --> 00:44:40,480
listen to here comes the Sun total

1061
00:44:50,750 --> 00:44:41,470
eclipse

1062
00:44:53,130 --> 00:44:50,760
[Music]

1063
00:44:55,170 --> 00:44:53,140

so I was really impressed with how much

1064

00:44:59,640 --> 00:44:55,180

these students knew we had a great time

1065

00:45:01,980 --> 00:44:59,650

here and now you can once again see the

1066

00:45:04,230 --> 00:45:01,990

imagery we are pulling in of a white

1067

00:45:05,400 --> 00:45:04,240

light telescope of two eclipses

1068

00:45:07,370 --> 00:45:05,410

happening as we speak these again are

1069

00:45:09,089 --> 00:45:07,380

the partial eclipses Salem Oregon and

1070

00:45:11,010 --> 00:45:09,099

Madras Oregon

1071

00:45:13,829 --> 00:45:11,020

right as you can see that's quite an

1072

00:45:18,150 --> 00:45:13,839

image as that moon continues to progress

1073

00:45:20,609 --> 00:45:18,160

transit is the term over the surface of

1074

00:45:22,800 --> 00:45:20,619

the Sun getting closer and closer toward

1075

00:45:24,240 --> 00:45:22,810

totality and again this is an

1076

00:45:25,800 --> 00:45:24,250

opportunity for us to remind folks

1077

00:45:27,180 --> 00:45:25,810

regardless of whether you're watching

1078

00:45:28,710 --> 00:45:27,190

this right now in Oregon or if you're

1079

00:45:31,319 --> 00:45:28,720

anticipating the beginning of the

1080

00:45:32,849 --> 00:45:31,329

Eclipse from another location in the US

1081

00:45:34,950 --> 00:45:32,859

or really across North America wherever

1082

00:45:37,050 --> 00:45:34,960

you are able to view us from that it's

1083

00:45:38,400 --> 00:45:37,060

important that you have to have those

1084

00:45:39,480 --> 00:45:38,410

safety glasses we cannot stress that

1085

00:45:41,760 --> 00:45:39,490

enough we've been getting a lot of

1086

00:45:44,190 --> 00:45:41,770

questions on social media people just

1087

00:45:46,680 --> 00:45:44,200

emailing us asking about that you must

1088

00:45:48,120 --> 00:45:46,690

have the glasses unless you are in the

1089

00:45:50,910 --> 00:45:48,130

path of totality and during those brief

1090

00:45:52,829 --> 00:45:50,920

moments of totality right and and it's

1091

00:45:54,599 --> 00:45:52,839

sean is stressing the glasses but of

1092

00:45:57,240 --> 00:45:54,609

course you can also watch the sun

1093

00:45:59,670 --> 00:45:57,250

indirectly there are a lot of ways

1094

00:46:01,079 --> 00:45:59,680

Nikki viol our solar scientists just

1095

00:46:02,730 --> 00:46:01,089

told us that you can even plot a

1096

00:46:04,950 --> 00:46:02,740

colander because it's got little pin

1097

00:46:07,440 --> 00:46:04,960

holes in it you can use a Ritz cracker

1098

00:46:11,099 --> 00:46:07,450

that has a hole in it the other thing is

1099

00:46:14,430 --> 00:46:11,109

you might even see the Eclipse image

1100

00:46:16,230 --> 00:46:14,440

filtering through a base between leaves

1101

00:46:19,440 --> 00:46:16,240

our tree there is there some really

1102

00:46:22,800 --> 00:46:19,450

wonderful ways of catching imagery of of

1103

00:46:24,450 --> 00:46:22,810

it so you know be safe but don't think

1104

00:46:26,550 --> 00:46:24,460

you absolutely have to have the glasses

1105

00:46:27,990 --> 00:46:26,560

that is not your only option should we

1106

00:46:29,700 --> 00:46:28,000

talk a little bit at the science we

1107

00:46:30,990 --> 00:46:29,710

should before that I just want to give a

1108

00:46:31,950 --> 00:46:31,000

shout out to to our website because

1109

00:46:33,690 --> 00:46:31,960

you're talking about all these great

1110

00:46:36,030 --> 00:46:33,700

ways to indirectly view it and again

1111

00:46:38,339 --> 00:46:36,040

just a plug for the Eclipse 2017

1112

00:46:40,710 --> 00:46:38,349

nasa.gov site where you can find all

1113

00:46:42,870 --> 00:46:40,720

kinds of information but especially some

1114

00:46:44,760 --> 00:46:42,880

do-it-yourself instructions on how to

1115

00:46:46,380 --> 00:46:44,770

create some of those indirect viewing

1116

00:46:49,260 --> 00:46:46,390

methods great we've talked a lot here

1117

00:46:51,599 --> 00:46:49,270

about the partial eclipse niki vile who

1118

00:46:54,359 --> 00:46:51,609

you just heard talking she studies the

1119

00:46:55,980 --> 00:46:54,369

corona that is the atmosphere around the

1120

00:46:57,109 --> 00:46:55,990

Sun and she was telling me just the

1121

00:46:59,150 --> 00:46:57,119

other day how excited

1122

00:47:01,549 --> 00:46:59,160

she is that she is going to be able to

1123

00:47:03,470 --> 00:47:01,559

see that with her naked eye during the

1124

00:47:05,180 --> 00:47:03,480

actual total solar eclipse so that's

1125

00:47:07,999 --> 00:47:05,190

what's interesting we can only see that

1126

00:47:09,859 --> 00:47:08,009

normally from space with our space

1127

00:47:11,450 --> 00:47:09,869

telescopes right and even with that I

1128

00:47:13,220 --> 00:47:11,460

was talking to one of the Hilo physicist

1129

00:47:15,589 --> 00:47:13,230

Helio physicists back into NASA

1130

00:47:17,660 --> 00:47:15,599

headquarters in Washington DC recently

1131

00:47:20,029 --> 00:47:17,670

about this that even with those those

1132

00:47:22,370 --> 00:47:20,039

artificial eclipses that they create

1133

00:47:24,259 --> 00:47:22,380

from the kernel graphs are called in

1134

00:47:26,359 --> 00:47:24,269

space it doesn't give you the same

1135

00:47:28,009 --> 00:47:26,369

viewing opportunities that we have with

1136

00:47:29,690 --> 00:47:28,019

a natural eclipse like we're seeing now

1137

00:47:31,519 --> 00:47:29,700

that there's there's actually a couple

1138

00:47:33,440 --> 00:47:31,529

different layers of the Sun's corona we

1139

00:47:35,749 --> 00:47:33,450

have the outer corona and the inner

1140

00:47:39,170 --> 00:47:35,759

corona and because of the the way those

1141

00:47:42,109 --> 00:47:39,180

coronagraphs work they do not allow a

1142

00:47:43,940 --> 00:47:42,119

good image of the inner corona the part

1143

00:47:45,769 --> 00:47:43,950

that's really close to the sun's surface

1144

00:47:49,519 --> 00:47:45,779

only the outer corona it's only during

1145

00:47:50,930 --> 00:47:49,529

an actual natural total solar eclipse

1146

00:47:53,569 --> 00:47:50,940

like we're viewing today across the

1147

00:47:55,130 --> 00:47:53,579

country that scientists helio physicists

1148

00:47:57,829 --> 00:47:55,140

and and others and just the general

1149

00:47:59,390 --> 00:47:57,839

public are able to see the entire corona

1150

00:48:01,220 --> 00:47:59,400

and that really gives them a lot more

1151
00:48:02,630 --> 00:48:01,230
information and remember for these

1152
00:48:04,940 --> 00:48:02,640
scientists no matter where they are they

1153
00:48:06,529 --> 00:48:04,950
only have that brief maybe two minutes

1154
00:48:07,729 --> 00:48:06,539
maybe three if you're if you're really

1155
00:48:11,690 --> 00:48:07,739
lucky right in the center line of

1156
00:48:19,620 --> 00:48:11,700
totality to see the entire corona and

1157
00:48:19,630 --> 00:48:35,060
[Music]

1158
00:48:39,450 --> 00:48:37,860
so again Karen is folks are looking at

1159
00:48:41,850 --> 00:48:39,460
their screen right now you see that

1160
00:48:44,730 --> 00:48:41,860
double image Salem Oregon there on the

1161
00:48:46,470 --> 00:48:44,740
left and nearby Madras on the right two

1162
00:48:49,080 --> 00:48:46,480
different images with two different

1163
00:48:50,730 --> 00:48:49,090

types of telescope using two to view

1164

00:48:52,950 --> 00:48:50,740

this eclipse it's still in the partial

1165

00:48:55,440 --> 00:48:52,960

stages starting to get closer and closer

1166

00:48:57,390 --> 00:48:55,450

toward totality in just a few minutes

1167

00:48:59,430 --> 00:48:57,400

and stick with us because we are going

1168

00:49:01,650 --> 00:48:59,440

to be tracing this Eclipse all the way

1169

00:49:02,970 --> 00:49:01,660

across the country not only does

1170

00:49:06,330 --> 00:49:02,980

everybody in the country have a great

1171

00:49:07,350 --> 00:49:06,340

view but we have some views from the sky

1172

00:49:09,120 --> 00:49:07,360

don't we shine

1173

00:49:10,770 --> 00:49:09,130

that's right looking up from the ground

1174

00:49:12,570 --> 00:49:10,780

is how most of us will experience today

1175

00:49:14,580 --> 00:49:12,580

is eclipses but researchers at Southern

1176

00:49:16,860 --> 00:49:14,590

Illinois University wanted a different

1177

00:49:19,080 --> 00:49:16,870

perspective they wanted to look down at

1178

00:49:20,730 --> 00:49:19,090

earth to image the moon's shadow in

1179

00:49:23,160 --> 00:49:20,740

Illinois and across the United States

1180

00:49:25,650 --> 00:49:23,170

teams are using high-altitude balloons

1181

00:49:27,060 --> 00:49:25,660

for a unique perspective right now

1182

00:49:29,550 --> 00:49:27,070

they're getting ready to launch a

1183

00:49:31,260 --> 00:49:29,560

research balloon from Saluki Stadium in

1184

00:49:33,450 --> 00:49:31,270

Carbondale Illinois we're gonna go back

1185

00:49:35,090 --> 00:49:33,460

to Carbondale Illinois the primary

1186

00:49:37,440 --> 00:49:35,100

payload will be a real-time

1187

00:49:44,150 --> 00:49:37,450

high-definition video system so let's

1188

00:49:48,870 --> 00:49:47,160

clips in 4e it's like being on the

1189

00:49:50,310 --> 00:49:48,880

surface but you know to actually

1190

00:49:52,500 --> 00:49:50,320

understand the cone is very important

1191

00:49:54,390 --> 00:49:52,510

because all sun-like stars have lacunae

1192

00:49:55,560 --> 00:49:54,400

we need to understand why the energies

1193

00:49:57,360 --> 00:49:55,570

released and the way it is

1194

00:49:59,010 --> 00:49:57,370

alright look we're getting a call we

1195

00:50:01,110 --> 00:49:59,020

need to go inside the stadium right now

1196

00:50:03,870 --> 00:50:01,120

they're about to launch the balloon for

1197

00:50:12,619 --> 00:50:03,880

the Louisiana Space Grant consortium so

1198

00:50:17,759 --> 00:50:15,359

that is what's gonna let that get safely

1199

00:50:23,579 --> 00:50:17,769

down to the ground and all those

1200

00:50:28,079 --> 00:50:23,589

instruments okay can you hear me okay

1201

00:50:30,359 --> 00:50:28,089

right yes this is Kevin voucher sorry

1202

00:50:31,049 --> 00:50:30,369

about the little mix-up I was I was too

1203

00:50:35,909 --> 00:50:31,059

enthralled

1204

00:50:38,219 --> 00:50:35,919

fantastic weather balloon that has just

1205

00:50:41,189 --> 00:50:38,229

launched you can probably see it behind

1206

00:50:42,989 --> 00:50:41,199

me and is pandemonium here but it's good

1207

00:50:46,079 --> 00:50:42,999

pandemonium one of the weather balloons

1208

00:50:48,839 --> 00:50:46,089

has launched and with me is one of the

1209

00:50:51,989 --> 00:50:48,849

team members introduce yourself to the

1210

00:50:54,209 --> 00:50:51,999

entire world no pressure hi my name is

1211

00:50:55,589 --> 00:50:54,219

Colleen fava I'm the program manager for

1212

00:50:58,919 --> 00:50:55,599

the Louisiana Space Grant consortium

1213

00:51:00,539 --> 00:50:58,929

based at LSU okay so just to kind of

1214

00:51:02,189 --> 00:51:00,549

keep a scorecard for people if they're

1215

00:51:04,949 --> 00:51:02,199

wondering we talked to I guess the

1216

00:51:08,459 --> 00:51:04,959

program director dr. Gregory guzik he is

1217

00:51:10,499 --> 00:51:08,469

your boss he's my boss what exactly does

1218

00:51:13,829 --> 00:51:10,509

your job entail with this resource him

1219

00:51:16,139 --> 00:51:13,839

I'm Anna the program so I write grants

1220

00:51:17,249 --> 00:51:16,149

and reports and organize students and

1221

00:51:20,039 --> 00:51:17,259

keep them on track and I do

1222

00:51:22,079 --> 00:51:20,049

communications training sounds like you

1223

00:51:24,179 --> 00:51:22,089

do a lot of outreach as well and it

1224

00:51:25,799 --> 00:51:24,189

throws my heart and I'm sure it throws

1225

00:51:29,249 --> 00:51:25,809

your heart to see so many of these young

1226

00:51:31,379 --> 00:51:29,259

people you probably did not have to drag

1227

00:51:33,569 --> 00:51:31,389

these young people kicking and screaming

1228

00:51:36,419 --> 00:51:33,579

to do this help did you no no we brought

1229

00:51:38,159 --> 00:51:36,429

four institutions with us and LSU is the

1230

00:51:39,839 --> 00:51:38,169

the home team and so they were always

1231

00:51:42,149 --> 00:51:39,849

coming but we actually had a competition

1232

00:51:43,979 --> 00:51:42,159

to figure out which other students would

1233

00:51:46,919 --> 00:51:43,989

bring him we we brought a team of 46

1234

00:51:49,079 --> 00:51:46,929

people okay and right behind you now

1235

00:51:52,309 --> 00:51:49,089

there I have forgotten they're launching

1236

00:51:54,599 --> 00:51:52,319

two balloons now the first balloon I

1237

00:51:57,780 --> 00:51:54,609

think we have a video of the first

1238

00:52:07,080 --> 00:51:59,700

okay we're getting ready to launch the

1239

00:52:09,660 --> 00:52:07,090

second balloon the first balloon Colleen

1240

00:52:13,410 --> 00:52:09,670

that was launched where is it right now

1241

00:52:15,840 --> 00:52:13,420

maybe 2,000 feet you think they go up

1242

00:52:17,010 --> 00:52:15,850

about a thousand feet a minute so a few

1243

00:52:20,040 --> 00:52:17,020

thousand has probably been a couple of

1244

00:52:23,100 --> 00:52:20,050

minutes now there goes this other one

1245

00:52:27,060 --> 00:52:23,110

has launched it's a big yellow balloon

1246

00:52:29,460 --> 00:52:27,070

filled with helium and the next time we

1247

00:52:32,370 --> 00:52:29,470

see this balloon we'll be down on the

1248

00:52:35,490 --> 00:52:32,380

ground it'll have wonderful data can you

1249

00:52:37,710 --> 00:52:35,500

tell us about what goes into studying

1250

00:52:40,470 --> 00:52:37,720

the the winds and the weather reports

1251
00:52:42,870 --> 00:52:40,480
trying to calculate where this will land

1252
00:52:45,150 --> 00:52:42,880
so you can quickly retrieve it and get

1253
00:52:48,030 --> 00:52:45,160
your data that's a whole nother science

1254
00:52:50,280 --> 00:52:48,040
yeah so I'm not an expert on it I can

1255
00:52:52,740 --> 00:52:50,290
just tell you that we we do our predicts

1256
00:52:55,170 --> 00:52:52,750
we will we started our predicts months

1257
00:52:57,330 --> 00:52:55,180
ago doing them you know maybe every week

1258
00:52:59,490 --> 00:52:57,340
or so and then the last few weeks we've

1259
00:53:01,110 --> 00:52:59,500
been doing predicts every single day so

1260
00:53:03,960 --> 00:53:01,120
we have a good idea we think it'll go

1261
00:53:06,780 --> 00:53:03,970
about 36 kilometers about 22 miles do

1262
00:53:08,880 --> 00:53:06,790
you eat somewhere near Marian so we'll

1263
00:53:12,450 --> 00:53:08,890

have several chase vehicle it's kind of

1264

00:53:14,310 --> 00:53:12,460

staged and ready to go and I'm not sure

1265

00:53:16,500 --> 00:53:14,320

if they decided to leave before after

1266

00:53:18,450 --> 00:53:16,510

totality but we have some local people

1267

00:53:26,400 --> 00:53:18,460

helping us to make sure we have access

1268

00:53:28,860 --> 00:53:26,410

and now will you actually be on the

1269

00:53:33,990 --> 00:53:28,870

chase team yourself no I'm not gonna be

1270

00:53:34,710 --> 00:53:34,000

on the taste team I and it's very

1271

00:53:36,720 --> 00:53:34,720

exciting

1272

00:53:39,720 --> 00:53:36,730

oh I'm sure yeah can you tell me about

1273

00:53:42,480 --> 00:53:39,730

it and please get a specific as you can

1274

00:53:44,880 --> 00:53:42,490

what are some of the most eventful ones

1275

00:53:49,080 --> 00:53:44,890

like has has the balloon ever come down

1276

00:53:51,420 --> 00:53:49,090

in how did you know are you you're not

1277

00:53:52,350 --> 00:53:51,430

kidding me I'm not kidding you we did

1278

00:53:55,440 --> 00:53:52,360

have a landing in the Pontchartrain

1279

00:53:56,880 --> 00:53:55,450

River which which was not not a great

1280

00:53:59,370 --> 00:53:56,890

recovery but it was definitely better

1281

00:54:01,230 --> 00:53:59,380

than landing in the airport which we

1282

00:54:02,940 --> 00:54:01,240

were afraid was going to happen well I

1283

00:54:04,170 --> 00:54:02,950

was going to say I would rather land in

1284

00:54:06,870 --> 00:54:04,180

an airport because the Pontchartrain

1285

00:54:08,790 --> 00:54:06,880

River you have the water that might

1286

00:54:09,720 --> 00:54:08,800

damage some of your instruments but

1287

00:54:11,460 --> 00:54:09,730

you're the expert

1288

00:54:14,210 --> 00:54:11,470

right there I think we'd rather not

1289

00:54:16,650 --> 00:54:14,220

interfere with no traffic control

1290

00:54:18,660 --> 00:54:16,660

landing in a Pontchartrain River and I

1291

00:54:20,640 --> 00:54:18,670

assume the alligators did not make a

1292

00:54:23,150 --> 00:54:20,650

meal out of your several thousand

1293

00:54:25,650 --> 00:54:23,160

dollars worth of instruments we didn't

1294

00:54:27,300 --> 00:54:25,660

but we have done water recoveries in the

1295

00:54:30,930 --> 00:54:27,310

past and we actually just invested in an

1296

00:54:33,330 --> 00:54:30,940

inflatable kayak okay my producer just

1297

00:54:36,300 --> 00:54:33,340

told me we are seeing first contact

1298

00:54:38,970 --> 00:54:36,310

everybody we have people putting on

1299

00:54:41,490 --> 00:54:38,980

their glasses the first contact we are

1300

00:54:44,280 --> 00:54:41,500

seeing the first contact and we've got

1301
00:54:46,620 --> 00:54:44,290
about four minutes left how many total

1302
00:54:49,890 --> 00:54:46,630
solar eclipses have you seen Colleen

1303
00:54:52,140 --> 00:54:49,900
this is my first what I assume you have

1304
00:54:58,080 --> 00:54:52,150
your glasses feel free to go ahead and

1305
00:55:09,030 --> 00:54:58,090
put your glasses on yes please you know

1306
00:55:13,290 --> 00:55:09,040
my number right okay my my glasses are

1307
00:55:15,990 --> 00:55:13,300
are your glasses on - okay in this and

1308
00:55:18,150 --> 00:55:16,000
the Sun we are turning around would it

1309
00:55:20,460 --> 00:55:18,160
be okay if I turn my back to the camera

1310
00:55:22,490 --> 00:55:20,470
so I can see the circles oh okay I'm

1311
00:55:27,810 --> 00:55:22,500
going to turn my back to the camera oh

1312
00:55:31,890 --> 00:55:27,820
my gosh there is a small bite starting

1313
00:55:36,540 --> 00:55:31,900

in in the Sun what are your comments I

1314

00:55:40,140 --> 00:55:36,550

said that is gorgeous it is fantastic

1315

00:55:43,560 --> 00:55:40,150

the total solar eclipse in Carbondale

1316

00:55:45,810 --> 00:55:43,570

Illinois has begun a small bite is being

1317

00:55:49,380 --> 00:55:45,820

taken out of the Sun by our satellite

1318

00:55:52,349 --> 00:55:49,390

called the moon this this is incredible

1319

00:55:54,180 --> 00:55:52,359

earlier they were telling people to talk

1320

00:55:57,570 --> 00:55:54,190

about in one word to describe the

1321

00:55:59,220 --> 00:55:57,580

Eclipse the word for me is majestic a

1322

00:56:01,500 --> 00:55:59,230

lot of times I don't know about you

1323

00:56:03,450 --> 00:56:01,510

sometimes if I want to you know take a

1324

00:56:07,260 --> 00:56:03,460

break on my computer oh I can take these

1325

00:56:10,109 --> 00:56:07,270

out I will go to the solar I think it's

1326

00:56:12,330 --> 00:56:10,119

a dynamic observatory that often will

1327

00:56:13,740 --> 00:56:12,340

give videos of the rotating Sun and

1328

00:56:17,400 --> 00:56:13,750

Colleen I don't know about you but when

1329

00:56:20,220 --> 00:56:17,410

I see that giant ball of gas just

1330

00:56:22,289 --> 00:56:20,230

rotating majestic is a word that comes

1331

00:56:24,569 --> 00:56:22,299

to my mind could you agree I

1332

00:56:25,979 --> 00:56:24,579

absolutely agree it's amazing and I

1333

00:56:28,169 --> 00:56:25,989

think that we're really fortunate to

1334

00:56:32,099 --> 00:56:28,179

have this opportunity and to be in

1335

00:56:34,319 --> 00:56:32,109

community with our students multiple

1336

00:56:36,089 --> 00:56:34,329

institutions here at SIU who's been

1337

00:56:38,699 --> 00:56:36,099

wonderful and very welcoming

1338

00:56:40,679 --> 00:56:38,709

it's just extraordinary it's yours thank

1339

00:56:43,069 --> 00:56:40,689

you very much for your time keep up the

1340

00:56:49,439 --> 00:56:43,079

great work thank you for talking with us

1341

00:56:51,599 --> 00:56:49,449

that was Colleen fava with the that was

1342

00:56:53,069 --> 00:56:51,609

amazing it's great and I love looking at

1343

00:56:54,900 --> 00:56:53,079

those images and how you can see

1344

00:56:57,179 --> 00:56:54,910

different things at different parts of

1345

00:56:58,890 --> 00:56:57,189

the country it's wonderful to be sharing

1346

00:57:01,169 --> 00:56:58,900

this imagery with all of you we will

1347

00:57:03,870 --> 00:57:01,179

have more from Carbondale later today

1348

00:57:06,660 --> 00:57:03,880

please stick with us we have so much

1349

00:57:08,669 --> 00:57:06,670

more coming up from there and from here

1350

01:00:04,910 --> 00:57:08,679

and NASA's Eclipse central here at the

1351
01:00:10,230 --> 01:00:08,100
looking out toward the horizon we await

1352
01:00:12,750 --> 01:00:10,240
the first glimpse of a total solar

1353
01:00:15,590 --> 01:00:12,760
eclipse when the movement of our moon

1354
01:00:17,790 --> 01:00:15,600
completely blocks our view of the Sun

1355
01:00:20,430 --> 01:00:17,800
starting in the air from NASA's

1356
01:00:23,720 --> 01:00:20,440
Gulfstream 3 aircraft off the coast of

1357
01:00:26,880 --> 01:00:23,730
Oregon we anticipate this awe-inspiring

1358
01:00:29,190 --> 01:00:26,890
celestial event over the next three

1359
01:00:31,770 --> 01:00:29,200
hours we will track the solar eclipse as

1360
01:00:34,500 --> 01:00:31,780
it moves across the entire United States

1361
01:00:37,530 --> 01:00:34,510
from coast to coast observing this

1362
01:00:40,670 --> 01:00:37,540
incredible event through the eyes of

1363
01:00:40,680 --> 01:00:52,650

[Music]

1364

01:00:58,120 --> 01:00:55,029

hello and welcome I'm Dwane Brown from

1365

01:00:59,950 --> 01:00:58,130

NASA's Office of Communications and over

1366

01:01:02,319 --> 01:00:59,960

the next three hours we're going to look

1367

01:01:06,249 --> 01:01:02,329

through the eyes of NASA and experience

1368

01:01:08,200 --> 01:01:06,259

today's total solar eclipse I have a

1369

01:01:11,700 --> 01:01:08,210

great team here on stage joining me to

1370

01:01:15,670 --> 01:01:11,710

my immediate left is Jonny kool Joe Vega

1371

01:01:18,460 --> 01:01:15,680

who is a space weather scientist solar

1372

01:01:20,620 --> 01:01:18,470

scientist next to her Alex Young over to

1373

01:01:22,990 --> 01:01:20,630

my right John Eureka would be taking

1374

01:01:25,900 --> 01:01:23,000

your social media questions today plus

1375

01:01:28,809 --> 01:01:25,910

media specialist and meteorologists very

1376
01:01:31,059 --> 01:01:28,819
important man today I must say tracking

1377
01:01:33,880 --> 01:01:31,069
the weather conditions across the path

1378
01:01:35,740 --> 01:01:33,890
of totality Shawn Potter today we're

1379
01:01:37,509 --> 01:01:35,750
coming to you from NASA Eclipse central

1380
01:01:40,240 --> 01:01:37,519
here at the College of Charleston

1381
01:01:42,789 --> 01:01:40,250
now Charleston is the last stop of the

1382
01:01:45,220 --> 01:01:42,799
total solar eclipse on US soil so we

1383
01:01:47,859 --> 01:01:45,230
will track this Eclipse as it moves east

1384
01:01:50,529 --> 01:01:47,869
and heads this way we're tracking there

1385
01:01:52,390 --> 01:01:50,539
Clips across the entire country to bring

1386
01:01:54,670 --> 01:01:52,400
you the best images with the most

1387
01:01:57,220 --> 01:01:54,680
compelling stories along with science

1388
01:01:59,400 --> 01:01:57,230

experts here from NASA Eclipse Central

1389

01:02:03,160 --> 01:01:59,410

we have views from ground telescopes

1390

01:02:06,730 --> 01:02:03,170

high altitude balloons airplanes and

1391

01:02:08,499 --> 01:02:06,740

from several NASA spacecraft and yes and

1392

01:02:08,980 --> 01:02:08,509

I want you to remember this audience out

1393

01:02:12,400 --> 01:02:08,990

there

1394

01:02:14,529 --> 01:02:12,410

we even have live live no one else only

1395

01:02:16,240 --> 01:02:14,539

here at NASA the International Space

1396

01:02:17,410 --> 01:02:16,250

Station if you want to see the Eclipse

1397

01:02:20,319 --> 01:02:17,420

as never before

1398

01:02:24,089 --> 01:02:20,329

stay with us through the eyes of NASA on

1399

01:02:25,319 --> 01:02:24,099

NASA television this is the place to be

1400

01:02:28,769 --> 01:02:25,329

daddy

1401

01:02:31,839 --> 01:02:28,779

hola como estas

1402

01:02:34,690 --> 01:02:31,849

okay this is a win-win situation for

1403

01:02:37,960 --> 01:02:34,700

America we have a possible eclipse and a

1404

01:02:40,269 --> 01:02:37,970

total eclipse explain the difference so

1405

01:02:43,870 --> 01:02:40,279

today pretty much the moon is gonna come

1406

01:02:46,359 --> 01:02:43,880

across the earth and the Sun so North

1407

01:02:48,490 --> 01:02:46,369

America Central America and parts of

1408

01:02:50,859 --> 01:02:48,500

South America are gonna see a partial

1409

01:02:52,900 --> 01:02:50,869

solar eclipse which means that the

1410

01:02:54,640 --> 01:02:52,910

moon's gonna partially block the Sun

1411

01:02:56,499 --> 01:02:54,650

it's gonna look like the moon took a

1412

01:02:59,230 --> 01:02:56,509

bite of the Sun like you have seen on

1413

01:03:00,030 --> 01:02:59,240

the previous images at total so it's

1414

01:03:03,690 --> 01:03:00,040

gonna happen in a

1415

01:03:05,550 --> 01:03:03,700

very narrow path 70 mile wide that comes

1416

01:03:07,350 --> 01:03:05,560

all the way from Oregon crossing the

1417

01:03:09,050 --> 01:03:07,360

whole content of the United States and

1418

01:03:11,550 --> 01:03:09,060

getting out of here in South Carolina

1419

01:03:13,460 --> 01:03:11,560

you're gonna see a total solar eclipse

1420

01:03:15,900 --> 01:03:13,470

which means that the moon's gonna

1421

01:03:17,400 --> 01:03:15,910

completely block the surface of the Sun

1422

01:03:19,530 --> 01:03:17,410

and you're gonna be able to see the

1423

01:03:22,440 --> 01:03:19,540

solar atmosphere the solar corona with

1424

01:03:24,180 --> 01:03:22,450

your own eyes they will turn in tonight

1425

01:03:25,620 --> 01:03:24,190

which means the Stars and the brightest

1426

01:03:27,960 --> 01:03:25,630

planets are gonna come out

1427

01:03:29,430 --> 01:03:27,970

Jody Alex you guys have been waiting for

1428

01:03:31,020 --> 01:03:29,440

this for a long time as all these other

1429

01:03:32,490 --> 01:03:31,030

scientists around the nation this is the

1430

01:03:34,950 --> 01:03:32,500

day we've been waiting for we're here

1431

01:03:37,110 --> 01:03:34,960

Eclipse central you guys if you hear

1432

01:03:39,540 --> 01:03:37,120

this is the place to be we have remote

1433

01:03:41,610 --> 01:03:39,550

NASA TV broadcast sites along the path

1434

01:03:43,740 --> 01:03:41,620

of totality so that anyone watching

1435

01:03:44,790 --> 01:03:43,750

along with us can also experience the

1436

01:03:46,920 --> 01:03:44,800

total solar eclipse

1437

01:03:49,050 --> 01:03:46,930

we'll also share information about how

1438

01:03:51,360 --> 01:03:49,060

to experience the Eclipse safely

1439

01:03:54,330 --> 01:03:51,370

wherever you are and give you a peek and

1440

01:03:59,940 --> 01:03:54,340

all the exciting plans NASA experts have

1441

01:04:02,760 --> 01:03:59,950

today Alex okay so mr. solo man what is

1442

01:04:04,650 --> 01:04:02,770

so unique about the solar eclipse well

1443

01:04:07,020 --> 01:04:04,660

this is an amazing opportunity the last

1444

01:04:09,450 --> 01:04:07,030

time we had a total solar eclipse in the

1445

01:04:11,960 --> 01:04:09,460

continental US was 79 but the last time

1446

01:04:18,390 --> 01:04:11,970

we had one that went from coast to coast

1447

01:04:20,400 --> 01:04:18,400

was 1918 99 years ago so we are having a

1448

01:04:23,490 --> 01:04:20,410

total solar eclipse that's covering a

1449

01:04:25,800 --> 01:04:23,500

huge portion of populated accessible

1450

01:04:29,280 --> 01:04:25,810

land this is giving us an unprecedented

1451

01:04:31,830 --> 01:04:29,290

opportunity to study to look at the

1452

01:04:34,260 --> 01:04:31,840

impacts on the earth to see the corona

1453

01:04:37,170 --> 01:04:34,270

and give us science like we've never had

1454

01:04:39,450 --> 01:04:37,180

before when the last time we had this

1455

01:04:42,000 --> 01:04:39,460

kind of connection to where we are and

1456

01:04:44,790 --> 01:04:42,010

who we are was actually really the

1457

01:04:48,480 --> 01:04:44,800

Apollo 8 earth rise and that gave us a

1458

01:04:50,430 --> 01:04:48,490

perspective outside of just the earth it

1459

01:04:52,830 --> 01:04:50,440

showed us that we were part of something

1460

01:04:55,080 --> 01:04:52,840

bigger and that's what this total solar

1461

01:04:58,500 --> 01:04:55,090

eclipse brings for us it allows us a

1462

01:05:01,860 --> 01:04:58,510

window into the universe and this is the

1463

01:05:03,870 --> 01:05:01,870

most connected most well observed event

1464

01:05:06,540 --> 01:05:03,880

that we've ever had in terms of the

1465

01:05:10,830 --> 01:05:06,550

solar total solar eclipse the data and

1466

01:05:13,510 --> 01:05:10,840

the experiences are going to be amazing

1467

01:05:15,460 --> 01:05:13,520

okay so we're certainly witnessing a

1468

01:05:18,250 --> 01:05:15,470

monumental celestial and historical

1469

01:05:19,930 --> 01:05:18,260

event today we'd like to take a moment

1470

01:05:22,450 --> 01:05:19,940

to talk about safety so Johnny can you

1471

01:05:24,940 --> 01:05:22,460

can you help me out here so you never

1472

01:05:27,780 --> 01:05:24,950

never look directly at the Sun and you

1473

01:05:30,010 --> 01:05:27,790

may have seen these Eclipse glasses and

1474

01:05:32,800 --> 01:05:30,020

they're designed with special-purpose

1475

01:05:36,010 --> 01:05:32,810

solar filters ordinary sunglasses even

1476

01:05:39,100 --> 01:05:36,020

very dark ones are not safe for looking

1477

01:05:41,380 --> 01:05:39,110

at the Sun now if you're in the path of

1478

01:05:43,630 --> 01:05:41,390

totality there's a short time frame that

1479

01:05:45,280 --> 01:05:43,640

you can't take your glasses off this is

1480

01:05:47,580 --> 01:05:45,290

only only when the moon completely

1481

01:05:50,530 --> 01:05:47,590

blocks the Sun and that is doing

1482

01:05:57,400 --> 01:05:50,540

totality let's watch this video to learn

1483

01:07:13,099 --> 01:06:58,000

[Music]

1484

01:07:15,020 --> 01:07:13,109

okay so Alex and Jodi I'm very fortunate

1485

01:07:16,880 --> 01:07:15,030

that I have two glasses and a lot of

1486

01:07:19,339 --> 01:07:16,890

people have glasses but a lot of people

1487

01:07:21,650 --> 01:07:19,349

don't have glasses so what other options

1488

01:07:23,780 --> 01:07:21,660

let me start with you Alex on how they

1489

01:07:26,660 --> 01:07:23,790

can view the Eclipse the simplest thing

1490

01:07:29,000 --> 01:07:26,670

to remember to look at it indirectly is

1491

01:07:30,830 --> 01:07:29,010

a pinhole viewer and there's a lot of

1492

01:07:32,990 --> 01:07:30,840

ways you can make a pinhole you can take

1493

01:07:36,170 --> 01:07:33,000

a simple piece of paper poke a hole in

1494

01:07:38,540 --> 01:07:36,180

it in fact I've got here a 3d map of the

1495

01:07:41,839 --> 01:07:38,550

path across the US with the hole in it

1496

01:07:44,060 --> 01:07:41,849

that I can use as a pinhole to project

1497

01:07:45,859 --> 01:07:44,070

the circular Sun down on the ground and

1498

01:07:47,870 --> 01:07:45,869

then you can see the moon move across it

1499

01:07:50,750 --> 01:07:47,880

as a matter of fact anything with holes

1500

01:07:53,420 --> 01:07:50,760

including this colander is something you

1501

01:07:55,280 --> 01:07:53,430

can use to look at the eclipses but you

1502

01:07:58,130 --> 01:07:55,290

could also use something a little more

1503

01:08:01,670 --> 01:07:58,140

sophisticated if you want so you can

1504

01:08:03,650 --> 01:08:01,680

actually make a box you actually just do

1505

01:08:06,470 --> 01:08:03,660

two holes in one side of the box and

1506

01:08:08,810 --> 01:08:06,480

then put white paper on the inside then

1507

01:08:11,480 --> 01:08:08,820

put aluminum foil door hole in the

1508

01:08:13,640 --> 01:08:11,490

middle not too big that you can actually

1509

01:08:16,070 --> 01:08:13,650

protect the Sun inside the box make sure

1510

01:08:18,110 --> 01:08:16,080

that the Sun is actually behind you so

1511

01:08:20,229 --> 01:08:18,120

you can actually look at it inside of

1512

01:08:23,059 --> 01:08:20,239

the box it will be an amazing projector

1513

01:08:24,769 --> 01:08:23,069

okay so before I toss the Saoirse I got

1514

01:08:27,229 --> 01:08:24,779

to do this because we're on the College

1515

01:08:30,860 --> 01:08:27,239

of Charleston and thousand choices to

1516

01:08:36,090 --> 01:08:33,630

that's what I'm talking about okay so

1517

01:08:38,760 --> 01:08:36,100

the social media world is going to break

1518

01:08:41,399 --> 01:08:38,770

records so let me toss through my man

1519

01:08:42,899 --> 01:08:41,409

John on the social front what's going on

1520

01:08:44,189 --> 01:08:42,909

thanks Wayne there are literally

1521

01:08:46,140 --> 01:08:44,199

millions of people watching this

1522

01:08:47,999 --> 01:08:46,150

broadcast right now we're gonna be

1523

01:08:49,890 --> 01:08:48,009

monitoring the conversation online and

1524

01:08:51,209 --> 01:08:49,900

taking your questions as the total solar

1525

01:08:52,860 --> 01:08:51,219

eclipse treks across the United States

1526

01:08:54,419 --> 01:08:52,870

there's a tremendous amount of

1527

01:08:56,399 --> 01:08:54,429

excitement online and we should want to

1528

01:08:57,780 --> 01:08:56,409

share with you at home so we will show

1529

01:08:59,789 --> 01:08:57,790

you images the Eclipse from your unique

1530

01:09:02,970 --> 01:08:59,799

vantage point submit your pictures and

1531

01:09:05,640 --> 01:09:02,980

questions using the hashtag Eclipse 2017

1532

01:09:07,410 --> 01:09:05,650

and follow the conversation online for

1533

01:09:09,749 --> 01:09:07,420

updates be sure to follow I'll see if I

1534

01:09:13,200 --> 01:09:09,759

can member all these NASA on Facebook

1535

01:09:15,120 --> 01:09:13,210

Twitter Tumblr Instagram snapchat and

1536

01:09:17,099 --> 01:09:15,130

LinkedIn additionally we're providing

1537

01:09:19,740 --> 01:09:17,109

live coverage during the Eclipse on

1538

01:09:21,510 --> 01:09:19,750

Facebook live on NASA's Facebook page

1539

01:09:23,340 --> 01:09:21,520

you can ask your questions in the

1540

01:09:25,740 --> 01:09:23,350

comment thread check out their streaming

1541

01:09:29,340 --> 01:09:25,750

sites like NASA's periscope account on

1542

01:09:31,499 --> 01:09:29,350

Twitter twitch TV Ustream and on youtube

1543

01:09:34,320 --> 01:09:31,509

and of course you can watch it on

1544

01:09:39,570 --> 01:09:34,330

nasa.gov and nasa.gov slash eclipse live

1545

01:09:41,010 --> 01:09:39,580

and on the NASA app and we have a

1546

01:09:42,539 --> 01:09:41,020

special feature for you if you visit our

1547

01:09:45,180 --> 01:09:42,549

Facebook live page along with this

1548

01:09:47,099 --> 01:09:45,190

broadcast we have a 360 view from right

1549

01:09:48,479 --> 01:09:47,109

here in Charleston South Carolina with

1550

01:09:51,329 --> 01:09:48,489

this tool you can pan around on your

1551

01:09:53,550 --> 01:09:51,339

computer and mobile device and even look

1552

01:09:55,260 --> 01:09:53,560

up to the sky as the moon transits the

1553

01:09:56,669 --> 01:09:55,270

Sun during the Eclipse it'll be like

1554

01:09:59,220 --> 01:09:56,679

you're right here with us in Charleston

1555

01:10:01,100 --> 01:09:59,230

- the sweltering heat this is a NASA

1556

01:10:03,240 --> 01:10:01,110

Facebook page and check it out and

1557

01:10:06,930 --> 01:10:03,250

finally share your images the clips with

1558

01:10:08,580 --> 01:10:06,940

us use the hashtag it clips 2017 on our

1559

01:10:10,709 --> 01:10:08,590

Flickr page which is up here online

1560

01:10:11,550 --> 01:10:10,719

right now share your images with us and

1561

01:10:14,459 --> 01:10:11,560

we'll share them right here in the

1562

01:10:16,140 --> 01:10:14,469

broadcast and also on social media and

1563

01:10:17,729 --> 01:10:16,150

finally enjoy your clips viewing and

1564

01:10:20,899 --> 01:10:17,739

remember to ask your questions with the

1565

01:10:23,700 --> 01:10:20,909

hashtag Eclipse 2017 back to you Wayne

1566

01:10:24,870 --> 01:10:23,710

well John it's social media is gonna

1567

01:10:27,720 --> 01:10:24,880

break some records and we're gonna be

1568

01:10:29,729 --> 01:10:27,730

coming back to you more and more so you

1569

01:10:32,340 --> 01:10:29,739

got to know that one of the most

1570

01:10:35,340 --> 01:10:32,350

important things here for today is the

1571

01:10:37,830 --> 01:10:35,350

weather so Sean you know I'm looking at

1572

01:10:39,120 --> 01:10:37,840

Charleston's skies we got clouds I hope

1573

01:10:40,680 --> 01:10:39,130

that's gonna get better but what's going

1574

01:10:42,780 --> 01:10:40,690

on around the nation over to you

1575

01:10:44,250 --> 01:10:42,790

that's right Dwayne yes the weather is

1576

01:10:46,589 --> 01:10:44,260

the key factor for a view

1577

01:10:48,390 --> 01:10:46,599

today's total solar eclipse right here

1578

01:10:50,279 --> 01:10:48,400

in Charleston it's about 86 degrees but

1579

01:10:51,029 --> 01:10:50,289

with the humidity it feels more like 99

1580

01:10:55,140 --> 01:10:51,039

right now

1581

01:10:56,580 --> 01:10:55,150

you a satellite image from our friends

1582

01:10:58,259 --> 01:10:56,590

at NOAA the National Oceanic and

1583

01:11:00,299 --> 01:10:58,269

Atmospheric Administration this is from

1584

01:11:02,279 --> 01:11:00,309

the goes 16 satellite it's a brand new

1585

01:11:03,870 --> 01:11:02,289

weather satellite that NASA built for

1586

01:11:05,580 --> 01:11:03,880

NOAA and was launched last year that's

1587

01:11:07,979 --> 01:11:05,590

going to give you the latest and

1588

01:11:09,209 --> 01:11:07,989

greatest very detailed imagery of cloud

1589

01:11:10,859 --> 01:11:09,219

cover across the country what you can

1590

01:11:13,560 --> 01:11:10,869

see is that things are looking really

1591

01:11:15,750 --> 01:11:13,570

good for the early parts of the path of

1592

01:11:17,939 --> 01:11:15,760

totality places like Oregon and Idaho

1593

01:11:19,799 --> 01:11:17,949

and Wyoming and then as you get into

1594

01:11:22,319 --> 01:11:19,809

parts of the middle section of the

1595

01:11:24,209 --> 01:11:22,329

country more places like Beatrice

1596

01:11:26,310 --> 01:11:24,219

Nebraska maybe into Kansas City

1597

01:11:28,169 --> 01:11:26,320

Jefferson City there is some cloud cover

1598

01:11:30,839 --> 01:11:28,179

there that may hinder your ability to

1599

01:11:33,120 --> 01:11:30,849

view the Eclipse and looks like as you

1600

01:11:34,739 --> 01:11:33,130

get into Carbondale skies are still

1601
01:11:36,750 --> 01:11:34,749
pretty good there there's air some storm

1602
01:11:39,060 --> 01:11:36,760
systems developing to the north in other

1603
01:11:40,649 --> 01:11:39,070
parts of Illinois and and really things

1604
01:11:42,000 --> 01:11:40,659
looking clear again until you get back

1605
01:11:43,770 --> 01:11:42,010
here in Charleston as you said Dwayne

1606
01:11:45,330 --> 01:11:43,780
I'm looking up at the clouds to where

1607
01:11:47,129 --> 01:11:45,340
the Sun will be in about an hour and

1608
01:11:48,239 --> 01:11:47,139
there is a significant cloud cover but

1609
01:11:50,699 --> 01:11:48,249
we're keeping our fingers crossed I do

1610
01:11:52,469 --> 01:11:50,709
see some some pockets of blue in there

1611
01:11:54,239 --> 01:11:52,479
so hopefully we'll get to see something

1612
01:11:56,790 --> 01:11:54,249
but we'll have more for you later in the

1613
01:11:58,229 --> 01:11:56,800

broadcast Wayne I hope you can use some

1614

01:11:59,370 --> 01:11:58,239

of your connections to our get us some

1615

01:12:01,080 --> 01:11:59,380

good weather here in Charleston so the

1616

01:12:02,910 --> 01:12:01,090

moon is already moving across the face

1617

01:12:04,560 --> 01:12:02,920

of the Sun we're getting close to

1618

01:12:07,589 --> 01:12:04,570

viewing our first total eclipse of the

1619

01:12:09,299 --> 01:12:07,599

day we're minutes away and remember the

1620

01:12:11,640 --> 01:12:09,309

total eclipse starts on the west coast

1621

01:12:13,979 --> 01:12:11,650

of the United States in Oregon and we

1622

01:12:16,439 --> 01:12:13,989

will be bringing you live images as it

1623

01:12:18,870 --> 01:12:16,449

occurs NASA's Ames Research Center's

1624

01:12:20,870 --> 01:12:18,880

Jessi carpenter is standing by in Salem

1625

01:12:25,529 --> 01:12:20,880

Oregon at the Oregon State Fairgrounds

1626

01:12:29,129 --> 01:12:25,539

Jessi give us a status report oh wow

1627

01:12:32,250 --> 01:12:29,139

thanks Dwayne totality is almost here

1628

01:12:33,629 --> 01:12:32,260

oh this is so exciting and just before

1629

01:12:35,520 --> 01:12:33,639

we get to that though we want to

1630

01:12:37,109 --> 01:12:35,530

introduce Andrea Edgecombe again from

1631

01:12:39,810 --> 01:12:37,119

the Oregon Museum of Science and

1632

01:12:41,399 --> 01:12:39,820

Industry Hey so tell us just quickly

1633

01:12:43,290 --> 01:12:41,409

tell us a little bit about this really

1634

01:12:45,689 --> 01:12:43,300

fun cool viewing event that's going on

1635

01:12:47,910 --> 01:12:45,699

here yeah well we are here we've almost

1636

01:12:48,870 --> 01:12:47,920

9,000 people here at the Oregon State

1637

01:12:50,310 --> 01:12:48,880

Fairgrounds

1638

01:12:51,630 --> 01:12:50,320

and we've had some cool stage

1639

01:12:52,830 --> 01:12:51,640

presentations we heard from NASA

1640

01:12:55,080 --> 01:12:52,840

astronaut Don Pettit

1641

01:12:57,180 --> 01:12:55,090

he's an Oregonian we had a University of

1642

01:12:58,950 --> 01:12:57,190

Oregon professor and behind us we have

1643

01:13:00,570 --> 01:12:58,960

some space science partners who've been

1644

01:13:02,220 --> 01:13:00,580

doing some cool educational activities

1645

01:13:04,020 --> 01:13:02,230

and really interacting with the crowd so

1646

01:13:05,550 --> 01:13:04,030

it's been an awesome morning and we

1647

01:13:07,980 --> 01:13:05,560

can't wait for totality in a few minutes

1648

01:13:09,570 --> 01:13:07,990

this is such a great event thank you for

1649

01:13:10,640 --> 01:13:09,580

joining us again we really appreciate it

1650

01:13:13,950 --> 01:13:10,650

I know you got to get going

1651

01:13:16,020 --> 01:13:13,960

it's coming soon in joining us now to

1652

01:13:18,450 --> 01:13:16,030

talk to us about the Sun and give us

1653

01:13:20,850 --> 01:13:18,460

more information as NASA lead scientist

1654

01:13:28,980 --> 01:13:20,860

for Eclipse 2017 mato Lika guhathakurta

1655

01:13:31,740 --> 01:13:28,990

from Ames Research Center hi Lika so how

1656

01:13:35,460 --> 01:13:31,750

many of these how many eclipses have you

1657

01:13:38,160 --> 01:13:35,470

seen I went to see nine eclipses and I

1658

01:13:42,150 --> 01:13:38,170

actually ended up seeing six the other

1659

01:13:43,860 --> 01:13:42,160

three had inclement weather that you're

1660

01:13:46,920 --> 01:13:43,870

today no way down and it's gonna be

1661

01:13:48,240 --> 01:13:46,930

seven so what can you what can you tell

1662

01:13:50,940 --> 01:13:48,250

us about the Sun that'll help our

1663

01:13:53,490 --> 01:13:50,950

audience understand better I just want

1664

01:13:57,300 --> 01:13:53,500

to start by saying I'm in awe at this

1665

01:13:59,130 --> 01:13:57,310

moment right now and whatever I say kind

1666

01:14:01,800 --> 01:13:59,140

of take it with that filter because we

1667

01:14:04,460 --> 01:14:01,810

are very close to totality we all live

1668

01:14:07,290 --> 01:14:04,470

in the outer atmosphere of this

1669

01:14:11,400 --> 01:14:07,300

magnificent dynamic magnetically

1670

01:14:15,120 --> 01:14:11,410

variable star that dominates every cubic

1671

01:14:17,370 --> 01:14:15,130

inch of space in our solar system and if

1672

01:14:20,520 --> 01:14:17,380

I can get the video what you would see

1673

01:14:23,460 --> 01:14:20,530

in the video is that the Sun produces

1674

01:14:25,590 --> 01:14:23,470

storms that can be all engulfing you

1675

01:14:29,310 --> 01:14:25,600

know generating this environment called

1676

01:14:32,100 --> 01:14:29,320

space weather the inner edge of the

1677

01:14:36,450 --> 01:14:32,110

corona that you see that's black in the

1678

01:14:39,150 --> 01:14:36,460

video Sun is so intense that it

1679

01:14:43,890 --> 01:14:39,160

overwhelms the dim brightness of the

1680

01:14:46,320 --> 01:14:43,900

corona and and so even from space we

1681

01:14:50,220 --> 01:14:46,330

can't absorb the inner part of the

1682

01:14:52,410 --> 01:14:50,230

corona and not only earth you know

1683

01:14:55,890 --> 01:14:52,420

but the entire solar system as you can

1684

01:14:58,830 --> 01:14:55,900

see lives with this dynamic star

1685

01:15:01,520 --> 01:14:58,840

runa is the region where space weather

1686

01:15:05,190 --> 01:15:01,530

is born and conditions are set for a

1687

01:15:08,310 --> 01:15:05,200

supersonic solar wind and a super hot

1688

01:15:11,430 --> 01:15:08,320

Corona two of our outstanding questions

1689

01:15:13,980 --> 01:15:11,440

in Helio physics in physics really to

1690

01:15:16,290 --> 01:15:13,990

understand the corona better NASA is

1691

01:15:18,930 --> 01:15:16,300

actually going to be launching a mission

1692

01:15:21,870 --> 01:15:18,940

next year almost a year from now how

1693

01:15:25,320 --> 01:15:21,880

coincidental called Parker Solar Probe

1694

01:15:27,720 --> 01:15:25,330

it is actually going to go touch the Sun

1695

01:15:31,230 --> 01:15:27,730

you know and it's going to get closer to

1696

01:15:34,980 --> 01:15:31,240

any other spacecraft has gone before to

1697

01:15:37,350 --> 01:15:34,990

the Sun to study the corona to actually

1698

01:15:40,680 --> 01:15:37,360

sample the very corona that we will be

1699

01:15:43,020 --> 01:15:40,690

seeing very soon yes we will it's almost

1700

01:15:44,610 --> 01:15:43,030

here thank you thank you Lika for

1701

01:15:48,690 --> 01:15:44,620

joining sure thank you for sharing that

1702

01:15:51,810 --> 01:15:48,700

so now we're gonna take it back to NASA

1703

01:15:55,530 --> 01:15:51,820

Eclipse Central in Charleston take it

1704

01:15:58,440 --> 01:15:55,540

away Wayne okay now just now coming in

1705

01:16:00,750 --> 01:15:58,450

we have an exclusive of the total solar

1706

01:16:02,370 --> 01:16:00,760

eclipse editors arriving at the United

1707

01:16:04,260 --> 01:16:02,380

States is over the Pacific Ocean

1708

01:16:06,240 --> 01:16:04,270

and about to reach organ this is the

1709

01:16:08,250 --> 01:16:06,250

celestial event that we've all been

1710

01:16:10,080 --> 01:16:08,260

waiting and anticipating for years

1711

01:16:13,740 --> 01:16:10,090

we'll begin looking through the eyes of

1712

01:16:28,840 --> 01:16:13,750

NASA out the window of our g3 aircraft

1713

01:16:28,850 --> 01:16:32,270

Wow

1714

01:16:39,020 --> 01:16:34,310
and now we're looking at the first

1715

01:16:40,910 --> 01:16:39,030
glimpse of the total eclipse from the

1716

01:16:42,080 --> 01:16:40,920
ground wait let's see that's still the

1717

01:16:43,310 --> 01:16:42,090
g3 there we go

1718

01:16:44,480 --> 01:16:43,320
and now we're looking at the first

1719

01:16:46,790 --> 01:16:44,490
glimpse of the total eclipse from the

1720

01:16:50,030 --> 01:16:46,800
ground on United States soil this is

1721

01:16:51,590 --> 01:16:50,040
coming to us from Salem Oregon with

1722

01:16:53,660 --> 01:16:51,600
thousands of people our Garrett get

1723

01:16:57,740 --> 01:16:53,670
gathered in experiencing this monumental

1724

01:17:04,550 --> 01:16:57,750
event a total solar eclipse let's take a

1725

01:17:04,560 --> 01:17:14,040
[Music]

1726

01:17:14,050 --> 01:17:35,560

that's the g3 there

1727

01:17:35,570 --> 01:19:18,669

great

1728

01:19:29,229 --> 01:19:27,010

okay as the moon is now moved the Sun is

1729

01:19:32,530 --> 01:19:29,239

appearing again we can see the diamond

1730

01:19:33,340 --> 01:19:32,540

ring it's amazing it's fantastic you see

1731

01:19:36,280 --> 01:19:33,350

the outer edge

1732

01:19:46,060 --> 01:19:36,290

I see prominences little red pieces of

1733

01:19:48,790 --> 01:19:46,070

chromospheres03 480p and I just even

1734

01:19:51,070 --> 01:19:48,800

seen it right now through the TV it's

1735

01:19:52,840 --> 01:19:51,080

just an amazing thing to see I cannot

1736

01:19:54,729 --> 01:19:52,850

imagine what we're gonna feel here in

1737

01:19:56,380 --> 01:19:54,739

South Carolina when we have our chance

1738

01:19:58,330 --> 01:19:56,390

well I hope we have our chance a good

1739

01:19:59,680 --> 01:19:58,340

you know Shawn and you know get get that

1740

01:20:07,979 --> 01:19:59,690

weather up here looking good here in

1741

01:20:12,000 --> 01:20:11,370

now what so Alex oh and Alex will you

1742

01:20:14,490 --> 01:20:12,010

stand here

1743

01:20:16,979 --> 01:20:14,500

that's that from the g3 that looks like

1744

01:20:18,780 --> 01:20:16,989

from the g3 because I see spectra there

1745

01:20:20,729 --> 01:20:18,790

no still from Salem that's still from

1746

01:20:23,280 --> 01:20:20,739

Salem okay so you're seeing the bright

1747

01:20:24,690 --> 01:20:23,290

actually the camera is causing a little

1748

01:20:26,190 --> 01:20:24,700

prison effect there and you're seeing

1749

01:20:28,680 --> 01:20:26,200

the bright light from the edge of the

1750

01:20:30,420 --> 01:20:28,690

Sun so that is really beautiful that's

1751

01:20:31,860 --> 01:20:30,430

sort of the edge of the diamond ring

1752

01:20:33,959 --> 01:20:31,870

effect yeah

1753

01:20:35,340 --> 01:20:33,969

so now a reminder Alex owned that

1754

01:20:37,020 --> 01:20:35,350

diamond ring pops up that's what people

1755

01:20:38,640 --> 01:20:37,030

should put the Vasiliy people should put

1756

01:20:40,680 --> 01:20:38,650

your glasses back on so when you see

1757

01:20:42,660 --> 01:20:40,690

that diamond ring after totality that's

1758

01:20:47,370 --> 01:20:42,670

the signal to you that it's time to put

1759

01:20:49,200 --> 01:20:47,380

it back on so look now we see the corona

1760

01:20:51,810 --> 01:20:49,210

and Madras that's gorgeous that's

1761

01:20:53,130 --> 01:20:51,820

amazing yeah being able to look at that

1762

01:20:55,110 --> 01:20:53,140

with your own eyes is an amazing

1763

01:20:57,450 --> 01:20:55,120

experience and that only can be seen

1764

01:21:00,510 --> 01:20:57,460

when you have this kind of totality so

1765

01:21:02,250 --> 01:21:00,520

that that the corona that's the the

1766

01:21:04,200 --> 01:21:02,260

solar atmosphere that's what that's what

1767

01:21:05,160 --> 01:21:04,210

solar scientists really live for right

1768

01:21:07,140 --> 01:21:05,170

right right

1769

01:21:09,690 --> 01:21:07,150

that is the orange that is where the

1770

01:21:11,459 --> 01:21:09,700

origin of space weather yeah that's

1771

01:21:13,110 --> 01:21:11,469

where it comes from that's where most of

1772

01:21:14,520 --> 01:21:13,120

the solar flares and the coronal mass

1773

01:21:17,190 --> 01:21:14,530

ejections biggest portion of the

1774

01:21:19,110 --> 01:21:17,200

particles originated from deliver solar

1775

01:21:20,520 --> 01:21:19,120

activity we see it right now would we be

1776

01:21:22,590 --> 01:21:20,530

able to see that popping up on the side

1777

01:21:25,620 --> 01:21:22,600

we if there was a coronal mass ejection

1778

01:21:28,110 --> 01:21:25,630

leaving the Sun we would we could see it

1779

01:21:30,000 --> 01:21:28,120

there because in fact we have seen it in

1780

01:21:33,180 --> 01:21:30,010

the past and I'll even show some history

1781

01:21:35,340 --> 01:21:33,190

later with images that people drew of

1782

01:21:37,500 --> 01:21:35,350

these coronal mass ejections leaving the

1783

01:21:39,660 --> 01:21:37,510

Sun during a total solar eclipse now why

1784

01:21:42,300 --> 01:21:39,670

is it so critical and so important to

1785

01:21:44,700 --> 01:21:42,310

really get this type of view from the

1786

01:21:47,430 --> 01:21:44,710

sun's atmosphere from the corona Johnny

1787

01:21:50,610 --> 01:21:47,440

you mean like in a total Solaris oh

1788

01:21:54,000 --> 01:21:50,620

there's a diamond that's amazing that's

1789

01:21:56,820 --> 01:21:54,010

the Madras Wow it is important to do

1790

01:21:59,280 --> 01:21:56,830

this because we do this kind of eclipses

1791

01:22:01,650 --> 01:21:59,290

artificially but we do not do it as

1792

01:22:03,420 --> 01:22:01,660

perfect as nature thus the moon covers

1793

01:22:04,860 --> 01:22:03,430

Sun in such a perfect way that we see

1794

01:22:08,280 --> 01:22:04,870

parts of the corona that we don't

1795

01:22:11,010 --> 01:22:08,290

usually see so Alex explained that and

1796

01:22:12,870 --> 01:22:11,020

safety too right so right now this was

1797

01:22:14,370 --> 01:22:12,880

the moment when you see that flash of

1798

01:22:16,410 --> 01:22:14,380

light that's the moment when it's time

1799

01:22:18,000 --> 01:22:16,420

to put your glasses back on or start

1800

01:22:20,130 --> 01:22:18,010

using your indirect methods because now

1801

01:22:22,500 --> 01:22:20,140

it's too bright and

1802

01:22:24,150 --> 01:22:22,510

to damage your eyes yeah safety first

1803

01:22:26,040 --> 01:22:24,160

people oh wait

1804

01:22:28,800 --> 01:22:26,050

wow so the folks in Salem Morgan I mean

1805

01:22:30,780 --> 01:22:28,810

they're like to me they've got it they

1806

01:22:33,990 --> 01:22:30,790

are having a goose they've got a perfect

1807

01:22:36,500 --> 01:22:34,000

view and they're seeing the Nate's one

1808

01:22:39,960 --> 01:22:36,510

of nature's most amazing spectacles I

1809

01:22:41,850 --> 01:22:39,970

can just I can only imagine the reaction

1810

01:22:44,520 --> 01:22:41,860

on the ground from the folks there oh

1811

01:22:46,440 --> 01:22:44,530

they are probably got sweetly

1812

01:22:49,140 --> 01:22:46,450

overwhelmed right now clearly

1813

01:22:52,530 --> 01:22:49,150

overwhelmed well I certainly hope we get

1814

01:22:54,120 --> 01:22:52,540

something like that but we've got it

1815

01:22:55,940 --> 01:22:54,130

we've got it here on that's the

1816

01:22:57,930 --> 01:22:55,950

television through the eyes of NASA and

1817

01:23:00,750 --> 01:22:57,940

we've got the International Space

1818

01:23:15,540 --> 01:23:00,760

Station coming up and other images only

1819

01:23:20,940 --> 01:23:18,300

now is it completely dark oh is it

1820

01:23:23,400 --> 01:23:20,950

coming out what happening now is the the

1821

01:23:25,890 --> 01:23:23,410

filters are back on the safe solar

1822

01:23:29,340 --> 01:23:25,900

filters for the telescope and now you

1823

01:23:33,690 --> 01:23:29,350

see the Crescent which is the Sun

1824

01:23:36,990 --> 01:23:33,700

basically now being revealed after the

1825

01:23:39,600 --> 01:23:37,000

Eclipse so we're now back to the partial

1826

01:23:42,150 --> 01:23:39,610

faith in the other direction exactly now

1827

01:23:45,420 --> 01:23:42,160

how fast is this going well this shadow

1828

01:23:48,030 --> 01:23:45,430

is passing across the country depending

1829

01:23:50,970 --> 01:23:48,040

on where you are anywhere from 1,200 to

1830

01:23:53,130 --> 01:23:50,980

1,800 miles an hour so this is moving

1831

01:23:56,970 --> 01:23:53,140

incredibly fast because the moon itself

1832

01:23:59,700 --> 01:23:56,980

in its orbit is moving at almost 35 3400

1833

01:24:01,590 --> 01:23:59,710

miles an hour and that in combination

1834

01:24:04,040 --> 01:24:01,600

with the rotation of the earth is what

1835

01:24:06,480 --> 01:24:04,050

gives us a shadow moving that fast

1836

01:24:09,720 --> 01:24:06,490

okay so gati let's let's talk about

1837

01:24:12,080 --> 01:24:09,730

Spacey weather seeing this in space

1838

01:24:14,310 --> 01:24:12,090

weather is so important so just let us

1839

01:24:16,350 --> 01:24:14,320

really understand why it's important on

1840

01:24:18,450 --> 01:24:16,360

space weather so space weather is pretty

1841

01:24:21,300 --> 01:24:18,460

much the conditions created outside in

1842

01:24:23,070 --> 01:24:21,310

space due to the Sun we look at space

1843

01:24:24,870 --> 01:24:23,080

weather because we want to understand

1844

01:24:29,150 --> 01:24:24,880

these conditions if you look at the

1845

01:24:32,660 --> 01:24:29,160

image that you have now you're gonna see

1846

01:24:35,130 --> 01:24:32,670

SDO image the SOI dynamic Observatory

1847

01:24:37,530 --> 01:24:35,140

that's where we actually look for the

1848

01:24:39,420 --> 01:24:37,540

source of space weather where the solar

1849

01:24:43,710 --> 01:24:39,430

flares and the coronal mass ejections

1850

01:24:48,870 --> 01:24:43,720

actually originate from well when we

1851
01:24:51,300 --> 01:24:48,880
look at a co at the images we also have

1852
01:24:52,920 --> 01:24:51,310
to look at artificial eclipses

1853
01:24:55,440 --> 01:24:52,930
like they one day you looking out online

1854
01:24:57,540 --> 01:24:55,450
now these are actually from the solo

1855
01:24:59,130 --> 01:24:57,550
spacecraft these are the artificial

1856
01:25:01,890 --> 01:24:59,140
eclipses that I was talking about doing

1857
01:25:03,840 --> 01:25:01,900
like this you have to block the solar

1858
01:25:07,680 --> 01:25:03,850
surface to be able to see the solar

1859
01:25:09,570 --> 01:25:07,690
atmosphere the outside corner but you're

1860
01:25:11,640 --> 01:25:09,580
gonna see something like this today and

1861
01:25:13,380 --> 01:25:11,650
you saw it but you're gonna see it

1862
01:25:15,390 --> 01:25:13,390
better because nature does it better

1863
01:25:18,720 --> 01:25:15,400

then we can actually do it artificially

1864

01:25:21,420 --> 01:25:18,730

right now the activity is not there not

1865

01:25:24,630 --> 01:25:21,430

too much going on in the Sun however if

1866

01:25:27,150 --> 01:25:24,640

I do at historic event which actually

1867

01:25:27,650 --> 01:25:27,160

was from this past July you can see a

1868

01:25:29,810 --> 01:25:27,660

corner

1869

01:25:32,420 --> 01:25:29,820

mass ejection this big explosion of

1870

01:25:34,580 --> 01:25:32,430

particles that come from the Sun well

1871

01:25:38,000 --> 01:25:34,590

that's pretty intense we have to worry

1872

01:25:40,100 --> 01:25:38,010

about that that doesn't look good well

1873

01:25:42,920 --> 01:25:40,110

you know space weather what can actually

1874

01:25:44,480 --> 01:25:42,930

do suspect communications we have the

1875

01:25:46,610 --> 01:25:44,490

magnetic field of the earth to actually

1876

01:25:48,860 --> 01:25:46,620

protect us it's our shield and what we

1877

01:25:50,660 --> 01:25:48,870

do is we actually can analyze that using

1878

01:25:53,480 --> 01:25:50,670

real time models like the one that you

1879

01:25:55,730 --> 01:25:53,490

see on on the screen that we actually

1880

01:25:57,380 --> 01:25:55,740

understand how the magnetic field of the

1881

01:25:59,810 --> 01:25:57,390

earth changes with those coronal mass

1882

01:26:01,730 --> 01:25:59,820

ejections but faithful that can affect

1883

01:26:05,420 --> 01:26:01,740

communications satellite instruments and

1884

01:26:10,280 --> 01:26:05,430

power grids okay so we're going to toss

1885

01:26:13,400 --> 01:26:10,290

to Idaho and I think we've really got

1886

01:26:20,570 --> 01:26:13,410

some good stuff here gay Hill are you

1887

01:26:23,270 --> 01:26:20,580

there in Idaho Falls absolutely here

1888

01:26:25,820 --> 01:26:23,280

Dwane Brown in fact looking through the

1889

01:26:28,400 --> 01:26:25,830

glasses right now it's so weird we have

1890

01:26:33,740 --> 01:26:28,410

a crescent Sun instead of a crescent

1891

01:26:37,280 --> 01:26:33,750

moon this is the I think we haven't had

1892

01:26:40,520 --> 01:26:37,290

a total eclipse here in Idaho Falls

1893

01:26:43,010 --> 01:26:40,530

since 1889 a hundred and twenty-eight

1894

01:26:45,350 --> 01:26:43,020

years ago and things have certainly

1895

01:26:46,730 --> 01:26:45,360

changed in Idaho Falls since then

1896

01:26:49,010 --> 01:26:46,740

there's a whole lot more people

1897

01:26:52,850 --> 01:26:49,020

especially with all the visitors in town

1898

01:26:55,940 --> 01:26:52,860

we're just outside the Museum of Idaho

1899

01:26:59,030 --> 01:26:55,950

and we have partnered with the museum to

1900

01:27:03,200 --> 01:26:59,040

make this an official viewing site for

1901

01:27:06,500 --> 01:27:03,210

Idaho and they right now have an exhibit

1902

01:27:09,140 --> 01:27:06,510

on space but we also sent in a team of

1903

01:27:12,680 --> 01:27:09,150

experts and for the past three days

1904

01:27:15,650 --> 01:27:12,690

we've had talks we've had demonstrations

1905

01:27:18,200 --> 01:27:15,660

we've shown them visualizations such as

1906

01:27:21,560 --> 01:27:18,210

eyes on the solar system and we've shown

1907

01:27:24,500 --> 01:27:21,570

them artwork but really the order of the

1908

01:27:27,050 --> 01:27:24,510

day is the Eclipse and NASA has that

1909

01:27:29,840 --> 01:27:27,060

covered too they have sent an army of

1910

01:27:32,580 --> 01:27:29,850

volunteers we call them solar system

1911

01:27:35,100 --> 01:27:32,590

ambassadors they are all along

1912

01:27:37,439 --> 01:27:35,110

path of totality and the volunteers

1913

01:27:39,450 --> 01:27:37,449

these are people just telling people

1914

01:27:42,450 --> 01:27:39,460

what they're seeing and helping them

1915

01:27:45,629 --> 01:27:42,460

understand we have one here right here

1916

01:27:48,410 --> 01:27:45,639

his name is Richard Stamper hey Richard

1917

01:27:51,030 --> 01:27:48,420

he has been manning in this mobile

1918

01:27:54,270 --> 01:27:51,040

observatory and that is what is

1919

01:27:56,609 --> 01:27:54,280

providing our solar telescope shot right

1920

01:28:00,120 --> 01:27:56,619

now now we asked him what's it like

1921

01:28:03,000 --> 01:28:00,130

being a solar system ambassador and he

1922

01:28:05,970 --> 01:28:03,010

said follow along we did and we went

1923

01:28:36,740 --> 01:28:05,980

with him to a place a school in Southern

1924

01:28:42,870 --> 01:28:40,140

all right we apologize there is no audio

1925

01:28:44,580 --> 01:28:42,880

on that video but it talks about the

1926

01:28:47,760 --> 01:28:44,590

solar system ambassadors there are about

1927

01:28:50,670 --> 01:28:47,770

720 in the United States they get

1928

01:28:53,160 --> 01:28:50,680

special training from NASA they learn

1929

01:28:55,380 --> 01:28:53,170

all about the missions and about the

1930

01:28:57,210 --> 01:28:55,390

science and they basically go out to

1931

01:29:00,330 --> 01:28:57,220

public events all over the country

1932

01:29:03,030 --> 01:29:00,340

teaching them about NASA missions if you

1933

01:29:06,360 --> 01:29:03,040

would be interested in becoming a solar

1934

01:29:09,000 --> 01:29:06,370

system ambassador yourself you can we

1935

01:29:11,520 --> 01:29:09,010

have a website look it up solar system

1936

01:29:14,580 --> 01:29:11,530

ambassadors it is a NASA website and

1937

01:29:18,000 --> 01:29:14,590

starting September 1 September 1 through

1938

01:29:20,820 --> 01:29:18,010

the end of the month you can sign up to

1939

01:29:21,900 --> 01:29:20,830

be a solar system ambassador so check it

1940

01:29:25,170 --> 01:29:21,910

out on the web

1941

01:29:29,210 --> 01:29:25,180

solar system ambassador with me now is

1942

01:29:32,700 --> 01:29:29,220

Jim Green Jim Green is the head of

1943

01:29:35,040 --> 01:29:32,710

planetary science for NASA he's in

1944

01:29:38,130 --> 01:29:35,050

charge of all planetary missions and

1945

01:29:41,400 --> 01:29:38,140

asteroids this guy knows his stuff let's

1946

01:29:43,590 --> 01:29:41,410

talk about this now you see this eclipse

1947

01:29:46,080 --> 01:29:43,600

that doesn't happen it happens once in

1948

01:29:48,060 --> 01:29:46,090

the lifetime but is that as a scientist

1949

01:29:50,610 --> 01:29:48,070

you see it as an opportunity oh

1950

01:29:53,160 --> 01:29:50,620

absolutely I mean we were getting the

1951

01:29:55,530 --> 01:29:53,170

eerie feeling right now but when we

1952

01:29:58,890 --> 01:29:55,540

launch balloons and there'll be 57

1953

01:30:01,920 --> 01:29:58,900

balloons along the path 30 of which are

1954

01:30:04,680 --> 01:30:01,930

going to have a planetary experiment on

1955

01:30:07,080 --> 01:30:04,690

them and we have video of this now just

1956

01:30:09,600 --> 01:30:07,090

a few days ago we had a crew here they

1957

01:30:12,960 --> 01:30:09,610

did a test launch for us and they sent

1958

01:30:16,350 --> 01:30:12,970

up an imaginary payload for us just to

1959

01:30:19,770 --> 01:30:16,360

see how it all works you have actual

1960

01:30:24,150 --> 01:30:19,780

scientific experiments going up we do we

1961

01:30:27,720 --> 01:30:24,160

have a kind of bacillus it's a harmless

1962

01:30:29,610 --> 01:30:27,730

bacteria we have on 30 balloons two

1963

01:30:32,580 --> 01:30:29,620

coupons where the bacteria will be

1964

01:30:34,980 --> 01:30:32,590

sprayed one will stay on the ground one

1965

01:30:37,140 --> 01:30:34,990

will be affixed to the balloon it then

1966

01:30:40,590 --> 01:30:37,150

will go up to a hundred thousand feet

1967

01:30:43,950 --> 01:30:40,600

above the ozone so the ultraviolet light

1968

01:30:46,920 --> 01:30:43,960

also blocked a little bit by the moon is

1969

01:30:47,459 --> 01:30:46,930

just like Mars in addition to that the

1970

01:30:50,760 --> 01:30:47,469

temperature

1971

01:30:52,590 --> 01:30:50,770

pressure will be just like Mars so when

1972

01:30:55,800 --> 01:30:52,600

the balloon goes up higher and bursts

1973

01:30:58,830 --> 01:30:55,810

comes down we'll retrieve that coupon

1974

01:31:01,140 --> 01:30:58,840

off the balloon match it with the with

1975

01:31:03,510 --> 01:31:01,150

the one on the ground and then we'll see

1976

01:31:06,030 --> 01:31:03,520

how many survived now why is that

1977

01:31:06,930 --> 01:31:06,040

information so critical for Mars

1978

01:31:08,880 --> 01:31:06,940

research

1979

01:31:11,490 --> 01:31:08,890

well this bacteria is pretty much

1980

01:31:13,439 --> 01:31:11,500

everywhere it's very Hardy and it

1981

01:31:15,900 --> 01:31:13,449

probably has made its way to Mars

1982

01:31:18,450 --> 01:31:15,910

perhaps even on our rover so now I would

1983

01:31:21,180 --> 01:31:18,460

like to know if that environment is so

1984

01:31:23,400 --> 01:31:21,190

harsh that it would eliminate the that

1985

01:31:26,820 --> 01:31:23,410

bacteria or not all right

1986

01:31:29,760 --> 01:31:26,830

I'm being selfish I have never seen a

1987

01:31:32,220 --> 01:31:29,770

total eclipse and I'm sorry I would love

1988

01:31:34,320 --> 01:31:32,230

to talk to all of you people but I want

1989

01:31:36,990 --> 01:31:34,330

to put on my glasses too and take a look

1990

01:31:40,260 --> 01:31:37,000

can we continue this conversation all

1991

01:31:43,740 --> 01:31:40,270

right and watch and we can talk alright

1992

01:31:45,810 --> 01:31:43,750

so one sliver just a little sliver of

1993

01:31:49,709 --> 01:31:45,820

the Sun right now and let's talk about

1994

01:31:52,770 --> 01:31:49,719

this why is this so rare well you know

1995

01:31:55,290 --> 01:31:52,780

the plain of the Moon relative to the

1996

01:31:57,180 --> 01:31:55,300

Earth's Sun line is tilted by five

1997

01:32:00,870 --> 01:31:57,190

degrees and so there's only two places

1998

01:32:03,240 --> 01:32:00,880

where the moon and the earth and Sun are

1999

01:32:11,890 --> 01:32:03,250

on that same line and that's why every

2000

01:32:21,030 --> 01:32:15,870

[Applause]

2001

01:32:25,320 --> 01:32:21,040

it's already suck Wow just got dark all

2002

01:32:27,330 --> 01:32:25,330

around us and you can feel the

2003

01:32:29,520 --> 01:32:27,340

temperature getting colder oh yeah

2004

01:32:30,990 --> 01:32:29,530

the winds are really picking up you know

2005

01:32:34,500 --> 01:32:31,000

this dark area the winds are just

2006

01:32:47,310 --> 01:32:34,510

flowing in oh you could it's just a tiny

2007

01:32:49,210 --> 01:32:47,320

tiny sliver right now where it goes it's

2008

01:32:52,280 --> 01:32:49,220

going getting slower

2009

01:32:53,040 --> 01:32:52,290

[Applause]

2010

01:33:05,440 --> 01:32:53,050

[Music]

2011

01:33:15,610 --> 01:33:08,590

look at the race structure you can't get

2012

01:33:22,210 --> 01:33:15,620

that on film that there's penis they're

2013

01:33:31,520 --> 01:33:29,690

Wow oh look at that race structure you

2014

01:33:34,100 --> 01:33:31,530

were saying this is the only way you can

2015

01:33:35,900 --> 01:33:34,110

see the atmosphere yeah that lower part

2016

01:33:49,160 --> 01:33:35,910

of the corona is really even hard from

2017

01:33:51,050 --> 01:33:49,170

space to see Wow I'm going to spend a

2018

01:33:52,270 --> 01:33:51,060

second looking around in the crowd oh my

2019

01:33:59,580 --> 01:33:52,280

goodness

2020

01:33:59,590 --> 01:34:22,600

[Music]

2021

01:34:22,610 --> 01:34:29,200

have you noticed Jim the streetlights

2022

01:34:38,870 --> 01:34:35,180

streetlights who would have thought that

2023

01:34:41,260 --> 01:34:38,880

we didn't plan that one all right we

2024

01:34:50,110 --> 01:34:41,270

should get ready for our glasses again

2025

01:34:57,570 --> 01:34:51,800

[Music]

2026

01:35:02,490 --> 01:34:58,810

[Applause]

2027

01:35:04,060 --> 01:35:02,500

[Music]

2028

01:35:18,610 --> 01:35:04,070

[Applause]

2029

01:35:22,930 --> 01:35:18,620

oh that's brilliant all right Wow okay

2030

01:35:22,940 --> 01:35:31,530

to breathe to breathe

2031

01:35:35,110 --> 01:35:31,750

[Applause]

2032

01:35:40,850 --> 01:35:37,670

we're gonna have to wrap this up pretty

2033

01:35:44,840 --> 01:35:40,860

soon Jim that was incredible way too

2034

01:35:46,490 --> 01:35:44,850

brief yeah we got a minute 50 seconds

2035

01:35:48,200 --> 01:35:46,500

that was all we had

2036

01:35:50,000 --> 01:35:48,210

why is it that some parts of the country

2037

01:35:51,740 --> 01:35:50,010

get a little more than we do what has to

2038

01:35:55,700 --> 01:35:51,750

do with the curvature of the earth also

2039

01:35:57,950 --> 01:35:55,710

and so the you know the shadow is at

2040

01:36:00,920 --> 01:35:57,960

various altitudes you could go up at a

2041

01:36:03,290 --> 01:36:00,930

higher altitude and get a get also a

2042

01:36:04,910 --> 01:36:03,300

great view too well this was a real tree

2043

01:36:08,270 --> 01:36:04,920

this was fantastic

2044

01:36:11,090 --> 01:36:08,280

so Idaho Falls has had its total eclipse

2045

01:36:14,600 --> 01:36:11,100

the next one is coming in twenty two

2046

01:36:19,130 --> 01:36:14,610

fifty two we will be here but we hope

2047

01:36:20,510 --> 01:36:19,140

NASA will back to you yeah here let's

2048

01:36:21,800 --> 01:36:20,520

get here from NASA's Jet Propulsion

2049

01:36:23,990 --> 01:36:21,810

Laboratory

2050

01:36:27,200 --> 01:36:24,000

yay I'm jealous I'm telling you I'm

2051

01:36:32,090 --> 01:36:27,210

jealous so Alex explain again that

2052

01:36:34,220 --> 01:36:32,100

diamond well so the last bit of sunlight

2053

01:36:35,720 --> 01:36:34,230

when you see it at the very beginning is

2054

01:36:37,670 --> 01:36:35,730

when the last bit of the Sun the

2055

01:36:40,100 --> 01:36:37,680

Crescent shrinks down to a little tiny

2056

01:36:42,140 --> 01:36:40,110

bit and at the same time you can see a

2057

01:36:44,030 --> 01:36:42,150

ring of the corona around it so that

2058

01:36:45,830 --> 01:36:44,040

makes the ring and then that bright bit

2059

01:36:47,330 --> 01:36:45,840

of Crescent gives you the diamond so

2060

01:36:50,450 --> 01:36:47,340

when it reappears you get the same thing

2061

01:36:53,210 --> 01:36:50,460

the last bit of corona is a ring the

2062

01:36:55,280 --> 01:36:53,220

flash of the Sun is the diamond giving

2063

01:36:56,870 --> 01:36:55,290

you the diamond ring it's a beautiful

2064

01:36:57,830 --> 01:36:56,880

beautiful sight and real quick and then

2065

01:36:58,970 --> 01:36:57,840

I'm gonna ask you a question because

2066

01:37:01,940 --> 01:36:58,980

there was something going on here in

2067

01:37:03,800 --> 01:37:01,950

Charleston the planetary Jim Green said

2068

01:37:05,780 --> 01:37:03,810

something about Venus this is really

2069

01:37:07,580 --> 01:37:05,790

cool for planetary science because you

2070

01:37:09,860 --> 01:37:07,590

can see how the planets right absolutely

2071

01:37:13,940 --> 01:37:09,870

and as a matter of fact one of our our

2072

01:37:16,220 --> 01:37:13,950

missions through the WB 57 aircraft are

2073

01:37:18,920 --> 01:37:16,230

studying mercury which is very very

2074

01:37:20,300 --> 01:37:18,930

close to the Sun okay so we're gonna

2075

01:37:21,350 --> 01:37:20,310

we're gonna we're gonna come back to you

2076

01:37:23,750 --> 01:37:21,360

and we're gonna talk about what's

2077

01:37:25,850 --> 01:37:23,760

happening here so the next up NASA is

2078

01:37:27,740 --> 01:37:25,860

ready to take a bite out of the Big

2079

01:37:28,610 --> 01:37:27,750

Apple one of my favorite cities out in

2080

01:37:34,310 --> 01:37:28,620

New York City

2081

01:37:36,200 --> 01:37:34,320

City today's broadcast is being shown I

2082

01:37:38,540 --> 01:37:36,210

believe in time spray on the Toshiba

2083

01:37:40,460 --> 01:37:38,550

vision screen so the city can also enjoy

2084

01:37:42,290 --> 01:37:40,470

the spectacular views of today's Tola

2085

01:37:43,310 --> 01:37:42,300

eclipse and we've got a great

2086

01:37:45,530 --> 01:37:43,320

relationship

2087

01:37:48,589 --> 01:37:45,540

toshiba saw shout out to you guys this

2088

01:37:50,750 --> 01:37:48,599

midtown Manhattan tourist location is

2089

01:37:53,510 --> 01:37:50,760

always bustling with crowds on the

2090

01:37:55,550 --> 01:37:53,520

average day over 300,000 people pass

2091

01:37:57,649 --> 01:37:55,560

through Times Square Alex I'm gonna turn

2092

01:37:59,359 --> 01:37:57,659

to you you know New York they went get a

2093

01:38:02,030 --> 01:37:59,369

posture but they have a rich history and

2094

01:38:05,810 --> 01:38:02,040

so lately they really do so actually 92

2095

01:38:08,140 --> 01:38:05,820

years ago on a cold January morning New

2096

01:38:10,879 --> 01:38:08,150

York City Manhattan and queens

2097

01:38:13,160 --> 01:38:10,889

experienced a total solar eclipse the

2098

01:38:16,129 --> 01:38:13,170

edge of the path of totality went from

2099

01:38:18,050 --> 01:38:16,139

95th Street to 97th Street this was an

2100

01:38:20,870 --> 01:38:18,060

amazing opportunity this was the first

2101

01:38:23,990 --> 01:38:20,880

time we sent up to dirigibles with the

2102

01:38:26,839 --> 01:38:24,000

US Naval Service for scientists to study

2103

01:38:29,870 --> 01:38:26,849

this at the time we actually thought

2104

01:38:32,569 --> 01:38:29,880

eclipses could be creating radio waves

2105

01:38:34,850 --> 01:38:32,579

which messed with communication but what

2106

01:38:37,580 --> 01:38:34,860

in fact is happening is the Sun itself

2107

01:38:39,530 --> 01:38:37,590

is creating this disturbance so studying

2108

01:38:41,870 --> 01:38:39,540

the Eclipse is actually telling us about

2109

01:38:46,100 --> 01:38:41,880

the Sun which is creating these

2110

01:38:49,490 --> 01:38:46,110

disturbances here on earth yes okay so

2111

01:38:50,930 --> 01:38:49,500

this just in I believe we have results

2112

01:38:52,700 --> 01:38:50,940

from an experiment that occurred on

2113

01:38:54,500 --> 01:38:52,710

NASA's Gulfstream three aircraft from

2114

01:38:56,720 --> 01:38:54,510

NASA's Armstrong Flight Research Center

2115

01:38:58,790 --> 01:38:56,730

Karen roars standing by with Thomas of

2116

01:39:00,350 --> 01:38:58,800

Buchan the social administrator for the

2117

01:39:01,700 --> 01:39:00,360

NASA science Mission Directorate let's

2118

01:39:03,919 --> 01:39:01,710

go now to see what the instrument

2119

01:39:16,380 --> 01:39:03,929

observe doing the total solar eclipse

2120

01:39:20,880 --> 01:39:18,990

and we're back here at the t3 up over

2121

01:39:24,030 --> 01:39:20,890

the Pacific Ocean off the coast of

2122

01:39:26,280 --> 01:39:24,040

Oregon it was amazing wasn't it for me

2123

01:39:27,630 --> 01:39:26,290

like you know at 25 years I did research

2124

01:39:29,580 --> 01:39:27,640

on the corona I saw it for the first

2125

01:39:30,930 --> 01:39:29,590

time it was my first Eclipse was it your

2126

01:39:33,210 --> 01:39:30,940

first the clinic first Eclipse as well

2127

01:39:34,850 --> 01:39:33,220

just absolutely amazing and and I want

2128

01:39:37,620 --> 01:39:34,860

to talk about two things first of all

2129

01:39:39,570 --> 01:39:37,630

the shape of the corona you know I saw

2130

01:39:41,460 --> 01:39:39,580

the models I showed the model and it was

2131

01:39:43,110 --> 01:39:41,470

remarkably similar you know I saw these

2132

01:39:45,780 --> 01:39:43,120

streamers these magnetic structures

2133

01:39:47,970 --> 01:39:45,790

coming out like close and specific

2134

01:39:49,680 --> 01:39:47,980

directions just like we expected so I'll

2135

01:39:51,510 --> 01:39:49,690

look for the analysis before we claim

2136

01:39:53,460 --> 01:39:51,520

victory of course but the other one is

2137

01:39:58,710 --> 01:39:53,470

that spectrograph you are Mike you know

2138

01:40:00,660 --> 01:39:58,720

ran on board and just before that some

2139

01:40:02,160 --> 01:40:00,670

you know disappear behind the moon that

2140

01:40:04,590 --> 01:40:02,170

spectrograph of course is spreading out

2141

01:40:06,690 --> 01:40:04,600

the light in ever in all its colors

2142

01:40:08,730 --> 01:40:06,700

since before it disappeared there is

2143

01:40:11,540 --> 01:40:08,740

that one shot that lori i want to ask

2144

01:40:14,730 --> 01:40:11,550

you to turn it on you see those specific

2145

01:40:17,250 --> 01:40:14,740

kind of lines that pop up between a

2146

01:40:19,470 --> 01:40:17,260

green and the red is just like we said

2147

01:40:21,390 --> 01:40:19,480

it's helium remember that's how it was

2148

01:40:23,640 --> 01:40:21,400

discovered helium we didn't know we had

2149

01:40:25,320 --> 01:40:23,650

helium here it was a new element it was

2150

01:40:28,830 --> 01:40:25,330

discovered that way and then over there

2151
01:40:31,170 --> 01:40:28,840
in the red between green the red is iron

2152
01:40:33,000 --> 01:40:31,180
I are not really hot iron telling us

2153
01:40:35,400 --> 01:40:33,010
that hey this atmosphere is really hot

2154
01:40:37,380 --> 01:40:35,410
and then a little bit over it's it's

2155
01:40:40,950 --> 01:40:37,390
another line red well what is that well

2156
01:40:43,020 --> 01:40:40,960
it's hydrogen well so even though it's

2157
01:40:45,270 --> 01:40:43,030
really hot up there and only one and a

2158
01:40:48,240 --> 01:40:45,280
million or ten of million particles are

2159
01:40:51,780 --> 01:40:48,250
neutral it's still visible in that one

2160
01:40:54,450 --> 01:40:51,790
shot that you saw so i robert back to

2161
01:40:57,330 --> 01:40:54,460
you here back on earth what did you feel

2162
01:40:59,010 --> 01:40:57,340
like how did you see this occur it was

2163
01:41:00,800 --> 01:40:59,020

fascinating to watch actually the shadow

2164

01:41:03,750 --> 01:41:00,810

or the tread the path of totality

2165

01:41:06,720 --> 01:41:03,760

underneath us we're at 35,000 feet and

2166

01:41:08,280 --> 01:41:06,730

you could you could see at totality you

2167

01:41:10,110 --> 01:41:08,290

could actually see the darkness down on

2168

01:41:11,610 --> 01:41:10,120

the ground and you can look north and

2169

01:41:14,040 --> 01:41:11,620

south and see where it wasn't completely

2170

01:41:15,840 --> 01:41:14,050

dark and as it as we kept going you

2171

01:41:17,430 --> 01:41:15,850

could just watch that darkness move is

2172

01:41:19,380 --> 01:41:17,440

almost like a thunderstorm moving across

2173

01:41:20,970 --> 01:41:19,390

the plains but it was all the darkness

2174

01:41:23,970 --> 01:41:20,980

and it was just stunning to me to see

2175

01:41:25,860 --> 01:41:23,980

that so really really good stuff and i

2176
01:41:27,450 --> 01:41:25,870
wasn't expecting that and of course the

2177
01:41:28,040 --> 01:41:27,460
eclipse itself was beautiful but seeing

2178
01:41:30,170 --> 01:41:28,050
what happened on

2179
01:41:32,600 --> 01:41:30,180
down on the ground level of Earth's from

2180
01:41:34,130 --> 01:41:32,610
35,000 feet was amazing I just got to

2181
01:41:35,420 --> 01:41:34,140
tell you the team on this plane and the

2182
01:41:36,860 --> 01:41:35,430
team all the way around this country is

2183
01:41:38,860 --> 01:41:36,870
just doing a fantastic job I wish you

2184
01:41:41,660 --> 01:41:38,870
could have seen the folks here working

2185
01:41:43,460 --> 01:41:41,670
to make sure we got the data that Thomas

2186
01:41:44,960 --> 01:41:43,470
showed some fantastic images we've

2187
01:41:48,560 --> 01:41:44,970
already looked at that I can't wait to

2188
01:41:50,780 --> 01:41:48,570

share with everybody and for everybody

2189

01:41:52,580 --> 01:41:50,790

to see but really exciting to watch this

2190

01:41:54,980 --> 01:41:52,590

team work and the pilots did a great job

2191

01:41:56,600 --> 01:41:54,990

we had a little bit of a little bit of a

2192

01:41:58,760 --> 01:41:56,610

challenge right it right at this time of

2193

01:42:01,340 --> 01:41:58,770

when we need to be best but they did a

2194

01:42:02,900 --> 01:42:01,350

great job recovering from that and then

2195

01:42:05,180 --> 01:42:02,910

kept us on path all the way through so

2196

01:42:06,470 --> 01:42:05,190

anyway so thank you guys remember don't

2197

01:42:10,390 --> 01:42:06,480

put your glasses on for those you hadn't

2198

01:42:14,090 --> 01:42:12,740

fantastic stuff and you just tuned in

2199

01:42:17,420 --> 01:42:14,100

here you're watching through the eyes of

2200

01:42:20,570 --> 01:42:17,430

NASA NASA television we have the best

2201
01:42:23,120 --> 01:42:20,580
views of the solar eclipse today and

2202
01:42:24,500 --> 01:42:23,130
coming later in the show you don't want

2203
01:42:27,230 --> 01:42:24,510
to miss this the International Space

2204
01:42:29,090 --> 01:42:27,240
Station live now next up let's visit a

2205
01:42:31,510 --> 01:42:29,100
working farm at Austin Page State

2206
01:42:34,340 --> 01:42:31,520
University in Clarksville Tennessee

2207
01:42:36,500 --> 01:42:34,350
agricultural observations and solar

2208
01:42:39,170 --> 01:42:36,510
eclipse viewing activities are underway

2209
01:42:43,790 --> 01:42:39,180
including high altitude balloon launches

2210
01:42:47,210 --> 01:42:43,800
and painting cows painting cows what

2211
01:42:50,650 --> 01:42:47,220
okay all right so now let's go let's go

2212
01:42:54,080 --> 01:42:52,580
naturally excited about the solar

2213
01:42:55,970 --> 01:42:54,090

eclipse but one thing we've learned on

2214

01:42:58,250 --> 01:42:55,980

this working agricultural farm is that

2215

01:42:59,600 --> 01:42:58,260

animals can as well but more on that in

2216

01:43:01,670 --> 01:42:59,610

a moment right now we're getting ready

2217

01:43:03,080 --> 01:43:01,680

to do a live scientific balloon launch

2218

01:43:04,780 --> 01:43:03,090

and joining us to tell us more is

2219

01:43:06,890 --> 01:43:04,790

dominic Critchlow from Austin Peay State

2220

01:43:08,630 --> 01:43:06,900

University thanks for joining us we

2221

01:43:09,500 --> 01:43:08,640

appreciate it so tell the crowd and our

2222

01:43:11,000 --> 01:43:09,510

audience a little bit about the

2223

01:43:12,680 --> 01:43:11,010

scientific payload you have on board

2224

01:43:14,660 --> 01:43:12,690

yeah thank you for having me I am today

2225

01:43:16,130 --> 01:43:14,670

we're flying some still image equipment

2226

01:43:18,110 --> 01:43:16,140

and we're going to take an image of the

2227

01:43:19,730 --> 01:43:18,120

ground in different wavelengths and

2228

01:43:21,470 --> 01:43:19,740

we're also flying live-streaming

2229

01:43:23,750 --> 01:43:21,480

equipment so we can livestream the

2230

01:43:26,000 --> 01:43:23,760

Eclipse looking downwards and looking

2231

01:43:27,920 --> 01:43:26,010

around and at a hundred thousand feet

2232

01:43:28,370 --> 01:43:27,930

which is higher than any plane has ever

2233

01:43:29,750 --> 01:43:28,380

gone

2234

01:43:32,630 --> 01:43:29,760

we're also flying some biological

2235

01:43:33,770 --> 01:43:32,640

samples with NASA Ames eminence um our

2236

01:43:35,990 --> 01:43:33,780

tracker so we can have a successful

2237

01:43:37,340 --> 01:43:36,000

recovery okay and they just released

2238

01:43:39,320 --> 01:43:37,350

your balloon so let's talk about the

2239

01:43:40,720 --> 01:43:39,330

NASA science and the biological samples

2240

01:43:42,850 --> 01:43:40,730

explain more so

2241

01:43:44,080 --> 01:43:42,860

NASA Ames has contacted us and all of

2242

01:43:47,140 --> 01:43:44,090

the other teams that are gonna be doing

2243

01:43:50,110 --> 01:43:47,150

launches today across the whole path of

2244

01:43:51,610 --> 01:43:50,120

the Eclipse and we're gonna be all have

2245

01:43:53,710 --> 01:43:51,620

a little chip of biological samples on

2246

01:43:54,940 --> 01:43:53,720

there and that's are gonna go up in the

2247

01:43:56,950 --> 01:43:54,950

stratosphere which is a similar

2248

01:43:58,690 --> 01:43:56,960

atmosphere as we would see on the

2249

01:43:59,800 --> 01:43:58,700

Martian surface so we're doing some

2250

01:44:01,570 --> 01:43:59,810

Martian studies which is really

2251

01:44:03,250 --> 01:44:01,580

interesting and cool we are very excited

2252

01:44:04,840 --> 01:44:03,260

about that and so also how many balloon

2253

01:44:06,970 --> 01:44:04,850

releases are you planning on doing this

2254

01:44:08,950 --> 01:44:06,980

today or this weekend and so all across

2255

01:44:10,840 --> 01:44:08,960

the u.s. we have about 50 teams that are

2256

01:44:12,310 --> 01:44:10,850

launching and in the path of the Eclipse

2257

01:44:15,310 --> 01:44:12,320

so that we could have a full coverage of

2258

01:44:17,230 --> 01:44:15,320

the stream and on the site today we have

2259

01:44:19,480 --> 01:44:17,240

three launches from three different

2260

01:44:22,120 --> 01:44:19,490

universities and we're just really

2261

01:44:23,950 --> 01:44:22,130

excited to be here and and hopefully

2262

01:44:25,510 --> 01:44:23,960

it's all successful launches all right

2263

01:44:27,550 --> 01:44:25,520

so finally these balloons do go up and

2264

01:44:28,960 --> 01:44:27,560

they come back down and so what's some

2265

01:44:30,130 --> 01:44:28,970

advice if anyone finds one of these

2266

01:44:31,810 --> 01:44:30,140

payloads out and about across the

2267

01:44:34,090 --> 01:44:31,820

country what's a tip you would tell them

2268

01:44:36,100 --> 01:44:34,100

and if you find it and leave it there

2269

01:44:37,420 --> 01:44:36,110

maybe take a picture cuz it's kind of

2270

01:44:40,390 --> 01:44:37,430

cool to see something land in your

2271

01:44:41,950 --> 01:44:40,400

backyard from research and please don't

2272

01:44:44,230 --> 01:44:41,960

don't touch it we'll be there soon to

2273

01:44:45,940 --> 01:44:44,240

pick it up if you have to move it let us

2274

01:44:47,200 --> 01:44:45,950

know and we'll just be there to recover

2275

01:44:48,550 --> 01:44:47,210

it awesome thanks we appreciate your

2276

01:44:50,440 --> 01:44:48,560

time thank you appreciate it okay so

2277

01:44:52,300 --> 01:44:50,450

yesterday we had a chance to catch up

2278

01:44:54,070 --> 01:44:52,310

with some serious students albeit a

2279

01:44:56,230 --> 01:44:54,080

little younger but serious about doing

2280

01:44:57,820 --> 01:44:56,240

real world science nonetheless and here

2281

01:45:00,040 --> 01:44:57,830

to tell us more is my good friend and

2282

01:45:01,210 --> 01:45:00,050

colleague Mitzi Adams from NASA's

2283

01:45:03,100 --> 01:45:01,220

Marshall Space Flight Center in

2284

01:45:04,090 --> 01:45:03,110

Huntsville Alabama Mitzi thanks for

2285

01:45:05,920 --> 01:45:04,100

joining us we appreciate it

2286

01:45:07,990 --> 01:45:05,930

so tell us about the science that these

2287

01:45:09,370 --> 01:45:08,000

high school students are working on well

2288

01:45:11,110 --> 01:45:09,380

the students are actually working on

2289

01:45:14,020 --> 01:45:11,120

some atmospheric science experiments

2290

01:45:16,510 --> 01:45:14,030

they're doing animal study experiments

2291

01:45:19,270 --> 01:45:16,520

and they're helping us observe the Sun

2292

01:45:20,500 --> 01:45:19,280

in various wavelengths of light and

2293

01:45:21,670 --> 01:45:20,510

these students aren't just from the

2294

01:45:22,990 --> 01:45:21,680

Clarksville area I understand they're

2295

01:45:25,870 --> 01:45:23,000

all around the country if not perhaps

2296

01:45:27,940 --> 01:45:25,880

the globe the students are from the US

2297

01:45:29,950 --> 01:45:27,950

Space and Rocket Center and yes they are

2298

01:45:33,400 --> 01:45:29,960

from all around the globe and they're

2299

01:45:35,800 --> 01:45:33,410

actually from the inspire project as

2300

01:45:39,430 --> 01:45:35,810

well they're they're participating in

2301
01:45:41,890 --> 01:45:39,440
VLF radio noise experiments and those

2302
01:45:43,480 --> 01:45:41,900
folks are from washington DC alright

2303
01:45:45,520 --> 01:45:43,490
excellent so you mentioned space &

2304
01:45:46,840 --> 01:45:45,530
Rocket Center Space Camp that's the

2305
01:45:48,400 --> 01:45:46,850
official Visitor Center for NASA's

2306
01:45:49,690 --> 01:45:48,410
Marshall Space Flight Center feel free

2307
01:45:51,130 --> 01:45:49,700
if you're in northern Alabama to come

2308
01:45:53,050 --> 01:45:51,140
and see us they do a great job of

2309
01:45:54,430 --> 01:45:53,060
representing a past future and present

2310
01:45:57,160 --> 01:45:54,440
history of NASA so

2311
01:45:59,710 --> 01:45:57,170
any parting words well you know in the

2312
01:46:02,500 --> 01:45:59,720
hidden words of Frank Reynolds I'd like

2313
01:46:06,220 --> 01:46:02,510

for us to remember for the next American

2314

01:46:08,920 --> 01:46:06,230

Eclipse in 2024 let the shadow of the

2315

01:46:10,990 --> 01:46:08,930

moon fall on an earth at peace very

2316

01:46:14,140 --> 01:46:11,000

poetic poetically done we appreciate it

2317

01:46:17,140 --> 01:46:14,150

all right so up next is as promised our

2318

01:46:18,550 --> 01:46:17,150

animal lovers segment and so here on the

2319

01:46:20,320 --> 01:46:18,560

victor here on the agricultural farm

2320

01:46:22,180 --> 01:46:20,330

students are studying a really cool stem

2321

01:46:24,280 --> 01:46:22,190

field so it's conservation management

2322

01:46:26,200 --> 01:46:24,290

it's veterinary medicine animal biology

2323

01:46:29,080 --> 01:46:26,210

and so they're interested in animal

2324

01:46:30,970 --> 01:46:29,090

behavior and so joining us is dr. Donald

2325

01:46:32,890 --> 01:46:30,980

Sud break head of the AG department here

2326
01:46:35,230 --> 01:46:32,900
at Austin Peay State University and so

2327
01:46:37,630 --> 01:46:35,240
it's not cow tipping it's cow painting

2328
01:46:40,210 --> 01:46:37,640
correct yes we had to paint the cows

2329
01:46:41,170 --> 01:46:40,220
that are in this study to see what sort

2330
01:46:42,820 --> 01:46:41,180
of things that they would do so we could

2331
01:46:43,960 --> 01:46:42,830
record the individual animals so we can

2332
01:46:46,630 --> 01:46:43,970
see what behaviors that they were

2333
01:46:47,530 --> 01:46:46,640
exhibiting so if we saw the cows and as

2334
01:46:49,270 --> 01:46:47,540
the students were involved with that

2335
01:46:51,430 --> 01:46:49,280
that midsi just spoke about and we're

2336
01:46:54,850 --> 01:46:51,440
also talking about cricket behavior and

2337
01:46:56,020 --> 01:46:54,860
cricket observations yes yes well we're

2338
01:46:57,670 --> 01:46:56,030

also talking about

2339

01:47:00,130 --> 01:46:57,680

crickets I'm an entomologist by training

2340

01:47:01,720 --> 01:47:00,140

and crickets generally chirp at night so

2341

01:47:03,160 --> 01:47:01,730

we're gonna get a chance to see a series

2342

01:47:05,470 --> 01:47:03,170

of isolated males and see what they do

2343

01:47:06,940 --> 01:47:05,480

when when the Sun goes out okay

2344

01:47:08,320 --> 01:47:06,950

excellent you all are doing this kind of

2345

01:47:10,840 --> 01:47:08,330

observational research really appreciate

2346

01:47:12,670 --> 01:47:10,850

your time thanks a lot so and speaking

2347

01:47:13,840 --> 01:47:12,680

of time it's almost time for us everyone

2348

01:47:16,210 --> 01:47:13,850

here at Austin Peay State University

2349

01:47:17,890 --> 01:47:16,220

actually watched the solar eclipse so

2350

01:47:19,510 --> 01:47:17,900

let's go back live for continuing

2351

01:47:25,210 --> 01:47:19,520

coverage of NASA's eclipses across

2352

01:47:26,920 --> 01:47:25,220

America from Charleston ok so gati I

2353

01:47:31,990 --> 01:47:26,930

won't if the milk tastes better when you

2354

01:47:34,000 --> 01:47:32,000

paint the cows alright let's go to

2355

01:47:37,000 --> 01:47:34,010

social media we've been in the show here

2356

01:47:38,830 --> 01:47:37,010

and I know it's above so over the John

2357

01:47:39,760 --> 01:47:38,840

year break for social media update yeah

2358

01:47:41,890 --> 01:47:39,770

last time I looked

2359

01:47:44,110 --> 01:47:41,900

Dwain there were left my look there were

2360

01:47:47,440 --> 01:47:44,120

2 point 1 million people looking online

2361

01:47:49,390 --> 01:47:47,450

on our website on our and one point two

2362

01:47:51,820 --> 01:47:49,400

in our live stream so it so was a huge

2363

01:47:53,710 --> 01:47:51,830

conversation and solar eclipse 2017 is

2364

01:47:56,020 --> 01:47:53,720

still trending number one on Twitter so

2365

01:48:00,540 --> 01:47:56,030

it's been huge I can we we couldn't go

2366

01:48:03,729 --> 01:48:02,800

this right here is an amazing photo

2367

01:48:04,959 --> 01:48:03,739

sometimes they say have to be at the

2368

01:48:07,240 --> 01:48:04,969

right place at the right time this is

2369

01:48:10,899 --> 01:48:07,250

taken by one of our NASA photographers

2370

01:48:12,340 --> 01:48:10,909

bill Ingalls outed in Washington and he

2371

01:48:13,840 --> 01:48:12,350

captured it's hard to see here in this

2372

01:48:16,419 --> 01:48:13,850

pic but he captured the International

2373

01:48:18,390 --> 01:48:16,429

Space Station transiting the Sun during

2374

01:48:20,740 --> 01:48:18,400

the partial eclipse there in Washington

2375

01:48:22,030 --> 01:48:20,750

pretty amazing you kind of have to look

2376

01:48:23,439 --> 01:48:22,040

closely we'll also be putting these

2377

01:48:24,850 --> 01:48:23,449

images up online if you want to see them

2378

01:48:25,830 --> 01:48:24,860

but one of those little dots there is

2379

01:48:28,689 --> 01:48:25,840

the International Space Station

2380

01:48:30,669 --> 01:48:28,699

traveling at 17,500 miles per hour

2381

01:48:33,490 --> 01:48:30,679

here's another one from our photographer

2382

01:48:35,020 --> 01:48:33,500

in Wyoming same concept captured the

2383

01:48:36,609 --> 01:48:35,030

space station we knew exactly when the

2384

01:48:37,689 --> 01:48:36,619

space station was gonna be flying what

2385

01:48:39,550 --> 01:48:37,699

its orbit was and when it was gonna

2386

01:48:41,260 --> 01:48:39,560

cross the Sun and look here it's just an

2387

01:48:42,490 --> 01:48:41,270

amazing sight I'm really proud of our

2388

01:48:43,870 --> 01:48:42,500

photographers for getting these shots

2389

01:48:45,459 --> 01:48:43,880

and proactively trying to get something

2390

01:48:46,810 --> 01:48:45,469

that no one else probably has and

2391

01:48:49,209 --> 01:48:46,820

thinking through and getting this this

2392

01:48:50,379 --> 01:48:49,219

this great image so let's take a few

2393

01:48:52,990 --> 01:48:50,389

questions from social media I wanna

2394

01:48:54,609 --> 01:48:53,000

remind our viewers at home that you can

2395

01:48:56,830 --> 01:48:54,619

ask questions to us here on the set and

2396

01:48:58,540 --> 01:48:56,840

associated with the hashtag Eclipse 2017

2397

01:49:01,540 --> 01:48:58,550

so why don't we bring it back here to

2398

01:49:04,720 --> 01:49:01,550

the stage and first question is from

2399

01:49:07,030 --> 01:49:04,730

Twitter what if we wear sunglasses

2400

01:49:09,820 --> 01:49:07,040

instead of Eclipse glasses we actually

2401
01:49:10,959 --> 01:49:09,830
able to see the Eclipse the sunglasses

2402
01:49:13,419 --> 01:49:10,969
help is that give you any sort of

2403
01:49:15,820 --> 01:49:13,429
protection no definitely no no you

2404
01:49:17,740 --> 01:49:15,830
should not wear sunglasses normal

2405
01:49:20,109 --> 01:49:17,750
sunglasses always where the actual

2406
01:49:22,120 --> 01:49:20,119
sunglasses that I made for solar viewing

2407
01:49:24,129 --> 01:49:22,130
like the ones that I'm head have in here

2408
01:49:26,169 --> 01:49:24,139
right now in my hand and if you don't

2409
01:49:27,850 --> 01:49:26,179
have the sunglasses you never look

2410
01:49:29,830 --> 01:49:27,860
directly over the Sun you look like you

2411
01:49:31,750 --> 01:49:29,840
do an indirect projection of that

2412
01:49:35,020 --> 01:49:31,760
eclipse never look at the Sun without

2413
01:49:36,820 --> 01:49:35,030

the proper safety so another question

2414

01:49:38,830 --> 01:49:36,830

here comes from Debra from Facebook so

2415

01:49:40,990 --> 01:49:38,840

the Sun rises in the east and sets in

2416

01:49:42,669 --> 01:49:41,000

the west and the Earth rotates and

2417

01:49:44,490 --> 01:49:42,679

clockwise motion please explain how it

2418

01:49:48,100 --> 01:49:44,500

starts in the West and ends the east

2419

01:49:51,459 --> 01:49:48,110

well so the the earth is rotating from

2420

01:49:55,350 --> 01:49:51,469

west to east but actually the moon is

2421

01:49:57,850 --> 01:49:55,360

moving faster about 3,400 miles an hour

2422

01:50:00,250 --> 01:49:57,860

casting a shadow down the earth which is

2423

01:50:02,229 --> 01:50:00,260

rotating about 1700 miles an hour and

2424

01:50:04,359 --> 01:50:02,239

then actually means that the shadow is

2425

01:50:07,479 --> 01:50:04,369

moving from west to east across the

2426
01:50:09,850 --> 01:50:07,489
earth at about somewhere between 1,200

2427
01:50:11,529 --> 01:50:09,860
to 1,800 miles per hour depending on

2428
01:50:13,579 --> 01:50:11,539
where you are on the

2429
01:50:14,929 --> 01:50:13,589
okay great we have another one I think

2430
01:50:16,879 --> 01:50:14,939
we've talked another with Tina from

2431
01:50:18,619 --> 01:50:16,889
Facebook's asked if I place a lens from

2432
01:50:20,989 --> 01:50:18,629
the clips viewing glasses over a few

2433
01:50:22,579 --> 01:50:20,999
finder on my iPad could I successfully

2434
01:50:25,159 --> 01:50:22,589
video the clips or would it fry my

2435
01:50:26,929 --> 01:50:25,169
camera yeah you can actually look with

2436
01:50:28,879 --> 01:50:26,939
the iPad or your phone to the clips the

2437
01:50:31,129 --> 01:50:28,889
only thing is you have to be very

2438
01:50:33,020 --> 01:50:31,139

careful not to look at it with your own

2439

01:50:35,529 --> 01:50:33,030

eyes without their actual safety glasses

2440

01:50:39,259 --> 01:50:35,539

never look at it through any lens

2441

01:50:40,759 --> 01:50:39,269

okay this is Niki from Facebook hey NASA

2442

01:50:42,859 --> 01:50:40,769

NASA I could International Space Station

2443

01:50:44,629 --> 01:50:42,869

see the shadow of the moon crossing

2444

01:50:45,619 --> 01:50:44,639

America from space can they do they have

2445

01:50:47,599 --> 01:50:45,629

that view when they're looking from

2446

01:50:50,209 --> 01:50:47,609

space they do and that's what we're

2447

01:50:52,459 --> 01:50:50,219

hoping to see from them yes excellent so

2448

01:50:54,560 --> 01:50:52,469

John we're gonna come back to you so I

2449

01:50:56,209 --> 01:50:54,570

think we're gonna go back to Sean I'm

2450

01:50:57,919 --> 01:50:56,219

meteorologist let's learn more about how

2451
01:51:00,500 --> 01:50:57,929
NASA is studying the earth and sun

2452
01:51:02,629 --> 01:51:00,510
relationship doing this Eclipse Sean can

2453
01:51:04,279 --> 01:51:02,639
you tell us more about that right thanks

2454
01:51:06,290 --> 01:51:04,289
Dwayne so during the eclipse the moon

2455
01:51:08,229 --> 01:51:06,300
acts like a giant cloud as it passes

2456
01:51:10,489 --> 01:51:08,239
over areas in the path of totality

2457
01:51:10,969 --> 01:51:10,499
casting a large shadow on Earth's

2458
01:51:12,589 --> 01:51:10,979
surface

2459
01:51:14,899 --> 01:51:12,599
now the footage your scene right now

2460
01:51:17,989 --> 01:51:14,909
shows a solar eclipse that occurred in

2461
01:51:20,509 --> 01:51:17,999
March of 2016 over Indonesia that

2462
01:51:22,879 --> 01:51:20,519
experience helped us determine how best

2463
01:51:24,770 --> 01:51:22,889

to study today's eclipse these images

2464

01:51:26,810 --> 01:51:24,780

were taken by NASA's epic instrument

2465

01:51:29,599 --> 01:51:26,820

aboard NOAA's deep space climate

2466

01:51:31,009 --> 01:51:29,609

Observatory or discover it's just one of

2467

01:51:33,259 --> 01:51:31,019

the instruments we'll be using today to

2468

01:51:36,259 --> 01:51:33,269

study the eclipses as we monitor changes

2469

01:51:37,609 --> 01:51:36,269

in Earth's energy balance scientists

2470

01:51:39,560 --> 01:51:37,619

have made extensive atmospheric

2471

01:51:41,540 --> 01:51:39,570

measurements during eclipses before but

2472

01:51:43,609 --> 01:51:41,550

this is the first opportunity to collect

2473

01:51:46,189 --> 01:51:43,619

coordinated data from both the ground

2474

01:51:48,319 --> 01:51:46,199

and from a spacecraft that observes the

2475

01:51:52,520 --> 01:51:48,329

entire sunlit earth during an eclipse

2476

01:51:55,099 --> 01:51:52,530

Dwane back to you thank you John okay so

2477

01:51:56,899 --> 01:51:55,109

now we have a special guest with us

2478

01:51:59,719 --> 01:51:56,909

today the associate administrator for

2479

01:52:03,709 --> 01:51:59,729

NASA's office of communication generally

2480

01:52:05,869 --> 01:52:03,719

Wang generate welcome wait thank you so

2481

01:52:07,929 --> 01:52:05,879

happy to be here oh it's an exciting day

2482

01:52:10,609 --> 01:52:07,939

I'm glad you joined the team here and

2483

01:52:13,819 --> 01:52:10,619

next location you are pretty familiar

2484

01:52:15,560 --> 01:52:13,829

with I'm sure I'm very blessed that I do

2485

01:52:17,419 --> 01:52:15,570

know something about the great state of

2486

01:52:19,669 --> 01:52:17,429

Nebraska I've actually lived there for

2487

01:52:21,529 --> 01:52:19,679

the last decade and I have friends and

2488

01:52:24,020 --> 01:52:21,539

family who are watching there from the

2489

01:52:26,540 --> 01:52:24,030

path of totality I have to tell you

2490

01:52:29,000 --> 01:52:26,550

you this is by far the biggest thing

2491

01:52:31,490 --> 01:52:29,010

that's happened in Nebraska as of recent

2492

01:52:33,860 --> 01:52:31,500

it's absolutely fabulous I have had

2493

01:52:36,680 --> 01:52:33,870

friends from high school and college

2494

01:52:38,420 --> 01:52:36,690

calling me up nice Facebook messaging me

2495

01:52:40,610 --> 01:52:38,430

asking where they can get their glasses

2496

01:52:42,050 --> 01:52:40,620

where they should be viewing from so

2497

01:52:43,910 --> 01:52:42,060

it's just a really exciting day for

2498

01:52:46,520 --> 01:52:43,920

everyone who's watching along the path

2499

01:52:49,280 --> 01:52:46,530

of totality it's also a really exciting

2500

01:52:51,140 --> 01:52:49,290

day for NASA and in fact this gives us

2501

01:52:53,750 --> 01:52:51,150

an opportunity to look for it as well

2502

01:52:55,700 --> 01:52:53,760

and we have a future study that we are

2503

01:52:58,160 --> 01:52:55,710

going to be doing for the set to study

2504

01:53:01,130 --> 01:52:58,170

the Sun NASA is going to launch a new

2505

01:53:03,500 --> 01:53:01,140

spacecraft next year the Parker Solar

2506

01:53:05,600 --> 01:53:03,510

Probe and it will fly directly into the

2507

01:53:08,270 --> 01:53:05,610

solar atmosphere the mission will

2508

01:53:10,520 --> 01:53:08,280

provide first-of-its-kind data and for

2509

01:53:13,280 --> 01:53:10,530

more information on this future mission

2510

01:53:15,500 --> 01:53:13,290

let's go to Beatrice Nebraska where

2511

01:53:18,260 --> 01:53:15,510

Vince Whitfield from NASA's Langley

2512

01:53:20,420 --> 01:53:18,270

Research Center is standing by he's at

2513

01:53:22,910 --> 01:53:20,430

Homestead National Monument where the

2514

01:53:27,200 --> 01:53:22,920

National Park Service has coordinated an

2515

01:53:29,840 --> 01:53:27,210

Eclipse viewing Vince and just just just

2516

01:53:32,090 --> 01:53:29,850

in I think we're having this is going to

2517

01:53:34,280 --> 01:53:32,100

come up shortly Jenner a so we're gonna

2518

01:53:36,890 --> 01:53:34,290

go back with an image but we will be

2519

01:54:01,580 --> 01:53:36,900

doing Nebraska as soon as we can so a

2520

01:54:08,370 --> 01:54:06,330

okay folks Johnny and Alex this is a

2521

01:54:11,370 --> 01:54:08,380

different view here what are we seeing

2522

01:54:13,649 --> 01:54:11,380

Alex well so we're looking at a

2523

01:54:16,169 --> 01:54:13,659

different wavelength of visible light

2524

01:54:19,109 --> 01:54:16,179

that's called calcium k so this is light

2525

01:54:22,260 --> 01:54:19,119

that's produced by excited calcium and

2526
01:54:24,299 --> 01:54:22,270
this is showing us the Sun as the moon

2527
01:54:27,209 --> 01:54:24,309
is moving over it and in fact if you

2528
01:54:30,000 --> 01:54:27,219
look over to the left on the edge of the

2529
01:54:32,609 --> 01:54:30,010
Sun you actually see sunspots on spot

2530
01:54:35,609 --> 01:54:32,619
and these are regions that hylia

2531
01:54:38,790 --> 01:54:35,619
physicists like myself and jari are most

2532
01:54:41,700 --> 01:54:38,800
interested in because that's where solar

2533
01:54:43,890 --> 01:54:41,710
explosions originate from in fact the

2534
01:54:46,680 --> 01:54:43,900
magnetic fields that come up into the

2535
01:54:49,410 --> 01:54:46,690
corona that we see during the total

2536
01:54:50,160 --> 01:54:49,420
solar eclipse originate from those

2537
01:54:52,709 --> 01:54:50,170
sunspots

2538
01:54:54,870 --> 01:54:52,719

actually these sunspot had a solar flare

2539

01:54:56,760 --> 01:54:54,880

yesterday right and I believe this is

2540

01:54:59,700 --> 01:54:56,770

coming from from Carbondale so that's

2541

01:55:02,339 --> 01:54:59,710

now it's it's why is it purple is that

2542

01:55:04,950 --> 01:55:02,349

what's that actually that's actually the

2543

01:55:07,020 --> 01:55:04,960

the light and the color of the light in

2544

01:55:09,500 --> 01:55:07,030

the filter the color is a bluish light

2545

01:55:12,000 --> 01:55:09,510

and so it comes out as a purple color

2546

01:55:13,859 --> 01:55:12,010

but it's in it is a type of visible

2547

01:55:17,069 --> 01:55:13,869

light it's when we look at quite often

2548

01:55:19,229 --> 01:55:17,079

from both space and the ground and look

2549

01:55:21,450 --> 01:55:19,239

in the Sun now I see what I see some

2550

01:55:22,950 --> 01:55:21,460

black things look like a little river

2551
01:55:24,870 --> 01:55:22,960
you see it over there and in the corner

2552
01:55:27,270 --> 01:55:24,880
on the left yeah that's the sunspot ah

2553
01:55:29,399 --> 01:55:27,280
what's the sunspot just for audience

2554
01:55:30,839 --> 01:55:29,409
here those are the regions where most of

2555
01:55:32,339 --> 01:55:30,849
the space weather actually originates

2556
01:55:34,500 --> 01:55:32,349
there's solar flares the coronal mass

2557
01:55:38,189 --> 01:55:34,510
ejections our regions of the Sun that

2558
01:55:39,870 --> 01:55:38,199
have very a complicated magnetic fields

2559
01:55:42,209 --> 01:55:39,880
and this are where the most of the

2560
01:55:44,520 --> 01:55:42,219
magnetic energy is actually released

2561
01:55:47,189 --> 01:55:44,530
right so those are regions of super

2562
01:55:49,500 --> 01:55:47,199
intense magnetic field thousand times

2563
01:55:53,160 --> 01:55:49,510

stronger than the Earth's magnetic field

2564

01:55:54,870 --> 01:55:53,170

and those have lots of energy and they

2565

01:55:56,430 --> 01:55:54,880

drive space weather okay I think that's

2566

01:55:57,839 --> 01:55:56,440

why we didn't get the Nebraska free

2567

01:56:00,660 --> 01:55:57,849

right now those things cause that I

2568

01:56:02,339 --> 01:56:00,670

think right hopefully we get Nebraska

2569

01:56:05,669 --> 01:56:02,349

okay so we're going back over to you

2570

01:56:07,529 --> 01:56:05,679

talking about moon shattering wait we've

2571

01:56:09,660 --> 01:56:07,539

got some really incredible imagery for

2572

01:56:11,580 --> 01:56:09,670

you'll this again from the goes 16

2573

01:56:14,490 --> 01:56:11,590

weather satellite just launched

2574

01:56:16,530 --> 01:56:14,500

year by NASA for our friends at NOAA and

2575

01:56:18,660 --> 01:56:16,540

what you're seeing in the western

2576

01:56:21,540 --> 01:56:18,670

portion of this image is actually the

2577

01:56:23,580 --> 01:56:21,550

moon's shadow being cast over parts of

2578

01:56:25,140 --> 01:56:23,590

the path of totality and of course you

2579

01:56:26,070 --> 01:56:25,150

see the cloud cover across the US as

2580

01:56:27,900 --> 01:56:26,080

well know that I was telling you earlier

2581

01:56:30,060 --> 01:56:27,910

we it's actually looking pretty good for

2582

01:56:32,580 --> 01:56:30,070

most of the western parts of the u.s.

2583

01:56:34,410 --> 01:56:32,590

that are in the path of totality not so

2584

01:56:36,480 --> 01:56:34,420

good for maybe parts of the central US

2585

01:56:38,820 --> 01:56:36,490

where we've got some thunderstorm

2586

01:56:41,040 --> 01:56:38,830

activity developing and expected to

2587

01:56:43,410 --> 01:56:41,050

develop later today this afternoon from

2588

01:56:46,170 --> 01:56:43,420

places like Nebraska parts of Nebraska

2589

01:56:48,180 --> 01:56:46,180

and Missouri and and northern Illinois

2590

01:56:50,940 --> 01:56:48,190

so maybe north of Carbondale and then

2591

01:56:52,620 --> 01:56:50,950

gets better again as you see in terms of

2592

01:56:54,840 --> 01:56:52,630

cloud cover as we move further east

2593

01:56:56,310 --> 01:56:54,850

toward Charleston here but here in

2594

01:56:58,200 --> 01:56:56,320

Charleston we still have some breaks in

2595

01:56:59,910 --> 01:56:58,210

the cloud where the Sun is it's still

2596

01:57:02,010 --> 01:56:59,920

obscured but we are able to actually see

2597

01:57:03,540 --> 01:57:02,020

some of the partial eclipse here in

2598

01:57:05,430 --> 01:57:03,550

Charleston through some of the breaks in

2599

01:57:08,160 --> 01:57:05,440

cloud but again really wanted to show

2600

01:57:11,670 --> 01:57:08,170

you guys that imagery from goes 16

2601
01:57:14,250 --> 01:57:11,680
satellite from NOAA showing you the moon

2602
01:57:15,480 --> 01:57:14,260
to shadow actually being cast over parts

2603
01:57:16,860 --> 01:57:15,490
of the western United States right now

2604
01:57:19,410 --> 01:57:16,870
with that Duane I'm gonna hand it back

2605
01:57:21,240 --> 01:57:19,420
over to you thanks Sean now as a

2606
01:57:23,280 --> 01:57:21,250
reminder our broadcast is tracking the

2607
01:57:25,110 --> 01:57:23,290
total solar eclipse as it crosses the

2608
01:57:28,680 --> 01:57:25,120
United States it's moving along a path

2609
01:57:31,440 --> 01:57:28,690
of totality that's a 70 mile wide pass

2610
01:57:33,030 --> 01:57:31,450
sweeping across the entire nation over

2611
01:57:34,770 --> 01:57:33,040
12 million people live inside the

2612
01:57:36,960 --> 01:57:34,780
panther totality plus it's estimated

2613
01:57:38,970 --> 01:57:36,970

that close to 7 million people have

2614

01:57:41,520 --> 01:57:38,980

traveled to cities within the path of

2615

01:57:43,290 --> 01:57:41,530

totality I know that today is truly a

2616

01:57:45,600 --> 01:57:43,300

day of celebration as people gather in

2617

01:57:48,600 --> 01:57:45,610

cities and festivals to view today

2618

01:57:51,240 --> 01:57:48,610

celestial event so let's let's get into

2619

01:57:53,160 --> 01:57:51,250

the cultural impact here guys Alex

2620

01:57:55,740 --> 01:57:53,170

what's your take on the cultural impact

2621

01:57:59,720 --> 01:57:55,750

of these eclipses well you know this is

2622

01:58:03,150 --> 01:57:59,730

really such a fantastic opportunity to

2623

01:58:05,700 --> 01:58:03,160

connect the nation and in fact the world

2624

01:58:08,700 --> 01:58:05,710

with nature's one of nature's most

2625

01:58:11,250 --> 01:58:08,710

amazing celestial events and this is

2626
01:58:12,870 --> 01:58:11,260
something that we is working in NASA are

2627
01:58:14,880 --> 01:58:12,880
really excited to be able to share and

2628
01:58:16,770 --> 01:58:14,890
in fact we even work with some of our

2629
01:58:19,659 --> 01:58:16,780
colleagues in other parts like the US

2630
01:58:22,629 --> 01:58:19,669
Postal Service yes the u.s. Bolton solar

2631
01:58:25,209 --> 01:58:22,639
so we create a special stamp for this

2632
01:58:27,759 --> 01:58:25,219
event right so what I want to do let's

2633
01:58:30,159 --> 01:58:27,769
talk about the stamp sure but generate

2634
01:58:32,439 --> 01:58:30,169
tossed in Nebraska we the sunspots are

2635
01:58:37,719 --> 01:58:32,449
gone so let's go to Nebraska

2636
01:58:39,219 --> 01:58:37,729
Vince Whitfield are you there hi we're

2637
01:58:41,439 --> 01:58:39,229
at the homestead National Monument of

2638
01:58:43,089 --> 01:58:41,449

America this is a great location to

2639

01:58:45,969 --> 01:58:43,099

watch the Eclipse and we've staked out a

2640

01:58:47,589 --> 01:58:45,979

good spot here on the Prairie even in

2641

01:58:49,659 --> 01:58:47,599

the weather isn't cooperating this is

2642

01:58:52,029 --> 01:58:49,669

still an excellent event we're also very

2643

01:58:53,529 --> 01:58:52,039

prepared please make sure to use your

2644

01:58:55,659 --> 01:58:53,539

protective glasses when viewing the

2645

01:58:57,489 --> 01:58:55,669

Eclipse wherever you are you can cause

2646

01:58:59,279 --> 01:58:57,499

serious damage to your eyes if you don't

2647

01:59:01,600 --> 01:58:59,289

take precautions while watching and

2648

01:59:04,509 --> 01:59:01,610

there are a lot of people watching as

2649

01:59:07,449 --> 01:59:04,519

you can tell the festivities just like

2650

01:59:09,819 --> 01:59:07,459

the Eclipse are in full swing I'm joined

2651
01:59:11,830 --> 01:59:09,829
by chief park ranger Susan Cook hey

2652
01:59:13,689 --> 01:59:11,840
Vince how are you great Susan thanks for

2653
01:59:15,549 --> 01:59:13,699
joining me today please tell us about

2654
01:59:17,439 --> 01:59:15,559
this amazing place and what's going on

2655
01:59:19,179 --> 01:59:17,449
behind us we're at homestead national

2656
01:59:20,949 --> 01:59:19,189
mine of America we're a national park

2657
01:59:23,589 --> 01:59:20,959
site dedicated to telling the story of

2658
01:59:25,270 --> 01:59:23,599
homesteading 30 States four million

2659
01:59:27,699 --> 01:59:25,280
people ten percent of the United States

2660
01:59:29,169 --> 01:59:27,709
was homesteaded the head of a household

2661
01:59:31,540 --> 01:59:29,179
anybody could own land as long as you

2662
01:59:34,270 --> 01:59:31,550
could be a US citizen you got a 160

2663
01:59:36,459 --> 01:59:34,280

acres it's how we settled the West we

2664

01:59:38,310 --> 01:59:36,469

built our democracy we built our economy

2665

01:59:40,659 --> 01:59:38,320

settling the West through this law

2666

01:59:43,060 --> 01:59:40,669

that's just so interesting now I

2667

01:59:45,069 --> 01:59:43,070

understand the Mayan calendar followed

2668

01:59:47,949 --> 01:59:45,079

the solar eclipse cannon Nkosi is is

2669

01:59:49,689 --> 01:59:47,959

that correct it did the mind ancient

2670

01:59:51,339 --> 01:59:49,699

mind you several different calendars to

2671

01:59:53,620 --> 01:59:51,349

organize their secular and spiritual

2672

01:59:55,479 --> 01:59:53,630

lives many of these calendars had strong

2673

01:59:57,909 --> 01:59:55,489

roots in the motions of celestial

2674

02:00:01,270 --> 01:59:57,919

objects especially the Sun and the moon

2675

02:00:04,959 --> 02:00:01,280

and the hub calendar is a solar calendar

2676
02:00:07,919 --> 02:00:04,969
of 365 days subdivided into 18 months of

2677
02:00:11,500 --> 02:00:07,929
20 days plus one month of five days

2678
02:00:14,319 --> 02:00:11,510
another calendar is as Okun made of 260

2679
02:00:17,290 --> 02:00:14,329
days subdivided into 13 months of 20

2680
02:00:19,479 --> 02:00:17,300
days this calendar also has a resonance

2681
02:00:22,149 --> 02:00:19,489
with eclipses which occur about every

2682
02:00:24,939 --> 02:00:22,159
hundred and seventy-three days every

2683
02:00:26,469 --> 02:00:24,949
three sequences of eclipses aligns every

2684
02:00:28,439 --> 02:00:26,479
two cycles of the Salkin

2685
02:00:31,389 --> 02:00:28,449
who could keep track of that frankly

2686
02:00:33,290 --> 02:00:31,399
it's just amazing now as a chief park

2687
02:00:35,240 --> 02:00:33,300
ranger have to congratulate you this is

2688
02:00:36,830 --> 02:00:35,250

a fantastic venue tell us about some of

2689

02:00:38,209 --> 02:00:36,840

the activities you have planned well

2690

02:00:39,709 --> 02:00:38,219

actually right now you can feel like

2691

02:00:41,720 --> 02:00:39,719

getting darker but we have stage

2692

02:00:43,490 --> 02:00:41,730

performances going on we have many NASA

2693

02:00:47,510 --> 02:00:43,500

scientists you can learn about planetary

2694

02:00:50,180 --> 02:00:47,520

defense how we defend our world you have

2695

02:00:52,939 --> 02:00:50,190

NASA scientists doing other things we

2696

02:00:56,750 --> 02:00:52,949

have Native Americans we have a Mayan

2697

02:01:00,859 --> 02:00:56,760

calendar sky program we have folk music

2698

02:01:03,500 --> 02:01:00,869

we have all sorts going on to think

2699

02:01:05,510 --> 02:01:03,510

balloon launches so there's things all

2700

02:01:07,850 --> 02:01:05,520

around us it's really exciting and a lot

2701
02:01:09,470 --> 02:01:07,860
of fun gotta say the amount gun in here

2702
02:01:11,089 --> 02:01:09,480
Susan is incredible thank you so much

2703
02:01:13,850 --> 02:01:11,099
thank you very much thanks for being

2704
02:01:15,620 --> 02:01:13,860
here absolutely and we're lucky enough

2705
02:01:18,760 --> 02:01:15,630
to be joined by a real NASA scientist

2706
02:01:21,770 --> 02:01:18,770
let me introduce you to dr. Nikki Fox

2707
02:01:24,649 --> 02:01:21,780
great Nikki thanks for joining us nikki

2708
02:01:26,959 --> 02:01:24,659
is a space weather expert and a mission

2709
02:01:29,030 --> 02:01:26,969
project scientist on NASA's Parker Solar

2710
02:01:31,010 --> 02:01:29,040
Probe program thanks so much for joining

2711
02:01:32,689 --> 02:01:31,020
us Nikki today is a great day for you

2712
02:01:34,700 --> 02:01:32,699
tell us why well today I'm really

2713
02:01:36,530 --> 02:01:34,710

excited this is my first ever solar

2714

02:01:39,439 --> 02:01:36,540

eclipse and it's the only chance that we

2715

02:01:41,240 --> 02:01:39,449

can see the corona with our naked eye

2716

02:01:43,609 --> 02:01:41,250

and I'm particularly excited because I'm

2717

02:01:45,979 --> 02:01:43,619

working on NASA's praça Solar Probe

2718

02:01:48,500 --> 02:01:45,989

mission and we are gonna fly into the

2719

02:01:50,060 --> 02:01:48,510

corona so if the clouds clouds part here

2720

02:01:52,520 --> 02:01:50,070

you'll be able to see where our mission

2721

02:01:54,350 --> 02:01:52,530

is flying that's just incredible now how

2722

02:01:56,270 --> 02:01:54,360

close will you get to the Sun we will

2723

02:01:57,830 --> 02:01:56,280

get to within four million miles and I

2724

02:02:00,439 --> 02:01:57,840

know that doesn't sound terribly close

2725

02:02:02,990 --> 02:02:00,449

but if I put the Earth and the Sun apart

2726
02:02:05,569 --> 02:02:03,000
on a on a football field then we would

2727
02:02:06,140 --> 02:02:05,579
be at the 4-yard line that's just

2728
02:02:08,689 --> 02:02:06,150
amazing

2729
02:02:10,220 --> 02:02:08,699
now for usually watching at home that's

2730
02:02:12,649 --> 02:02:10,230
kind of like traveling from Washington

2731
02:02:14,990 --> 02:02:12,659
DC to Philadelphia in about one second

2732
02:02:16,939 --> 02:02:15,000
just incredible speeds now how can you

2733
02:02:19,819 --> 02:02:16,949
be so close to the Sun and not burn up

2734
02:02:22,160 --> 02:02:19,829
so we have a wonderful heat shield but

2735
02:02:23,750 --> 02:02:22,170
we also the technology it's been 60

2736
02:02:25,520 --> 02:02:23,760
years since this mission was first

2737
02:02:27,379 --> 02:02:25,530
thought of and it's only now that

2738
02:02:29,930 --> 02:02:27,389

technology has caught up with our dreams

2739

02:02:30,950 --> 02:02:29,940

that's just amazing now it looks like

2740

02:02:33,200 --> 02:02:30,960

we're coming up to the moment of

2741

02:02:34,160 --> 02:02:33,210

totality here on the Prairie what are

2742

02:02:36,500 --> 02:02:34,170

some of the things we should be looking

2743

02:02:37,490 --> 02:02:36,510

for so if it clears you should see a

2744

02:02:39,640 --> 02:02:37,500

beautiful corona

2745

02:02:42,160 --> 02:02:39,650

and that it looks like a pearly

2746

02:02:43,479 --> 02:02:42,170

Haizi crown around the Sun and in fact

2747

02:02:46,450 --> 02:02:43,489

it's called a corona because that's

2748

02:02:48,160 --> 02:02:46,460

Latin for crown and then as it's going

2749

02:02:50,410 --> 02:02:48,170

beautifully dark here it's becoming

2750

02:02:52,720 --> 02:02:50,420

Twilight you hear everyone going crazy

2751
02:02:55,120 --> 02:02:52,730
here you should be able to start seeing

2752
02:02:57,370 --> 02:02:55,130
stars and we can actually see four

2753
02:03:00,580 --> 02:02:57,380
planets this time you should see Jupiter

2754
02:03:02,410 --> 02:03:00,590
Mercury Mars and Venus all in this night

2755
02:03:04,720 --> 02:03:02,420
sky during the day so it's just an

2756
02:03:06,790 --> 02:03:04,730
amazing amazing experience and if you

2757
02:03:08,770 --> 02:03:06,800
can't see the corona I do have a map of

2758
02:03:10,899 --> 02:03:08,780
it here this is a 3d print that was done

2759
02:03:12,640 --> 02:03:10,909
for me and it looks exactly it's a

2760
02:03:14,470 --> 02:03:12,650
predict of what the corona looks like

2761
02:03:17,110 --> 02:03:14,480
today so if it's cloudy

2762
02:03:19,240 --> 02:03:17,120
here's your Corona now it looks like the

2763
02:03:20,680 --> 02:03:19,250

moment of totality is upon us let's just

2764

02:03:22,090 --> 02:03:20,690

take the there let the guys at home have

2765

02:03:24,430 --> 02:03:22,100

a few moments to take in the sights and

2766

02:03:35,229 --> 02:03:24,440

sounds of the crowd as totality happens

2767

02:03:37,540 --> 02:03:35,239

on the Prairie I don't need my glasses

2768

02:03:40,240 --> 02:03:37,550

now bents because we are in totality

2769

02:03:42,970 --> 02:03:40,250

this is the only time that it's safe to

2770

02:03:46,090 --> 02:03:42,980

look but right now you can see that hazy

2771

02:03:47,979 --> 02:03:46,100

ring that is the chromosphere it is

2772

02:03:50,320 --> 02:03:47,989

looking a little bit sort of reddish and

2773

02:03:52,390 --> 02:03:50,330

you just see this all that those red

2774

02:03:54,729 --> 02:03:52,400

wisps are little prominences that are

2775

02:03:57,729 --> 02:03:54,739

coming away from the Sun unfortunately

2776

02:03:59,950 --> 02:03:57,739

it's we can't quite see the stars yet

2777

02:04:01,689 --> 02:03:59,960

because of the clouds but my goodness

2778

02:04:04,169 --> 02:04:01,699

you can see the corona and that is an

2779

02:04:06,189 --> 02:04:04,179

absolutely incredible incredible sight

2780

02:04:07,750 --> 02:04:06,199

this is just magnificent

2781

02:04:09,100 --> 02:04:07,760

it really is everything's kind of well

2782

02:04:10,930 --> 02:04:09,110

other than the people hooting and

2783

02:04:13,060 --> 02:04:10,940

hollering here everything else has gone

2784

02:04:15,910 --> 02:04:13,070

quiet the animals think it's nighttime

2785

02:04:19,149 --> 02:04:15,920

yeah this is amazing sort of Twilight

2786

02:04:21,850 --> 02:04:19,159

view all around us and just look at that

2787

02:04:24,790 --> 02:04:21,860

Corona back is incredible absolutely

2788

02:04:27,370 --> 02:04:24,800

incredible yeah that's amazing yep and

2789

02:04:29,350 --> 02:04:27,380

the moon is going to continue we've got

2790

02:04:30,510 --> 02:04:29,360

about two minutes 35 seconds of this

2791

02:04:33,210 --> 02:04:30,520

amazing view

2792

02:04:36,030 --> 02:04:33,220

and then here we come here comes the

2793

02:04:39,330 --> 02:04:36,040

diamond ring so it is glasses on again

2794

02:04:42,540 --> 02:04:39,340

time glasses on and here it comes

2795

02:04:45,390 --> 02:04:42,550

there's the diamond room that is the

2796

02:04:48,060 --> 02:04:45,400

most spectacular sight that's amazing

2797

02:04:50,100 --> 02:04:48,070

just incredible and of course the

2798

02:04:53,430 --> 02:04:50,110

diamond ring you see because the moon is

2799

02:04:54,810 --> 02:04:53,440

not a totally smooth sphere and so

2800

02:04:56,730 --> 02:04:54,820

you're seeing little spots of light

2801
02:04:58,950 --> 02:04:56,740
peeping out between the craters on the

2802
02:05:01,800 --> 02:04:58,960
moon and my goodness I'm sorry I'm so

2803
02:05:03,480 --> 02:05:01,810
excited it's incredible yeah it's hard

2804
02:05:05,070 --> 02:05:03,490
to convey the excitement of the energy

2805
02:05:07,140 --> 02:05:05,080
there are 10,000 people on the Prairie

2806
02:05:09,120 --> 02:05:07,150
here the homestead National Monument

2807
02:05:11,250 --> 02:05:09,130
America and the energy is just amazing

2808
02:05:12,510 --> 02:05:11,260
and they've been here a lot of them have

2809
02:05:14,400 --> 02:05:12,520
been here since 6 o'clock this morning

2810
02:05:17,910 --> 02:05:14,410
and the atmosphere has been incredible

2811
02:05:24,250 --> 02:05:17,920
everybody is happy and it has just been

2812
02:05:27,880 --> 02:05:26,200
okay Nikki let's let's bring you over to

2813
02:05:30,040 --> 02:05:27,890

this side it looks like the moment of

2814

02:05:31,390 --> 02:05:30,050

totality has passed us here now what

2815

02:05:33,310 --> 02:05:31,400

should we watching for in the moments

2816

02:05:34,720 --> 02:05:33,320

after totality moments after totality

2817

02:05:36,490 --> 02:05:34,730

you will start to see again the Bailey

2818

02:05:39,400 --> 02:05:36,500

speed so we did see that diamond ring

2819

02:05:41,410 --> 02:05:39,410

and I got super excited but as as the

2820

02:05:43,210 --> 02:05:41,420

the moon continues now to pass away

2821

02:05:45,220 --> 02:05:43,220

you'll start to see the solar surface

2822

02:05:48,040 --> 02:05:45,230

come back it's coming it's becoming

2823

02:05:50,560 --> 02:05:48,050

light again if we had any roosters here

2824

02:05:52,420 --> 02:05:50,570

they would actually be crowing so it's

2825

02:05:54,580 --> 02:05:52,430

just been it's amazing and you'll start

2826

02:05:55,720 --> 02:05:54,590

to see the Sun coming back and I don't

2827

02:05:56,979 --> 02:05:55,730

know I always think how what it would

2828

02:05:58,479 --> 02:05:56,989

have been like if you didn't know the

2829

02:06:00,040 --> 02:05:58,489

Sun was gonna come back you just thought

2830

02:06:02,440 --> 02:06:00,050

it was disappearing but here comes the

2831

02:06:04,990 --> 02:06:02,450

Sun again so it's a wonderful wonderful

2832

02:06:07,240 --> 02:06:05,000

day here on the Prairie that's wonderful

2833

02:06:08,340 --> 02:06:07,250

Nikki one amazing experience thanks so

2834

02:06:10,510 --> 02:06:08,350

much for talking us through that

2835

02:06:13,090 --> 02:06:10,520

wouldn't be anywhere else Vince thank

2836

02:06:15,370 --> 02:06:13,100

you thank you very much what a great

2837

02:06:17,050 --> 02:06:15,380

experience everybody that is amazing

2838

02:06:19,090 --> 02:06:17,060

now it looks like things have started to

2839

02:06:20,830 --> 02:06:19,100

calm down here on the Prairie but that

2840

02:06:22,470 --> 02:06:20,840

doesn't mean the show is over our

2841

02:06:25,479 --> 02:06:22,480

coverage that the path of totality

2842

02:06:27,280 --> 02:06:25,489

continues across the entire path so

2843

02:06:32,110 --> 02:06:27,290

let's go ahead and send it back to NASA

2844

02:06:34,600 --> 02:06:32,120

Eclipse central thank thank you Vince it

2845

02:06:36,010 --> 02:06:34,610

was well worth the wait my friend we

2846

02:06:36,850 --> 02:06:36,020

were a little delayed there but my

2847

02:06:39,670 --> 02:06:36,860

goodness

2848

02:06:41,260 --> 02:06:39,680

Johnny did you see that I mean that was

2849

02:06:43,630 --> 02:06:41,270

amazing do you see that diamond ring

2850

02:06:45,580 --> 02:06:43,640

that was you know it was even more

2851
02:06:47,350 --> 02:06:45,590
prominent there it was very prominent

2852
02:06:49,270 --> 02:06:47,360
you could see like the ray of light like

2853
02:06:52,060 --> 02:06:49,280
very very nice and the whole diamond

2854
02:06:54,430 --> 02:06:52,070
around the whole surface it was amazing

2855
02:06:56,170 --> 02:06:54,440
and Alex it got really dark I mean

2856
02:06:57,970 --> 02:06:56,180
really did that's actually enjoyed

2857
02:07:00,100 --> 02:06:57,980
seeing them out on that prairie and

2858
02:07:03,040 --> 02:07:00,110
seeing it looked like she was in some

2859
02:07:04,570 --> 02:07:03,050
sort of weird strange light and she was

2860
02:07:05,770 --> 02:07:04,580
lit up and everything behind her was

2861
02:07:08,080 --> 02:07:05,780
dark it's really cool

2862
02:07:10,240 --> 02:07:08,090
fantastic Nebraska you rock in the house

2863
02:07:12,070 --> 02:07:10,250

we really really appreciate that but

2864

02:07:13,870 --> 02:07:12,080

like Vince said there's a lot more to

2865

02:07:15,880 --> 02:07:13,880

come and we got the International Space

2866

02:07:17,470 --> 02:07:15,890

Station's don't forget so Johnny I want

2867

02:07:19,360 --> 02:07:17,480

to go back you know we had to bring in

2868

02:07:22,479 --> 02:07:19,370

those images but we were talking about

2869

02:07:23,979 --> 02:07:22,489

and you mentioned the stamp now the

2870

02:07:26,500 --> 02:07:23,989

United States Post Service they do

2871

02:07:28,330 --> 02:07:26,510

amazing work they do but they really

2872

02:07:31,030 --> 02:07:28,340

outdid themselves this time go ahead and

2873

02:07:33,160 --> 02:07:31,040

finish they did they actually created a

2874

02:07:34,250 --> 02:07:33,170

special stamp for this event it's

2875

02:07:37,310 --> 02:07:34,260

actually a third

2876
02:07:38,720 --> 02:07:37,320
chromic stamp which means that it gets

2877
02:07:41,600 --> 02:07:38,730
activated by heat and you're actually

2878
02:07:43,670 --> 02:07:41,610
looking at it now in your images this

2879
02:07:45,680 --> 02:07:43,680
stamp if you put your thumb into the

2880
02:07:48,740 --> 02:07:45,690
center it will actually make the moon

2881
02:07:50,900 --> 02:07:48,750
surface appear or any type of heat that

2882
02:07:52,730 --> 02:07:50,910
you apply to it it's an amazing stab and

2883
02:07:55,940 --> 02:07:52,740
you know I got mine yesterday thanks to

2884
02:07:59,740 --> 02:07:55,950
doing and it's it's thermochromic

2885
02:08:03,950 --> 02:07:59,750
thermochromic oh you think if that heat

2886
02:08:05,570 --> 02:08:03,960
activated by the heat yeah he um and I

2887
02:08:08,240 --> 02:08:05,580
bet you they sold a lot of those things

2888
02:08:11,480 --> 02:08:08,250

well they did they they sold out online

2889

02:08:13,430 --> 02:08:11,490

originally right away so it was quite a

2890

02:08:16,100 --> 02:08:13,440

popular one it's the first time the US

2891

02:08:19,150 --> 02:08:16,110

has ever used that type of ink okay so

2892

02:08:21,830 --> 02:08:19,160

we have seen some pretty cool images

2893

02:08:23,330 --> 02:08:21,840

still got some more to come the diamond

2894

02:08:25,760 --> 02:08:23,340

has been prominent let's go over the

2895

02:08:27,560 --> 02:08:25,770

social and see how things are going John

2896

02:08:29,210 --> 02:08:27,570

thanks to Amy we're continue look up

2897

02:08:30,320 --> 02:08:29,220

here in Charleston South Carolina

2898

02:08:32,210 --> 02:08:30,330

because there are some clouds here and

2899

02:08:34,430 --> 02:08:32,220

we're excited exciting we want a happier

2900

02:08:35,720 --> 02:08:34,440

to as well just a couple quick interests

2901

02:08:37,880 --> 02:08:35,730

interesting things this is the biggest

2902

02:08:41,000 --> 02:08:37,890

livestream event ever measured on

2903

02:08:43,070 --> 02:08:41,010

nasa.gov the web traffic is counting for

2904

02:08:44,690 --> 02:08:43,080

87% of all federal web traffic which is

2905

02:08:45,860 --> 02:08:44,700

pretty amazing showing that people are

2906

02:08:49,730 --> 02:08:45,870

really really tuning into our broadcast

2907

02:08:51,050 --> 02:08:49,740

year as of 1:40 p.m. 1 4.4 million

2908

02:08:53,870 --> 02:08:51,060

people climbing were watching this

2909

02:08:55,820 --> 02:08:53,880

broadcast so the interest across the

2910

02:08:58,220 --> 02:08:55,830

country is obvious here and we're going

2911

02:09:00,080 --> 02:08:58,230

to show you some amazing live views this

2912

02:09:02,510 --> 02:09:00,090

right here is again another photo of the

2913

02:09:04,580 --> 02:09:02,520

space station taken by Bill Ingalls in

2914

02:09:07,250 --> 02:09:04,590

Washington one of our photographers here

2915

02:09:08,750 --> 02:09:07,260

at NASA next thing I have a video from

2916

02:09:12,230 --> 02:09:08,760

another photographer one of our other

2917

02:09:15,029 --> 02:09:12,240

photographers as the space station

2918

02:09:18,029 --> 02:09:16,379

you could see it there if you're looking

2919

02:09:20,629 --> 02:09:18,039

closely you could see the space station

2920

02:09:23,939 --> 02:09:20,639

transient Sun during the partial eclipse

2921

02:09:25,319 --> 02:09:23,949

pretty spectacular again that's two

2922

02:09:27,779 --> 02:09:25,329

hundred fifty miles per hour that space

2923

02:09:28,889 --> 02:09:27,789

station you have to be I mean two and

2924

02:09:30,419 --> 02:09:28,899

fifty miles about the earth seventeen

2925

02:09:32,189 --> 02:09:30,429

thousand five miles per hour you if you

2926

02:09:34,770 --> 02:09:32,199

taking a lot of different shots pretty

2927

02:09:37,259 --> 02:09:34,780

fast to capture that so nice job Joel

2928

02:09:39,270 --> 02:09:37,269

okay so let's let's go to Jefferson City

2929

02:09:41,279 --> 02:09:39,280

the moon shadows continuing to pass over

2930

02:09:43,439 --> 02:09:41,289

the United States in this remarkable

2931

02:09:45,179 --> 02:09:43,449

celestial event our next stop on the

2932

02:09:47,639 --> 02:09:45,189

path as I said a fatality is Jefferson

2933

02:09:49,829 --> 02:09:47,649

City Missouri we're going to hand off to

2934

02:09:51,899 --> 02:09:49,839

meteorologist Eric Aldridge who is a

2935

02:09:54,149 --> 02:09:51,909

professor atmospheric science at the

2936

02:09:56,069 --> 02:09:54,159

University of Missouri gets a special

2937

02:09:58,199 --> 02:09:56,079

guest to help explain two important

2938

02:10:00,959 --> 02:09:58,209

impacts solar activity can have on

2939

02:10:05,069 --> 02:10:00,969

humans and the technologies we use over

2940

02:10:06,599 --> 02:10:05,079

to you Eric okay thanks a lot yeah we

2941

02:10:08,279 --> 02:10:06,609

are live in Jefferson City Missouri

2942

02:10:10,079 --> 02:10:08,289

Jefferson City is actually the state

2943

02:10:12,119 --> 02:10:10,089

capital and as you can see behind me

2944

02:10:13,589 --> 02:10:12,129

there's a lot of people that are here

2945

02:10:16,049 --> 02:10:13,599

it's been a whole weekend the type of

2946

02:10:18,719 --> 02:10:16,059

thing Saturday Sunday and of course here

2947

02:10:21,029 --> 02:10:18,729

on Monday lots of family-friendly things

2948

02:10:23,339 --> 02:10:21,039

there's been corn mazes there's been 5k

2949

02:10:24,899 --> 02:10:23,349

runs there's a lot of good food too bad

2950

02:10:26,369 --> 02:10:24,909

you can't smell the food but there's a

2951

02:10:28,889 --> 02:10:26,379

lot of good food that's here as well and

2952

02:10:30,899 --> 02:10:28,899

just a very nice weekend the weather has

2953

02:10:32,219 --> 02:10:30,909

been perfect we've had some showers and

2954

02:10:34,049 --> 02:10:32,229

thunderstorms off to the west all

2955

02:10:36,239 --> 02:10:34,059

morning we've had a few high clouds kind

2956

02:10:38,279 --> 02:10:36,249

of stream on in but certainly things are

2957

02:10:40,619 --> 02:10:38,289

looking really good I am lucky to be

2958

02:10:42,299 --> 02:10:40,629

joined here by two special people that

2959

02:10:44,789 --> 02:10:42,309

are gonna be talking about space weather

2960

02:10:47,069 --> 02:10:44,799

and just how things work in space dr.

2961

02:10:50,459 --> 02:10:47,079

Janet Kevon D thank you so much you are

2962

02:10:53,879 --> 02:10:50,469

thank the director of the NASA Glenn

2963

02:10:56,609 --> 02:10:53,889

Research Center in Cleveland you're also

2964

02:10:57,839 --> 02:10:56,619

a three-time Shuttle astronaut okay and

2965

02:11:01,020 --> 02:10:57,849

you are actually from Springfield

2966

02:11:02,909 --> 02:11:01,030

Missouri so welcome home thank you great

2967

02:11:04,319 --> 02:11:02,919

to be back well great so now you know

2968

02:11:05,849 --> 02:11:04,329

we've been talking a lot about safety

2969

02:11:07,739 --> 02:11:05,859

and obviously you don't want to look

2970

02:11:09,449 --> 02:11:07,749

right up at the Sun not without these

2971

02:11:11,879 --> 02:11:09,459

that's right yeah and so we all have

2972

02:11:13,649 --> 02:11:11,889

some so that's good but what about the

2973

02:11:15,719 --> 02:11:13,659

astronauts that are up in space what

2974

02:11:17,720 --> 02:11:15,729

what is there to help keep the

2975

02:11:20,310 --> 02:11:17,730

astronauts safe from the Soul

2976

02:11:22,110 --> 02:11:20,320

radiation and so on I'm sorry well for

2977

02:11:23,340 --> 02:11:22,120

their eyes we know that they they know

2978

02:11:24,419 --> 02:11:23,350

that certain windows they should not

2979

02:11:26,550 --> 02:11:24,429

look out of because there's no

2980

02:11:28,590 --> 02:11:26,560

protection other windows have protection

2981

02:11:30,180 --> 02:11:28,600

on them that helps shield their eyes but

2982

02:11:32,010 --> 02:11:30,190

also there's other kinds of radiation

2983

02:11:34,050 --> 02:11:32,020

like protons that come from the Sun

2984

02:11:36,930 --> 02:11:34,060

heavier particles that can cause damage

2985

02:11:38,250 --> 02:11:36,940

to ourselves and we try to shield the

2986

02:11:39,419 --> 02:11:38,260

astronauts as best we can because

2987

02:11:41,610 --> 02:11:39,429

they're above the atmosphere we're

2988

02:11:43,950 --> 02:11:41,620

shielded here by that atmosphere quite a

2989

02:11:45,510 --> 02:11:43,960

bit above that you don't have that

2990

02:11:47,520 --> 02:11:45,520

natural shielding so we have to do it

2991

02:11:49,860 --> 02:11:47,530

with both metal and they're in the

2992

02:11:51,510 --> 02:11:49,870

vehicle and then some water bags around

2993

02:11:53,070 --> 02:11:51,520

the sleep station so they can sleep

2994

02:11:55,229 --> 02:11:53,080

surrounded by water and that also helps

2995

02:11:58,080 --> 02:11:55,239

absorb some of that radiation okay now

2996

02:12:00,030 --> 02:11:58,090

you know we also are kind of excited

2997

02:12:01,860 --> 02:12:00,040

about space communications and that's

2998

02:12:04,770 --> 02:12:01,870

certainly another special research area

2999

02:12:06,360 --> 02:12:04,780

and so also with me here today is dr.

3000

02:12:08,370 --> 02:12:06,370

Tam with the scope you know you're from

3001

02:12:10,200 --> 02:12:08,380

the aerospace corporations in Los

3002

02:12:12,770 --> 02:12:10,210

Angeles so welcome to Central Missouri

3003

02:12:14,760 --> 02:12:12,780

thank you now you're also a space

3004

02:12:16,590 --> 02:12:14,770

meteorologist yes and you are also

3005

02:12:18,780 --> 02:12:16,600

referred to as the space weather woman

3006

02:12:20,820 --> 02:12:18,790

Yeah right so I've been intrigued by

3007

02:12:22,979 --> 02:12:20,830

this what what exactly does a space

3008

02:12:25,080 --> 02:12:22,989

weather woman do well most people don't

3009

02:12:26,760 --> 02:12:25,090

realize that the Sun actually has its

3010

02:12:28,709 --> 02:12:26,770

own unique weather that comes from it

3011

02:12:31,090 --> 02:12:28,719

and those solar eruptions that come from

3012

02:12:34,270 --> 02:12:31,100

the Sun they actually

3013

02:12:36,160 --> 02:12:34,280

in earth and cause issues for us so I

3014

02:12:37,870 --> 02:12:36,170

actually do a weekly broadcast weather

3015

02:12:39,460 --> 02:12:37,880

predictions just like you do like a

3016

02:12:41,440 --> 02:12:39,470

meteorologist me that talks about

3017

02:12:42,730 --> 02:12:41,450

women's events head birth and the types

3018

02:12:45,790 --> 02:12:42,740

of the issues that they cause for things

3019

02:12:47,680 --> 02:12:45,800

like communications like GPS okay now

3020

02:12:51,820 --> 02:12:47,690

we're just about 15 seconds away

3021

02:12:54,130 --> 02:12:51,830

actually we're gonna put our glasses on

3022

02:13:01,550 --> 02:12:54,140

you can hear the crowd cheering in the

3023

02:13:01,560 --> 02:13:05,960

[Music]

3024

02:13:22,479 --> 02:13:18,820

[Applause]

3025

02:13:24,399 --> 02:13:22,489

dr. kovanda you've been a space you've

3026

02:13:26,350 --> 02:13:24,409

seen numerous sunrises and sunsets from

3027

02:13:28,540 --> 02:13:26,360

the Space Shuttle how does this event

3028

02:13:29,649 --> 02:13:28,550

compare completely different than

3029

02:13:31,899 --> 02:13:29,659

anything I've seen before I've never

3030

02:13:33,580 --> 02:13:31,909

found eclipses look I've seen a partial

3031

02:13:35,919 --> 02:13:33,590

but nothing like this is this really

3032

02:13:38,399 --> 02:13:35,929

unique and nothing like I saw in space

3033

02:13:40,479 --> 02:13:38,409

space past it's really cool this right

3034

02:13:41,979 --> 02:13:40,489

you know I'm starting to hear the

3035

02:13:44,260 --> 02:13:41,989

crickets they're starting to come on out

3036

02:13:46,840 --> 02:13:44,270

obviously the street lamps this is

3037

02:13:48,160 --> 02:13:46,850

amazing no I'm also looking up to try to

3038

02:13:54,430 --> 02:13:48,170

find the Big Dipper and some of the

3039

02:13:56,800 --> 02:13:54,440

other stars I'm really mesmerized by

3040

02:13:58,870 --> 02:13:56,810

this this is this is a spectacular event

3041

02:14:00,370 --> 02:13:58,880

we've had several solar storms that have

3042

02:14:02,140 --> 02:14:00,380

been launched and some of them have been

3043

02:14:03,760 --> 02:14:02,150

launched from the left side of the Sun

3044

02:14:05,919 --> 02:14:03,770

so we're actually seeing a difference

3045

02:14:07,390 --> 02:14:05,929

from what the Kronos looked like in our

3046

02:14:09,580 --> 02:14:07,400

predictions to what it looks like now

3047

02:14:11,830 --> 02:14:09,590

and then on top of that we have ham

3048

02:14:13,810 --> 02:14:11,840

radio operators all over the state right

3049

02:14:15,220 --> 02:14:13,820

now who are making contacts that they

3050

02:14:17,590 --> 02:14:15,230

haven't been able to make because the

3051

02:14:19,330 --> 02:14:17,600

upper atmosphere is just all all

3052

02:14:20,919 --> 02:14:19,340

turbulent right now and it affects the

3053

02:14:23,500 --> 02:14:20,929

communication signals so we've got GPS

3054

02:14:25,780 --> 02:14:23,510

operators and ham radio operators doing

3055

02:14:28,180 --> 02:14:25,790

a ton of science and it's just so it's

3056

02:14:30,010 --> 02:14:28,190

overwhelming this is amazing now my team

3057

02:14:31,870 --> 02:14:30,020

of atmospheric science researchers from

3058

02:14:33,610 --> 02:14:31,880

the University of Missouri they are

3059

02:14:35,140 --> 02:14:33,620

actually sending up weather balloons

3060

02:14:37,390 --> 02:14:35,150

here this afternoon to try to figure out

3061

02:14:39,340 --> 02:14:37,400

you know how the weather is changing at

3062

02:14:41,270 --> 02:14:39,350

certain height levels and actually

3063

02:14:43,920 --> 02:14:41,280

here's a map of these

3064

02:14:45,990 --> 02:14:43,930
radiation throughout the state of

3065

02:14:48,330 --> 02:14:46,000
Missouri and if you kind of see how much

3066

02:14:50,460 --> 02:14:48,340
solar radiation is hitting the surface

3067

02:14:53,610 --> 02:14:50,470
of the earth here in Missouri just

3068

02:14:55,140 --> 02:14:53,620
interesting this is amazing it is you

3069

02:14:57,450 --> 02:14:55,150
can tell the crowd is just massive oh

3070

02:14:59,040 --> 02:14:57,460
this is so cool and you can even see the

3071

02:15:00,870 --> 02:14:59,050
dips in the valleys there you can see

3072

02:15:02,640 --> 02:15:00,880
low areas of the Sun where it's shining

3073

02:15:04,620 --> 02:15:02,650
through more frightened those create the

3074

02:15:06,270 --> 02:15:04,630
Bailey because I see it was we become we

3075

02:15:09,030 --> 02:15:06,280
get out of totality which is coming up

3076

02:15:12,810 --> 02:15:09,040

here pretty soon right yeah I think we

3077

02:15:14,190 --> 02:15:12,820

we come out of totality at 115 35 local

3078

02:15:17,700 --> 02:15:14,200

time and so we just have a few more

3079

02:15:19,470 --> 02:15:17,710

seconds for that absolutely an amazing

3080

02:15:21,450 --> 02:15:19,480

event and again we're so lucky that some

3081

02:15:24,120 --> 02:15:21,460

of these high clouds were able to kind

3082

02:15:26,400 --> 02:15:24,130

of oh yeah gonna fall apart a little bit

3083

02:15:27,870 --> 02:15:26,410

so we could experience and I can't

3084

02:15:29,670 --> 02:15:27,880

believe we can actually see the camera

3085

02:15:31,530 --> 02:15:29,680

through the cloud okay that's the

3086

02:15:34,950 --> 02:15:31,540

airhorn we're coming out of totality

3087

02:15:42,240 --> 02:15:34,960

we're getting so we need to put our

3088

02:15:46,600 --> 02:15:44,770

so as you can see we're coming out of

3089

02:15:48,010 --> 02:15:46,610

totality here in Jefferson City Missouri

3090

02:15:52,810 --> 02:15:48,020

ladies thank you so much for

3091

02:15:54,520 --> 02:15:52,820

experiencing this with me yes thank you

3092

02:15:56,649 --> 02:15:54,530

so everyone's excited here at Jefferson

3093

02:15:58,149 --> 02:15:56,659

City Missouri the Sun started to come

3094

02:16:00,399 --> 02:15:58,159

out a little bit we're gonna go ahead

3095

02:16:06,160 --> 02:16:00,409

and send it back to Charleston we should

3096

02:16:09,010 --> 02:16:06,170

have stayed thanks Eric yadi Wow hey

3097

02:16:11,470 --> 02:16:09,020

it's an amazing like I get goosebumps

3098

02:16:12,850 --> 02:16:11,480

every time I see this and so I cannot

3099

02:16:14,740 --> 02:16:12,860

imagine how it's gonna be

3100

02:16:18,750 --> 02:16:14,750

you know when we actually see it here

3101

02:16:21,580 --> 02:16:18,760

South Carolina I mean so Alex you know

3102

02:16:22,870 --> 02:16:21,590

I'm speechless man I mean as a scientist

3103

02:16:24,910 --> 02:16:22,880

you gotta like love this stuff right

3104

02:16:27,550 --> 02:16:24,920

it's so great to hear that man love

3105

02:16:29,439 --> 02:16:27,560

hearing an experienced astronaut talk

3106

02:16:31,840 --> 02:16:29,449

about how overwhelming it is given the

3107

02:16:33,969 --> 02:16:31,850

amazing things that she has seen but

3108

02:16:36,459 --> 02:16:33,979

also to hear my colleague tamatha Skov

3109

02:16:39,339 --> 02:16:36,469

who is also a Helio physicist and a

3110

02:16:42,100 --> 02:16:39,349

space weather expert I can hear the

3111

02:16:44,230 --> 02:16:42,110

excitement and her voice I can I mean

3112

02:16:47,259 --> 02:16:44,240

it's it's palpable it's just great yeah

3113

02:16:49,209 --> 02:16:47,269

so check this out guys I mean I think

3114

02:16:51,370 --> 02:16:49,219

things are going so smooth we're gonna

3115

02:16:54,940 --> 02:16:51,380

go to another image right now from

3116

02:16:56,440 --> 02:16:54,950

Hopkins girl Bryan Massey out there from

3117

02:17:00,690 --> 02:16:56,450

Marshall Space Flight Center what's

3118

02:17:07,179 --> 02:17:05,160

Hopkinsville there it is

3119

02:17:10,209 --> 02:17:07,189

that's beautiful they're getting close

3120

02:17:11,679 --> 02:17:10,219

now now now it's yellow is that if we

3121

02:17:13,209 --> 02:17:11,689

had purple as that mean something there

3122

02:17:15,700 --> 02:17:13,219

well the previous one we saw those

3123

02:17:18,759 --> 02:17:15,710

purple was calcium K was a blue kind of

3124

02:17:20,530 --> 02:17:18,769

light this is actually more of a white

3125

02:17:22,240 --> 02:17:20,540

light continuous but the thing to

3126

02:17:25,270 --> 02:17:22,250

remember is sometimes the different

3127

02:17:26,650 --> 02:17:25,280

filters you use will change the color

3128

02:17:29,230 --> 02:17:26,660

just a little bit but what we're seeing

3129

02:17:31,839 --> 02:17:29,240

here is really more visible broader

3130

02:17:34,089 --> 02:17:31,849

spectrum white light let me let me John

3131

02:17:36,910 --> 02:17:34,099

you gotta have some cool stuff so to me

3132

02:17:38,320 --> 02:17:36,920

this is a good question guys mark from

3133

02:17:40,000 --> 02:17:38,330

Facebook's asking and this is what

3134

02:17:42,009 --> 02:17:40,010

really applies right now when observing

3135

02:17:44,290 --> 02:17:42,019

the moon at night I see it proceeded

3136

02:17:45,820 --> 02:17:44,300

from Eastern to western horizon much

3137

02:17:47,320 --> 02:17:45,830

like the Sun does how come the solar

3138

02:17:48,590 --> 02:17:47,330

eclipse is traveling from west to east

3139

02:17:51,230 --> 02:17:48,600

across the u.s.

3140

02:17:52,940 --> 02:17:51,240

well again that that's because when

3141

02:17:55,130 --> 02:17:52,950

we're looking at the moonrise that's

3142

02:17:56,930 --> 02:17:55,140

actually because of our location on the

3143

02:17:59,450 --> 02:17:56,940

earth and the fact that the earth is

3144

02:18:01,370 --> 02:17:59,460

rotating from west to east the same

3145

02:18:02,480 --> 02:18:01,380

reason that the Sun rises in the east

3146

02:18:05,330 --> 02:18:02,490

and sets in the west

3147

02:18:07,220 --> 02:18:05,340

but the moon itself is moving in the

3148

02:18:09,830 --> 02:18:07,230

same direction the earth is rotating and

3149

02:18:11,390 --> 02:18:09,840

it's casting that shadow down on the

3150

02:18:13,910 --> 02:18:11,400

earth and that is moving in the

3151
02:18:16,250 --> 02:18:13,920
direction that the that both the moon is

3152
02:18:21,260 --> 02:18:16,260
wrote is orbiting and the earth is

3153
02:18:24,470 --> 02:18:21,270
rotating so from west to east okay so

3154
02:18:26,840 --> 02:18:24,480
the total eclipse is now passed over

3155
02:18:29,210 --> 02:18:26,850
half the country it's currently over

3156
02:18:31,280 --> 02:18:29,220
Illinois and I think we're going to have

3157
02:18:34,100 --> 02:18:31,290
some views coming up shortly but what I

3158
02:18:36,200 --> 02:18:34,110
really want to do here guys is this has

3159
02:18:37,250 --> 02:18:36,210
been really incredible I want to give a

3160
02:18:38,199 --> 02:18:37,260
shout out to the College of Charleston

3161
02:18:53,719 --> 02:18:38,209
make some noise

3162
02:18:59,280 --> 02:18:57,059
we haven't we love it in here so now

3163
02:19:00,929 --> 02:18:59,290

we've got live video coming to us from -

3164

02:19:03,030 --> 02:19:00,939

real Kentucky it's a small town that's

3165

02:19:04,709 --> 02:19:03,040

known for southern hospitality like

3166

02:19:06,570 --> 02:19:04,719

Charleston and it's also a prime spot

3167

02:19:08,759 --> 02:19:06,580

for viewing this total solar eclipse

3168

02:19:10,320 --> 02:19:08,769

Hopkinsville is the city with the

3169

02:19:12,179 --> 02:19:10,330

longest duration and the total solar

3170

02:19:15,389 --> 02:19:12,189

eclipse for a total of two minutes and

3171

02:19:17,790 --> 02:19:15,399

40 seconds of totality nastas monsters

3172

02:19:19,860 --> 02:19:17,800

by flight center space flights and a

3173

02:19:23,879 --> 02:19:19,870

Braun Massey I'm so excited what you got

3174

02:19:25,559 --> 02:19:23,889

man Dewayne we're just as excited as you

3175

02:19:29,849 --> 02:19:25,569

are we are here in Eclipse we'll say

3176

02:19:31,410 --> 02:19:29,859

hello everybody I'm surrounded by a

3177

02:19:32,459 --> 02:19:31,420

thousand of my best friends we're

3178

02:19:34,500 --> 02:19:32,469

getting ready it's starting to get a

3179

02:19:36,240 --> 02:19:34,510

little darker already we're also joined

3180

02:19:38,309 --> 02:19:36,250

here by NASA Marshall planetary

3181

02:19:39,990 --> 02:19:38,319

scientist Renee Weber Renee thanks for

3182

02:19:41,790 --> 02:19:40,000

joining us thanks it's really great to

3183

02:19:43,469 --> 02:19:41,800

be here I just want to say thank you to

3184

02:19:45,179 --> 02:19:43,479

the city of Hopkinsville for having us

3185

02:19:47,759 --> 02:19:45,189

out on this beautiful farm in Kentucky

3186

02:19:49,620 --> 02:19:47,769

and we're just all really excited yeah

3187

02:19:51,120 --> 02:19:49,630

definitely it's a lot of fun there's

3188

02:19:53,849 --> 02:19:51,130

light starting to fade and the

3189

02:19:55,559 --> 02:19:53,859

excitements getting bigger we are at the

3190

02:19:57,150 --> 02:19:55,569

point of greatest eclipse here at

3191

02:19:59,160 --> 02:19:57,160

Hopkinsville Renee tell us a little bit

3192

02:20:00,900 --> 02:19:59,170

what's the significance of that well the

3193

02:20:04,139 --> 02:20:00,910

point of greatest Eclipse is actually a

3194

02:20:06,690 --> 02:20:04,149

point in time when the axis of the

3195

02:20:08,790 --> 02:20:06,700

moon's shadow is pointed most directly

3196

02:20:10,469 --> 02:20:08,800

towards the center of the earth so we

3197

02:20:13,290 --> 02:20:10,479

are at the point on the surface of the

3198

02:20:15,420 --> 02:20:13,300

earth where that time occurs exactly the

3199

02:20:16,740 --> 02:20:15,430

shadow will actually be more circular

3200

02:20:18,750 --> 02:20:16,750

here than anywhere else in the country

3201

02:20:20,790 --> 02:20:18,760

that's right and it's just getting

3202

02:20:22,920 --> 02:20:20,800

really dim and uh we're just so close

3203

02:20:23,550 --> 02:20:22,930

it's incredible yeah it's this is

3204

02:20:25,950 --> 02:20:23,560

amazing

3205

02:20:27,510 --> 02:20:25,960

we can't wait to break out in the

3206

02:20:29,309 --> 02:20:27,520

darkness we've got our glasses out we've

3207

02:20:33,300 --> 02:20:29,319

been looking up at it you can see now on

3208

02:20:36,120 --> 02:20:33,310

the screen our live telescope view and

3209

02:20:38,490 --> 02:20:36,130

this is just amazing everybody is really

3210

02:20:40,080 --> 02:20:38,500

enjoying it we've got people from all

3211

02:20:42,030 --> 02:20:40,090

over Kentucky people from all over the

3212

02:20:44,790 --> 02:20:42,040

world have joined us here as this is

3213

02:20:47,969 --> 02:20:44,800

Eclipse ville USA and we are just a few

3214

02:20:49,830 --> 02:20:47,979

minutes away from total totality but

3215

02:20:51,950 --> 02:20:49,840

before we get to that point Renee tell

3216

02:20:55,140 --> 02:20:51,960

us you're a planetary scientist and you

3217

02:20:57,001 --> 02:20:55,150

specialize in the moon lunar scientists

3218

02:20:59,400 --> 02:20:57,011

how does the eclipse really speak to

3219

02:21:00,961 --> 02:20:59,410

what you do well it is pretty cool to

3220

02:21:02,551 --> 02:21:00,971

look up there and when you're seeing

3221

02:21:04,711 --> 02:21:02,561

that Sun get dimmer and dimmer it's

3222

02:21:05,671 --> 02:21:04,721

because the moon is up there and I like

3223

02:21:06,900 --> 02:21:05,681

to tell everyone that you're really

3224

02:21:09,060 --> 02:21:06,910

looking at the moon when you're watching

3225

02:21:10,890 --> 02:21:09,070

a solar eclipse and it's just getting

3226

02:21:13,530 --> 02:21:10,900

dim and it's starting to get a lot

3227

02:21:15,390 --> 02:21:13,540

cooler too it's incredible this is my

3228

02:21:17,280 --> 02:21:15,400

first solar eclipse Renee have you ever

3229

02:21:19,200 --> 02:21:17,290

experienced one this is my first total

3230

02:21:21,270 --> 02:21:19,210

eclipse - I've seen partial eclipses but

3231

02:21:23,011 --> 02:21:21,280

I've never had a chance to see totality

3232

02:21:24,480 --> 02:21:23,021

before and I'm just so excited it's

3233

02:21:26,160 --> 02:21:24,490

amazing them the light is starting to

3234

02:21:27,660 --> 02:21:26,170

fade as the Moon steps in front of the

3235

02:21:30,121 --> 02:21:27,670

Sun here and it's already just a really

3236

02:21:32,011 --> 02:21:30,131

eerie feeling here getting dark in the

3237

02:21:33,690 --> 02:21:32,021

middle of the day but we're really

3238

02:21:36,360 --> 02:21:33,700

excited about it and we're just a few

3239

02:21:37,560 --> 02:21:36,370

seconds away I've lost my counter but

3240

02:21:39,200 --> 02:21:37,570

I'm gonna look back at the Sun while I

3241

02:21:41,551 --> 02:21:39,210

still have the opportunity

3242

02:21:43,530 --> 02:21:41,561

wow that is absolutely amazing we're

3243

02:21:44,970 --> 02:21:43,540

down to just a thin sliver of the Sun

3244

02:21:46,621 --> 02:21:44,980

Renee what do you think about this I

3245

02:21:48,841 --> 02:21:46,631

can't believe it it's just it looks

3246

02:21:50,791 --> 02:21:48,851

incredible and it really is starting to

3247

02:21:53,251 --> 02:21:50,801

get dim and you nobody even needs their

3248

02:21:55,171 --> 02:21:53,261

sunglasses just your Eclipse glasses and

3249

02:21:58,060 --> 02:21:55,181

you can see that beautiful crescent Sun

3250

02:22:02,180 --> 02:21:58,070

wow this is absolutely amazing

3251

02:22:06,261 --> 02:22:03,950

we're just really looking forward to

3252

02:22:08,091 --> 02:22:06,271

that for a chance we got no clouds here

3253

02:22:10,730 --> 02:22:08,101

in the sky and you can see some

3254

02:22:12,830 --> 02:22:10,740

airplanes up there but that Suns just

3255

02:22:13,940 --> 02:22:12,840

getting smaller and smaller yeah it's

3256

02:22:16,190 --> 02:22:13,950

definitely a Hopkinsville Kentucky

3257

02:22:18,230 --> 02:22:16,200

Chamber of Commerce sponsored date here

3258

02:22:21,140 --> 02:22:18,240

in Eclipse Ville there's not a cloud in

3259

02:22:24,230 --> 02:22:21,150

the sky and it's amazing how it's gotten

3260

02:22:25,881 --> 02:22:24,240

so much cooler here since since the Sun

3261

02:22:27,381 --> 02:22:25,891

started covering up them or the start is

3262

02:22:29,120 --> 02:22:27,391

already being covered yeah it's nice to

3263

02:22:31,190 --> 02:22:29,130

have a break from that hot southern Sun

3264

02:22:33,020 --> 02:22:31,200

yeah definitely we've been sweating it

3265

02:22:35,060 --> 02:22:33,030

out a couple days here in Hopkinsville

3266

02:22:38,030 --> 02:22:35,070

getting ready for this we're getting

3267

02:22:40,870 --> 02:22:38,040

really close now so what exactly are we

3268

02:22:43,761 --> 02:22:40,880

looking at here na well we're just about

3269

02:22:45,470 --> 02:22:43,771

close to a hundred percent it's just

3270

02:22:47,301 --> 02:22:45,480

getting smaller and smaller and it's

3271

02:22:48,740 --> 02:22:47,311

getting dimmer and dimmer and hopefully

3272

02:22:50,740 --> 02:22:48,750

soon we'll have a chance to see those

3273

02:22:53,780 --> 02:22:50,750

Baily's beads and that diamond ring

3274

02:22:56,060 --> 02:22:53,790

that's when you can actually see the

3275

02:22:58,370 --> 02:22:56,070

light shining through the moon's valleys

3276

02:23:00,261 --> 02:22:58,380

the moon's not a perfectly smooth sphere

3277

02:23:02,000 --> 02:23:00,271

it's got that rugged surface and you can

3278

02:23:03,910 --> 02:23:02,010

see those sun ray is shining through

3279

02:23:06,170 --> 02:23:03,920

those mountains and valleys and craters

3280

02:23:08,930 --> 02:23:06,180

Wow it's looking like we're about one

3281

02:23:10,930 --> 02:23:08,940

minute out now and just getting smaller

3282

02:23:13,301 --> 02:23:10,940

and smaller

3283

02:23:19,301 --> 02:23:13,311

Wow this is this is amazing crowds

3284

02:23:25,541 --> 02:23:19,311

getting really excited - hey guys who

3285

02:23:31,251 --> 02:23:28,841

Wow it's getting closer Wow

3286

02:23:33,921 --> 02:23:31,261

it's just getting really close to

3287

02:23:36,501 --> 02:23:33,931

nighttime it's incredible it's like very

3288

02:23:38,631 --> 02:23:36,511

dim definitely it feels like dawn or

3289

02:23:48,621 --> 02:23:38,641

dusk here in Hopkinsville right now as

3290

02:23:51,051 --> 02:23:48,631

it's getting closer you can see on our

3291

02:23:53,961 --> 02:23:51,061

feed this that tiny tiny little sliver

3292

02:23:58,220 --> 02:23:53,971

left to go and it's really starting to

3293

02:24:01,100 --> 02:23:58,230

get dark now Wow and you can see the

3294

02:24:04,280 --> 02:24:01,110

pink color around the horizon oh it's

3295

02:24:07,520 --> 02:24:04,290

like the sunset it's beautiful it's

3296

02:24:11,660 --> 02:24:07,530

going it's going just that tiny tiny

3297

02:24:11,670 --> 02:24:16,700

[Applause]

3298

02:24:21,791 --> 02:24:17,220

[Music]

3299

02:24:25,741 --> 02:24:21,801

[Applause]

3300

02:24:28,301 --> 02:24:25,751

and we are in total solar eclipse

3301

02:24:30,730 --> 02:24:28,311

absolutely breathtaking yeah you can see

3302

02:24:32,650 --> 02:24:30,740

the corona that beautiful white wispy

3303

02:24:35,440 --> 02:24:32,660

crown coming out from the Sun in all

3304

02:24:37,511 --> 02:24:35,450

directions and we can see airplanes and

3305

02:24:41,140 --> 02:24:37,521

I think I see Jupiter in the sky over

3306

02:24:46,650 --> 02:24:41,150

there I think I can see Jupiter wow

3307

02:24:52,270 --> 02:24:50,081

can only imagine in ancient times what

3308

02:24:54,430 --> 02:24:52,280

this much of they're like out of nowhere

3309

02:24:58,030 --> 02:24:54,440

I am covered in head-to-toe in

3310

02:24:59,770 --> 02:24:58,040

goosebumps at each shield I know I just

3311

02:25:01,180 --> 02:24:59,780

can't believe we finally got a chance to

3312

02:25:03,041 --> 02:25:01,190

see it I mean it's one thing to read

3313

02:25:04,480 --> 02:25:03,051

about it but it's another thing when you

3314

02:25:07,360 --> 02:25:04,490

get to see it yourself with your own

3315

02:25:08,770 --> 02:25:07,370

eyes guys we're gonna take a break here

3316

02:25:10,871 --> 02:25:08,780

just a second we're gonna step back and

3317

02:25:33,030 --> 02:25:10,881

fully enjoy this and hope you enjoy our

3318

02:25:33,040 --> 02:26:52,880

[Applause]

3319

02:27:00,150 --> 02:26:55,380

here in Eclipse ville it is definitely

3320

02:27:04,170 --> 02:27:00,160

lived up to the moon and stepping aside

3321

02:27:06,349 --> 02:27:04,180

from the Sun brighter totality has

3322

02:27:09,840 --> 02:27:06,359

finished here at Hopkinsville

3323

02:27:17,099 --> 02:27:09,850

Wow that was absolutely amazing grenade

3324

02:27:19,800 --> 02:27:17,109

continue even try to put it in this is

3325

02:27:21,389 --> 02:27:19,810

amazing we can see the birds flying see

3326

02:27:25,320 --> 02:27:21,399

the Sun starting to come out and it's

3327

02:27:26,730 --> 02:27:25,330

getting bright again this is amazing

3328

02:27:31,760 --> 02:27:26,740

it's really a once-in-a-lifetime

3329

02:27:41,040 --> 02:27:39,929

Wow we have set in meetings preparing

3330

02:27:43,080 --> 02:27:41,050

for this for the last two or three

3331

02:27:45,330 --> 02:27:43,090

months and now this is actually here

3332

02:27:47,940 --> 02:27:45,340

it's completely 100% leave lived up to

3333

02:27:50,130 --> 02:27:47,950

its billing and I can't imagine I can't

3334

02:27:51,679 --> 02:27:50,140

believe what just amazing we were so

3335

02:27:53,849 --> 02:27:51,689

worried about the weather and the

3336

02:27:55,380 --> 02:27:53,859

broadcast and making sure our telescope

3337

02:27:57,090 --> 02:27:55,390

was set up and everything went smooth

3338

02:28:00,050 --> 02:27:57,100

and we just had a blast

3339

02:28:02,400 --> 02:28:00,060

Wow this has been absolutely amazing

3340

02:28:04,500 --> 02:28:02,410

folks we have really enjoyed it it's

3341

02:28:06,960 --> 02:28:04,510

been a great time here at Hopkinsville

3342

02:28:08,610 --> 02:28:06,970

here at Eclipse Ville USA now time for

3343

02:28:10,260 --> 02:28:08,620

us to send it back to Clarksville

3344

02:28:13,020 --> 02:28:10,270

Tennessee where our good friend Chris

3345

02:28:20,440 --> 02:28:13,030

Blair standing by for their reaction to

3346

02:28:28,210 --> 02:28:26,410

but I think he meant Charleston so let's

3347

02:28:29,860 --> 02:28:28,220

bring it back here at Eclipse circle

3348

02:28:37,840 --> 02:28:29,870

there's only one inch left central and

3349

02:28:40,060 --> 02:28:37,850

it's here in Charleston yeah okay so the

3350

02:28:43,030 --> 02:28:40,070

hits just keep on coming through the

3351
02:28:44,740 --> 02:28:43,040
eyes of NASA now let's continue and then

3352
02:28:48,640 --> 02:28:44,750
a tease are going to be pre-recorded

3353
02:28:50,560 --> 02:28:48,650
views from the high-altitude WP 57

3354
02:28:52,330 --> 02:28:50,570
aircraft they saw high above the clouds

3355
02:28:54,280 --> 02:28:52,340
that could potentially block the views

3356
02:28:56,620 --> 02:28:54,290
of today's Eclipse and they're chasing

3357
02:28:58,929 --> 02:28:56,630
the total solar eclipse they're mid

3358
02:29:03,400 --> 02:28:58,939
weighing long range aircraft used to

3359
02:29:27,679 --> 02:29:03,410
conduct high altitude research so let's

3360
02:29:35,250 --> 02:29:34,410
yeah yeah okay yeah what what what are

3361
02:29:38,029 --> 02:29:35,260
we saying here

3362
02:29:41,250 --> 02:29:38,039
Alex so right now we're looking at these

3363
02:29:44,219 --> 02:29:41,260

specially fitted cameras they're on the

3364

02:29:47,309 --> 02:29:44,229

nose cone of the WB 57 and these are

3365

02:29:48,989 --> 02:29:47,319

designed to look at the corona and

3366

02:29:53,580 --> 02:29:48,999

they're also designed to look at mercury

3367

02:29:56,699 --> 02:29:53,590

they're taking thousands of images every

3368

02:29:59,580 --> 02:29:56,709

minute and processing this data to give

3369

02:30:03,330 --> 02:29:59,590

us an extended view because up there at

3370

02:30:05,429 --> 02:30:03,340

50,000 feet it's 20 to 30 times darker

3371

02:30:06,929 --> 02:30:05,439

than it is here on the earth and here on

3372

02:30:08,609 --> 02:30:06,939

the earth it's a lot less scattered

3373

02:30:11,340 --> 02:30:08,619

light so this is a really unique

3374

02:30:13,519 --> 02:30:11,350

opportunity as those two planes fly in

3375

02:30:22,371 --> 02:30:13,529

tandem they give us about eight or more

3376

02:30:27,680 --> 02:30:24,411

the other thing they're actually looking

3377

02:30:30,791 --> 02:30:27,690

at is because they're so high up it's

3378

02:30:33,671 --> 02:30:30,801

very cold and that allows them to take

3379

02:30:36,201 --> 02:30:33,681

infrared observations and in this case

3380

02:30:38,211 --> 02:30:36,211

mercury is very close to the Sun and

3381

02:30:40,640 --> 02:30:38,221

they can take infrared observations of

3382

02:30:43,371 --> 02:30:40,650

mercury to see the temperature change as

3383

02:30:44,480 --> 02:30:43,381

mercury is rotating that's amazing

3384

02:30:46,640 --> 02:30:44,490

so we're going to come back with that

3385

02:30:57,801 --> 02:30:46,650

but let's go now let's go to Clarksville

3386

02:30:59,511 --> 02:30:57,811

and see what's going on there all right

3387

02:31:01,341 --> 02:30:59,521

thanks and welcome back we're excited to

3388

02:31:03,261 --> 02:31:01,351

highlight some of the student science

3389

02:31:05,121 --> 02:31:03,271

and the STEM aspect of this solar

3390

02:31:06,261 --> 02:31:05,131

eclipse we have several students joining

3391

02:31:07,610 --> 02:31:06,271

us right now would you please tell our

3392

02:31:09,440 --> 02:31:07,620

audience your name and what school you

3393

02:31:11,121 --> 02:31:09,450

go to my name is Eliza Diller I'm from

3394

02:31:12,921 --> 02:31:11,131

the University of Alabama Huntsville and

3395

02:31:14,241 --> 02:31:12,931

what club or group are you with I'm

3396

02:31:15,770 --> 02:31:14,251

actually with the space hardware club

3397

02:31:17,241 --> 02:31:15,780

all right and you guys have been

3398

02:31:18,711 --> 02:31:17,251

launching balloons all day today tell us

3399

02:31:20,060 --> 02:31:18,721

about the scientific payloads and the

3400

02:31:21,560 --> 02:31:20,070

instrumentation well on our first

3401
02:31:23,871 --> 02:31:21,570
balloon we had a Geiger counter counting

3402
02:31:25,551 --> 02:31:23,881
alpha beta gamma particles we also had a

3403
02:31:28,791 --> 02:31:25,561
pointing payload to get stabilized

3404
02:31:30,531 --> 02:31:28,801
camera footage along the way we had some

3405
02:31:34,161 --> 02:31:30,541
hops from one of our local breweries and

3406
02:31:36,261 --> 02:31:34,171
then we on our second balloon we had a

3407
02:31:37,821 --> 02:31:36,271
live streaming payload so that was cool

3408
02:31:39,201 --> 02:31:37,831
that was probably our biggest project

3409
02:31:41,511 --> 02:31:39,211
thanks to Alabama Space Grant and

3410
02:31:42,531 --> 02:31:41,521
National Space Grant and so we were we

3411
02:31:43,551 --> 02:31:42,541
were really excited with all of our

3412
02:31:45,411 --> 02:31:43,561
experiments they went really well

3413
02:31:47,211 --> 02:31:45,421

excellent we're glad you came here to do

3414

02:31:48,921 --> 02:31:47,221

this we appreciate it thank you and so

3415

02:31:50,541 --> 02:31:48,931

that's the University of Alabama in

3416

02:31:51,921 --> 02:31:50,551

Huntsville and so we also have another

3417

02:31:53,541 --> 02:31:51,931

student joining us from the Space Camp

3418

02:31:55,371 --> 02:31:53,551

US Space and Rocket Center in Huntsville

3419

02:31:56,841 --> 02:31:55,381

Alabama tell our audience please your

3420

02:31:58,911 --> 02:31:56,851

name and I just said here West so we're

3421

02:32:00,591 --> 02:31:58,921

telling please I'm Stephanie Bonnie

3422

02:32:02,571 --> 02:32:00,601

field I'm from Pittsburgh Pennsylvania

3423

02:32:04,100 --> 02:32:02,581

and you're with the space campers what

3424

02:32:06,081 --> 02:32:04,110

have they been doing all weekend long to

3425

02:32:08,091 --> 02:32:06,091

get prepared for this Eclipse well the

3426
02:32:10,190 --> 02:32:08,101
day before we left we did a whole bunch

3427
02:32:12,440 --> 02:32:10,200
of Eclipse stuff what we did cost is

3428
02:32:13,940 --> 02:32:12,450
about what the Eclipse is and like what

3429
02:32:15,230 --> 02:32:13,950
we'll experience and a lot of safety

3430
02:32:17,331 --> 02:32:15,240
stuff they didn't want anybody like

3431
02:32:19,461 --> 02:32:17,341
burning their retinas there anything so

3432
02:32:21,261 --> 02:32:19,471
we did a lot of bad we talked about what

3433
02:32:23,541 --> 02:32:21,271
experiments we'll be doing we set up the

3434
02:32:25,761 --> 02:32:23,551
shadow bin boxes that are over here that

3435
02:32:28,071 --> 02:32:25,771
are out of the shot but we recorded

3436
02:32:30,230 --> 02:32:28,081
hopefully some interesting data about

3437
02:32:31,640 --> 02:32:30,240
what was happening during totality so

3438
02:32:32,961 --> 02:32:31,650

that's pretty cool so you guys go back

3439

02:32:34,430 --> 02:32:32,971

and go over that data a little bit tell

3440

02:32:36,100 --> 02:32:34,440

us about the students where are they

3441

02:32:38,320 --> 02:32:36,110

from it's not just students from out

3442

02:32:40,600 --> 02:32:38,330

No yeah we have students from all over

3443

02:32:42,280 --> 02:32:40,610

the country and even all over the world

3444

02:32:44,051 --> 02:32:42,290

we have students just in my team who are

3445

02:32:46,211 --> 02:32:44,061

from like Spain we've got someone from

3446

02:32:47,620 --> 02:32:46,221

Norway all over the world it's crazy

3447

02:32:50,140 --> 02:32:47,630

there's a girl another group is from

3448

02:32:52,030 --> 02:32:50,150

Mexico and a boy from Mexico and they

3449

02:32:53,591 --> 02:32:52,040

were like talking to each other in New

3450

02:32:55,480 --> 02:32:53,601

Mexico Mexican I'm sorry

3451

02:32:57,251 --> 02:32:55,490

in Spanish the other day and that was

3452

02:32:59,140 --> 02:32:57,261

really neat just meeting other people

3453

02:33:01,120 --> 02:32:59,150

from other cultures so you really get a

3454

02:33:03,400 --> 02:33:01,130

neat experience at Camp absolutely

3455

02:33:05,051 --> 02:33:03,410

education is global and so lastly with

3456

02:33:07,751 --> 02:33:05,061

you give us your first reaction to

3457

02:33:11,110 --> 02:33:07,761

viewing the solar eclipse it's it's just

3458

02:33:13,150 --> 02:33:11,120

really crazy U is daylight here and I'm

3459

02:33:15,850 --> 02:33:13,160

Stanley before and then the Eclipse kind

3460

02:33:18,520 --> 02:33:15,860

of comes in slow and it's just like a

3461

02:33:20,320 --> 02:33:18,530

glowing ring in the sky it's incredible

3462

02:33:22,240 --> 02:33:20,330

it's it's so hard to explain and then

3463

02:33:24,041 --> 02:33:22,250

the lighting it's not like in dark like

3464

02:33:27,190 --> 02:33:24,051

at night it's like this kind of almost

3465

02:33:29,950 --> 02:33:27,200

eerie sort of ambient lighting and

3466

02:33:31,990 --> 02:33:29,960

there's sunset everywhere and then after

3467

02:33:33,730 --> 02:33:32,000

totality look right after it was like

3468

02:33:35,410 --> 02:33:33,740

somebody turned daylight back on the

3469

02:33:36,970 --> 02:33:35,420

moon just moves away and it's light

3470

02:33:39,041 --> 02:33:36,980

again it's really awesome

3471

02:33:40,450 --> 02:33:39,051

no absolutely exactly what happened so

3472

02:33:40,720 --> 02:33:40,460

thanks we appreciate your time thanks a

3473

02:33:42,160 --> 02:33:40,730

lot

3474

02:33:43,870 --> 02:33:42,170

so we got one more student joining us

3475

02:33:45,881 --> 02:33:43,880

from the inspire project please tell us

3476

02:33:47,381 --> 02:33:45,891

your name and what school you attend I

3477

02:33:48,881 --> 02:33:47,391

am Robert Oz Brooks and I attend

3478

02:33:50,831 --> 02:33:48,891

chesapeake matthew icy academy in

3479

02:33:52,301 --> 02:33:50,841

maryland and tell us a little bit about

3480

02:33:53,770 --> 02:33:52,311

the science experiments and research you

3481

02:33:55,570 --> 02:33:53,780

were working on while you were here I

3482

02:33:56,950 --> 02:33:55,580

was working with the balloons and I was

3483

02:33:59,440 --> 02:33:56,960

also working with the shadow bands in

3484

02:34:01,751 --> 02:33:59,450

the ham radio alright and how about your

3485

02:34:03,310 --> 02:34:01,761

first reaction to the solar eclipse it

3486

02:34:05,140 --> 02:34:03,320

was just amazing when I saw the Sun and

3487

02:34:06,430 --> 02:34:05,150

go away and it was it almost went pitch

3488

02:34:08,320 --> 02:34:06,440

black and I just looked up and it was

3489

02:34:10,331 --> 02:34:08,330

just a ring around the Sun and it was it

3490

02:34:12,730 --> 02:34:10,341

was amazing I have to say I appreciate

3491

02:34:14,470 --> 02:34:12,740

it thanks a lot on behalf of everyone

3492

02:34:16,060 --> 02:34:14,480

here at Austin Peay State University and

3493

02:34:18,011 --> 02:34:16,070

NASA's Marshall Space Flight Center

3494

02:34:20,171 --> 02:34:18,021

thanks for letting us to be a small part

3495

02:34:21,850 --> 02:34:20,181

of this wonderful event right now let's

3496

02:34:24,700 --> 02:34:21,860

go back live for continuing coverage of

3497

02:34:26,261 --> 02:34:24,710

this eclipse from Charleston thank you

3498

02:34:28,331 --> 02:34:26,271

thank you we are having a great time

3499

02:34:30,341 --> 02:34:28,341

here at the College of Charleston but

3500

02:34:31,841 --> 02:34:30,351

we've got more images coming here and

3501

02:34:34,030 --> 02:34:31,851

the International Space Station later

3502

02:34:36,910 --> 02:34:34,040

let's get some images coming in from the

3503

02:34:42,750 --> 02:34:36,920

Great Smoky Mountains one of the largest

3504

02:34:51,160 --> 02:34:48,370

[Applause]

3505

02:34:51,790 --> 02:34:51,170

Alex what is that what that's well it's

3506

02:34:53,590 --> 02:34:51,800

awesome

3507

02:34:56,700 --> 02:34:53,600

we're looking at the Sun that's still

3508

02:34:59,080 --> 02:34:56,710

too bright tonight but it's almost

3509

02:35:02,109 --> 02:34:59,090

completely covered it's getting dimmer

3510

02:35:04,450 --> 02:35:02,119

and dimmer and this is the unfiltered

3511

02:35:07,330 --> 02:35:04,460

sign so we're gonna go straight from

3512

02:35:10,979 --> 02:35:07,340

this to assigning the corona directly

3513

02:35:16,210 --> 02:35:14,439

dimmer still got to have your glasses on

3514

02:35:19,719 --> 02:35:16,220

it's still too bright to look at

3515

02:35:22,510 --> 02:35:19,729

directly but it's just almost like a

3516

02:35:24,280 --> 02:35:22,520

little tiny Christmas star or something

3517

02:35:26,920 --> 02:35:24,290

it's crazy that's getting tiny and

3518

02:35:28,630 --> 02:35:26,930

tinier now why was it in the shape of a

3519

02:35:30,700 --> 02:35:28,640

star that's the first one I've seen

3520

02:35:33,460 --> 02:35:30,710

that's thinking oh there it is I can see

3521

02:35:35,439 --> 02:35:33,470

the car because the camera and satellite

3522

02:35:37,120 --> 02:35:35,449

didn't have a filter on it was too

3523

02:35:39,309 --> 02:35:37,130

difficult to see but we can see the

3524

02:35:41,740 --> 02:35:39,319

corona there's now a little black dot

3525

02:35:43,450 --> 02:35:41,750

and you can see the Crone around it and

3526

02:35:45,729 --> 02:35:43,460

that's actually the closest to what

3527

02:35:48,820 --> 02:35:45,739

we're gonna see when we look at it with

3528

02:35:50,679 --> 02:35:48,830

our own eyes when we view it here Jon

3529

02:35:53,439 --> 02:35:50,689

you God let's go to Sochi oh man they

3530

02:35:53,769 --> 02:35:53,449

got to be buzzin on the conversation

3531

02:35:57,550 --> 02:35:53,779

here

3532

02:35:59,830 --> 02:35:57,560

in and of course the trending it's

3533

02:36:02,349 --> 02:35:59,840

trending all over social media let's up

3534

02:36:04,719 --> 02:36:02,359

pull up this image right here on the

3535

02:36:06,340 --> 02:36:04,729

side bar if possible this right here is

3536

02:36:09,099 --> 02:36:06,350

just what if one of our users did of the

3537

02:36:12,639 --> 02:36:09,109

Eclipse from Arlington Texas pretty

3538

02:36:14,469 --> 02:36:12,649

freaking cool showing he showing the

3539

02:36:16,210 --> 02:36:14,479

partial clips on his hand really and

3540

02:36:18,370 --> 02:36:16,220

interesting and then we have the Toshiba

3541

02:36:20,260 --> 02:36:18,380

screen a New York City were of course

3542

02:36:22,450 --> 02:36:20,270

everyone there in Times Square is able

3543

02:36:25,420 --> 02:36:22,460

to see the partial eclipse so it's a

3544

02:36:26,920 --> 02:36:25,430

pretty spectacular views coming in and

3545

02:36:28,359 --> 02:36:26,930

we do have a few questions I'd like to

3546

02:36:30,010 --> 02:36:28,369

just try to get a couple in is it okay

3547

02:36:31,660 --> 02:36:30,020

to do us to see a solar eclipse in

3548

02:36:33,370 --> 02:36:31,670

selfie mode I see a lot of people there

3549

02:36:35,679 --> 02:36:33,380

students out here and students like to

3550

02:36:37,929 --> 02:36:35,689

take selfies is that without classes is

3551

02:36:39,460 --> 02:36:37,939

that okay to do actually it is if the

3552

02:36:41,530 --> 02:36:39,470

sun's especially behind you because if

3553

02:36:43,330 --> 02:36:41,540

you're looking down the sun's behind you

3554

02:36:45,309 --> 02:36:43,340

and you've got in selfie mode that

3555

02:36:46,990 --> 02:36:45,319

actually will protect your eyes again

3556

02:36:49,059 --> 02:36:47,000

the main thing is you do not want to

3557

02:36:52,059 --> 02:36:49,069

have it pointed directly at the Sun so

3558

02:36:55,809 --> 02:36:52,069

that you might move away and see it with

3559

02:36:59,289 --> 02:36:55,819

your unprotected eyes yeah

3560

02:37:02,079 --> 02:36:59,299

so let me use this opportunity to talk

3561

02:37:03,699 --> 02:37:02,089

about safety reminders to about just

3562

02:37:06,069 --> 02:37:03,709

making sure or like you just said it's

3563

02:37:08,709 --> 02:37:06,079

the overall view you know if you're in

3564

02:37:10,569 --> 02:37:08,719

the partial solar eclipse make sure that

3565

02:37:13,479 --> 02:37:10,579

you always have your glasses on to look

3566

02:37:14,979 --> 02:37:13,489

at the Sun the only time that is safe to

3567

02:37:17,019 --> 02:37:14,989

take off the glasses when you're all

3568

02:37:19,239 --> 02:37:17,029

completely like the moon completely

3569

02:37:21,879 --> 02:37:19,249

floss the surface of the Sun in totality

3570

02:37:24,369 --> 02:37:21,889

as soon as you see that diamond Ravine

3571

02:37:26,289 --> 02:37:24,379

effect that's the that's the timing to

3572

02:37:28,949 --> 02:37:26,299

actually put back your glasses to look

3573

02:37:31,329 --> 02:37:28,959

back at that amazing amazing event and

3574

02:37:33,489 --> 02:37:31,339

John let's get one more social question

3575

02:37:34,749 --> 02:37:33,499

before we go to the next phase here

3576

02:37:36,939 --> 02:37:34,759

we're just having too much fun here

3577

02:37:39,369 --> 02:37:36,949

starting a cold dark year to at Carlson

3578

02:37:41,079 --> 02:37:39,379

just this is I think that's pretty

3579

02:37:42,789 --> 02:37:41,089

obvious file this outside right here but

3580

02:37:43,809 --> 02:37:42,799

it's just safe to be outside during the

3581

02:37:45,999 --> 02:37:43,819

clips as long as you don't look directly

3582

02:37:48,039 --> 02:37:46,009

at the Sun absolutely there's nothing

3583

02:37:51,159 --> 02:37:48,049

different we are just having less

3584

02:37:53,169 --> 02:37:51,169

sunlight shining down on us but there's

3585

02:37:55,089 --> 02:37:53,179

no real difference and there it's

3586

02:37:57,159 --> 02:37:55,099

absolutely safe to be outside and we of

3587

02:37:59,409 --> 02:37:57,169

course as long as you're safe encourage

3588

02:38:04,119 --> 02:37:59,419

that yeah we go outside and watch this

3589

02:38:06,489 --> 02:38:04,129

event okay all right here we go so let's

3590

02:38:08,919 --> 02:38:06,499

talk about exoplanets the solar eclipse

3591

02:38:11,889 --> 02:38:08,929

is a special kind of transit or movement

3592

02:38:13,749 --> 02:38:11,899

of astronomical body that passes in

3593

02:38:15,969 --> 02:38:13,759

front of another and if you've been

3594

02:38:18,279 --> 02:38:15,979

watching along with us you know NASA is

3595

02:38:20,799 --> 02:38:18,289

using today's transit to further study

3596

02:38:22,959 --> 02:38:20,809

the Sun we use similar transits to study

3597

02:38:25,539 --> 02:38:22,969

planets outside of our solar system

3598

02:38:32,829 --> 02:38:25,549

or as I say it exoplanets as they pass

3599

02:38:34,479 --> 02:38:32,839

in front of the distant star while a

3600

02:38:36,609 --> 02:38:34,489

total solar eclipse is a rare

3601
02:38:39,249 --> 02:38:36,619
opportunity to learn more about our Sun

3602
02:38:41,499 --> 02:38:39,259
NASA's Kepler mission has been studying

3603
02:38:44,859 --> 02:38:41,509
distant stars for an eclipse like event

3604
02:38:47,139 --> 02:38:44,869
called a planetary transit using a

3605
02:38:49,209 --> 02:38:47,149
space-based telescope scientists from

3606
02:38:50,709 --> 02:38:49,219
Ames Research Center have been measuring

3607
02:38:53,589 --> 02:38:50,719
the changes in the brightness of stars

3608
02:38:56,109 --> 02:38:53,599
as their planets orbit or transit in

3609
02:38:58,959 --> 02:38:56,119
front of them Kepler has confirmed more

3610
02:39:01,569 --> 02:38:58,969
than 2500 exoplanets or planets beyond

3611
02:39:03,479 --> 02:39:01,579
our solar system many of these are

3612
02:39:06,389 --> 02:39:03,489
similar to earth in size

3613
02:39:08,880 --> 02:39:06,399

distance from their son studies using

3614

02:39:11,550 --> 02:39:08,890

Kepler data have revealed a vast range

3615

02:39:13,739 --> 02:39:11,560

of planet types and sizes and future

3616

02:39:16,829 --> 02:39:13,749

discoveries could help enable the search

3617

02:39:19,499 --> 02:39:16,839

for life in the galaxy another major

3618

02:39:22,079 --> 02:39:19,509

effort at NASA aims to use eclipses to

3619

02:39:24,929 --> 02:39:22,089

study stars in deep space is called

3620

02:39:28,949 --> 02:39:24,939

Sofia or the stratospheric Observatory

3621

02:39:32,130 --> 02:39:28,959

for infrared astronomy Sofia is a

3622

02:39:34,229 --> 02:39:32,140

modified Boeing 747sp aircraft that

3623

02:39:36,359 --> 02:39:34,239

makes celestial observations in the

3624

02:39:40,679 --> 02:39:36,369

infrared part of the electromagnetic

3625

02:39:43,380 --> 02:39:40,689

spectrum flying up to 45,000 feet Sofia

3626
02:39:46,109 --> 02:39:43,390
operates above 99% of the Earth's water

3627
02:39:49,199 --> 02:39:46,119
vapor that absorbs most of the infrared

3628
02:39:50,789 --> 02:39:49,209
light from space one example of Sofia's

3629
02:39:53,249 --> 02:39:50,799
unique qualities as an airborne

3630
02:39:56,039 --> 02:39:53,259
Observatory occurred when researchers

3631
02:39:59,489 --> 02:39:56,049
recorded infrared imagery of Pluto as it

3632
02:40:01,829 --> 02:39:59,499
eclipsed a distant star what we learned

3633
02:40:04,260 --> 02:40:01,839
from missions like Kepler and Sofia

3634
02:40:07,769 --> 02:40:04,270
could help us to better understand the

3635
02:40:09,190 --> 02:40:07,779
mysteries of our Sun our galaxy and our

3636
02:40:17,469 --> 02:40:09,200
place within it

3637
02:40:21,770 --> 02:40:20,090
all right thank you we're here live at

3638
02:40:25,060 --> 02:40:21,780

the College of Charleston in Charleston

3639

02:40:27,530 --> 02:40:25,070

South Carolina it is just about time for

3640

02:40:30,139 --> 02:40:27,540

totality and I'm here with my colleagues

3641

02:40:32,719 --> 02:40:30,149

Dwayne brown and John Young brick and

3642

02:40:36,200 --> 02:40:32,729

Jody is somewhere I believe called abaga

3643

02:40:38,660 --> 02:40:36,210

and Alex young and you can see the crowd

3644

02:40:40,820 --> 02:40:38,670

behind us and if you look up in the sky

3645

02:40:43,610 --> 02:40:40,830

which I was doing just before we came

3646

02:40:46,460 --> 02:40:43,620

back here live we are probably at about

3647

02:40:48,410 --> 02:40:46,470

90 percent totality and the good news

3648

02:40:50,300 --> 02:40:48,420

from the weather standpoint is there is

3649

02:40:53,360 --> 02:40:50,310

some there are some clouds but I see

3650

02:40:55,630 --> 02:40:53,370

some breaks in them just off to the

3651

02:40:58,190 --> 02:40:55,640

South a little bit and fingers crossed

3652

02:41:00,230 --> 02:40:58,200

really really tight that those breaks

3653

02:41:02,510 --> 02:41:00,240

are going to move over as we get into

3654

02:41:03,860 --> 02:41:02,520

totality in just a few minutes

3655

02:41:05,179 --> 02:41:03,870

Duane what do you have to say about that

3656

02:41:08,719 --> 02:41:05,189

well first of all I want to thank you

3657

02:41:11,420 --> 02:41:08,729

for hey man we got some that you have

3658

02:41:13,639 --> 02:41:11,430

the man you are the man this is exciting

3659

02:41:15,080 --> 02:41:13,649

we've got our glasses we've got we got

3660

02:41:17,150 --> 02:41:15,090

our signs and Johnny come on come on get

3661

02:41:18,950 --> 02:41:17,160

in here now Alex yeah so we're excited

3662

02:41:23,460 --> 02:41:18,960

here the collagen make some more noise

3663

02:41:29,400 --> 02:41:26,520

we are having a ball here this still

3664

02:41:30,120 --> 02:41:29,410

still a lot more here through the eyes

3665

02:41:31,381 --> 02:41:30,130

of NASA

3666

02:41:33,390 --> 02:41:31,391

we got the International Space Station

3667

02:41:36,380 --> 02:41:33,400

come on you don't want to miss it but

3668

02:41:41,490 --> 02:41:36,390

here we go here safety glasses on again

3669

02:41:52,520 --> 02:41:47,831

[Music]

3670

02:41:54,230 --> 02:41:52,530

let's get in there yeah boy so got maybe

3671

02:42:01,520 --> 02:41:54,240

a few more minutes to go till totality

3672

02:42:08,030 --> 02:42:01,530

but you can see look at that you can see

3673

02:42:28,550 --> 02:42:10,429

job - you know even with the clouds we

3674

02:42:34,740 --> 02:42:30,030

[Applause]

3675

02:42:51,400 --> 02:42:41,890

you guys see it alright I think we got

3676
02:43:01,590 --> 02:42:51,410
some break-ins and clouds I can see guys

3677
02:43:01,600 --> 02:43:05,140
through the eyes of NASA

3678
02:43:29,719 --> 02:43:17,600
[Applause]

3679
02:43:34,559 --> 02:43:32,340
College of towson is getting a large

3680
02:43:48,510 --> 02:43:34,569
selfie with the students and faculty and

3681
02:43:49,649 --> 02:43:48,520
everyone here doing half minutes Twain

3682
02:43:53,010 --> 02:43:49,659
you've actually seen a total eclipse

3683
02:43:56,700 --> 02:43:53,020
before I have it's amazing and it's

3684
02:43:58,740 --> 02:43:56,710
spiritual and it really brings you in

3685
02:44:02,099 --> 02:43:58,750
step with that with just a small pebble

3686
02:44:04,080 --> 02:44:02,109
with a highway of galactic exactly in

3687
02:44:05,780 --> 02:44:04,090
Elizabeth it does this just viewing this

3688
02:44:08,790 --> 02:44:05,790

right now bring you back to that moment

3689

02:44:11,729 --> 02:44:08,800

several years ago it's a little

3690

02:44:16,109 --> 02:44:11,739

different because I'm here on American

3691

02:44:21,350 --> 02:44:16,119

soil with you guys here but it's still

3692

02:44:31,869 --> 02:44:22,810

[Music]

3693

02:44:36,429 --> 02:44:33,849

you know so I haven't seen it in Africa

3694

02:44:37,329 --> 02:44:36,439

and here in the US then getting better

3695

02:44:43,140 --> 02:44:37,339

than that my friend

3696

02:44:43,480 --> 02:44:43,150

no there we go almost here we go

3697

02:44:48,180 --> 02:44:43,490

[Applause]

3698

02:44:53,469 --> 02:44:48,190

[Music]

3699

02:44:58,300 --> 02:44:57,100

daddy whooping today you know it's hard

3700

02:44:59,900 --> 02:44:58,310

to tell I think I was just gonna find

3701
02:45:10,150 --> 02:44:59,910
cover

3702
02:45:11,650 --> 02:45:10,160
[Applause]

3703
02:45:20,870 --> 02:45:11,660
[Music]

3704
02:45:25,760 --> 02:45:22,309
spinning darkened it's getting cooler

3705
02:45:31,320 --> 02:45:25,770
too which is nice the temperature has

3706
02:45:31,330 --> 02:45:44,990
[Applause]

3707
02:45:52,610 --> 02:45:46,700
[Music]

3708
02:46:04,360 --> 02:46:01,610
[Applause]

3709
02:46:07,639 --> 02:46:04,370
[Music]

3710
02:46:13,580 --> 02:46:09,480
I don't think we're quite there yet

3711
02:46:35,580 --> 02:46:13,590
[Applause]

3712
02:46:35,590 --> 02:46:38,890
[Music]

3713
02:46:43,210 --> 02:46:42,430

so guts got some patches of blue just a

3714

02:46:49,460 --> 02:46:43,220

little ways away

3715

02:47:00,220 --> 02:46:49,470

[Applause]

3716

02:47:03,280 --> 02:47:02,210

still a just amazing experience

3717

02:47:09,170 --> 02:47:03,290

[Music]

3718

02:47:12,330 --> 02:47:09,180

[Applause]

3719

02:47:14,640 --> 02:47:12,340

it is safe to remove your glasses and

3720

02:47:28,440 --> 02:47:14,650

look at the total eclipse you remove

3721

02:47:33,180 --> 02:47:28,450

your glasses get a minute-and-a-half

3722

02:47:34,890 --> 02:47:33,190

right fatality once again it is safe to

3723

02:47:38,280 --> 02:47:34,900

remove your glasses and look at the

3724

02:48:11,420 --> 02:47:50,160

[Applause]

3725

02:48:11,430 --> 02:48:19,610

put the glasses back on now

3726

02:48:33,420 --> 02:48:31,450

[Music]

3727

02:48:50,600 --> 02:48:33,430

[Applause]

3728

02:48:54,690 --> 02:48:53,370

please replace your glasses you need to

3729

02:48:57,420 --> 02:48:54,700

put your glasses back on

3730

02:48:59,940 --> 02:48:57,430

to view the Sun now please replace your

3731

02:49:11,090 --> 02:48:59,950

glasses you must be wearing your glasses

3732

02:49:16,670 --> 02:49:13,309

I mean this beer is the temperature drop

3733

02:49:20,500 --> 02:49:16,680

now and it was dark

3734

02:49:20,510 --> 02:50:48,711

20:24 yep ready for the next one

3735

02:50:53,810 --> 02:50:52,110

okay Sean this is your first right this

3736

02:50:56,700 --> 02:50:53,820

is my first but certainly not my last

3737

02:50:57,990 --> 02:50:56,710

how did it feel amazing you said it

3738

02:51:00,301 --> 02:50:58,000

yourself Dewayne this is amazing that's

3739

02:51:01,711 --> 02:51:00,311

the only word to really describe it you

3740

02:51:03,360 --> 02:51:01,721

know even though we had the clouds and

3741

02:51:05,430 --> 02:51:03,370

it was just an incredible experience we

3742

02:51:07,440 --> 02:51:05,440

got to experience the darkness we got to

3743

02:51:09,180 --> 02:51:07,450

experience the temperature drop we got

3744

02:51:10,950 --> 02:51:09,190

to see it in you know it kind of moving

3745

02:51:12,570 --> 02:51:10,960

in and out between the clouds but most

3746

02:51:15,180 --> 02:51:12,580

importantly we got to experience the

3747

02:51:17,540 --> 02:51:15,190

energy and the enthusiasm that we feel

3748

02:51:19,770 --> 02:51:17,550

all around us here today well you know

3749

02:51:22,261 --> 02:51:19,780

this team in the city of Charleston

3750

02:51:24,450 --> 02:51:22,271

thank you we had some if you weather but

3751

02:51:27,660 --> 02:51:24,460

you made it happen yeah well thank you

3752

02:51:28,770 --> 02:51:27,670

and yeah and you know you don't know the

3753

02:51:30,900 --> 02:51:28,780

half of actually I've been also

3754

02:51:33,150 --> 02:51:30,910

monitoring for a possible thunderstorms

3755

02:51:34,470 --> 02:51:33,160

which we are having we've been having

3756

02:51:36,660 --> 02:51:34,480

just up to the north in places like

3757

02:51:38,551 --> 02:51:36,670

North Charleston Goose Creek luckily

3758

02:51:40,770 --> 02:51:38,561

because of a sea breeze pushing the the

3759

02:51:42,001 --> 02:51:40,780

moisture that's been bringing allowing

3760

02:51:43,860 --> 02:51:42,011

these clouds to develop moisture coming

3761

02:51:46,200 --> 02:51:43,870

in from the Atlantic that sea breeze has

3762

02:51:48,030 --> 02:51:46,210

been pushing those thunderstorms inshore

3763

02:51:49,620 --> 02:51:48,040

inland a little bit so even though we

3764

02:51:51,690 --> 02:51:49,630

still have some cloud cover here we have

3765

02:51:53,040 --> 02:51:51,700

been very lucky not to have any rain or

3766

02:51:54,690 --> 02:51:53,050

thunderstorms like we had yesterday at

3767

02:52:00,091 --> 02:51:54,700

this time you are really a true

3768

02:52:02,490 --> 02:52:00,101

meteorologist my friend hey okay

3769

02:52:05,160 --> 02:52:02,500

space weather expert extraordinaire how

3770

02:52:07,011 --> 02:52:05,170

was it it was amazing like like Sean

3771

02:52:09,060 --> 02:52:07,021

said even though that we couldn't see it

3772

02:52:10,740 --> 02:52:09,070

considered the solar core now which you

3773

02:52:12,930 --> 02:52:10,750

know it's what I really really wanted to

3774

02:52:14,940 --> 02:52:12,940

see we experience you know the darkness

3775

02:52:17,070 --> 02:52:14,950

and the change in temperature and also I

3776

02:52:18,961 --> 02:52:17,080

mean the energy of the students you know

3777

02:52:21,301 --> 02:52:18,971

we even started hugging up because we

3778

02:52:23,700 --> 02:52:21,311

were like so excited I mean it has been

3779

02:52:28,520 --> 02:52:23,710

an amazing experience so the next one

3780

02:52:31,461 --> 02:52:28,530

you know 20 24 hey Alex

3781

02:52:33,870 --> 02:52:31,471

gotta feel good man this was this was

3782

02:52:36,180 --> 02:52:33,880

fantastic and it was also a big tease

3783

02:52:38,881 --> 02:52:36,190

for the next one cuz man I want to do

3784

02:52:41,520 --> 02:52:38,891

this again this was I could feel that

3785

02:52:43,860 --> 02:52:41,530

shadow overhead I could see the light

3786

02:52:45,900 --> 02:52:43,870

and the horizon all the way around

3787

02:52:47,700 --> 02:52:45,910

feeling the change the temperatures even

3788

02:52:50,551 --> 02:52:47,710

seed the clouds themselves moving

3789

02:52:54,060 --> 02:52:50,561

differently as that shadow hit overhead

3790

02:52:56,490 --> 02:52:54,070

it was fantastic it was palpable man

3791

02:52:59,220 --> 02:52:56,500

and just feel the energy around here and

3792

02:53:01,320 --> 02:52:59,230

I I'm one more of this well let's say

3793

02:53:03,270 --> 02:53:01,330

what the the country and all of this in

3794

02:53:03,990 --> 02:53:03,280

Charleston let's go to social media over

3795

02:53:06,091 --> 02:53:04,000

to you John

3796

02:53:08,370 --> 02:53:06,101

yeah the reactions across the entire

3797

02:53:10,440 --> 02:53:08,380

nation have been huge you know we have

3798

02:53:12,870 --> 02:53:10,450

actually if you're watching at home some

3799

02:53:14,580 --> 02:53:12,880

of our streams actually went down only

3800

02:53:16,261 --> 02:53:14,590

because the fact that you know we there

3801
02:53:17,131 --> 02:53:16,271
was just so much traffic on it of course

3802
02:53:19,410 --> 02:53:17,141
we were playing we were broadcasting

3803
02:53:20,791 --> 02:53:19,420
this all over the country I want to show

3804
02:53:22,921 --> 02:53:20,801
up on our slot at some of our graphics

3805
02:53:24,390 --> 02:53:22,931
here some really cool things that photos

3806
02:53:27,360 --> 02:53:24,400
that we have here some crescent shape

3807
02:53:30,291 --> 02:53:27,370
shadows and Seattle Washington taken by

3808
02:53:32,730 --> 02:53:30,301
Logan Johnson and this is pretty pretty

3809
02:53:35,280 --> 02:53:32,740
interesting images you don't really see

3810
02:53:38,280 --> 02:53:35,290
anywhere else the next one here is a

3811
02:53:41,461 --> 02:53:38,290
totality view from Idaho Falls this is

3812
02:53:43,950 --> 02:53:41,471
David kenty just some spectacular images

3813
02:53:45,660 --> 02:53:43,960

coming in from all over you know people

3814

02:53:49,020 --> 02:53:45,670

are sending us stuff using the various

3815

02:53:51,330 --> 02:53:49,030

hashtags out there clips 2017 which is

3816

02:53:53,120 --> 02:53:51,340

our hashtag solar eclipse 2017 which is

3817

02:53:55,291 --> 02:53:53,130

trending on on Twitter and other places

3818

02:53:56,881 --> 02:53:55,301

and of course we're reading a lot of

3819

02:53:59,341 --> 02:53:56,891

stuff coming into we're seeing and

3820

02:54:02,370 --> 02:53:59,351

reading your reactions some of it is

3821

02:54:04,171 --> 02:54:02,380

just really shows the amount of how it

3822

02:54:06,780 --> 02:54:04,181

really impacts people and us being here

3823

02:54:08,310 --> 02:54:06,790

at Charleston we also saw get really

3824

02:54:09,810 --> 02:54:08,320

dark here get cool breeze coming through

3825

02:54:11,580 --> 02:54:09,820

and even though there were some clouds

3826

02:54:13,530 --> 02:54:11,590

it was like nothing we've really ever

3827

02:54:14,910 --> 02:54:13,540

experienced before and so for those of

3828

02:54:16,171 --> 02:54:14,920

you who are in the path of totality I

3829

02:54:18,270 --> 02:54:16,181

hope the views we're showing you here

3830

02:54:19,410 --> 02:54:18,280

today it really helped you kind of get

3831

02:54:22,980 --> 02:54:19,420

the sensation of what we're trying to

3832

02:54:26,910 --> 02:54:22,990

show and here's a lat this last one here

3833

02:54:30,120 --> 02:54:26,920

is a 99.5 new totality nerds here in

3834

02:54:33,660 --> 02:54:30,130

Boise Idaho checking it out one of our

3835

02:54:35,940 --> 02:54:33,670

one of our photos there everyone was

3836

02:54:37,171 --> 02:54:35,950

wearing Eclipse glasses and it's a you

3837

02:54:38,850 --> 02:54:37,181

know we're still have a partial eclipse

3838

02:54:42,060 --> 02:54:38,860

on the East Coast people are still

3839

02:54:44,580 --> 02:54:42,070

seeing the Sun transit and so we're it's

3840

02:54:47,160 --> 02:54:44,590

an exciting time here I think that I

3841

02:54:51,091 --> 02:54:47,170

think we have a another view here from

3842

02:54:53,400 --> 02:54:51,101

Bailey beads seen from Oregon from one

3843

02:54:54,870 --> 02:54:53,410

of our photographers this is a NASA

3844

02:54:57,051 --> 02:54:54,880

photographer took this show the shot

3845

02:55:00,240 --> 02:54:57,061

right here I think that's just before

3846

02:55:03,421 --> 02:55:00,250

the diamond ring pops up and it's pretty

3847

02:55:04,560 --> 02:55:03,431

pretty spectacular shot so I think if

3848

02:55:07,110 --> 02:55:04,570

we're ready to get going again I think

3849

02:55:08,010 --> 02:55:07,120

we have a quick question would like to

3850

02:55:09,300 --> 02:55:08,020

take look

3851

02:55:10,229 --> 02:55:09,310

some of these here there are a lot of

3852

02:55:12,269 --> 02:55:10,239

these are questions coming in from

3853

02:55:17,189 --> 02:55:12,279

Eclipse viewing now the eclipse is

3854

02:55:18,599 --> 02:55:17,199

officially over I see that what were you

3855

02:55:20,309 --> 02:55:18,609

guys what were your reactions as you

3856

02:55:22,080 --> 02:55:20,319

were as you're watching it I know I know

3857

02:55:23,550 --> 02:55:22,090

we were out there and stuff but now that

3858

02:55:26,210 --> 02:55:23,560

it's over how it's the the sensation

3859

02:55:27,689 --> 02:55:26,220

that having the totality behind you I

3860

02:55:29,399 --> 02:55:27,699

got goose bumps

3861

02:55:31,710 --> 02:55:29,409

this is my first total solar eclipse

3862

02:55:33,779 --> 02:55:31,720

it-- I actually remember watching you

3863

02:55:36,269 --> 02:55:33,789

know a partial solar eclipse it back at

3864

02:55:39,240 --> 02:55:36,279

home in Puerto Rico and I mean this is

3865

02:55:41,399 --> 02:55:39,250

was amazing you know that like I said

3866

02:55:43,950 --> 02:55:41,409

the total the darkness that was around

3867

02:55:47,340 --> 02:55:43,960

us it was amazing being you know knowing

3868

02:55:49,410 --> 02:55:47,350

that is day I was just sort of amazed by

3869

02:55:51,389 --> 02:55:49,420

the kind of rush of how quickly it all

3870

02:55:53,790 --> 02:55:51,399

of a sudden happened the darkness and

3871

02:55:57,179 --> 02:55:53,800

then I could just feel it all around me

3872

02:56:00,389 --> 02:55:57,189

it was really really powerful well I'm

3873

02:56:02,340 --> 02:56:00,399

glad it's really cool yeah yeah I'm glad

3874

02:56:04,439 --> 02:56:02,350

school days cool because it was hot it

3875

02:56:08,099 --> 02:56:04,449

was hot it was very hot but the weather

3876

02:56:09,960 --> 02:56:08,109

I mean it's amazing and as we said

3877

02:56:12,120 --> 02:56:09,970

earlier in the show and when we watched

3878

02:56:15,090 --> 02:56:12,130

it this is my second one but sharing it

3879

02:56:17,729 --> 02:56:15,100

with you guys I mean this is very very

3880

02:56:19,710 --> 02:56:17,739

cool and memorable and seven years is

3881

02:56:23,099 --> 02:56:19,720

another one seven years in the US but

3882

02:56:24,090 --> 02:56:23,109

we've got one in 2019 in South America I

3883

02:56:25,609 --> 02:56:24,100

think I had FINA

3884

02:56:29,939 --> 02:56:25,619

so we'll stop making reservations

3885

02:56:35,250 --> 02:56:29,949

already so this is certainly certainly

3886

02:56:35,870 --> 02:56:35,260

one for the history books but we're not

3887

02:56:39,210 --> 02:56:35,880

done yet

3888

02:56:42,059 --> 02:56:39,220

the solar eclipse is traveling over the

3889

02:56:44,910 --> 02:56:42,069

Atlantic Ocean so Alex let me turn to

3890

02:56:49,830 --> 02:56:44,920

you how far is it gonna go out to those

3891

02:56:53,460 --> 02:56:49,840

it so I got another 3,700 miles roughly

3892

02:56:56,639 --> 02:56:53,470

to travel it's gonna end just off the

3893

02:57:00,540 --> 02:56:56,649

coast of Africa near Sierra Leone in

3894

02:57:03,000 --> 02:57:00,550

that area but that's also where night in

3895

02:57:05,580 --> 02:57:03,010

where night begins day is the night

3896

02:57:07,830 --> 02:57:05,590

begins so we got our waste to go there's

3897

02:57:09,300 --> 02:57:07,840

still some more left and maybe if you're

3898

02:57:11,010 --> 02:57:09,310

out on a ship you're gonna get to see

3899

02:57:13,690 --> 02:57:11,020

some more of it too yeah we have the

3900

02:57:16,750 --> 02:57:13,700

coast start guard five miles from

3901
02:57:19,450 --> 02:57:16,760
Elston oh that sounds pretty good well

3902
02:57:22,390 --> 02:57:19,460
you know what I've been talking about

3903
02:57:23,740 --> 02:57:22,400
this you if you just tuned in this is

3904
02:57:26,171 --> 02:57:23,750
national television through the eyes of

3905
02:57:29,560 --> 02:57:26,181
NASA we have been bringing you unique

3906
02:57:31,511 --> 02:57:29,570
images reaction from all over the

3907
02:57:34,240 --> 02:57:31,521
country but now in 30 minutes we'll be

3908
02:57:36,370 --> 02:57:34,250
bringing you a view from one place no

3909
02:57:38,080 --> 02:57:36,380
one else can go the International Space

3910
02:57:39,700 --> 02:57:38,090
Station will check in with the

3911
02:57:42,881 --> 02:57:39,710
astronauts aboard to see how they

3912
02:57:44,530 --> 02:57:42,891
experience its lift from space here in

3913
02:57:46,870 --> 02:57:44,540

Charleston we will continue to see a

3914

02:57:48,610 --> 02:57:46,880

partial solar eclipse rolling about 90

3915

02:57:52,480 --> 02:57:48,620

minutes or so and remember to continue

3916

02:57:55,060 --> 02:57:52,490

to use safe wearing viewing glasses

3917

02:57:57,610 --> 02:57:55,070

methods and everything in between safety

3918

02:58:00,310 --> 02:57:57,620

safety safety now we're going to my

3919

02:58:02,320 --> 02:58:00,320

colleague Karen Fox hey Karen who's out

3920

02:58:15,610 --> 02:58:02,330

in the field getting more reaction this

3921

02:58:17,770 --> 02:58:15,620

year we're gonna ask a few questions for

3922

02:58:19,450 --> 02:58:17,780

the people who were here when you step

3923

02:58:22,060 --> 02:58:19,460

over in your young man tell me your name

3924

02:58:24,520 --> 02:58:22,070

my name is Josh Petro and what year you

3925

02:58:26,470 --> 02:58:24,530

I'm actually a second year here so you

3926

02:58:28,180 --> 02:58:26,480

did you come to Charleston college the

3927

02:58:29,381 --> 02:58:28,190

College of Charleston just to see this

3928

02:58:31,720 --> 02:58:29,391

Eclipse like is that why you chose to

3929

02:58:34,390 --> 02:58:31,730

matriculate here oh absolutely

3930

02:58:37,150 --> 02:58:34,400

no no to be honest I I love this school

3931

02:58:39,070 --> 02:58:37,160

and the Eclipse I'll be I've been

3932

02:58:40,600 --> 02:58:39,080

studying in the sky since I was probably

3933

02:58:42,580 --> 02:58:40,610

nine since I could read I'd take out

3934

02:58:45,131 --> 02:58:42,590

astronomy books so this is just

3935

02:58:46,660 --> 02:58:45,141

once-in-a-lifetime honestly it's amazing

3936

02:58:48,220 --> 02:58:46,670

so tell me about it what did you

3937

02:58:49,470 --> 02:58:48,230

experience when you watch the Eclipse

3938

02:58:51,970 --> 02:58:49,480

what'd it feel like for you

3939

02:58:53,830 --> 02:58:51,980

it was just like wow this is this is

3940

02:58:56,381 --> 02:58:53,840

what you've read in books this is the

3941

02:58:57,430 --> 02:58:56,391

kind of thing that you think wow if that

3942

02:59:01,631 --> 02:58:57,440

happened to me I don't even know what

3943

02:59:02,591 --> 02:59:01,641

I'd do and it happened it's fantastic

3944

02:59:04,540 --> 02:59:02,601

yourself one more question you said

3945

02:59:06,310 --> 02:59:04,550

you've been studying space since you

3946

02:59:08,620 --> 02:59:06,320

were young what are you majoring in now

3947

02:59:10,631 --> 02:59:08,630

or are you studying science actually the

3948

02:59:13,390 --> 02:59:10,641

plan was to do a double major of

3949

02:59:14,620 --> 02:59:13,400

astronomy and physics and hopefully

3950

02:59:16,570 --> 02:59:14,630

maybe do some of that work myself one

3951
02:59:19,690 --> 02:59:16,580
day awesome come work from an outside

3952
02:59:21,881 --> 02:59:19,700
well look for you thank you so much all

3953
02:59:26,600 --> 02:59:21,891
right let's find somebody else you want

3954
02:59:30,890 --> 02:59:28,730
my name is Amanda Annie I'm a rising

3955
02:59:33,080 --> 02:59:30,900
junior in the Honors College at CFC I'm

3956
02:59:34,700 --> 02:59:33,090
sorry now you didn't ask that but I was

3957
02:59:36,050 --> 02:59:34,710
going to that was exactly what I was

3958
02:59:37,970 --> 02:59:36,060
gonna ask you're like you're like a mind

3959
02:59:41,360 --> 02:59:37,980
reader do you know what my next question

3960
02:59:46,580 --> 02:59:41,370
is gonna be it was amazing I felt a

3961
02:59:47,660 --> 02:59:46,590
total unity with the world I did that is

3962
02:59:49,430 --> 02:59:47,670
fantastic

3963
02:59:52,220 --> 02:59:49,440

so I have a question what are you gonna

3964

02:59:54,050 --> 02:59:52,230

do with your Eclipse glasses now I think

3965

02:59:55,850 --> 02:59:54,060

maybe it's a souvenir for my

3966

03:00:00,200 --> 02:59:55,860

grandchildren I think I think that's

3967

03:00:02,540 --> 03:00:00,210

where you're gonna be like let me tell

3968

03:00:08,920 --> 03:00:02,550

you kids this is where I was on August

3969

03:00:11,750 --> 03:00:08,930

21st 2017 she summed it up pretty well

3970

03:00:13,880 --> 03:00:11,760

fantastic thank you so much we are going

3971

03:00:16,550 --> 03:00:13,890

to go back to Dwane Brown and we'll be

3972

03:00:18,470 --> 03:00:16,560

back later with more conversations from

3973

03:00:20,480 --> 03:00:18,480

the College thanks Karen it's always

3974

03:00:22,610 --> 03:00:20,490

good to see these the young and those I

3975

03:00:24,560 --> 03:00:22,620

see some inspiring scientist out there

3976

03:00:26,360 --> 03:00:24,570

now let's take a look at the highlights

3977

03:00:27,920 --> 03:00:26,370

from today's events and when we return

3978

03:00:38,170 --> 03:00:27,930

we'll learn more about how the

3979

03:01:31,671 --> 03:00:59,590

[Music]

3980

03:01:36,600 --> 03:01:34,770

okay through thousands of NASA only here

3981

03:01:38,781 --> 03:01:36,610

are we bringing you the International

3982

03:01:42,390 --> 03:01:38,791

Space Station live it's traveling at

3983

03:01:45,390 --> 03:01:42,400

17,500 miles per hour as it orbits earth

3984

03:01:47,551 --> 03:01:45,400

now from NASA's Johnson Space Center we

3985

03:01:57,661 --> 03:01:47,561

have Rob Davis in Mission Control Rob

3986

03:02:00,571 --> 03:01:57,671

over to you and welcome to Mission

3987

03:02:02,190 --> 03:02:00,581

Control here in Houston about 40 minutes

3988

03:02:04,621 --> 03:02:02,200

ago the six residents of the

3989

03:02:07,321 --> 03:02:04,631

International Space Station flew over

3990

03:02:10,591 --> 03:02:07,331

southern Canada south of Hudson Bay at

3991

03:02:13,081 --> 03:02:10,601

an altitude of 252 statute miles with a

3992

03:02:15,571 --> 03:02:13,091

very very unique view of today's solar

3993

03:02:17,821 --> 03:02:15,581

eclipse we're gonna be talking with the

3994

03:02:19,980 --> 03:02:17,831

crew in about 18 minutes from now and

3995

03:02:23,161 --> 03:02:19,990

sharing some of that very very unique

3996

03:02:25,531 --> 03:02:23,171

video with you it was spectacular I must

3997

03:02:27,270 --> 03:02:25,541

tell you and digital still imagery that

3998

03:02:29,461 --> 03:02:27,280

Randy Bresnik has captured throughout

3999

03:02:32,220 --> 03:02:29,471

the course of the first two of three

4000

03:02:33,690 --> 03:02:32,230

passes the station is making over the

4001
03:02:34,350 --> 03:02:33,700
eclipse throughout the course of the day

4002
03:02:37,081 --> 03:02:34,360
today

4003
03:02:39,961 --> 03:02:37,091
that has already been posted on social

4004
03:02:42,150 --> 03:02:39,971
media and will continue to be posted as

4005
03:02:44,131 --> 03:02:42,160
the day wears on but we're looking very

4006
03:02:45,451 --> 03:02:44,141
much forward to talking to the crew and

4007
03:02:48,661 --> 03:02:45,461
getting their impressions and thoughts

4008
03:02:51,421 --> 03:02:48,671
as they passed over the Eclipse just

4009
03:02:53,041 --> 03:02:51,431
about 40 minutes or so ago so we'll be

4010
03:02:55,831 --> 03:02:53,051
back to you in just a few minutes with

4011
03:02:58,110 --> 03:02:55,841
the crew of expedition 52 aboard the

4012
03:03:00,930 --> 03:02:58,120
International Space Station for now back

4013
03:03:02,551 --> 03:03:00,940

to you in Charleston Dwayne Thank You

4014

03:03:04,501 --> 03:03:02,561

Rob and coming up later in the show

4015

03:03:06,631 --> 03:03:04,511

we'll have another unique Eclipse view

4016

03:03:09,511 --> 03:03:06,641

from space we'll have imagery from

4017

03:03:12,661 --> 03:03:09,521

NASA's Solar Dynamics Observatory ah

4018

03:03:16,501 --> 03:03:12,671

it's also about to see an eclipse

4019

03:03:19,531 --> 03:03:16,511

so SDO Solar Dynamics Observatory Alex

4020

03:03:23,491 --> 03:03:19,541

tell us a little bit about SDO well SDO

4021

03:03:25,951 --> 03:03:23,501

is one of NASA's heliophysics fleet it

4022

03:03:28,801 --> 03:03:25,961

gives us an unprecedented view of the

4023

03:03:31,621 --> 03:03:28,811

Sun incredible detail incredible time

4024

03:03:33,480 --> 03:03:31,631

and spatial resolution it shows us ten

4025

03:03:37,110 --> 03:03:33,490

different wavelengths of light at the

4026
03:03:40,081 --> 03:03:37,120
same time showing us in mostly extreme

4027
03:03:42,190 --> 03:03:40,091
ultraviolet light the sun's outer

4028
03:03:44,171 --> 03:03:42,200
atmosphere Corona and

4029
03:03:46,330 --> 03:03:44,181
almost fear where we can see all of the

4030
03:03:48,970 --> 03:03:46,340
dynamic phenomena that's happening it is

4031
03:03:53,020 --> 03:03:48,980
putting down all those 2 terabytes of

4032
03:03:55,810 --> 03:03:53,030
data a day giving us these unbelievable

4033
03:03:58,660 --> 03:03:55,820
views of solar eruptions solar

4034
03:04:02,470 --> 03:03:58,670
prominences solar flares and all of the

4035
03:04:03,100 --> 03:04:02,480
activity and the Sun that drives space

4036
03:04:07,150 --> 03:04:03,110
weather

4037
03:04:09,160 --> 03:04:07,160
what yari spends her days I mean it's

4038
03:04:11,140 --> 03:04:09,170

just an amazing mission because it lets

4039

03:04:13,000 --> 03:04:11,150

you see in some kind of hat so much

4040

03:04:15,400 --> 03:04:13,010

higher resolution the images from the

4041

03:04:17,200 --> 03:04:15,410

Sun that you can actually understand the

4042

03:04:19,960 --> 03:04:17,210

origins of space weather and those solar

4043

03:04:21,730 --> 03:04:19,970

flares the coronal mass ejections I mean

4044

03:04:23,950 --> 03:04:21,740

put it in perspective is like

4045

03:04:25,870 --> 03:04:23,960

downloading more than a million pictures

4046

03:04:28,570 --> 03:04:25,880

a day that's how much data

4047

03:04:31,600 --> 03:04:28,580

SDO Wow that's incredible ok so we're

4048

03:04:37,740 --> 03:04:31,610

gonna go back to Karen Fox who has a

4049

03:04:41,051 --> 03:04:37,750

pretty important person with her Karen

4050

03:04:43,091 --> 03:04:41,061

hello we are back and I have Mike

4051
03:04:45,131 --> 03:04:43,101
Massimino with me a former NASA

4052
03:04:46,690 --> 03:04:45,141
astronaut who was on the space shuttle

4053
03:04:48,640 --> 03:04:46,700
twice hello Mike

4054
03:04:52,330 --> 03:04:48,650
hello Karen hello every out there on

4055
03:04:53,710 --> 03:04:52,340
NASA television NASA TV we are so glad

4056
03:04:57,310 --> 03:04:53,720
to have you here now tell me was this

4057
03:04:59,200 --> 03:04:57,320
your first Eclipse yes this was my first

4058
03:05:01,990 --> 03:04:59,210
Eclipse I think there's one that passed

4059
03:05:03,671 --> 03:05:02,000
by my neighborhood in New York on Long

4060
03:05:05,350 --> 03:05:03,681
Island when I was a kid was they were

4061
03:05:06,790 --> 03:05:05,360
telling us not to look up the sky and be

4062
03:05:09,610 --> 03:05:06,800
careful know what that was like 9 I

4063
03:05:11,680 --> 03:05:09,620

think when I was a long time ago so this

4064

03:05:14,500 --> 03:05:11,690

is the first definitely the first total

4065

03:05:15,881 --> 03:05:14,510

eclipse I've been a part of and I will

4066

03:05:17,700 --> 03:05:15,891

say well see what I can get to the next

4067

03:05:19,600 --> 03:05:17,710

one this was pretty cool though let it

4068

03:05:20,890 --> 03:05:19,610

tell me a little bit about it what was

4069

03:05:22,990 --> 03:05:20,900

your experience to live up to what you

4070

03:05:25,270 --> 03:05:23,000

were expecting oh yeah I mean there was

4071

03:05:27,070 --> 03:05:25,280

certainly a lot of excitement it was you

4072

03:05:30,100 --> 03:05:27,080

know came right at the right time I

4073

03:05:31,631 --> 03:05:30,110

think all the science assets and

4074

03:05:33,430 --> 03:05:31,641

resources that were out there trying to

4075

03:05:34,540 --> 03:05:33,440

collect data and study the Sun that all

4076
03:05:36,610 --> 03:05:34,550
went well a lot of excitement throughout

4077
03:05:38,290 --> 03:05:36,620
the country a little bit too much cloud

4078
03:05:42,970 --> 03:05:38,300
coverage here though in South Carolina

4079
03:05:44,140 --> 03:05:42,980
you know yeah so you know we could have

4080
03:05:45,551 --> 03:05:44,150
gotten a better view but it could have

4081
03:05:46,600 --> 03:05:45,561
been a lot worse - I think her other

4082
03:05:48,910 --> 03:05:46,610
parts of the country they got clobbered

4083
03:05:51,250 --> 03:05:48,920
a little bit worse from the weather but

4084
03:05:52,870 --> 03:05:51,260
but it was really cool to be here and

4085
03:05:53,930 --> 03:05:52,880
and it got it got cool you know you

4086
03:05:56,001 --> 03:05:53,940
could I could

4087
03:05:57,171 --> 03:05:56,011
see it and I could feel it with the

4088
03:05:59,480 --> 03:05:57,181

temperature and I could hear it with the

4089

03:06:00,831 --> 03:05:59,490

excitement of us I guess predominantly a

4090

03:06:03,621 --> 03:06:00,841

student crowd that we had here at the

4091

03:06:05,091 --> 03:06:03,631

College of Charleston so tell me a

4092

03:06:06,801 --> 03:06:05,101

little bit about what it's like

4093

03:06:08,390 --> 03:06:06,811

something that the rest of us have not

4094

03:06:10,011 --> 03:06:08,400

been able to see which is seeing Earth

4095

03:06:12,551 --> 03:06:10,021

from space tell us a little bit about

4096

03:06:15,440 --> 03:06:12,561

that you know the Earth from space is

4097

03:06:18,320 --> 03:06:15,450

the most beautiful thing I've ever seen

4098

03:06:20,930 --> 03:06:18,330

it really is beyond words it's like a

4099

03:06:22,490 --> 03:06:20,940

look into paradise it's a it's just a

4100

03:06:24,770 --> 03:06:22,500

beautiful planet we're very lucky to be

4101
03:06:27,320 --> 03:06:24,780
here and I used to always count like the

4102
03:06:29,390 --> 03:06:27,330
the lucky things that we had here we

4103
03:06:32,060 --> 03:06:29,400
have an atmosphere that keeps us alive

4104
03:06:35,621 --> 03:06:32,070
and we have water that keeps us alive

4105
03:06:38,091 --> 03:06:35,631
here on our planet and we have a

4106
03:06:40,251 --> 03:06:38,101
magnetic field that keeps us protected

4107
03:06:42,440 --> 03:06:40,261
from solar radiation but we also have a

4108
03:06:45,171 --> 03:06:42,450
moon and a Sun the Sun is four hundred

4109
03:06:47,001 --> 03:06:45,181
times larger than the moon and 400 times

4110
03:06:50,030 --> 03:06:47,011
further away so they're the same size in

4111
03:06:51,740 --> 03:06:50,040
the sky so we get a chance to to have

4112
03:06:54,171 --> 03:06:51,750
Toller a solar eclipses which other

4113
03:06:55,671 --> 03:06:54,181

planets in our solar system do not so

4114

03:06:57,831 --> 03:06:55,681

we're lucky for a lot of reasons and I'm

4115

03:06:59,661 --> 03:06:57,841

going to add the solar eclipses center

4116

03:07:01,341 --> 03:06:59,671

to the list but the the beauty of it the

4117

03:07:03,261 --> 03:07:01,351

beauty of the planet and also the sense

4118

03:07:04,761 --> 03:07:03,271

of clockwork of this you know there's

4119

03:07:06,801 --> 03:07:04,771

ballet this dance that goes on between

4120

03:07:08,421 --> 03:07:06,811

the earth the Sun and the moon you can

4121

03:07:10,371 --> 03:07:08,431

see that in space and you can see the

4122

03:07:11,631 --> 03:07:10,381

rotation of the earth you know that the

4123

03:07:13,761 --> 03:07:11,641

what we call the Terminator between

4124

03:07:15,530 --> 03:07:13,771

night and night and day and as that just

4125

03:07:18,230 --> 03:07:15,540

steadily rotates you know just like this

4126
03:07:19,911 --> 03:07:18,240
clockwork going on and that's what we

4127
03:07:22,041 --> 03:07:19,921
witnessed today this clockwork with the

4128
03:07:24,530 --> 03:07:22,051
moon involved getting and getting in the

4129
03:07:26,331 --> 03:07:24,540
path of the Sun in us all lining up

4130
03:07:27,890 --> 03:07:26,341
perfectly together and it's that that

4131
03:07:30,490 --> 03:07:27,900
clockwork that still amazes me that

4132
03:07:32,871 --> 03:07:30,500
everything has this permanence to it it

4133
03:07:34,190 --> 03:07:32,881
doesn't disappoint yeah it's been going

4134
03:07:35,570 --> 03:07:34,200
on for billions of years and will

4135
03:07:37,461 --> 03:07:35,580
continue to go on for billions of years

4136
03:07:40,100 --> 03:07:37,471
the Sun will come up tomorrow these

4137
03:07:42,350 --> 03:07:40,110
things will keep happening that's it's a

4138
03:07:44,751 --> 03:07:42,360

power of force that that we can we can't

4139

03:07:46,310 --> 03:07:44,761

control into to see it in space was cool

4140

03:07:48,411 --> 03:07:46,320

and I have to see it down on earth that

4141

03:07:50,511 --> 03:07:48,421

was cool as well it's a beautiful

4142

03:07:52,161 --> 03:07:50,521

sentiment thank you very much I I agree

4143

03:07:55,970 --> 03:07:52,171

we've had an incredible day watching

4144

03:07:57,381 --> 03:07:55,980

watching this so how about 2024 do you

4145

03:07:59,541 --> 03:07:57,391

think you'll be lining up to see the

4146

03:08:01,881 --> 03:07:59,551

total eclipse in 2004 when's that that's

4147

03:08:03,081 --> 03:08:01,891

not too much where is it gonna be we're

4148

03:08:05,240 --> 03:08:03,091

everywhere is it coming that year that

4149

03:08:08,030 --> 03:08:05,250

is gonna go up from Texas up through

4150

03:08:10,970 --> 03:08:08,040

Maine it will be in 2024 works.i

4151
03:08:13,790 --> 03:08:10,980
it comes the coast but yeah that'll be

4152
03:08:16,130 --> 03:08:13,800
good I'll go and back to Dwane Brown

4153
03:08:18,230 --> 03:08:16,140
thank you hey thanks Karen it's good to

4154
03:08:19,940 --> 03:08:18,240
see mast to now but the entire unit

4155
03:08:22,580 --> 03:08:19,950
United States has experienced today's

4156
03:08:24,620 --> 03:08:22,590
solar eclipse let's go to social to see

4157
03:08:26,420 --> 03:08:24,630
what people are saying and they're suing

4158
03:08:27,860 --> 03:08:26,430
a lot I'm sure right John yeah thanks

4159
03:08:29,330 --> 03:08:27,870
man yeah we had just captured a few

4160
03:08:33,020 --> 03:08:29,340
reactions and wanted to want to show

4161
03:08:36,261 --> 03:08:33,030
those to here with some graphics like

4162
03:08:37,970 --> 03:08:36,271
this person right here is loving NASA as

4163
03:08:40,011 --> 03:08:37,980

a game day today he's giving some

4164

03:08:44,000 --> 03:08:40,021

shout-out to us here on the broadcast

4165

03:08:46,780 --> 03:08:44,010

which is really really quite nice this

4166

03:08:49,550 --> 03:08:46,790

is a another one of our Twitter users

4167

03:08:51,470 --> 03:08:49,560

from Nashville just some awesome photos

4168

03:08:53,600 --> 03:08:51,480

taken by users across the internet if

4169

03:08:55,100 --> 03:08:53,610

you use the the trending hashtags out

4170

03:08:56,511 --> 03:08:55,110

there you'll see and I've been looking

4171

03:08:59,120 --> 03:08:56,521

at here on my computer just some amazing

4172

03:09:00,710 --> 03:08:59,130

photos taken from the public look some

4173

03:09:04,060 --> 03:09:00,720

amateur photographers it really looks

4174

03:09:06,050 --> 03:09:04,070

like legit stuff all over the internet

4175

03:09:08,390 --> 03:09:06,060

here's another one of our users

4176
03:09:11,060 --> 03:09:08,400
he wrote this was the Pick of the

4177
03:09:13,840 --> 03:09:11,070
eclipse I took three glasses a second

4178
03:09:16,340 --> 03:09:13,850
one I've seen in my lifetime awesome

4179
03:09:17,540 --> 03:09:16,350
here's another one I'd like to thank the

4180
03:09:19,640 --> 03:09:17,550
clouds for letting me look at the

4181
03:09:21,140 --> 03:09:19,650
Eclipse it was so cool we are not

4182
03:09:23,450 --> 03:09:21,150
thinking the clouds here in Charleston

4183
03:09:24,410 --> 03:09:23,460
South Carolina but we did get that you

4184
03:09:25,370 --> 03:09:24,420
know it's really could see it with

4185
03:09:26,840 --> 03:09:25,380
bright and some was bright enough you

4186
03:09:28,790 --> 03:09:26,850
could see the partial eclipse of glasses

4187
03:09:30,530 --> 03:09:28,800
through the clouds just totality it was

4188
03:09:33,770 --> 03:09:30,540

a little of an issue here's another one

4189

03:09:36,350 --> 03:09:33,780

on Twitter it's very weird to be in a

4190

03:09:38,450 --> 03:09:36,360

darkened home with not so much daylight

4191

03:09:42,190 --> 03:09:38,460

at 2:45 p.m. if the Sun is still shining

4192

03:09:46,270 --> 03:09:44,800

and there's another one wife and I are

4193

03:09:47,530 --> 03:09:46,280

currently gazing into the bottom of a

4194

03:09:51,480 --> 03:09:47,540

box of frosted mini-wheats

4195

03:09:53,560 --> 03:09:51,490

/ @nasa advice it just making me hungry

4196

03:09:55,000 --> 03:09:53,570

and honestly it was better than I

4197

03:09:56,469 --> 03:09:55,010

thought I think a lot of people across

4198

03:09:57,910 --> 03:09:56,479

that's one thing we're really seeing I

4199

03:09:59,469 --> 03:09:57,920

mean everybody knew this was happening I

4200

03:10:01,240 --> 03:09:59,479

think the emotional experience then

4201
03:10:02,469 --> 03:10:01,250
would be eclipsed a lot of folks we're

4202
03:10:04,690 --> 03:10:02,479
seeing online weren't necessarily

4203
03:10:07,090 --> 03:10:04,700
anticipating that I think it could be

4204
03:10:08,830 --> 03:10:07,100
really heart-wrenching and scary a

4205
03:10:12,340 --> 03:10:08,840
little bit but also really emotional and

4206
03:10:14,290 --> 03:10:12,350
and spectacular here's another one and

4207
03:10:15,730 --> 03:10:14,300
any other day I'd be concerned if I saw

4208
03:10:18,340 --> 03:10:15,740
a line of people on the roof of the

4209
03:10:21,760 --> 03:10:18,350
parking garage today not so much it is

4210
03:10:24,010 --> 03:10:21,770
solar eclipse day and here's our last

4211
03:10:26,320 --> 03:10:24,020
one I want to show you all I'm saying

4212
03:10:28,660 --> 03:10:26,330
y'all y'all oh my god oh em gee it was

4213
03:10:31,660 --> 03:10:28,670

the coolest two minutes of my life

4214

03:10:32,770 --> 03:10:31,670

so I think a lot of people around the

4215

03:10:34,630 --> 03:10:32,780

country receive that sentiment this is

4216

03:10:36,820 --> 03:10:34,640

the sort of a celestial event that

4217

03:10:38,860 --> 03:10:36,830

really has a big impact and you know

4218

03:10:40,150 --> 03:10:38,870

you're we look at the Sun everyday and

4219

03:10:42,190 --> 03:10:40,160

we see it in the sky we it's a very

4220

03:10:44,650 --> 03:10:42,200

constant for us and all sudden for it to

4221

03:10:45,640 --> 03:10:44,660

be obscured feels a little unnatural I

4222

03:10:47,380 --> 03:10:45,650

think that's one of the things we were

4223

03:10:48,910 --> 03:10:47,390

really seeing across the internet so uh

4224

03:10:50,530 --> 03:10:48,920

thanks everyone for submitting your

4225

03:10:52,330 --> 03:10:50,540

questions with you at the hashtag and

4226
03:10:53,590 --> 03:10:52,340
for giving us your photos we really

4227
03:10:55,300 --> 03:10:53,600
appreciate it it was it's been

4228
03:10:56,590 --> 03:10:55,310
spectacular day for all of us you know

4229
03:10:59,710 --> 03:10:56,600
that's the great thing about social

4230
03:11:01,600 --> 03:10:59,720
media the creativity and those things

4231
03:11:03,340 --> 03:11:01,610
are like this is so awesome when they

4232
03:11:05,260 --> 03:11:03,350
post those things you get honesty yes

4233
03:11:08,650 --> 03:11:05,270
and we really really appreciate your

4234
03:11:11,200 --> 03:11:08,660
support for NASA and keep that those

4235
03:11:13,330 --> 03:11:11,210
images coming in okay so we've witnessed

4236
03:11:15,429 --> 03:11:13,340
a total solar eclipse as it moves across

4237
03:11:17,410 --> 03:11:15,439
the entire United States and it's

4238
03:11:19,450 --> 03:11:17,420

incredible to think about how NASA

4239

03:11:22,080 --> 03:11:19,460

scientists are using advanced tools to

4240

03:11:25,090 --> 03:11:22,090

image this eclipse so Alex you know

4241

03:11:27,429 --> 03:11:25,100

before all of this advance and here that

4242

03:11:29,800 --> 03:11:27,439

you know the cameras that people use

4243

03:11:32,170 --> 03:11:29,810

that we have now I think people used to

4244

03:11:34,300 --> 03:11:32,180

draw the eclipses you know let's let's

4245

03:11:35,770 --> 03:11:34,310

take a little history lesson yeah so you

4246

03:11:38,260 --> 03:11:35,780

know one of the things that's amazing so

4247

03:11:39,670 --> 03:11:38,270

looking at the Sun and eclipses it's

4248

03:11:42,160 --> 03:11:39,680

actually the beginning of modern

4249

03:11:45,310 --> 03:11:42,170

astronomy and before we had cameras

4250

03:11:47,920 --> 03:11:45,320

people actually drew eclipses by hand

4251

03:11:50,860 --> 03:11:47,930

and in fact this phenomena that that

4252

03:11:54,460 --> 03:11:50,870

jari and I study coronal mass ejections

4253

03:11:56,380 --> 03:11:54,470

were first seen in an image so if you

4254

03:11:59,019 --> 03:11:56,390

look at this image

4255

03:12:01,630 --> 03:11:59,029

well I had an image up from this book

4256

03:12:03,490 --> 03:12:01,640

it's actually an image of a coronal mass

4257

03:12:07,360 --> 03:12:03,500

ejection but what you're seeing here are

4258

03:12:10,840 --> 03:12:07,370

images from 1869 showing you the corona

4259

03:12:13,599 --> 03:12:10,850

drawn by hand but we looked back in the

4260

03:12:17,349 --> 03:12:13,609

past before we had cameras we discovered

4261

03:12:19,870 --> 03:12:17,359

helium on the Sun that was done during a

4262

03:12:21,639 --> 03:12:19,880

total solar eclipse we discovered the

4263

03:12:25,889 --> 03:12:21,649

outer atmosphere was hot and we even

4264

03:12:28,780 --> 03:12:25,899

were verified general relativity in 1919

4265

03:12:30,070 --> 03:12:28,790

and you know that the image that Alex

4266

03:12:31,780 --> 03:12:30,080

was gonna show you in the book is

4267

03:12:34,780 --> 03:12:31,790

actually like a hundred years before we

4268

03:12:38,530 --> 03:12:34,790

can actually see it with a satellite so

4269

03:12:40,689 --> 03:12:38,540

amazing okay so you know what I want to

4270

03:12:42,760 --> 03:12:40,699

do something fun here okay we haven't

4271

03:12:46,389 --> 03:12:42,770

fun can we have some more fun so Alex I

4272

03:12:48,670 --> 03:12:46,399

mean and for the young students out

4273

03:12:51,639 --> 03:12:48,680

there and folks the future generation of

4274

03:12:53,349 --> 03:12:51,649

scientists as I told Alex earlier he is

4275

03:12:54,939 --> 03:12:53,359

one of the coolest looking scientists

4276

03:12:56,649 --> 03:12:54,949

that I've seen he's got the earrings got

4277

03:12:58,120 --> 03:12:56,659

a look but he also has something even

4278

03:13:00,160 --> 03:12:58,130

cooler I got to gotta show him the shoes

4279

03:13:06,790 --> 03:13:00,170

man all right let's do this to work

4280

03:13:10,689 --> 03:13:06,800

let's show that lame shoes how cool is

4281

03:13:13,300 --> 03:13:10,699

that folks so so Alex what what got you

4282

03:13:15,040 --> 03:13:13,310

into the heliophysics in the Sun little

4283

03:13:16,860 --> 03:13:15,050

background well I you know I've been

4284

03:13:19,960 --> 03:13:16,870

interested in astronomy all my life

4285

03:13:22,809 --> 03:13:19,970

seeing things like Star Trek and Carl

4286

03:13:25,769 --> 03:13:22,819

Sagan but when I was studying

4287

03:13:28,479 --> 03:13:25,779

astrophysics in graduate school my

4288

03:13:31,090 --> 03:13:28,489

professor said you know you want to look

4289

03:13:32,860 --> 03:13:31,100

at the Sun the Sun is really close and

4290

03:13:35,320 --> 03:13:32,870

it's something we can study in

4291

03:13:37,450 --> 03:13:35,330

incredible detail and you can use this

4292

03:13:39,490 --> 03:13:37,460

as a tool to study the rest of the

4293

03:13:42,780 --> 03:13:39,500

universe so that was when I realized

4294

03:13:46,630 --> 03:13:42,790

that we can learn so much about our

4295

03:13:49,059 --> 03:13:46,640

universe why we're here just by looking

4296

03:13:50,590 --> 03:13:49,069

at our closest star the Sun and all the

4297

03:13:54,130 --> 03:13:50,600

incredible detail that we have and this

4298

03:13:56,200 --> 03:13:54,140

is the reason why scientists are so

4299

03:13:58,389 --> 03:13:56,210

excited about total solar eclipses

4300

03:14:01,389 --> 03:13:58,399

because we can see a region of the Sun

4301

03:14:04,059 --> 03:14:01,399

in visible light with our own eyes that

4302

03:14:06,670 --> 03:14:04,069

we cannot even see from space fantastic

4303

03:14:08,520 --> 03:14:06,680

so Alison we'll come back to you because

4304

03:14:10,410 --> 03:14:08,530

I understand you're a cat lover and

4305

03:14:12,211 --> 03:14:10,420

jadi I know you have a fantastic story

4306

03:14:14,251 --> 03:14:12,221

to tell but we're gonna go back out to

4307

03:14:15,870 --> 03:14:14,261

Karen who has another special guest

4308

03:14:18,751 --> 03:14:15,880

Karen you're just having a good time out

4309

03:14:21,020 --> 03:14:18,761

there I am having fun the College of

4310

03:14:23,430 --> 03:14:21,030

Charleston students have been fantastic

4311

03:14:24,990 --> 03:14:23,440

supporting us today and we have some

4312

03:14:25,230 --> 03:14:25,000

more students here can you tell me your

4313

03:14:27,690 --> 03:14:25,240

name

4314

03:14:29,070 --> 03:14:27,700

Nicole and tell me what year you are

4315

03:14:29,820 --> 03:14:29,080

what you're majoring in went a little a

4316

03:14:31,171 --> 03:14:29,830

little betcha

4317

03:14:32,881 --> 03:14:31,181

so I'm a senior at the College of

4318

03:14:34,171 --> 03:14:32,891

Charleston I'm studying biology I want

4319

03:14:35,461 --> 03:14:34,181

to do conservation work with like

4320

03:14:36,390 --> 03:14:35,471

endangered species in the fragile

4321

03:14:38,850 --> 03:14:36,400

habitats

4322

03:14:42,001 --> 03:14:38,860

fantastic so was this your very first

4323

03:14:44,341 --> 03:14:42,011

total solar eclipse yes and what did you

4324

03:14:46,381 --> 03:14:44,351

think it was really awesome glad I got

4325

03:14:48,330 --> 03:14:46,391

to see it tell me a little bit about

4326

03:14:49,740 --> 03:14:48,340

what you felt when it got dark and got

4327

03:14:52,620 --> 03:14:49,750

cold what did you think was happening I

4328

03:14:53,881 --> 03:14:52,630

was kind of just surio I didn't really

4329

03:14:55,410 --> 03:14:53,891

know what's going on it and expect all

4330

03:14:57,660 --> 03:14:55,420

the lights to come on and stuff so it

4331

03:14:59,190 --> 03:14:57,670

was really cool how about the rest of

4332

03:15:02,190 --> 03:14:59,200

you how was your experience today on the

4333

03:15:05,780 --> 03:15:02,200

total solar eclipse oh no no I'll never

4334

03:15:09,961 --> 03:15:05,790

see it again you're gonna see in 2024

4335

03:15:11,430 --> 03:15:09,971

really where we're at we have another

4336

03:15:14,700 --> 03:15:11,440

total solar eclipse across the United

4337

03:15:15,900 --> 03:15:14,710

States from Texas to Maine 2024 and of

4338

03:15:16,980 --> 03:15:15,910

course you can start traveling for them

4339

03:15:17,280 --> 03:15:16,990

do you think you'll start traveling for

4340

03:15:19,950 --> 03:15:17,290

them

4341

03:15:20,881 --> 03:15:19,960

probably not honestly it was cool but I

4342

03:15:22,591 --> 03:15:20,891

don't know it's kind of a

4343

03:15:24,720 --> 03:15:22,601

once-in-a-lifetime type of thing yeah

4344

03:15:25,950 --> 03:15:24,730

all right I'm gonna ask you my favorite

4345

03:15:29,211 --> 03:15:25,960

question I've been asking students to

4346

03:15:31,591 --> 03:15:29,221

this week what is the music you

4347

03:15:41,671 --> 03:15:31,601

associate with the Sun and space and the

4348

03:15:46,980 --> 03:15:41,681

Eclipse give me something here comes the

4349

03:15:49,440 --> 03:15:46,990

Sun thank you very very much

4350

03:15:51,540 --> 03:15:49,450

we are doing well here at the College of

4351
03:15:53,820 --> 03:15:51,550
Charleston having a great time people

4352
03:15:56,160 --> 03:15:53,830
are beginning to leave the quad now and

4353
03:15:58,140 --> 03:15:56,170
moving on and going on to start school

4354
03:16:00,480 --> 03:15:58,150
tomorrow right so is this like the best

4355
03:16:02,280 --> 03:16:00,490
start of school ever yeah definitely

4356
03:16:04,950 --> 03:16:02,290
that could've started like a different

4357
03:16:06,060 --> 03:16:04,960
way of an awesome fantastic we've got

4358
03:16:09,450 --> 03:16:06,070
one more person here and you want to

4359
03:16:11,070 --> 03:16:09,460
come over come on tell me a little bit

4360
03:16:12,570 --> 03:16:11,080
about what you experienced it wasn't

4361
03:16:14,940 --> 03:16:12,580
like what you expected what did you

4362
03:16:17,070 --> 03:16:14,950
expect I expected it to get dark but I

4363
03:16:19,890 --> 03:16:17,080

didn't didn't expect that temperature to

4364

03:16:21,390 --> 03:16:19,900

change and get so cold I felt the same

4365

03:16:22,140 --> 03:16:21,400

way I was really surprised I can't think

4366

03:16:24,301 --> 03:16:22,150

I was gonna rain

4367

03:16:26,341 --> 03:16:24,311

or something and it never did was

4368

03:16:29,011 --> 03:16:26,351

fantastic all right what are you gonna

4369

03:16:30,150 --> 03:16:29,021

do with your Eclipse glasses now um just

4370

03:16:33,900 --> 03:16:30,160

keep them as a souvenir

4371

03:16:35,640 --> 03:16:33,910

I might put them in a scrapbook like

4372

03:16:37,890 --> 03:16:35,650

that don't use them if you ever get them

4373

03:16:39,240 --> 03:16:37,900

scratched okay okay if you keep them

4374

03:16:40,650 --> 03:16:39,250

pristine you can use them again but not

4375

03:16:42,511 --> 03:16:40,660

if they get scratched okay gonna be real

4376

03:16:43,051 --> 03:16:42,521
careful with these right all right

4377

03:16:44,551 --> 03:16:43,061
fantastic

4378

03:16:47,430 --> 03:16:44,561
anybody here science major anyone of you

4379

03:16:51,390 --> 03:16:47,440
guys you are come on up oh look at your

4380

03:16:53,820 --> 03:16:51,400
shirt look at your fantastic shirt Wow

4381

03:16:55,171 --> 03:16:53,830
tell me about your shirt I don't

4382

03:16:58,261 --> 03:16:55,181
remember where I got this but it's

4383

03:17:00,360 --> 03:16:58,271
obviously constellations and it seemed

4384

03:17:02,041 --> 03:17:00,370
appropriate since it was astronomical I

4385

03:17:04,980 --> 03:17:02,051
agree and what kind of a science major

4386

03:17:07,020 --> 03:17:04,990
are you geology and biology probably and

4387

03:17:08,070 --> 03:17:07,030
do you say that this inspired you a

4388

03:17:14,631 --> 03:17:08,080

little bit more and be excited about

4389

03:17:17,041 --> 03:17:14,641

science yes really amazing

4390

03:17:18,841 --> 03:17:17,051

thank you very much I'm so glad you all

4391

03:17:20,671 --> 03:17:18,851

were here today and we were gonna hand

4392

03:17:23,131 --> 03:17:20,681

it back to Dwane Brown thank you so much

4393

03:17:24,871 --> 03:17:23,141

thanks Karen you know and they're all

4394

03:17:26,940 --> 03:17:24,881

special guests because you know the kids

4395

03:17:30,211 --> 03:17:26,950

and our future scientists are really

4396

03:17:32,581 --> 03:17:30,221

really important it's special and daddy

4397

03:17:34,081 --> 03:17:32,591

I know the audience wants to hear your

4398

03:17:36,060 --> 03:17:34,091

story I mean it's amazing

4399

03:17:38,520 --> 03:17:36,070

I mean we're sharing here tell us your

4400

03:17:40,081 --> 03:17:38,530

story well I mean I started interested

4401
03:17:42,360 --> 03:17:40,091
in science since I was a little kid I

4402
03:17:44,100 --> 03:17:42,370
was very curious but it was when I

4403
03:17:47,220 --> 03:17:44,110
remember I traveled to Florida I have

4404
03:17:48,480 --> 03:17:47,230
family in Florida and it was at six

4405
03:17:50,100 --> 03:17:48,490
years old and I went to the Kennedy

4406
03:17:52,530 --> 03:17:50,110
Space Center and I saw the amazing

4407
03:17:55,470 --> 03:17:52,540
things that NASA had there I put in my

4408
03:17:56,910 --> 03:17:55,480
mind I want to work for NASA one day and

4409
03:17:58,740 --> 03:17:56,920
coming from a little island

4410
03:18:01,621 --> 03:17:58,750
you know Puerto Rico oh wait there you

4411
03:18:03,961 --> 03:18:01,631
go I mean I have to work really hard but

4412
03:18:05,881 --> 03:18:03,971
it's you know Here I am I work really

4413
03:18:08,190 --> 03:18:05,891

hard and it has been an amazing

4414

03:18:10,051 --> 03:18:08,200

experience and look where it got me

4415

03:18:11,700 --> 03:18:10,061

oh my goodness oh I'm glad to be here

4416

03:18:13,831 --> 03:18:11,710

it's been a great day so ladies and

4417

03:18:15,570 --> 03:18:13,841

gentlemen we've been talking about this

4418

03:18:17,251 --> 03:18:15,580

now it's time to go back to the Johnson

4419

03:18:18,841 --> 03:18:17,261

Space Center to Rob Davis and the

4420

03:18:23,220 --> 03:18:18,851

International Space Station coming up

4421

03:18:26,850 --> 03:18:23,230

Rob so okay

4422

03:18:29,041 --> 03:18:26,860

not yet so we're we're gonna come back

4423

03:18:32,341 --> 03:18:29,051

here I just love live television because

4424

03:18:34,540 --> 03:18:32,351

you just you turn but so now we can talk

4425

03:18:36,519 --> 03:18:34,550

about cats

4426

03:18:39,160 --> 03:18:36,529

I'm the cat let's go I'm a cat lover

4427

03:18:40,149 --> 03:18:39,170

yeah so you know I I love cats I've

4428

03:18:42,790 --> 03:18:40,159

always had cats

4429

03:18:44,529 --> 03:18:42,800

my wife has cats and the great thing

4430

03:18:46,450 --> 03:18:44,539

about it is there's such great

4431

03:18:48,550 --> 03:18:46,460

companions and I do a lot of traveling

4432

03:18:50,260 --> 03:18:48,560

for NASA and it actually is very

4433

03:18:52,870 --> 03:18:50,270

convenient to have a cat because they

4434

03:18:54,189 --> 03:18:52,880

let you go away come back they're still

4435

03:18:56,019 --> 03:18:54,199

glad to see you but they don't need

4436

03:18:58,510 --> 03:18:56,029

quite as much care as a dog does so

4437

03:19:00,910 --> 03:18:58,520

actually for all the work I've done and

4438

03:19:03,670 --> 03:19:00,920

all the time I've spent out studying the

4439

03:19:05,590 --> 03:19:03,680

Sun from other countries cats have

4440

03:19:07,090 --> 03:19:05,600

always been there for me so two quick

4441

03:19:10,359 --> 03:19:07,100

questions and then we are going to go

4442

03:19:14,500 --> 03:19:10,369

down to Houston advice for becoming a

4443

03:19:16,479 --> 03:19:14,510

scientist real quick well study it

4444

03:19:18,429 --> 03:19:16,489

sounds simple but just keep going to

4445

03:19:20,889 --> 03:19:18,439

school but try as many different things

4446

03:19:22,689 --> 03:19:20,899

as you can experience in different

4447

03:19:24,490 --> 03:19:22,699

opportunities internships things like

4448

03:19:26,769 --> 03:19:24,500

that because it gives you a chance to

4449

03:19:28,450 --> 03:19:26,779

really see the breadth of science and

4450

03:19:30,519 --> 03:19:28,460

technology out there Johnny

4451

03:19:32,710 --> 03:19:30,529

Keith Mizzou motivated you know like

4452

03:19:34,630 --> 03:19:32,720

like Alex said do the internships try

4453

03:19:36,519 --> 03:19:34,640

different things because you you know

4454

03:19:39,040 --> 03:19:36,529

you never know exactly what you really

4455

03:19:41,050 --> 03:19:39,050

like and to be really happy your job you

4456

03:19:43,029 --> 03:19:41,060

really have to find that calling what

4457

03:19:45,849 --> 03:19:43,039

you really really love yeah and for the

4458

03:19:47,439 --> 03:19:45,859

folks in the kids and the students

4459

03:19:50,740 --> 03:19:47,449

watching and a lot of you out there I

4460

03:19:53,319 --> 03:19:50,750

mean look Alex and Johnny I mean they're

4461

03:19:54,670 --> 03:19:53,329

amazing they're amazing and we're

4462

03:19:56,769 --> 03:19:54,680

hearing more about them now within the

4463

03:20:01,090 --> 03:19:56,779

past hour is his lips wet across the

4464

03:20:02,439 --> 03:20:01,100

continent us six crew members aboard the

4465

03:20:04,750 --> 03:20:02,449

International Space Station had a chance

4466

03:20:07,540 --> 03:20:04,760

to view this phenomenal phenomenon from

4467

03:20:09,219 --> 03:20:07,550

a unique vantage point let's go to the

4468

03:20:11,019 --> 03:20:09,229

ISS flight control room at the Johnson

4469

03:20:22,230 --> 03:20:11,029

Space Center in Houston Rob Davis

4470

03:20:26,560 --> 03:20:24,850

thanks 20 wait you know you know million

4471

03:20:28,030 --> 03:20:26,570

people have been witness to this amazing

4472

03:20:29,501 --> 03:20:28,040

event across the United States

4473

03:20:31,150 --> 03:20:29,511

throughout the day today

4474

03:20:34,030 --> 03:20:31,160

but up on the International Space

4475

03:20:36,011 --> 03:20:34,040

Station members of the expedition 52

4476
03:20:39,640 --> 03:20:36,021
crew have had a unique celestial

4477
03:20:41,910 --> 03:20:39,650
front-row seat to history about an hour

4478
03:20:45,131 --> 03:20:41,920
ago the International Space Station flew

4479
03:20:47,950 --> 03:20:45,141
252 statute miles above the earth over

4480
03:20:50,261 --> 03:20:47,960
southern Canada as it made its way south

4481
03:20:52,751 --> 03:20:50,271
of Hudson Bay with a tremendous view of

4482
03:20:55,690 --> 03:20:52,761
the moon shadow against the earth the

4483
03:20:58,030 --> 03:20:55,700
moon covering about 44% of the Sun

4484
03:21:00,160 --> 03:20:58,040
during the second of three passes you

4485
03:21:03,940 --> 03:21:00,170
can see it in this animation right here

4486
03:21:05,410 --> 03:21:03,950
and where the crew were glued to the

4487
03:21:06,190 --> 03:21:05,420
windows of the International Space

4488
03:21:08,950 --> 03:21:06,200

Station

4489

03:21:11,650 --> 03:21:08,960

with an HD video camera with an armada

4490

03:21:13,600 --> 03:21:11,660

of digital still cameras to capture

4491

03:21:15,820 --> 03:21:13,610

every moment of those precious seconds

4492

03:21:17,711 --> 03:21:15,830

with us at this hour aboard the

4493

03:21:20,080 --> 03:21:17,721

International Space Station in the

4494

03:21:22,390 --> 03:21:20,090

Destiny laboratory of the complex are

4495

03:21:24,910 --> 03:21:22,400

four of the members of the expedition 52

4496

03:21:26,950 --> 03:21:24,920

crew nasa flight engineers Peggy Whitson

4497

03:21:29,650 --> 03:21:26,960

Jack Fischer and Randy Bresnik

4498

03:21:31,660 --> 03:21:29,660

and flight engineer paolo nespoli of the

4499

03:21:33,430 --> 03:21:31,670

european space agency thank you all so

4500

03:21:40,120 --> 03:21:33,440

much for joining us today on this

4501
03:21:42,370 --> 03:21:40,130
historic day yeah it's been an exciting

4502
03:21:46,390 --> 03:21:42,380
day for us to have the opportunity to

4503
03:21:47,381 --> 03:21:46,400
see the Eclipse from here Peggy let's

4504
03:21:49,211 --> 03:21:47,391
start with you

4505
03:21:52,301 --> 03:21:49,221
you were in the cupola with an HD video

4506
03:21:53,770 --> 03:21:52,311
camera looking out at the limb of the

4507
03:21:56,140 --> 03:21:53,780
earth where the shadow appeared

4508
03:21:57,910 --> 03:21:56,150
capturing some spectacular video that

4509
03:21:59,230 --> 03:21:57,920
we're going to replay here in a second

4510
03:22:02,230 --> 03:21:59,240
what were your thoughts and impressions

4511
03:22:07,270 --> 03:22:02,240
as the station flew over the shadow of

4512
03:22:09,671 --> 03:22:07,280
the earth well I'd seen pictures from

4513
03:22:12,700 --> 03:22:09,681

previous Eclipse and so I think I had

4514

03:22:15,430 --> 03:22:12,710

underestimated what this would look like

4515

03:22:18,070 --> 03:22:15,440

this was much darker than I gave it

4516

03:22:20,740 --> 03:22:18,080

credit for being unfortunately it was

4517

03:22:23,190 --> 03:22:20,750

kind of near the the limb near the edge

4518

03:22:27,421 --> 03:22:23,200

of the earth from our view so several

4519

03:22:30,790 --> 03:22:27,431

hundred miles away but it still was

4520

03:22:34,859 --> 03:22:30,800

impressive to be able to see that dark

4521

03:22:39,340 --> 03:22:37,510

for Randy Bresnik Randy you've been

4522

03:22:41,199 --> 03:22:39,350

looking forward to this event for some

4523

03:22:44,079 --> 03:22:41,209

time now your thoughts and impressions

4524

03:22:47,380 --> 03:22:44,089

of the Eclipse so you also shot digital

4525

03:22:51,219 --> 03:22:47,390

still imagery of it as well and what

4526
03:22:53,019 --> 03:22:51,229
does a solar eclipse do to a human being

4527
03:22:54,880 --> 03:22:53,029
what does it do to a human being in

4528
03:23:02,219 --> 03:22:54,890
terms of understanding our place in the

4529
03:23:04,989 --> 03:23:02,229
universe that's certainly a big question

4530
03:23:07,179 --> 03:23:04,999
you look down at the size of the shadow

4531
03:23:09,159 --> 03:23:07,189
and and you know we've gotten used to

4532
03:23:10,179 --> 03:23:09,169
the scope and scale of what the earth

4533
03:23:11,499 --> 03:23:10,189
looks like from here and just

4534
03:23:13,809 --> 03:23:11,509
understanding how many people be

4535
03:23:15,670 --> 03:23:13,819
affected by that and a friend of mine

4536
03:23:17,889 --> 03:23:15,680
the other day you know mentioned that

4537
03:23:19,210 --> 03:23:17,899
and it kind of really came to be you

4538
03:23:21,429 --> 03:23:19,220

know we were we were actually looking at

4539

03:23:22,899 --> 03:23:21,439

it was that she just a few hundred years

4540

03:23:25,659 --> 03:23:22,909

ago human beings wouldn't even known

4541

03:23:27,939 --> 03:23:25,669

that the Eclipse was coming and so here

4542

03:23:30,609 --> 03:23:27,949

you are looking up but all sudden the

4543

03:23:32,170 --> 03:23:30,619

Sun is disappearing and you know what

4544

03:23:33,460 --> 03:23:32,180

are the thoughts for all of you know

4545

03:23:35,289 --> 03:23:33,470

human existence where everybody's

4546

03:23:37,149 --> 03:23:35,299

looking up going the gods must be angry

4547

03:23:39,249 --> 03:23:37,159

at us you know and now we have the

4548

03:23:40,899 --> 03:23:39,259

ability not only to know it's coming

4549

03:23:43,029 --> 03:23:40,909

people are excited about it we know

4550

03:23:45,369 --> 03:23:43,039

people that travel to go be under the

4551
03:23:48,849 --> 03:23:45,379
Umbra you know and and making an event

4552
03:23:50,439 --> 03:23:48,859
you know a celestial event and for us

4553
03:23:52,139 --> 03:23:50,449
you know the witness it from above was

4554
03:23:54,219 --> 03:23:52,149
just really special because it

4555
03:23:55,659 --> 03:23:54,229
represents how far we've come with the

4556
03:23:57,429 --> 03:23:55,669
technology we have I mean look at we're

4557
03:23:59,260 --> 03:23:57,439
on the International Space Station but

4558
03:24:02,019 --> 03:23:59,270
we're doing you know more than 250

4559
03:24:03,789 --> 03:24:02,029
different experiments and working with

4560
03:24:05,889 --> 03:24:03,799
an international team look at where

4561
03:24:07,809 --> 03:24:05,899
we're at and so I look forward to that

4562
03:24:09,039 --> 03:24:07,819
next time we have a full eclipse maybe

4563
03:24:13,090 --> 03:24:09,049

we'll be taking pictures from a lot

4564

03:24:15,760 --> 03:24:13,100

farther away for Jack Fischer Jack it's

4565

03:24:17,380 --> 03:24:15,770

good to see you this afternoon you sent

4566

03:24:20,019 --> 03:24:17,390

a picture very early this morning of

4567

03:24:23,679 --> 03:24:20,029

this raft of cameras that were laid out

4568

03:24:25,960 --> 03:24:23,689

in the Destiny laboratory capture every

4569

03:24:33,069 --> 03:24:25,970

second of this unique event was it

4570

03:24:34,719 --> 03:24:33,079

awesomesauce times two for you yes it

4571

03:24:37,179 --> 03:24:34,729

was awesomesauce times two and and

4572

03:24:39,639 --> 03:24:37,189

Robert you know this has been a huge

4573

03:24:42,420 --> 03:24:39,649

coordination effort comrade

4574

03:24:45,310 --> 03:24:42,430

randy has been in charge of planning

4575

03:24:47,591 --> 03:24:45,320

where all of us would be in a

4576
03:24:50,230 --> 03:24:47,601
little Orchestra of which window which

4577
03:24:52,660 --> 03:24:50,240
camera so he did a great job with that I

4578
03:24:54,881 --> 03:24:52,670
was actually supposed to be taking off a

4579
03:24:57,791 --> 03:24:54,891
windowpane or a scratch pane right now

4580
03:24:59,530 --> 03:24:57,801
but due to the lighting and how we're

4581
03:25:02,620 --> 03:24:59,540
we're going about it we don't really

4582
03:25:05,940 --> 03:25:02,630
need to so I got I got lucky and got to

4583
03:25:10,990 --> 03:25:05,950
join all these folks for the Bao event

4584
03:25:13,961 --> 03:25:11,000
it was you know Peggy said she was she

4585
03:25:17,020 --> 03:25:13,971
underestimated it I definitely did just

4586
03:25:19,480 --> 03:25:17,030
judging from the pictures that spot was

4587
03:25:21,820 --> 03:25:19,490
you know a lot darker and a lot larger

4588
03:25:24,430 --> 03:25:21,830

than I thought it would be and you know

4589

03:25:26,410 --> 03:25:24,440

I I kind of was sitting in the Russian

4590

03:25:29,381 --> 03:25:26,420

segment at the window thinking you

4591

03:25:30,520 --> 03:25:29,391

remember snipe hunts I was like man this

4592

03:25:32,350 --> 03:25:30,530

kind of like a snipe hunt

4593

03:25:34,751 --> 03:25:32,360

I think somebody's pulling a joke on me

4594

03:25:36,940 --> 03:25:34,761

and then all of a sudden this huge black

4595

03:25:39,220 --> 03:25:36,950

shadow was going across the air so it

4596

03:25:41,881 --> 03:25:39,230

was it was amazing and it was cool to

4597

03:25:44,950 --> 03:25:41,891

see from this vantage point so

4598

03:25:49,810 --> 03:25:44,960

absolutely awesome sauce times three rub

4599

03:25:52,600 --> 03:25:49,820

three chocolate awesome sauce with a Sun

4600

03:25:58,690 --> 03:25:52,610

a side of Sun awesome sauce I don't know

4601
03:26:01,600 --> 03:25:58,700
it was awesome Rob for Paolo we do

4602
03:26:03,310 --> 03:26:01,610
remember six years ago May of 2011 when

4603
03:26:05,591 --> 03:26:03,320
you departed the International Space

4604
03:26:08,051 --> 03:26:05,601
Station on a Soyuz vehicle to come home

4605
03:26:09,910 --> 03:26:08,061
from your last flight you took that

4606
03:26:12,011 --> 03:26:09,920
signature picture of the shuttle

4607
03:26:13,570 --> 03:26:12,021
Endeavour docked to the station with all

4608
03:26:16,390 --> 03:26:13,580
of the other international partner

4609
03:26:18,761 --> 03:26:16,400
components and vehicles linked up

4610
03:26:24,020 --> 03:26:18,771
how did today's experience compare with

4611
03:26:28,491 --> 03:26:26,781
well six years ago I was kind of alone

4612
03:26:32,091 --> 03:26:28,501
there and the Soyuz capsule taking

4613
03:26:34,011 --> 03:26:32,101

pictures so through the rest of the team

4614

03:26:36,230 --> 03:26:34,021

Dimitra contractor was flying the Soyuz

4615

03:26:39,111 --> 03:26:36,240

and Katie Collman was actually taking

4616

03:26:41,661 --> 03:26:39,121

timing and telling me but it was it was

4617

03:26:44,211 --> 03:26:41,671

me with one camera and a video camera

4618

03:26:46,211 --> 03:26:44,221

and taking picture here today we had as

4619

03:26:48,531 --> 03:26:46,221

you saw from there from the photo that

4620

03:26:52,191 --> 03:26:48,541

two-faced jag sent this morning with an

4621

03:26:54,381 --> 03:26:52,201

armada of equipment we had multiple

4622

03:26:56,241 --> 03:26:54,391

places were flying back and forth from

4623

03:26:59,361 --> 03:26:56,251

the station to the cupola Russian

4624

03:27:02,841 --> 03:26:59,371

segment up and down and it was a

4625

03:27:05,631 --> 03:27:02,851

completely different orchestrated system

4626
03:27:09,621 --> 03:27:05,641
it was I was impressed too by the shadow

4627
03:27:12,411 --> 03:27:09,631
passing by I've seen some pictures but

4628
03:27:15,230 --> 03:27:12,421
and always as a kid always thought the

4629
03:27:17,810 --> 03:27:15,240
the Umbra would be kind of a squared

4630
03:27:19,850 --> 03:27:17,820
defined square but but it was not it's

4631
03:27:21,951 --> 03:27:19,860
kind of as much and this is interesting

4632
03:27:26,301 --> 03:27:21,961
to actually see this from Europe for you

4633
03:27:28,461 --> 03:27:26,311
with your own eyes Randy let me go back

4634
03:27:31,310 --> 03:27:28,471
to you for one second to follow up on

4635
03:27:32,991 --> 03:27:31,320
what Paolo just touched upon it must

4636
03:27:35,180 --> 03:27:33,001
have been a photo feeding frenzy on

4637
03:27:37,401 --> 03:27:35,190
board during those first two passes you

4638
03:27:40,151 --> 03:27:37,411

all have one more pass to go coming up

4639

03:27:42,651 --> 03:27:40,161

shortly give us a sense of that

4640

03:27:44,841 --> 03:27:42,661

choreography that your crewmates have

4641

03:27:46,551 --> 03:27:44,851

explained on board and it was at

4642

03:27:51,651 --> 03:27:46,561

everybody elbowing each other away from

4643

03:27:53,961 --> 03:27:51,661

the windows or how did it all work now

4644

03:27:55,571 --> 03:27:53,971

certainly everyone has their their

4645

03:27:57,711 --> 03:27:55,581

favorite things that they wanted to do

4646

03:27:58,821 --> 03:27:57,721

but we had to divide up the task because

4647

03:28:00,770 --> 03:27:58,831

we couldn't have everybody doing the

4648

03:28:02,270 --> 03:28:00,780

same thing and so we even you know took

4649

03:28:03,621 --> 03:28:02,280

the still shots and said okay we're

4650

03:28:06,350 --> 03:28:03,631

gonna shoot this particular type and

4651
03:28:07,520 --> 03:28:06,360
this particular speed from you know this

4652
03:28:08,810 --> 03:28:07,530
particular person so we're gonna vary it

4653
03:28:10,911 --> 03:28:08,820
from over here to ensure that we were

4654
03:28:13,310 --> 03:28:10,921
able to capture the images as best we

4655
03:28:14,930 --> 03:28:13,320
could to share it with you all cupola

4656
03:28:16,461 --> 03:28:14,940
was a little crowded because we had some

4657
03:28:18,350 --> 03:28:16,471
punch of cameras a bunch of people and

4658
03:28:21,020 --> 03:28:18,360
the big thing was to try and not bump

4659
03:28:23,901 --> 03:28:21,030
the video cameras sorry for the one when

4660
03:28:25,161 --> 03:28:23,911
you saw but you know when you see all

4661
03:28:26,421 --> 03:28:25,171
the video in the pictures it's not any

4662
03:28:28,251 --> 03:28:26,431
one person that took home it's the

4663
03:28:30,230 --> 03:28:28,261

expedition 52 crew to include our

4664

03:28:31,371 --> 03:28:30,240

Russian crewmates and so that's that's

4665

03:28:33,411 --> 03:28:31,381

where the credit goes because everybody

4666

03:28:35,451 --> 03:28:33,421

did their part not you know doing what

4667

03:28:37,219 --> 03:28:35,461

they wanted to do which is a definition

4668

03:28:40,920 --> 03:28:37,229

of teamwork and that's why we're here

4669

03:28:42,780 --> 03:28:40,930

and Peggy finally for you you're less

4670

03:28:44,520 --> 03:28:42,790

than two weeks away from returning to

4671

03:28:46,920 --> 03:28:44,530

earth after almost ten months on the

4672

03:28:49,139 --> 03:28:46,930

station having logged more days in space

4673

03:28:52,020 --> 03:28:49,149

than any American astronaut in history

4674

03:28:53,639 --> 03:28:52,030

how did this show today compared with

4675

03:28:56,400 --> 03:28:53,649

some of the other major milestones

4676
03:29:01,860 --> 03:28:56,410
you've witnessed and experienced during

4677
03:29:04,469 --> 03:29:01,870
your three long-duration missions well I

4678
03:29:06,270 --> 03:29:04,479
think that having the privilege of being

4679
03:29:08,010 --> 03:29:06,280
on three different long-duration

4680
03:29:11,040 --> 03:29:08,020
missions has given me a lot of

4681
03:29:14,969 --> 03:29:11,050
interesting experiences and this is just

4682
03:29:18,000 --> 03:29:14,979
another one to put in the history books

4683
03:29:20,610 --> 03:29:18,010
for my my memory I really enjoyed seeing

4684
03:29:23,730 --> 03:29:20,620
this and I think maybe a little more

4685
03:29:25,590 --> 03:29:23,740
than I expected to and so it's just

4686
03:29:28,050 --> 03:29:25,600
another little piece another memory

4687
03:29:32,010 --> 03:29:28,060
another very special event another very

4688
03:29:36,420 --> 03:29:32,020

special day of this fantastic experience

4689

03:29:38,040 --> 03:29:36,430

of being in space and down at Charleston

4690

03:29:40,050 --> 03:29:38,050

South Carolina an old friend and

4691

03:29:48,100 --> 03:29:40,060

colleague of yours Mike Massimino is

4692

03:29:53,741 --> 03:29:51,161

hey Peggy comrade to fish Paulo it's

4693

03:29:55,871 --> 03:29:53,751

nice down here in Charleston I got to be

4694

03:29:58,271 --> 03:29:55,881

in the path of totality below all of you

4695

03:30:00,401 --> 03:29:58,281

today and it was pretty awesome here and

4696

03:30:02,470 --> 03:30:00,411

it made me think of some of the really

4697

03:30:04,631 --> 03:30:02,480

cool things we see of this time you know

4698

03:30:08,261 --> 03:30:04,641

the timing the the cosmic dance of the

4699

03:30:10,600 --> 03:30:08,271

universe that we see and for each of you

4700

03:30:12,100 --> 03:30:10,610

did you describe something that you've

4701
03:30:14,261 --> 03:30:12,110
seen have you been up there more than

4702
03:30:15,821 --> 03:30:14,271
anyone any other American and all of you

4703
03:30:17,621 --> 03:30:15,831
think that you've seen that even if

4704
03:30:19,421 --> 03:30:17,631
they're more than any pairs to this that

4705
03:30:31,790 --> 03:30:19,431
you only see from space that we can't

4706
03:30:36,870 --> 03:30:34,710
well I mean I just feel like the whole

4707
03:30:41,011 --> 03:30:36,880
experience of being here of living here

4708
03:30:44,190 --> 03:30:41,021
is on a daily basis very special there's

4709
03:30:47,640 --> 03:30:44,200
just very special parts of each and

4710
03:30:50,100 --> 03:30:47,650
every day I do think this one is very

4711
03:30:55,070 --> 03:30:50,110
nice we've seen some incredible Aurora's

4712
03:30:57,421 --> 03:30:55,080
lately I've really enjoyed seeing

4713
03:30:58,980 --> 03:30:57,431

scientific research getting completed

4714

03:31:01,290 --> 03:30:58,990

some really cool research getting

4715

03:31:05,220 --> 03:31:01,300

completed and of course you can't beat

4716

03:31:08,250 --> 03:31:05,230

the view during a spacewalk but it's

4717

03:31:13,460 --> 03:31:08,260

it's just a piece of this huge puzzle of

4718

03:31:18,570 --> 03:31:16,200

Acura Mission Control for all of you an

4719

03:31:19,980 --> 03:31:18,580

amazing day and an amazing opportunity

4720

03:31:22,710 --> 03:31:19,990

to share a few minutes with the

4721

03:31:24,990 --> 03:31:22,720

expedition 52 crew I'd like to thank

4722

03:31:27,030 --> 03:31:25,000

Peggy Whitson Randy Bresnik Jack Fisher

4723

03:31:30,030 --> 03:31:27,040

and paolo nespoli for their time today

4724

03:31:32,190 --> 03:31:30,040

and for you Peggy and Jack and your crew

4725

03:31:34,200 --> 03:31:32,200

mate for your your chicken soft landing

4726
03:31:37,500 --> 03:31:34,210
in your soyuz on September 3rd and you

4727
03:31:39,301 --> 03:31:37,510
all be well and fly safe and with that

4728
03:31:41,070 --> 03:31:39,311
Duane will toss it back to you at

4729
03:31:45,900 --> 03:31:41,080
Eclipse central in Charleston South

4730
03:31:47,220 --> 03:31:45,910
Carolina thanks Rob Mike thank you

4731
03:31:48,570 --> 03:31:47,230
it's always good to see you thank you

4732
03:31:55,680 --> 03:31:48,580
let me it's good to be a part of the

4733
03:31:58,500 --> 03:31:55,690
NASA team so Mike we got to give in so

4734
03:32:01,591 --> 03:31:58,510
um you were here this isn't your first

4735
03:32:04,230 --> 03:32:01,601
Eclipse here I had my first one yeah and

4736
03:32:05,580 --> 03:32:04,240
didn't never saw one in space and never

4737
03:32:07,770 --> 03:32:05,590
saw one on the ground so this is my

4738
03:32:10,381 --> 03:32:07,780

first one on in space or on the ground

4739

03:32:11,940 --> 03:32:10,391

what's today ok I know you've been asked

4740

03:32:13,560 --> 03:32:11,950

the same question but just how did you

4741

03:32:15,150 --> 03:32:13,570

feel I mean you tell that you know it's

4742

03:32:16,770 --> 03:32:15,160

amazing it was a really cool you got a

4743

03:32:18,600 --> 03:32:16,780

lot of people excited you know this is

4744

03:32:20,671 --> 03:32:18,610

one of the bigger events may be the

4745

03:32:22,410 --> 03:32:20,681

biggest event we've had for a while

4746

03:32:23,220 --> 03:32:22,420

anyway and something everyone can get

4747

03:32:25,320 --> 03:32:23,230

excited about

4748

03:32:27,000 --> 03:32:25,330

lots of people flock to the path of

4749

03:32:29,100 --> 03:32:27,010

totality and as close as they could get

4750

03:32:30,421 --> 03:32:29,110

and and I just felt there was a lot of a

4751
03:32:32,220 --> 03:32:30,431
lot of excitement about it which was

4752
03:32:35,370 --> 03:32:32,230
great I wish the weather was a little

4753
03:32:38,940 --> 03:32:35,380
bit better here though yeah we had over

4754
03:32:40,830 --> 03:32:38,950
got some clouds in the way but even with

4755
03:32:42,421 --> 03:32:40,840
that it got it got dark it got cooler

4756
03:32:43,251 --> 03:32:42,431
you know when you see things in space

4757
03:32:45,530 --> 03:32:43,261
you don't hear any

4758
03:32:47,390 --> 03:32:45,540
and you're in your either your spacesuit

4759
03:32:49,581 --> 03:32:47,400
you can feel the warmth of the Sun

4760
03:32:50,871 --> 03:32:49,591
coming or the cool of the darkness as

4761
03:32:53,331 --> 03:32:50,881
you're going around the planet and you

4762
03:32:55,280 --> 03:32:53,341
can see the know the Terminator between

4763
03:32:57,110 --> 03:32:55,290

night and day and so on these reminders

4764

03:32:58,430 --> 03:32:57,120

of what we're what would what we're

4765

03:33:00,621 --> 03:32:58,440

about what our planet is about where

4766

03:33:01,940 --> 03:33:00,631

we're actually for all space voyages you

4767

03:33:04,121 --> 03:33:01,950

know here I was able to feel the

4768

03:33:07,041 --> 03:33:04,131

coolness right and it got really dark

4769

03:33:08,511 --> 03:33:07,051

and but was a lot of edits sound from

4770

03:33:10,041 --> 03:33:08,521

all the cheers of the students here at

4771

03:33:13,371 --> 03:33:10,051

the College of Charleston so that was

4772

03:33:14,631 --> 03:33:13,381

kind of fun too so good to be able to

4773

03:33:16,131 --> 03:33:14,641

share with all these I guess the

4774

03:33:17,451 --> 03:33:16,141

semester hasn't started here yet

4775

03:33:19,100 --> 03:33:17,461

because they should be studying pretty

4776
03:33:20,211 --> 03:33:19,110
soon yeah but they're so they're easing

4777
03:33:25,270 --> 03:33:20,221
into that so this is a nice way to

4778
03:33:31,461 --> 03:33:29,841
thank you let me off I appreciate hey so

4779
03:33:32,751 --> 03:33:31,471
we're gonna throw it back to Karen can

4780
03:33:35,990 --> 03:33:32,761
you get some more folks on the yard

4781
03:33:37,881 --> 03:33:36,000
there yes I do I've got John hakka who

4782
03:33:40,251 --> 03:33:37,891
is a professor of physics and astronomy

4783
03:33:42,921 --> 03:33:40,261
at the College of Charleston hello John

4784
03:33:45,411 --> 03:33:42,931
hi nice to see you tell me is this your

4785
03:33:49,640 --> 03:33:45,421
first Eclipse this is my third totality

4786
03:33:51,501 --> 03:33:49,650
I saw one in 1972 in the gaspé Peninsula

4787
03:33:54,440 --> 03:33:51,511
in Canada and one off the coast of

4788
03:33:55,970 --> 03:33:54,450

Africa in 1973 have you ever done any

4789

03:33:59,121 --> 03:33:55,980

science during an eclipse are you mostly

4790

03:34:01,131 --> 03:33:59,131

in eclipse watcher I'm mostly an eclipse

4791

03:34:02,511 --> 03:34:01,141

watcher I was relatively young but those

4792

03:34:05,091 --> 03:34:02,521

two eclipses were what got me into

4793

03:34:07,671 --> 03:34:05,101

astronomy fantastic tell me a little bit

4794

03:34:10,011 --> 03:34:07,681

about what you did to prepare today for

4795

03:34:12,801 --> 03:34:10,021

this Eclipse with the students well we

4796

03:34:13,970 --> 03:34:12,811

had tremendous support from the faculty

4797

03:34:16,220 --> 03:34:13,980

and staff at the College of Charleston

4798

03:34:18,110 --> 03:34:16,230

who put together an event around the

4799

03:34:20,720 --> 03:34:18,120

Eclipse and tied it in with our

4800

03:34:24,320 --> 03:34:20,730

convocation so this morning we had a

4801
03:34:25,371 --> 03:34:24,330
convocation event where we introduced

4802
03:34:27,110 --> 03:34:25,381
the students and they're starting

4803
03:34:28,881 --> 03:34:27,120
they're kicking off their four years in

4804
03:34:30,890 --> 03:34:28,891
college with the Eclipse it's probably

4805
03:34:33,110 --> 03:34:30,900
one of the best ways to I mean if

4806
03:34:35,930 --> 03:34:33,120
there's if there's ever a sign of things

4807
03:34:37,310 --> 03:34:35,940
to come this is probably it and I saw

4808
03:34:39,890 --> 03:34:37,320
you out there with some telescopes today

4809
03:34:42,110 --> 03:34:39,900
were people looking through them we

4810
03:34:43,551 --> 03:34:42,120
tried to set those up I'm not sure how

4811
03:34:46,371 --> 03:34:43,561
successful they were because of the

4812
03:34:49,131 --> 03:34:46,381
cloud cover but we were able to use some

4813
03:34:51,081 --> 03:34:49,141

indirect pinhole methods and I walked

4814

03:34:53,810 --> 03:34:51,091

around one of these devices to students

4815

03:34:55,430 --> 03:34:53,820

around the around the yard here and they

4816

03:34:56,580 --> 03:34:55,440

seemed to enjoy it quite a bit it's it's

4817

03:34:59,330 --> 03:34:56,590

nice when you hear them say

4818

03:35:01,349 --> 03:34:59,340

cool can I take a picture you know it's

4819

03:35:03,660 --> 03:35:01,359

life has changed can we do a tweet of

4820

03:35:04,980 --> 03:35:03,670

you and your and your telescope tell me

4821

03:35:06,630 --> 03:35:04,990

a little more about that with your

4822

03:35:07,650 --> 03:35:06,640

students so were there any of your older

4823

03:35:09,090 --> 03:35:07,660

students so you knew we're out here

4824

03:35:11,340 --> 03:35:09,100

today who you knew we're excited and

4825

03:35:14,580 --> 03:35:11,350

what was their experience like so most

4826
03:35:16,380 --> 03:35:14,590
of our advanced students were working

4827
03:35:17,969 --> 03:35:16,390
with faculty members from the department

4828
03:35:20,429 --> 03:35:17,979
and they went to different sites and

4829
03:35:23,340 --> 03:35:20,439
locations around the city and the county

4830
03:35:26,219 --> 03:35:23,350
so they were covering city parks state

4831
03:35:28,650 --> 03:35:26,229
parks pretty much anywhere that they

4832
03:35:32,460 --> 03:35:28,660
could get a location I think we had 16

4833
03:35:34,139 --> 03:35:32,470
different sites so we distributed

4834
03:35:36,090 --> 03:35:34,149
approach and in fact I'm here almost

4835
03:35:38,849 --> 03:35:36,100
died by default because everyone else

4836
03:35:40,679 --> 03:35:38,859
had chosen a place to go and when the

4837
03:35:42,929 --> 03:35:40,689
college decided to make a big deal about

4838
03:35:45,210 --> 03:35:42,939

it I thought okay well I guess I can I

4839

03:35:47,250 --> 03:35:45,220

can suffer and be a good sport and just

4840

03:35:51,360 --> 03:35:47,260

to show you what being a good sport

4841

03:35:52,260 --> 03:35:51,370

means I had to wear this hat you look

4842

03:35:57,300 --> 03:35:52,270

fantastic

4843

03:35:58,800 --> 03:35:57,310

no it's great so tell me what was the

4844

03:36:01,950 --> 03:35:58,810

craziest question you got that somebody

4845

03:36:03,540 --> 03:36:01,960

asked you about the Eclipse so I

4846

03:36:05,370 --> 03:36:03,550

wouldn't say that it's the craziest

4847

03:36:07,050 --> 03:36:05,380

thing that I got asked but I know that a

4848

03:36:10,980 --> 03:36:07,060

few of the staff folks were telling me

4849

03:36:14,340 --> 03:36:10,990

because this coincided with the move-in

4850

03:36:17,849 --> 03:36:14,350

day apparently we had some parents who

4851

03:36:19,920 --> 03:36:17,859

were frustrated with the fact that they

4852

03:36:21,630 --> 03:36:19,930

were trying to move their kids in but

4853

03:36:23,849 --> 03:36:21,640

they had no hotels to stay in because

4854

03:36:25,950 --> 03:36:23,859

everything was packed and so they asked

4855

03:36:29,910 --> 03:36:25,960

some of the staff if they could move the

4856

03:36:31,349 --> 03:36:29,920

time of the Eclipse well it happened

4857

03:36:32,550 --> 03:36:31,359

whether or not we wanted it but I have

4858

03:36:34,679 --> 03:36:32,560

to agree it's been hard finding a place

4859

03:36:37,170 --> 03:36:34,689

to stay I'm sure that Charleston and the

4860

03:36:39,540 --> 03:36:37,180

College will be happy as things calm

4861

03:36:42,560 --> 03:36:39,550

down you get into your year tell me just

4862

03:36:44,880 --> 03:36:42,570

a little bit more do you have plans for

4863

03:36:46,260 --> 03:36:44,890

taking this Eclipse into the classroom

4864

03:36:48,810 --> 03:36:46,270

I'm curious about whether you think this

4865

03:36:50,360 --> 03:36:48,820

will Kindle excitement for people maybe

4866

03:36:54,870 --> 03:36:50,370

get a few new science students

4867

03:36:56,700 --> 03:36:54,880

absolutely I mean I think this is there

4868

03:36:58,980 --> 03:36:56,710

are very few opportunities that we have

4869

03:37:01,560 --> 03:36:58,990

where science comes to the public like

4870

03:37:04,230 --> 03:37:01,570

this event and I think NASA has done a

4871

03:37:06,660 --> 03:37:04,240

tremendous job of advertising this

4872

03:37:18,160 --> 03:37:06,670

across the country but as far as as far

4873

03:37:51,260 --> 03:37:36,951

you

4874

03:37:51,270 --> 03:37:53,940

everyone's

4875

03:38:06,580 --> 03:37:55,469

which

4876

03:38:10,460 --> 03:38:09,890

actually we don't you on a regular basis

4877

03:38:15,020 --> 03:38:10,470

to your research

4878

03:38:20,060 --> 03:38:15,030

I study cosmic gamma ray bursts and I've

4879

03:38:21,830 --> 03:38:20,070

worked with data from the Compton

4880

03:38:23,960 --> 03:38:21,840

Observatory the Batsy satellite it was a

4881

03:38:25,790 --> 03:38:23,970

team member on Batsy and then I've

4882

03:38:27,650 --> 03:38:25,800

worked with Swift data have a number of

4883

03:38:28,850 --> 03:38:27,660

collaborations going with that and with

4884

03:38:31,190 --> 03:38:28,860

Fermi data and I have a number of

4885

03:38:33,380 --> 03:38:31,200

collaborations going with that fantastic

4886

03:38:35,320 --> 03:38:33,390

it's been great talking to you and we're

4887

03:38:38,000 --> 03:38:35,330

gonna go back to Dwane Brown thank you

4888

03:38:40,130 --> 03:38:38,010

thanks Karen John I bet you are the Hat

4889

03:38:43,790 --> 03:38:40,140

the professor had on I was probably

4890

03:38:45,680 --> 03:38:43,800

gonna be on social media laughs from

4891

03:38:47,710 --> 03:38:45,690

coast to coast we've tracked the solar

4892

03:38:49,820 --> 03:38:47,720

eclipse over the past three hours

4893

03:38:51,920 --> 03:38:49,830

thousands of people along the path of

4894

03:38:54,680 --> 03:38:51,930

totality have witnessed a total solar

4895

03:38:57,230 --> 03:38:54,690

eclipse in person a breathtaking moment

4896

03:39:00,080 --> 03:38:57,240

when day turns and tonight and then back

4897

03:39:02,570 --> 03:39:00,090

again and today we brought you the most

4898

03:39:04,761 --> 03:39:02,580

spectacular images so that the millions

4899

03:39:07,520 --> 03:39:04,771

of you watching from home could also

4900

03:39:10,460 --> 03:39:07,530

witness these awe-inspiring moments

4901
03:39:12,470 --> 03:39:10,470
through the eyes of NASA I can't wait to

4902
03:39:15,350 --> 03:39:12,480
see what observations from today will

4903
03:39:17,150 --> 03:39:15,360
yield as scientists continue to analyze

4904
03:39:18,620 --> 03:39:17,160
the images we will continue to learn

4905
03:39:22,580 --> 03:39:18,630
more about today's eclipses

4906
03:39:23,740 --> 03:39:22,590
about the Sun and about how it affects

4907
03:39:29,570 --> 03:39:23,750
our daily lives

4908
03:39:31,761 --> 03:39:29,580
yadi your feelings your thoughts this

4909
03:39:34,040 --> 03:39:31,771
has been an amazing experience and you

4910
03:39:36,591 --> 03:39:34,050
know the clouds didn't let us see the

4911
03:39:39,140 --> 03:39:36,601
the the solar corona but it has been an

4912
03:39:41,030 --> 03:39:39,150
amazing experience and we got all the

4913
03:39:43,341 --> 03:39:41,040

experience that you know the darkness

4914

03:39:45,440 --> 03:39:43,351

that cold and you know the cool area of

4915

03:39:47,390 --> 03:39:45,450

the temperature is amazing and you know

4916

03:39:50,000 --> 03:39:47,400

it's not over yet the next total solar

4917

03:39:53,140 --> 03:39:50,010

eclipse will be in Argentina it prossimo

4918

03:39:58,790 --> 03:39:53,150

at least a total solid Tehran ahem Tina

4919

03:40:01,460 --> 03:39:58,800

and don't mean the attenuator Alex your

4920

03:40:05,180 --> 03:40:01,470

thoughts well this was amazing I mean

4921

03:40:06,920 --> 03:40:05,190

you know as Jerry said I've too bad that

4922

03:40:08,810 --> 03:40:06,930

we didn't get more didn't get to the

4923

03:40:12,591 --> 03:40:08,820

corona but this whole experience Carrie

4924

03:40:14,600 --> 03:40:12,601

it was it was it was immersive

4925

03:40:17,150 --> 03:40:14,610

experience getting to feel everything

4926
03:40:19,670 --> 03:40:17,160
around me getting to feel the excitement

4927
03:40:22,610 --> 03:40:19,680
you know being able to work with you all

4928
03:40:25,400 --> 03:40:22,620
to share this with millions of people

4929
03:40:28,100 --> 03:40:25,410
that is really what I live for is

4930
03:40:30,650 --> 03:40:28,110
getting to share the beauty the wonder

4931
03:40:32,870 --> 03:40:30,660
of nature with everyone we possibly can

4932
03:40:35,660 --> 03:40:32,880
and to know that we have been able to

4933
03:40:38,930 --> 03:40:35,670
help millions of people both in the path

4934
03:40:41,631 --> 03:40:38,940
and outside the path share in this human

4935
03:40:43,761 --> 03:40:41,641
experience is really what I am glad to

4936
03:40:47,690 --> 03:40:43,771
go home and know at the end of the day

4937
03:40:50,660 --> 03:40:47,700
and I also know that I get to see

4938
03:40:52,580 --> 03:40:50,670

another one besides the one in Argentina

4939

03:40:56,801 --> 03:40:52,590

and Chile we're gonna have another one

4940

03:41:00,160 --> 03:40:56,811

in this country 2024 it's gonna go from

4941

03:41:02,780 --> 03:41:00,170

Mexico Texas into Ohio River Valley

4942

03:41:05,750 --> 03:41:02,790

upstate New York and New England and it

4943

03:41:08,030 --> 03:41:05,760

even crosses Carbondale and for those

4944

03:41:11,750 --> 03:41:08,040

that got to see the one there could go

4945

03:41:14,091 --> 03:41:11,760

and see another one in less than 375

4946

03:41:15,680 --> 03:41:14,101

years in single place don't wonder if

4947

03:41:19,250 --> 03:41:15,690

the hotels have already filled up I

4948

03:41:22,551 --> 03:41:19,260

suspect they have like they have John I

4949

03:41:24,530 --> 03:41:22,561

got to come to you I know the

4950

03:41:27,440 --> 03:41:24,540

conversation and everything the images

4951
03:41:28,970 --> 03:41:27,450
your thoughts yeah I mean just from this

4952
03:41:30,830 --> 03:41:28,980
point point of view listening to all of

4953
03:41:32,660 --> 03:41:30,840
this and all the science was fantastic I

4954
03:41:35,240 --> 03:41:32,670
think that one of the things that really

4955
03:41:38,120 --> 03:41:35,250
and was most interesting to me was the

4956
03:41:40,160 --> 03:41:38,130
fact that the volume of people like I

4957
03:41:41,690 --> 03:41:40,170
said the earlier this broke our records

4958
03:41:43,280 --> 03:41:41,700
for the most streaming event we've ever

4959
03:41:45,950 --> 03:41:43,290
had and NASA does some pretty amazing

4960
03:41:47,390 --> 03:41:45,960
things we fly human beings in space we

4961
03:41:49,430 --> 03:41:47,400
launch spacecraft we show images from

4962
03:41:50,511 --> 03:41:49,440
the Hubble Space Telescope we're doing

4963
03:41:52,341 --> 03:41:50,521

kinds of developmental work it's just

4964

03:41:54,020 --> 03:41:52,351

there's constantly awesome programming

4965

03:41:56,240 --> 03:41:54,030

from NASA out of this world so to speak

4966

03:41:58,131 --> 03:41:56,250

and so for this event to eclipse

4967

03:41:59,631 --> 03:41:58,141

unintended everything else we've done is

4968

03:42:01,341 --> 03:41:59,641

pretty pretty spectacular I actually

4969

03:42:02,900 --> 03:42:01,351

have a couple cool photos I would mine

4970

03:42:04,970 --> 03:42:02,910

show and go fast if we have a second

4971

03:42:06,761 --> 03:42:04,980

sure if you could pull those up this one

4972

03:42:11,180 --> 03:42:06,771

right here is from the space station

4973

03:42:13,400 --> 03:42:11,190

from Palo and that's Foley he tweet he

4974

03:42:15,410 --> 03:42:13,410

he posted this on his Twitter account

4975

03:42:17,240 --> 03:42:15,420

pretty pretty freakin cool I think this

4976

03:42:21,080 --> 03:42:17,250

you could see the darkness of the moon

4977

03:42:22,700 --> 03:42:21,090

shadow across across the planet and just

4978

03:42:25,670 --> 03:42:22,710

one more photo I want to show you show

4979

03:42:27,320 --> 03:42:25,680

you this is just a fun one of from New

4980

03:42:29,060 --> 03:42:27,330

York City Times Square you know this

4981

03:42:30,650 --> 03:42:29,070

broadcast was all over the country

4982

03:42:32,719 --> 03:42:30,660

I have people were texting

4983

03:42:35,240 --> 03:42:32,729

say hey I see you on TV I'm showing it

4984

03:42:37,370 --> 03:42:35,250

to my kids in their classroom and so it

4985

03:42:39,350 --> 03:42:37,380

wasn't just us wasn't is the people

4986

03:42:40,670 --> 03:42:39,360

viewing it online that the masses of

4987

03:42:42,469 --> 03:42:40,680

people but there was also classrooms

4988

03:42:43,850 --> 03:42:42,479

were broadcasting across the country so

4989

03:42:45,260 --> 03:42:43,860

hopefully we've reached a lot of kids

4990

03:42:46,820 --> 03:42:45,270

and inspired them about space

4991

03:42:50,210 --> 03:42:46,830

exploration that's what it's about

4992

03:42:53,150 --> 03:42:50,220

inspiring the next generation wow what a

4993

03:42:55,429 --> 03:42:53,160

day we truly want to thank the wonderful

4994

03:42:57,950 --> 03:42:55,439

city of Charleston and especially the

4995

03:43:00,500 --> 03:42:57,960

College of Charleston for hosting NASA

4996

03:43:02,300 --> 03:43:00,510

Eclipse central this program simply

4997

03:43:04,880 --> 03:43:02,310

could not have been done without the

4998

03:43:07,670 --> 03:43:04,890

invaluable work in coordination from our

4999

03:43:09,200 --> 03:43:07,680

NASA TV crew NASA centers science

5000

03:43:12,320 --> 03:43:09,210

organizations partners and stakeholders

5001
03:43:15,710 --> 03:43:12,330
and many more really too numerous to

5002
03:43:19,610 --> 03:43:15,720
name but you know who you are can thank

5003
03:43:21,260 --> 03:43:19,620
you and finally I want to thank you the

5004
03:43:22,850 --> 03:43:21,270
public the audience watching this

5005
03:43:24,920 --> 03:43:22,860
program across the nation

5006
03:43:26,780 --> 03:43:24,930
staying with us we brought it to you

5007
03:43:28,639 --> 03:43:26,790
thank you thank you for your support

5008
03:43:32,000 --> 03:43:28,649
your questions your pictures your

5009
03:43:35,530 --> 03:43:32,010
thoughts also helping bring the clips to

5010
03:43:42,320 --> 03:43:35,540
the nation and of course daddy

5011
03:43:47,719 --> 03:43:42,330
Alex John Sean Karen what a day an

5012
03:43:55,040 --> 03:43:47,729
amazing day and 2024 oh my god we're

5013
03:43:56,840 --> 03:43:55,050

gonna be you guys in 2034 thank you for

5014

03:43:59,719 --> 03:43:56,850

watching NASA TV where through the eyes

5015

03:44:02,870 --> 03:43:59,729

of NASA you've experienced eclipse 2017

5016

03:44:05,690 --> 03:44:02,880

please go to the NASA websites the story

5017

03:44:08,000 --> 03:44:05,700

does not end here the story does not end

5018

03:44:10,040 --> 03:44:08,010

here many more images and science data

5019

03:44:12,590 --> 03:44:10,050

will be coming out over the next several

5020

03:44:14,900 --> 03:44:12,600

days they will be awesome too

5021

03:44:17,030 --> 03:44:14,910

so stay tuned and visit our website and

5022

03:44:19,780 --> 03:44:17,040

social media accounts hanging out with

5023

03:44:22,040 --> 03:44:19,790

John I'm Dwane Brown for the team here