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María José Viñas



Dr. Santiago de la Peña



Dr. Antonio Viudez

1
00:00:04,940 --> 00:00:02,379
In ocean ecology of the center where

2
00:00:08,780 --> 00:00:04,950
NASA is located, we also have

3
00:00:10,490 --> 00:00:08,790
Antonio Viudez, who is an atmospheric physicist

4
00:00:12,560 --> 00:00:10,500
at NASA's Langley Research Center,

5
00:00:13,930 --> 00:00:12,570
and finally, we also have

6
00:00:16,939 --> 00:00:13,940
Santiago

7
00:00:19,279 --> 00:00:16,949
de la Peña, who is empty, then at the

8
00:00:22,370 --> 00:00:19,289
BRIC Polar Center of the

9
00:00:24,620 --> 00:00:22,380
State University of Ohio and accompanying us we also

10
00:00:27,019 --> 00:00:24,630
have angela posada to her lucky

11
00:00:28,250 --> 00:00:27,029
scientific writing which is that she is a

12
00:00:30,859 --> 00:00:28,260
correspondent for the very

13
00:00:32,479 --> 00:00:30,869

interesting magazine in the usa and author of the series

14

00:00:34,910 --> 00:00:32,489
of children's books 20 viruses of

15

00:00:36,500 --> 00:00:34,920
science if it seems good to you we will start by

16

00:00:38,060 --> 00:00:36,510
asking our participants

17

00:00:39,619 --> 00:00:38,070
what they are the main differences

18

00:00:42,740 --> 00:00:39,629
that we have seen between this new

19

00:00:44,270 --> 00:00:42,750
crisis nurse and the

20

00:00:46,729 --> 00:00:44,280
intergovernmental panel on climate change

21

00:00:49,130 --> 00:00:46,739
that has been published today and the previous

22

00:00:50,750 --> 00:00:49,140
doctor of the castle which would you say

23

00:00:52,220 --> 00:00:50,760
are the first and main

24

00:00:54,319 --> 00:00:52,230
differences thank you

25

00:00:57,069 --> 00:00:54,329
very much we will make the main

26
00:00:59,560 --> 00:00:57,079
difference that we have seen is that

27
00:01:01,899 --> 00:00:59,570
the certainty that

28
00:01:03,759 --> 00:01:01,909
humans were causing the

29
00:01:06,550 --> 00:01:03,769
warming of planet earth has

30
00:01:09,010 --> 00:01:06,560
increased the models have improved a lot since the

31
00:01:11,020 --> 00:01:09,020
previous report and we also have a

32
00:01:13,960 --> 00:01:11,030
greater amount of data available to

33
00:01:17,410 --> 00:01:13,970
be able to evaluate this problem with more certainty

34
00:01:21,550 --> 00:01:18,910
we have a question from the public

35
00:01:22,810 --> 00:01:21,560
related that comes from iván reyes from

36
00:01:25,870 --> 00:01:22,820
colombia

37
00:01:27,280 --> 00:01:25,880
from google+ what a real question and

38
00:01:28,600 --> 00:01:27,290

honestly it can be said that there is a

39

00:01:30,429 --> 00:01:28,610

worldwide consensus among scientists

40

00:01:33,230 --> 00:01:30,439

regarding man's guilt in

41

00:01:38,710 --> 00:01:33,240

global warming

42

00:01:46,780 --> 00:01:42,550

and evidently with all the data that

43

00:01:47,840 --> 00:01:46,790

is available from earlier times and with

44

00:01:50,210 --> 00:01:47,850

it

45

00:01:52,700 --> 00:01:50,220

and the improvement of the technology that is

46

00:01:55,969 --> 00:01:52,710

available when it comes to developing

47

00:01:58,880 --> 00:01:55,979

all the numerical models and processing

48

00:02:01,520 --> 00:01:58,890

that data, it is showing that

49

00:02:04,100 --> 00:02:01,530

this change exists, especially in certain

50

00:02:06,830 --> 00:02:04,110

regions in which this change is more

51
00:02:11,830 --> 00:02:06,840
evident compared to times

52
00:02:17,020 --> 00:02:15,550
very well, we're going at a fairly high pace.

53
00:02:18,809 --> 00:02:17,030
We have another question from Aitor Sierra

54
00:02:21,490 --> 00:02:18,819
that also comes to us from Coco Class. I asked

55
00:02:21,490 --> 00:02:22,960
my question. It's very clear.

56
00:02:38,949 --> 00:02:27,160
something

57
00:02:38,959 --> 00:02:43,790
to answer this question

58
00:02:50,100 --> 00:02:47,640
well I think that indeed the big

59
00:02:53,180 --> 00:02:50,110
problem with climate change is that it

60
00:02:56,340 --> 00:02:53,190
takes place on geological time scales

61
00:02:57,810 --> 00:02:56,350
therefore it is difficult to

62
00:03:00,330 --> 00:02:57,820
differentiate what it is

63
00:03:03,950 --> 00:03:00,340

climate change with what are simple

64

00:03:07,910 --> 00:03:03,960

variations in the

65

00:03:10,160 --> 00:03:07,920

meteorological cycles, then I would say that if you

66

00:03:17,839 --> 00:03:14,839

were all born before 1990, it is possible

67

00:03:18,410 --> 00:03:17,849

that the affections you see may feel

68

00:03:20,930 --> 00:03:18,420

less,

69

00:03:25,430 --> 00:03:20,940

however, your children achieve it and they will

70

00:03:28,120 --> 00:03:25,440

see it in the temperatures in the droughts

71

00:03:30,310 --> 00:03:28,130

in the rains

72

00:03:32,260 --> 00:03:30,320

in the sea level that is

73

00:03:37,710 --> 00:03:32,270

increasing

74

00:03:42,990 --> 00:03:40,830

yes I can abound and remember that

75

00:03:45,930 --> 00:03:43,000

human civilization developed in the

76

00:03:49,580 --> 00:03:45,940

last 10,000 years under

77

00:03:51,710 --> 00:03:49,590

climatic conditions that were very stable

78

00:03:52,640 --> 00:03:51,720

and beneficial for the development of humanity there is

79

00:03:58,039 --> 00:03:56,539

also historical evidence for

80

00:04:01,179 --> 00:03:58,049

various civilizations that when there have

81

00:04:03,530 --> 00:04:01,189

been severe climate changes in

82

00:04:05,630 --> 00:04:03,540

small regions these civilizations

83

00:04:07,370 --> 00:04:05,640

have suffered many

84

00:04:08,750 --> 00:04:07,380

and that is one of the concerns

85

00:04:10,990 --> 00:04:08,760

we have

86

00:04:13,759 --> 00:04:11,000

the models were predicting

87

00:04:15,649 --> 00:04:13,769

changes that will affect the

88

00:04:18,229 --> 00:04:15,659

living conditions of many people

89

00:04:21,009 --> 00:04:18,239

particularly those who live near

90

00:04:23,350 --> 00:04:21,019

the coasts

91

00:04:25,300 --> 00:04:23,360

we are talking about future effects of

92

00:04:26,619 --> 00:04:25,310

climate change but there are already enough

93

00:04:29,200 --> 00:04:26,629

effects that can be observed for

94

00:04:32,680 --> 00:04:29,210

example one of the aspects that surprised me the most

95

00:04:34,210 --> 00:04:32,690

in the new report is the

96

00:04:35,920 --> 00:04:34,220

change that is being observed in the

97

00:04:37,869 --> 00:04:35,930

polar regions They are talking about,

98

00:04:39,879 --> 00:04:37,879

for example, in Greenland there is

99

00:04:41,830 --> 00:04:39,889

a loss of ice that is six times

100

00:04:43,960 --> 00:04:41,840

greater than what was expected in

101
00:04:45,550 --> 00:04:43,970
the 90s and for Antarctica the same as

102
00:04:47,649 --> 00:04:45,560
four times greater.

103
00:04:49,510 --> 00:04:47,659
Santiago, could you explain a little

104
00:04:52,940 --> 00:04:49,520
how it will impact us? we see

105
00:05:02,820 --> 00:04:58,620
and well basically it is the reason

106
00:05:08,139 --> 00:05:06,100
and vulnerable to climate change it is

107
00:05:10,070 --> 00:05:08,149
good

108
00:05:13,309 --> 00:05:10,080
practically everything is made up of

109
00:05:15,169 --> 00:05:13,319
large masses of frozen water and in

110
00:05:17,209 --> 00:05:15,179
fact when walking they asked for aliases with the

111
00:05:22,100 --> 00:05:17,219
two reserves of largest fresh water

112
00:05:25,609 --> 00:05:22,110
on the planet and therefore when you have

113
00:05:27,739 --> 00:05:25,619

a small change in the climate

114

00:05:29,299 --> 00:05:27,749

the most evident effect it has since it

115

00:05:31,040 --> 00:05:29,309

is sky

116

00:05:35,209 --> 00:05:31,050

the waves can access or intel as you

117

00:05:38,899 --> 00:05:35,219

say it is increasing this the reason

118

00:05:43,050 --> 00:05:38,909

why it is increasing is this for a

119

00:05:50,379 --> 00:05:46,350

arctic amplification this is what

120

00:05:54,249 --> 00:05:50,389

happens is that two things happen one is

121

00:05:56,140 --> 00:05:54,259

that the natural cycle the poles is where

122

00:05:59,320 --> 00:05:56,150

you have an annual cycle where the

123

00:06:02,249 --> 00:05:59,330

polar caps are subjected to

124

00:06:05,040 --> 00:06:02,259

periods of melting time

125

00:06:07,460 --> 00:06:05,050

small periods of time

126

00:06:09,629 --> 00:06:07,470

and then in winter you have low

127

00:06:13,110 --> 00:06:09,639

temperatures that allow it to be

128

00:06:14,550 --> 00:06:13,120

but now what we are seeing

129

00:06:16,080 --> 00:06:14,560

now is that these periods

130

00:06:18,270 --> 00:06:16,090

of melting in summer are

131

00:06:20,129 --> 00:06:18,280

longer and more intense

132

00:06:23,460 --> 00:06:20,139

so the ice does not manage to

133

00:06:25,080 --> 00:06:23,470

recover in winter so what is

134

00:06:28,770 --> 00:06:25,090

seen with the arctic application is that

135

00:06:34,090 --> 00:06:28,780

by decreasing the area in

136

00:06:37,060 --> 00:06:34,100

which there is sea ice,

137

00:06:40,990 --> 00:06:37,070

then more solar radiation will be

138

00:06:43,840 --> 00:06:41,000

absorbed because water reflects much

139

00:06:48,550 --> 00:06:43,850

less radiation than ice,

140

00:06:51,460 --> 00:06:48,560

then it leads to a vicious circle

141

00:06:53,590 --> 00:06:51,470

where more radiation is absorbed from the

142

00:06:57,360 --> 00:06:53,600

ocean temperatures the oceans rise

143

00:07:01,390 --> 00:06:57,370

then less ice appears every

144

00:07:04,210 --> 00:07:01,400

spring in the m on the lauric mars

145

00:07:06,280 --> 00:07:04,220

on the other hand this

146

00:07:08,980 --> 00:07:06,290

characteristic electrical storms especially in

147

00:07:12,970 --> 00:07:08,990

the Ecuadorian zones the

148

00:07:14,890 --> 00:07:12,980

tropical zones this transfers energy from the

149

00:07:18,070 --> 00:07:14,900

surface heat energy

150

00:07:22,630 --> 00:07:18,080

allows us to higher zones an atmosphere

151
00:07:24,430 --> 00:07:22,640
and then that energy is transferred towards

152
00:07:27,730 --> 00:07:24,440
the poles to all the

153
00:07:30,130 --> 00:07:27,740
atmospheric currents this caused an even

154
00:07:32,380 --> 00:07:30,140
greater flow of energy from the poles and

155
00:07:34,750 --> 00:07:32,390
contributes to the onslaught of warming

156
00:07:36,640 --> 00:07:34,760
development from the equator line not

157
00:07:38,550 --> 00:07:36,650
be so expensive

158
00:07:42,879 --> 00:07:38,560
now what will be the consequences

159
00:07:45,100 --> 00:07:42,889
well this one also of what the lanes

160
00:07:48,189 --> 00:07:45,110
with consequences that it is going to have for the

161
00:07:49,510 --> 00:07:48,199
fascinating fauna and flora of the polar regions,

162
00:07:55,439 --> 00:07:53,379
what it is going to have, in this way,

163
00:07:57,950 --> 00:07:55,449

is openly logical, is an increase in the

164

00:08:01,400 --> 00:07:57,960

average sea level

165

00:08:05,110 --> 00:08:01,410

and changes in marine currents and

166

00:08:12,740 --> 00:08:10,999

a release of even more gas

167

00:08:16,279 --> 00:08:12,750

greenhouse gases particularly

168

00:08:18,529 --> 00:08:16,289

methane because methane exists in

169

00:08:22,240 --> 00:08:18,539

large quantities in places like

170

00:08:26,960 --> 00:08:22,250

siberia that are trapped in land

171

00:08:29,749 --> 00:08:26,970

composed mostly of soil in

172

00:08:33,649 --> 00:08:29,759

which it is saturated with water

173

00:08:36,170 --> 00:08:33,659

frozen water water that will be released upon thawing

174

00:08:39,860 --> 00:08:36,180

even more methane than this,

175

00:08:43,310 --> 00:08:39,870

as can be, there are many effects and we still do

176

00:08:47,630 --> 00:08:43,320

not fully understand how the earth in general will

177

00:08:47,630 --> 00:08:51,319

affect the weather system in the next place

178

00:08:56,989 --> 00:08:54,829

and I think that Santiago

179

00:09:00,410 --> 00:08:56,999

ends up talking about the earth in general and that is why

180

00:09:02,210 --> 00:09:00,420

I wanted to enter a little

181

00:09:03,590 --> 00:09:02,220

because the people who are listening and

182

00:09:05,960 --> 00:09:03,600

also the feet who think that

183

00:09:09,350 --> 00:09:05,970

really in the tropical countries of the

184

00:09:11,150 --> 00:09:09,360

world in Latin America' I know we think

185

00:09:13,280 --> 00:09:11,160

that we are very far from Antarctica

186

00:09:15,919 --> 00:09:13,290

we think that that continent there does

187

00:09:17,419 --> 00:09:15,929

not affect us much I I would like

188

00:09:18,979 --> 00:09:17,429

you guys to give people who are

189

00:09:22,030 --> 00:09:18,989

listening a sense of how

190

00:09:24,919 --> 00:09:22,040

polar melting could directly and

191

00:09:26,769 --> 00:09:24,929

specifically impact something like

192

00:09:30,049 --> 00:09:26,779

potato crops in the

193

00:09:32,419 --> 00:09:30,059

Bolivian altiplano or fisheries in the

194

00:09:34,819 --> 00:09:32,429

northern regions of Colombia, those kinds of things

195

00:09:36,319 --> 00:09:34,829

so that we appropriate that

196

00:09:38,869 --> 00:09:36,329

Antarctica in our countries is

197

00:09:40,819 --> 00:09:38,879

important that our countries'

198

00:09:43,009 --> 00:09:40,829

biodiversity is so great that it depends

199

00:09:49,950 --> 00:09:43,019

intimately to anticipate that you, as you

200

00:09:49,960 --> 00:09:55,440

any of you

201
00:10:00,240 --> 00:09:57,900
good with respect to that question I think you

202
00:10:02,220 --> 00:10:00,250
could say that everything is

203
00:10:05,010 --> 00:10:02,230
all quite connected In the

204
00:10:07,520 --> 00:10:05,020
climate system, there are different people here who

205
00:10:10,650 --> 00:10:07,530
work in different fields, geology,

206
00:10:12,930 --> 00:10:10,660
business, not graphics, and for example, I work

207
00:10:15,870 --> 00:10:12,940
in parts of clouds and atmosphere, and although there

208
00:10:19,100 --> 00:10:15,880
are different parts of the climate,

209
00:10:22,350 --> 00:10:19,110
everything is connected, we do not have any kind of

210
00:10:25,710 --> 00:10:22,360
borders between the entire system,

211
00:10:30,210 --> 00:10:25,720
so changes that occur all over

212
00:10:32,790 --> 00:10:30,220
the planet are related and can

213
00:10:37,650 --> 00:10:32,800

ultimately affect what can happen

214

00:10:37,650 --> 00:10:39,570

in the medium short and long term in terms of weather,

215

00:10:47,400 --> 00:10:43,090

sorry, climate,

216

00:10:56,470 --> 00:10:51,879

and that there is a thaw that influences it

217

00:11:00,100 --> 00:10:56,480

can be changed by

218

00:11:02,499 --> 00:11:00,110

sea currents, ocean salinity

219

00:11:04,720 --> 00:11:02,509

how temperatures are also redistributed

220

00:11:06,819 --> 00:11:04,730

on the surface also another

221

00:11:09,759 --> 00:11:06,829

thing that is discussed in the new panel is

222

00:11:12,670 --> 00:11:09,769

that the lime in the ocean is a

223

00:11:15,400 --> 00:11:12,680

very important part of the climate system

224

00:11:17,769 --> 00:11:15,410

that absorbs a large amount of

225

00:11:21,999 --> 00:11:17,779

greenhouse gases but we do not know to

226

00:11:25,360 --> 00:11:22,009

what extent It will eventually be able to absorb

227

00:11:27,939 --> 00:11:25,370

that ozone. We are also changing a large

228

00:11:31,989 --> 00:11:27,949

part of the earth's surface or

229

00:11:34,360 --> 00:11:31,999

forest areas, such as in the Amazon or in

230

00:11:37,989 --> 00:11:34,370

the tropical forests. We are changing

231

00:11:37,989 --> 00:11:41,049

the hydrological cycle.

232

00:11:51,820 --> 00:11:48,790

The system is very complex

233

00:11:53,620 --> 00:11:51,830

and the way it can react we are

234

00:11:56,380 --> 00:11:53,630

seeing that it has a response time

235

00:12:00,560 --> 00:11:56,390

but the effects can

236

00:12:06,290 --> 00:12:04,280

and if I can add

237

00:12:08,300 --> 00:12:06,300

a little more regional effects, we all know that

238

00:12:10,310 --> 00:12:08,310

different regions are affected more, such as

239

00:12:13,250 --> 00:12:10,320

the boy and one of the

240

00:12:16,730 --> 00:12:13,260

predictions that we have is that the

241

00:12:19,820 --> 00:12:16,740

intensity of the boy and girl are going to

242

00:12:22,550 --> 00:12:19,830

increase, for example in areas, let's say, in

243

00:12:25,100 --> 00:12:22,560

South America where it is raining more

244

00:12:27,620 --> 00:12:25,110

due to climate changes, because the

245

00:12:29,240 --> 00:12:27,630

rain will increase even more and in areas

246

00:12:32,210 --> 00:12:29,250

where it is raining less because there will

247

00:12:33,920 --> 00:12:32,220

be less rain and we know,

248

00:12:36,980 --> 00:12:33,930

for example, the terrible effects of El

249

00:12:39,710 --> 00:12:36,990

Niño on the fisheries in the

250

00:12:41,600 --> 00:12:39,720

Pacific and if we have more intense El Niños,

251
00:12:43,880 --> 00:12:41,610
then we know that the effects or

252
00:12:47,030 --> 00:12:43,890
the fisheries will be much

253
00:12:48,920 --> 00:12:47,040
greater if we go to have

254
00:12:51,680 --> 00:12:48,930
global effects but we are also going to have

255
00:12:53,540 --> 00:12:51,690
regional effects regional aspects in the

256
00:12:55,250 --> 00:12:53,550
long term are much more difficult to

257
00:12:58,190 --> 00:12:55,260
predict

258
00:13:00,140 --> 00:12:58,200
but we are so certain that

259
00:13:04,460 --> 00:13:00,150
the intensity of the effect such as the boy and

260
00:13:10,100 --> 00:13:08,810
ok regarding the survey of the

261
00:13:13,670 --> 00:13:10,110
sea level we have another question from the

262
00:13:16,490 --> 00:13:13,680
public by cecilia very coming from

263
00:13:17,870 --> 00:13:16,500

google+ and question can you explain what

264

00:13:24,390 --> 00:13:17,880

can happen on the ocean coasts

265

00:13:30,480 --> 00:13:27,390

have to first differentiate

266

00:13:32,760 --> 00:13:30,490

what is causing the rise

267

00:13:34,710 --> 00:13:32,770

in sea level ice that is in

268

00:13:36,300 --> 00:13:34,720

the north pole that is sea ice that

269

00:13:38,220 --> 00:13:36,310

is floating on the ocean because

270

00:13:40,650 --> 00:13:38,230

this ice melts that does not contribute

271

00:13:42,090 --> 00:13:40,660

to increasing the sea level

272

00:13:44,190 --> 00:13:42,100

now the ice that is on a

273

00:13:46,380 --> 00:13:44,200

continent such as the ice that

274

00:13:48,360 --> 00:13:46,390

is on greenland or the ice that there is

275

00:13:51,150 --> 00:13:48,370

on Antarctica when it no longer

276

00:13:53,280 --> 00:13:51,160

melts that ice towards the ocean and that if

277

00:13:57,090 --> 00:13:53,290

the sea level increases also

278

00:13:59,940 --> 00:13:57,100

when the water warms the water

279

00:14:01,490 --> 00:13:59,950

expands and that increases the sea level

280

00:14:03,990 --> 00:14:01,500

now what will be the effects

281

00:14:07,140 --> 00:14:04,000

obviously yes sea level rises

282

00:14:09,390 --> 00:14:07,150

coastal areas will be flooded the

283

00:14:12,000 --> 00:14:09,400

effects of storms such as

284

00:14:13,500 --> 00:14:12,010

bra Cannes are going to feel much more

285

00:14:16,140 --> 00:14:13,510

strongly

286

00:14:19,560 --> 00:14:16,150

what are the things we can do

287

00:14:21,410 --> 00:14:19,570

to mitigate this are a very

288

00:14:24,240 --> 00:14:21,420

very difficult question

289

00:14:27,030 --> 00:14:24,250

unfortunately the people who are going to

290

00:14:28,520 --> 00:14:27,040

be most affected particularly in

291

00:14:31,470 --> 00:14:28,530

countries that are developing they

292

00:14:33,750 --> 00:14:31,480

may not have the resources to

293

00:14:36,480 --> 00:14:33,760

mitigate this problem besides moving

294

00:14:38,519 --> 00:14:36,490

away from the coast there is not not

295

00:14:42,059 --> 00:14:38,529

much they can do

296

00:14:43,350 --> 00:14:42,069

in my personal opinion what we have to

297

00:14:44,710 --> 00:14:43,360

do is try to prevent this

298

00:14:46,809 --> 00:14:44,720

problem It

299

00:14:49,929 --> 00:14:46,819

seems to me that the report on the crisis and

300

00:14:54,150 --> 00:14:49,939

well, it has certain proposals that

301
00:14:59,100 --> 00:14:56,910
sense, do you have something else to add? Yes, and

302
00:15:02,730 --> 00:14:59,110
well, I think that the point that Carlos makes

303
00:15:04,639 --> 00:15:02,740
is very important.

304
00:15:08,309 --> 00:15:04,649
coastal,

305
00:15:11,759 --> 00:15:08,319
not from Latin America, well,

306
00:15:14,400 --> 00:15:11,769
just think of Brazil, Argentina,

307
00:15:17,879 --> 00:15:14,410
everything is greater for the population of Mexico, it

308
00:15:21,230 --> 00:15:17,889
is also Peruvian, not

309
00:15:26,040 --> 00:15:21,240
Mexico City, well, the whole country, but also

310
00:15:29,699 --> 00:15:26,050
something that is not clear is that when

311
00:15:31,199 --> 00:15:29,709
we talk about good, a meter in the increase

312
00:15:33,900 --> 00:15:31,209
in level

313
00:15:36,929 --> 00:15:33,910

A few millimeters a year sounds like a lot to us,

314

00:15:39,990 --> 00:15:36,939

it is not much and indeed it is not an

315

00:15:42,809 --> 00:15:40,000

average, but what one has to

316

00:15:45,119 --> 00:15:42,819

understand is that the force of the

317

00:15:48,210 --> 00:15:45,129

tidal waves, for example, when there is a

318

00:15:51,449 --> 00:15:48,220

coastal storm, increases

319

00:15:54,660 --> 00:15:51,459

exponentially with the sea level,

320

00:15:56,610 --> 00:15:54,670

so the floods that you can

321

00:15:59,639 --> 00:15:56,620

see for example what happened

322

00:16:03,340 --> 00:15:59,649

last year with the storms also

323

00:16:08,440 --> 00:16:03,350

the estimate since there was half a meter

324

00:16:10,710 --> 00:16:08,450

more of flooding of

325

00:16:13,650 --> 00:16:10,720

life

326

00:16:17,269 --> 00:16:13,660

a couple of millimeters in the rise in

327

00:16:18,929 --> 00:16:17,279

sea level this now it is very difficult to

328

00:16:21,210 --> 00:16:18,939

calculate

329

00:16:23,699 --> 00:16:21,220

precisely how much base especially

330

00:16:25,740 --> 00:16:23,709

Because well, you have uncertainty, for

331

00:16:29,309 --> 00:16:25,750

example, in the Amazon, in the Amazon,

332

00:16:32,129 --> 00:16:29,319

the annual cycle of the Amazon can

333

00:16:34,860 --> 00:16:32,139

be up to a millimeter difference in

334

00:16:38,189 --> 00:16:34,870

the sea and the closure of the

335

00:16:41,040 --> 00:16:38,199

polar zones, only Greenland has

336

00:16:44,280 --> 00:16:41,050

enough ice to increase the

337

00:16:47,429 --> 00:16:44,290

sea level by seven. meters

338

00:16:50,189 --> 00:16:47,439

Antarctica in total has 445 meters

339

00:16:52,730 --> 00:16:50,199

equivalent to sea level at this

340

00:16:59,990 --> 00:16:52,740

time the consequences could be

341

00:17:05,840 --> 00:17:02,350

wow I think now that we are talking about

342

00:17:09,049 --> 00:17:05,850

mitigation we are not at a point where it is

343

00:17:11,210 --> 00:17:09,059

worth more to think about that is to

344

00:17:13,639 --> 00:17:11,220

say rather see this It's how to

345

00:17:15,919 --> 00:17:13,649

stop a freight train. Yes, I

346

00:17:18,319 --> 00:17:15,929

understand that stopping this issue is very

347

00:17:19,759 --> 00:17:18,329

complicated, so if you have to talk about

348

00:17:23,509 --> 00:17:19,769

stopping it, you have to talk more than anything

349

00:17:26,360 --> 00:17:23,519

about mitigating it and mitigating it, from

350

00:17:28,820 --> 00:17:26,370

the easiest solutions like turning off

351

00:17:32,149 --> 00:17:28,830

the light bulb until you don't live. be calm

352

00:17:34,659 --> 00:17:32,159

even the most interesting and

353

00:17:38,060 --> 00:17:34,669

complicated solutions such as those of geoengineering

354

00:17:39,320 --> 00:17:38,070

put mirrors in space that reflect

355

00:17:42,739 --> 00:17:39,330

the sun's rays and what do you think

356

00:17:44,960 --> 00:17:42,749

about this type of mitigation

357

00:17:48,049 --> 00:17:44,970

of the future

358

00:17:50,060 --> 00:17:48,059

I am finding water and I work in the

359

00:17:52,000 --> 00:17:50,070

sea I have fun in the sea and I do not live

360

00:17:54,900 --> 00:17:52,010

at each sea

361

00:17:57,789 --> 00:17:54,910

because the effects of hurricanes are

362

00:17:59,710 --> 00:17:57,799

so terrible and

363

00:18:01,299 --> 00:17:59,720

with respect to what

364

00:18:03,820 --> 00:18:01,309

can be done in daily life,

365

00:18:05,070 --> 00:18:03,830

clearly there are things that you can

366

00:18:08,289 --> 00:18:05,080

do to us, such as using, for example,

367

00:18:10,060 --> 00:18:08,299

light bulbs that are more efficient when

368

00:18:12,759 --> 00:18:10,070

we are going to make the decision to buy a

369

00:18:14,979 --> 00:18:12,769

car fortunately now we have

370

00:18:17,289 --> 00:18:14,989

new options that are more efficient

371

00:18:21,340 --> 00:18:17,299

that pollute less the environment

372

00:18:23,740 --> 00:18:21,350

with respect to geoengineering I am a

373

00:18:25,510 --> 00:18:23,750

little more cautious

374

00:18:27,580 --> 00:18:25,520

remember that what we are doing

375

00:18:29,770 --> 00:18:27,590

now is in effect an experiment of

376

00:18:31,990 --> 00:18:29,780

geological scale we are putting

377

00:18:33,790 --> 00:18:32,000

huge amounts of carbon dioxide

378

00:18:36,430 --> 00:18:33,800

into the atmosphere and we are seeing that we

379

00:18:39,280 --> 00:18:36,440

are causing climate change

380

00:18:40,840 --> 00:18:39,290

as a consequence of that i am

381

00:18:43,600 --> 00:18:40,850

concerned about some of these

382

00:18:45,250 --> 00:18:43,610

bioengineering ideas which include putting large

383

00:18:47,650 --> 00:18:45,260

amounts of prayers into the atmosphere

384

00:18:50,020 --> 00:18:47,660

to decrease the amount from

385

00:18:51,910 --> 00:18:50,030

solar radiation or trying to fertilize the ocean

386

00:18:53,770 --> 00:18:51,920

because we don't know the system

387

00:18:55,060 --> 00:18:53,780

well enough to understand

388

00:18:57,640 --> 00:18:55,070

what the side effects are actually going to be

389

00:19:00,310 --> 00:18:57,650

this is like trying to take

390

00:19:03,500 --> 00:19:00,320

a medicine without knowing what the

391

00:19:05,750 --> 00:19:03,510

side effects of these medicines are

392

00:19:09,510 --> 00:19:05,760

not for me personally I am not attracted to

393

00:19:16,509 --> 00:19:11,900

you want to add something more about the general

394

00:19:19,089 --> 00:19:16,519

geoengineering Santiago Antonio,

395

00:19:22,899 --> 00:19:19,099

not particularly the engineering action,

396

00:19:25,959 --> 00:19:22,909

but what I was saying

397

00:19:28,389 --> 00:19:25,969

about mitigation and particularly those

398

00:19:33,909 --> 00:19:28,399

of America, we have a big problem

399

00:19:36,099 --> 00:19:33,919

of corruption in Estepona And

400

00:19:38,909 --> 00:19:36,109

what we have to do as a society and

401
00:19:41,759 --> 00:19:38,919
as a government is this and him

402
00:19:43,499 --> 00:19:41,769
and not identify risk areas, something

403
00:19:47,820 --> 00:19:43,509
that is hardly done in Latin America

404
00:19:52,169 --> 00:19:47,830
and not grant, for example,

405
00:19:56,460 --> 00:19:52,179
construction permits in areas that are not capable

406
00:19:58,580 --> 00:19:56,470
of sustaining lives and you do not see now mexico

407
00:20:02,220 --> 00:19:58,590
has just been hit by hurricanes

408
00:20:05,190 --> 00:20:02,230
400 people died all these

409
00:20:09,419 --> 00:20:05,200
deaths were due to construction in

410
00:20:11,340 --> 00:20:09,429
high risk areas so it is also not

411
00:20:13,590 --> 00:20:11,350
that the government realizes but rather

412
00:20:15,119 --> 00:20:13,600
that it does not act according to the

413
00:20:19,990 --> 00:20:15,129

circumstances and according to the

414

00:20:28,850 --> 00:20:26,170

good, engineering, good, I was commenting on

415

00:20:32,330 --> 00:20:28,860

putting mirrors, well,

416

00:20:34,549 --> 00:20:32,340

the imagination never knows if we can

417

00:20:37,910 --> 00:20:34,559

manage to do such big projects,

418

00:20:41,419 --> 00:20:37,920

but I think that first I think it would be for

419

00:20:44,419 --> 00:20:41,429

people in general to be aware

420

00:20:47,240 --> 00:20:44,429

that it is a problem that concerns us

421

00:20:50,060 --> 00:20:47,250

all and that no matter how small changes or

422

00:20:52,669 --> 00:20:50,070

habits that we have daily can

423

00:20:54,799 --> 00:20:52,679

help another part is what

424

00:20:58,160 --> 00:20:54,809

politicians can do is something else

425

00:21:01,820 --> 00:20:58,170

but on a day-to-day level it is to look for

426

00:21:03,440 --> 00:21:01,830

alternatives and more than mitigate it is we will

427

00:21:05,710 --> 00:21:03,450

also have to adapt to the

428

00:21:09,320 --> 00:21:05,720

consequences that we may have although

429

00:21:11,810 --> 00:21:09,330

for example another of the things that have been

430

00:21:14,409 --> 00:21:11,820

verified in the latter there is pss is that

431

00:21:16,820 --> 00:21:14,419

aerosols also have a large part,

432

00:21:18,620 --> 00:21:16,830

a good part has an important part in

433

00:21:21,409 --> 00:21:18,630

terms of climate change, the

434

00:21:24,700 --> 00:21:21,419

origin of these aerosols, since it is of

435

00:21:29,769 --> 00:21:24,710

natural or anthropogenic origin,

436

00:21:33,279 --> 00:21:29,779

this type of pollution can be reduced aerosols it

437

00:21:36,609 --> 00:21:33,289

is clear that the most important effect gas

438

00:21:40,899 --> 00:21:36,619

is co2 reduce the emission

439

00:21:43,779 --> 00:21:40,909

of this type of gas but that gas that is

440

00:21:48,159 --> 00:21:43,789

in the atmosphere is there how it is going to be

441

00:21:50,680 --> 00:21:48,169

redistributed it will be to see those changes

442

00:21:53,769 --> 00:21:50,690

how people can go adapting

443

00:21:56,909 --> 00:21:53,779

accordingly As each one can, it

444

00:22:01,389 --> 00:21:56,919

is clear that the countries that have the most

445

00:22:04,450 --> 00:22:01,399

technological development will be able to

446

00:22:08,289 --> 00:22:04,460

face these changes. The change in the

447

00:22:09,940 --> 00:22:08,299

rise in sea level

448

00:22:13,329 --> 00:22:09,950

is completely different in the Netherlands, and at

449

00:22:17,799 --> 00:22:13,339

some point we will have to see how

450

00:22:19,810 --> 00:22:17,809

we can solve or adapt together. to

451
00:22:23,489 --> 00:22:19,820
this change in terms of

452
00:22:27,009 --> 00:22:23,499
engineering sanitation, I think that it is good that

453
00:22:28,899 --> 00:22:27,019
engineers will try to provide

454
00:22:30,969 --> 00:22:28,909
solutions,

455
00:22:34,169 --> 00:22:30,979
things in which everyone can

456
00:22:37,499 --> 00:22:34,179
participate and can

457
00:22:41,490 --> 00:22:37,509
contribute to this medicine where this

458
00:22:43,620 --> 00:22:41,500
change that we are presiding over thank you

459
00:22:46,770 --> 00:22:43,630
very much, we have another question from the

460
00:22:49,380 --> 00:22:46,780
public this one comes from lima carlos 10 13

461
00:22:50,970 --> 00:22:49,390
in class on youtube and asks as a

462
00:22:52,890 --> 00:22:50,980
mechanical engineer what we can do

463
00:22:59,560 --> 00:22:52,900

to convince politicians to

464

00:22:59,570 --> 00:23:04,590

how to convince politicians

465

00:23:10,080 --> 00:23:07,140

most of the politicians in the

466

00:23:13,289 --> 00:23:10,090

world I think that they are convinced

467

00:23:15,520 --> 00:23:13,299

the problem of starting to become a politician

468

00:23:20,270 --> 00:23:15,530

seems to me that there is more, it

469

00:23:26,780 --> 00:23:23,090

the evidence is compelling that we have to

470

00:23:31,180 --> 00:23:26,790

change something unfortunately it is very

471

00:23:33,370 --> 00:23:31,190

difficult to think in the long term

472

00:23:35,560 --> 00:23:33,380

many of many of the changes that

473

00:23:38,500 --> 00:23:35,570

we have to propose may have

474

00:23:40,960 --> 00:23:38,510

some short-term effects on the

475

00:23:42,670 --> 00:23:40,970

economy, so I think the

476

00:23:46,600 --> 00:23:42,680

best way to convince politicians

477

00:23:47,920 --> 00:23:46,610

is to try to dissuade them from the fact that

478

00:23:50,590 --> 00:23:47,930

these changes or

479

00:23:54,220 --> 00:23:50,600

technological improvements are going to affect the economy.

480

00:23:57,340 --> 00:23:54,230

An example that I can bring you is every

481

00:23:59,310 --> 00:23:57,350

time a

482

00:24:02,230 --> 00:23:59,320

motor vehicle efficiency improvement is proposed he

483

00:24:03,910 --> 00:24:02,240

always says no this is going to destroy the

484

00:24:05,900 --> 00:24:03,920

auto industry there is no way

485

00:24:08,540 --> 00:24:05,910

we can do this

486

00:24:11,780 --> 00:24:08,550

and maintain a viable industry and that

487

00:24:14,570 --> 00:24:11,790

has never happened when when we try

488

00:24:14,570 --> 00:24:16,310

to impose the montreal protocol regarding

489

00:24:21,019 --> 00:24:18,379

treasury carbide emissions that

490

00:24:22,519 --> 00:24:21,029

were affecting the ozone layer

491

00:24:24,499 --> 00:24:22,529

the reaction was the same all on the

492

00:24:28,150 --> 00:24:24,509

books for the industry in action

493

00:24:29,730 --> 00:24:28,160

disaster no no did not occur

494

00:24:32,170 --> 00:24:29,740

these are things these are

495

00:24:35,200 --> 00:24:32,180

technological advances that in the experience

496

00:24:38,260 --> 00:24:35,210

we have had actually result in more

497

00:24:40,690 --> 00:24:38,270

jobs new technology results in

498

00:24:42,610 --> 00:24:40,700

more people working the iv are things that

499

00:24:44,680 --> 00:24:42,620

are beneficial in the long run

500

00:24:46,090 --> 00:24:44,690

i think doing the way maybe to

501
00:24:49,430 --> 00:24:46,100
convince politicians to make them

502
00:24:51,519 --> 00:24:49,440
understand that these changes are

503
00:24:55,990 --> 00:24:51,529
not necessarily going to cost you

504
00:24:59,499 --> 00:24:56,000
jobs if they are implemented correctly

505
00:25:03,529 --> 00:24:59,509
in results in actually producing the

506
00:25:06,049 --> 00:25:03,539
next jobs if you remember that when

507
00:25:08,779 --> 00:25:06,059
we are let's say importing

508
00:25:11,570 --> 00:25:08,789
fossil fuels oil from another

509
00:25:13,310 --> 00:25:11,580
country the money that we were spending on

510
00:25:15,169 --> 00:25:13,320
those fossil fuels a lot of it

511
00:25:16,649 --> 00:25:15,179
is leaving the country it is going

512
00:25:18,779 --> 00:25:16,659
somewhere else

513
00:25:21,570 --> 00:25:18,789

if we started to implement

514

00:25:25,289 --> 00:25:21,580

measures such as using

515

00:25:28,109 --> 00:25:25,299

solar heaters producing electricity

516

00:25:29,820 --> 00:25:28,119

through windmills these are

517

00:25:33,749 --> 00:25:29,830

things that cannot be exported they have to

518

00:25:35,190 --> 00:25:33,759

be produced in the country and they are

519

00:25:39,029 --> 00:25:35,200

things that create jobs and I think

520

00:25:40,919 --> 00:25:39,039

the key is to sell them the solution

521

00:25:43,229 --> 00:25:40,929

using the The currency that politicians

522

00:25:45,989 --> 00:25:43,239

understand, and the currency that politicians

523

00:25:55,169 --> 00:25:45,999

understand best, is that of jobs and

524

00:26:01,600 --> 00:25:58,120

If I didn't want to also add that the

525

00:26:04,539 --> 00:26:01,610

effects of climate change are going to

526

00:26:06,909 --> 00:26:04,549

vary a lot from region to region, from country

527

00:26:09,930 --> 00:26:06,919

to country, I'm not I'm sure if this

528

00:26:12,600 --> 00:26:09,940

question came, for example,

529

00:26:14,460 --> 00:26:12,610

the economic and

530

00:26:17,070 --> 00:26:14,470

human effects in Peru due to climate change

531

00:26:22,230 --> 00:26:17,080

are being

532

00:26:24,960 --> 00:26:22,240

considered because all

533

00:26:27,180 --> 00:26:24,970

hydrological cycles are being modified on

534

00:26:31,710 --> 00:26:27,190

which they depend, because the vast

535

00:26:35,810 --> 00:26:31,720

majority of those of the peasants

536

00:26:39,630 --> 00:26:35,820

in the country then it immediately

537

00:26:43,080 --> 00:26:39,640

identifies which are the most

538

00:26:46,410 --> 00:26:43,090

affected areas in your own area and gives you an

539

00:26:48,780 --> 00:26:46,420

idea of ■■how one can raise awareness

540

00:26:50,730 --> 00:26:48,790

in society and once

541

00:26:55,060 --> 00:26:50,740

society is interested the same

542

00:26:59,379 --> 00:26:57,100

good thank you very much we have another

543

00:27:00,249 --> 00:26:59,389

question about sea ■■level rise

544

00:27:07,049 --> 00:27:04,019

tony jimenez asks us on twitter

545

00:27:08,549 --> 00:27:07,059

how many meters or centimeters per year

546

00:27:14,930 --> 00:27:08,559

the sea could rise with climate change

547

00:27:22,690 --> 00:27:19,190

if the predictions depend on

548

00:27:26,230 --> 00:27:22,700

what type of scenario occurs, let

549

00:27:28,570 --> 00:27:26,240

me explain when

550

00:27:30,790 --> 00:27:28,580

these numerical models are run in asunción de

551

00:27:34,870 --> 00:27:30,800

when how much carbon dioxide is going to

552

00:27:38,500 --> 00:27:34,880

be emitted in the decisions that

553

00:27:41,290 --> 00:27:38,510

legislators make if the

554

00:27:45,640 --> 00:27:41,300

technologies exist the increases vary from

555

00:27:47,560 --> 00:27:45,650

millimeters per year and what we expect is

556

00:27:48,870 --> 00:27:47,570

that there will be an increase that is close to

557

00:27:51,780 --> 00:27:48,880

one meter

558

00:27:55,740 --> 00:27:51,790

at the end of the heights but again

559

00:27:58,350 --> 00:27:55,750

this it depends on what steps are

560

00:28:00,180 --> 00:27:58,360

taken if they are taken to mitigate

561

00:28:04,050 --> 00:28:00,190

to decrease the amount of

562

00:28:07,080 --> 00:28:04,060

carbon dioxide that is put into the unit it is very

563

00:28:09,360 --> 00:28:07,090

difficult it is difficult to come up with a

564

00:28:11,490 --> 00:28:09,370

clear answer to this because we don't know

565

00:28:13,710 --> 00:28:11,500

for sure how much

566

00:28:16,020 --> 00:28:13,720

carbon dioxide we are going to be emitting because we

567

00:28:17,810 --> 00:28:16,030

do know that there is already enough

568

00:28:20,480 --> 00:28:17,820

energy in the system

569

00:28:20,480 --> 00:28:23,110

and to continue the increase in sea level

570

00:28:28,330 --> 00:28:26,020

I don't know if they will tell you you have your

571

00:28:31,540 --> 00:28:28,340

other question María Ángel has asked

572

00:28:33,880 --> 00:28:31,550

about the amount of

573

00:28:36,490 --> 00:28:33,890

carbon dioxide that is being emitted to the

574

00:28:38,740 --> 00:28:36,500

atmosphere I understand that the

575

00:28:42,610 --> 00:28:38,750

Alaskan tundra, for example, is like a

576

00:28:45,280 --> 00:28:42,620

large hidden reservoir of

577

00:28:47,890 --> 00:28:45,290

carbon dioxide as

578

00:28:50,590 --> 00:28:47,900

this permafrost melts it is as if there were a

579

00:28:52,980 --> 00:28:50,600

big city and emitting gases is

580

00:28:55,020 --> 00:28:52,990

that correct or I imagined it

581

00:28:58,110 --> 00:28:55,030

correct

582

00:28:59,300 --> 00:28:58,120

and it is not very hidden there is not a

583

00:29:02,070 --> 00:28:59,310

large amount of organic matter either

584

00:29:04,530 --> 00:29:02,080

remember when organic matter

585

00:29:07,410 --> 00:29:04,540

decomposes carbon dioxide is produced

586

00:29:09,840 --> 00:29:07,420

but the worst thing is that what is going to

587

00:29:12,270 --> 00:29:09,850

start to be released is methane and

588

00:29:16,080 --> 00:29:12,280

methane is a greenhouse gas that it's about

589

00:29:18,660 --> 00:29:16,090

20 times more effective at warming the

590

00:29:20,850 --> 00:29:18,670

planet than carbon dioxide and there are

591

00:29:23,220 --> 00:29:20,860

huge amounts of methane in the

592

00:29:25,830 --> 00:29:23,230

tundra these gases are releasing to us

593

00:29:28,500 --> 00:29:25,840

because it won't have very low temperatures

594

00:29:30,420 --> 00:29:28,510

right now and it's low temperatures because

595

00:29:31,920 --> 00:29:30,430

they inhibit bacterial growth in

596

00:29:34,110 --> 00:29:31,930

bacteria when it's Like when you put

597

00:29:36,930 --> 00:29:34,120

meat in the fridge so it doesn't rot, it

598

00:29:38,880 --> 00:29:36,940

's not the same if you increase the temperature

599

00:29:40,860 --> 00:29:38,890

of the fridge with the meat, it rots and

600

00:29:42,840 --> 00:29:40,870

starts to release gases. The same thing is

601
00:29:44,760 --> 00:29:42,850
happening in the car where right now the

602
00:29:47,250 --> 00:29:44,770
temperatures are low but they are

603
00:29:49,710 --> 00:29:47,260
increasing consistently and we are

604
00:29:51,810 --> 00:29:49,720
experiencing seeing transport we are

605
00:29:53,610 --> 00:29:51,820
beginning bertrán more transport of

606
00:29:55,680 --> 00:29:53,620
organic matter from before the tundra

607
00:29:59,279 --> 00:29:55,690
to the oceans

608
00:30:04,649 --> 00:29:59,289
and that is not a good scenario it is not something

609
00:30:10,529 --> 00:30:07,139
thank you very much we have another question from the

610
00:30:12,299 --> 00:30:10,539
public of gustavo lópez what question

611
00:30:13,830 --> 00:30:12,309
can we To say that the high temperatures

612
00:30:14,969 --> 00:30:13,840
that occur are due to climate change,

613
00:30:18,479 --> 00:30:16,769

perhaps we could discuss a little

614

00:30:20,489 --> 00:30:18,489

what the different expeditions are

615

00:30:30,419 --> 00:30:20,499

for the different areas of the planet,

616

00:30:38,350 --> 00:30:36,070

yes, well, at a base level, depending

617

00:30:38,350 --> 00:30:40,480

on each of the scenarios, there is a

618

00:30:45,470 --> 00:30:43,419

global temperature increase, but this increase is at the average level, it

619

00:30:50,299 --> 00:30:47,810

is clear that there will be some regions in

620

00:30:53,060 --> 00:30:50,309

which this increase will be more evident than in

621

00:30:56,130 --> 00:30:53,070

others, depending on how

622

00:30:59,010 --> 00:30:56,140

my colleague Carlos had commented on

623

00:31:02,550 --> 00:30:59,020

regional conditions, it depends a lot on

624

00:31:06,000 --> 00:31:02,560

what that region is like Could that

625

00:31:09,200 --> 00:31:06,010

temperature be affected by there being a

626

00:31:13,499 --> 00:31:09,210

more evident increase,

627

00:31:16,680 --> 00:31:13,509

obviously there are cases in which it is

628

00:31:19,889 --> 00:31:16,690

seen that this increase, as I have

629

00:31:22,710 --> 00:31:19,899

told you, is repeating itself in the polar masses,

630

00:31:24,450 --> 00:31:22,720

if it melts it is because there has to

631

00:31:26,430 --> 00:31:24,460

be an increase in temperature

632

00:31:30,419 --> 00:31:26,440

as well It can be seen in a large part of

633

00:31:33,719 --> 00:31:30,429

the glaciers, especially in Europe and

634

00:31:36,479 --> 00:31:33,729

it has delicacies or there are obvious

635

00:31:38,340 --> 00:31:36,489

images in which it is seen that there is an

636

00:31:40,680 --> 00:31:38,350

increase in temperature

637

00:31:44,730 --> 00:31:40,690

after that, with also how they are seen in

638

00:31:48,750 --> 00:31:44,740

the surface temperatures of the

639

00:31:51,360 --> 00:31:48,760

oceans, how It can increase the

640

00:31:55,650 --> 00:31:51,370

circulation of air masses and

641

00:31:59,450 --> 00:31:55,660

water vapor, creating more changes in the

642

00:32:04,669 --> 00:32:01,460

Thank you, Toni, we have another question from the

643

00:32:04,669 --> 00:32:07,039

public that talks a little about the future,

644

00:32:12,860 --> 00:32:09,950

what are you waiting for? for

645

00:32:15,409 --> 00:32:12,870

paris cop 2015 we can reach an

646

00:32:17,419 --> 00:32:15,419

international agreement if you are not very

647

00:32:19,279 --> 00:32:17,429

sure or about how to answer this

648

00:32:22,549 --> 00:32:19,289

we could talk about what is coming now what

649

00:32:23,870 --> 00:32:22,559

is the next to this new report on

650

00:32:26,780 --> 00:32:23,880

climate change what is it that we have to

651
00:32:30,380 --> 00:32:28,970
now we have to read it because we just it

652
00:32:33,750 --> 00:32:30,390
came out

653
00:32:38,830 --> 00:32:35,950
because it is

654
00:32:41,680 --> 00:32:38,840
up to legislators

655
00:32:44,230 --> 00:32:41,690
in all countries to decide what they want to

656
00:32:46,870 --> 00:32:44,240
do we scientists have

657
00:32:49,660 --> 00:32:46,880
a very clear job we do not make

658
00:32:51,940 --> 00:32:49,670
public policy all we

659
00:32:53,980 --> 00:32:51,950
can do is inform

660
00:32:57,450 --> 00:32:53,990
decision makers

661
00:33:04,330 --> 00:33:02,140
Fortunately, NASA has a good

662
00:33:06,420 --> 00:33:04,340
number of satellite sensors that

663
00:33:11,200 --> 00:33:06,430

are offering the necessary data

664

00:33:14,529 --> 00:33:11,210

to be able to inform

665

00:33:16,180 --> 00:33:14,539

legislators and a large number of

666

00:33:19,060 --> 00:33:16,190

scientists that you can do everything you

667

00:33:21,610 --> 00:33:19,070

can to be able to try to

668

00:33:23,560 --> 00:33:21,620

provide this information, so we have

669

00:33:26,950 --> 00:33:23,570

We have to digest the information that comes from the

670

00:33:29,320 --> 00:33:26,960

report and do the best we can

671

00:33:31,389 --> 00:33:29,330

to inform the public what

672

00:33:38,060 --> 00:33:31,399

we expected and it's up to the politicians

673

00:33:45,290 --> 00:33:41,030

and I had the question of

674

00:33:47,870 --> 00:33:45,300

the ocean acidification issue why

675

00:33:49,700 --> 00:33:47,880

what happens what are the mechanisms if

676

00:33:52,220 --> 00:33:49,710

we could go into details what happens

677

00:33:55,070 --> 00:33:52,230

with the coral reefs how is

678

00:33:57,420 --> 00:33:55,080

this whole cycle of sea acidification

679

00:33:59,790 --> 00:33:57,430

due to co2

680

00:34:01,740 --> 00:33:59,800

if by increasing the concentrations of

681

00:34:05,030 --> 00:34:01,750

carbon dioxide in the atmosphere this

682

00:34:08,460 --> 00:34:05,040

has already been carbon dissolves

683

00:34:09,909 --> 00:34:08,470

and the effect is that carbonic acid is formed

684

00:34:09,919 --> 00:34:13,540

and the ocean becomes better so we

685

00:34:21,460 --> 00:34:17,290

have already experienced an increase in the

686

00:34:24,700 --> 00:34:21,470

ideas of the ocean and the effects well, they

687

00:34:27,440 --> 00:34:24,710

are quite drastic there are

688

00:34:30,260 --> 00:34:27,450

many organisms in the ocean

689

00:34:33,440 --> 00:34:30,270

and whose exoskeleton whose structure is

690

00:34:37,099 --> 00:34:33,450

composed of calcium carbonate and

691

00:34:39,680 --> 00:34:37,109

carbonate 2 dissolves when the

692

00:34:41,169 --> 00:34:39,690

conditions are more acidic if you

693

00:34:44,629 --> 00:34:41,179

want to see a very clear example

694

00:34:46,790 --> 00:34:44,639

grab a shell a clam and throw it

695

00:34:50,450 --> 00:34:46,800

in vinegar and you will see how it

696

00:34:51,980 --> 00:34:50,460

begins to dissolve of course that's not the

697

00:34:54,680 --> 00:34:51,990

corrals I don't know they're dissolving like that

698

00:34:58,579 --> 00:34:54,690

so fast and so dramatically

699

00:35:01,250 --> 00:34:58,589

but all it does is it increases the

700

00:35:03,470 --> 00:35:01,260

stress of making life more difficult for

701
00:35:05,540 --> 00:35:03,480
these organisms they require more energy

702
00:35:08,510 --> 00:35:05,550
to reproduce they require more

703
00:35:10,460 --> 00:35:08,520
energy to grow and I think we've

704
00:35:13,970 --> 00:35:10,470
even seen some

705
00:35:15,800 --> 00:35:13,980
effects in the food chain in

706
00:35:17,270 --> 00:35:15,810
places like the Northeast of the

707
00:35:19,910 --> 00:35:17,280
United States and for

708
00:35:22,609 --> 00:35:19,920
example an effect is being seen on the amount of

709
00:35:23,990 --> 00:35:22,619
salmon and basically because it affects the

710
00:35:25,670 --> 00:35:24,000
food chain very

711
00:35:27,430 --> 00:35:25,680
small organisms that have

712
00:35:30,410 --> 00:35:27,440
calcium carbonate structures

713
00:35:32,359 --> 00:35:30,420

begin to dissolve they begin to die

714

00:35:34,700 --> 00:35:32,369

that has an effect on the

715

00:35:36,900 --> 00:35:34,710

food chain that is

716

00:35:38,910 --> 00:35:36,910

completely transmitted directly and let's say

717

00:35:41,180 --> 00:35:38,920

fish that are the ones that feed on

718

00:35:42,960 --> 00:35:41,190

these organisms

719

00:35:46,670 --> 00:35:42,970

definitely to effects on

720

00:35:50,270 --> 00:35:46,680

corals and effects on

721

00:35:51,620 --> 00:35:50,280

small organisms such as zooplankton

722

00:35:53,960 --> 00:35:51,630

and there is nothing there is nothing well and this is something

723

00:35:55,460 --> 00:35:53,970

that is not debatable when the

724

00:35:55,940 --> 00:35:55,470

amount of carbon dioxide in the

725

00:35:58,790 --> 00:35:55,950

atmosphere increases

726

00:36:02,150 --> 00:35:58,800

we enter carbon dioxide from the ocean and

727

00:36:04,540 --> 00:36:02,160

the ideas of the ocean increases this is not

728

00:36:07,190 --> 00:36:04,550

something that is being debated

729

00:36:08,930 --> 00:36:07,200

remotely and it is an effect that we are

730

00:36:11,549 --> 00:36:08,940

seeing and what We are being able to measure

731

00:36:16,309 --> 00:36:14,189

very well, and from the acidification of the

732

00:36:19,279 --> 00:36:16,319

oceans we went to hurricanes.

733

00:36:23,370 --> 00:36:19,289

We have a question from Eric, if your

734

00:36:24,929 --> 00:36:23,380

twitter household that asks

735

00:36:26,820 --> 00:36:24,939

will hurricanes be more intense,

736

00:36:29,850 --> 00:36:26,830

Toni,

737

00:36:33,840 --> 00:36:29,860

will they be more intense

738

00:36:35,640 --> 00:36:33,850

? We know that a large part

739

00:36:40,020 --> 00:36:35,650
of hurricanes originate

740

00:36:42,630 --> 00:36:40,030
in the tropics and flow apart due to

741

00:36:44,250 --> 00:36:42,640
air currents and also because of how

742

00:36:46,010 --> 00:36:44,260
the temperatures that we have on the

743

00:36:48,840 --> 00:36:46,020
sea surface are, we know that the

744

00:36:51,870 --> 00:36:48,850
planet is heating up, especially

745

00:36:54,500 --> 00:36:51,880
that the sea and the water have that

746

00:36:59,310 --> 00:36:54,510
calorific capacity to store so much energy

747

00:37:02,210 --> 00:36:59,320
that more and more water vapor is being injected

748

00:37:05,400 --> 00:37:02,220
into the superficial layers,

749

00:37:07,140 --> 00:37:05,410
so bigger and bigger storms can originate.

750

00:37:09,600 --> 00:37:07,150
In fact, sandy

751
00:37:13,170 --> 00:37:09,610
has been commented on the last hurricanes, we

752
00:37:14,880 --> 00:37:13,180
also have Katrina, there are

753
00:37:19,290 --> 00:37:14,890
quite a few hurricanes that have

754
00:37:21,050 --> 00:37:19,300
The coastal areas have been affected quite intensely,

755
00:37:26,380 --> 00:37:24,020
so that they are going to intensify and not

756
00:37:28,760 --> 00:37:26,390
only the issue of hurricanes, but also

757
00:37:35,450 --> 00:37:28,770
storms that occur in areas of the

758
00:37:38,750 --> 00:37:35,460
Mediterranean, large masses of

759
00:37:41,240 --> 00:37:38,760
water vapor that move very quickly and

760
00:37:43,220 --> 00:37:41,250
have a very rapid cyclogenesis. They

761
00:37:44,840 --> 00:37:43,230
produce very

762
00:37:48,170 --> 00:37:44,850
large specifications, they do not become hurricanes, but

763
00:37:50,810 --> 00:37:48,180

the regional effects are important, that

764

00:37:55,559 --> 00:37:50,820

is, they are intensifying, these

765

00:38:00,270 --> 00:37:57,989

and if I wanted to add, remember that it is

766

00:38:03,180 --> 00:38:00,280

very difficult to attribute to

767

00:38:04,660 --> 00:38:03,190

or any hurricane an effect of climate change.

768

00:38:11,000 --> 00:38:06,910

that what is happening is that

769

00:38:13,700 --> 00:38:11,010

we are creating conditions that

770

00:38:16,580 --> 00:38:13,710

and make it easier for storms to be

771

00:38:18,800 --> 00:38:16,590

stronger simply by adding

772

00:38:20,930 --> 00:38:18,810

this results in more water vapor in the

773

00:38:23,390 --> 00:38:20,940

atmosphere this results in

774

00:38:27,020 --> 00:38:23,400

rainfall events that are stronger even the

775

00:38:29,480 --> 00:38:27,030

strongest it seems that it's not intuitive

776

00:38:31,010 --> 00:38:29,490

but warming of the earth can

777

00:38:32,900 --> 00:38:31,020

result in even

778

00:38:34,610 --> 00:38:32,910

heavier snowfall simply because there is more

779

00:38:38,830 --> 00:38:34,620

water vapor in the atmosphere and the

780

00:38:44,710 --> 00:38:42,160

but in general hurricanes are

781

00:38:47,260 --> 00:38:44,720

basically machines that work and that they are

782

00:38:49,150 --> 00:38:47,270

created due to the heat that is on

783

00:38:51,040 --> 00:38:49,160

the surface of the ocean and although we cannot

784

00:38:54,040 --> 00:38:51,050

attribute a

785

00:38:57,130 --> 00:38:54,050

particular hurricane a relationship with

786

00:38:59,140 --> 00:38:57,140

the warming of the earth

787

00:39:00,910 --> 00:38:59,150

clearly the conditions for the

788

00:39:04,539 --> 00:39:00,920

formation of hurricanes and they may be

789

00:39:06,700 --> 00:39:04,549

because they are improving and that is not good

790

00:39:09,730 --> 00:39:06,710

to participate particularly for those who

791

00:39:11,849 --> 00:39:09,740

continue to live near the coasts I

792

00:39:15,250 --> 00:39:11,859

go out here because since I live in Miami I

793

00:39:17,589 --> 00:39:15,260

hear here I hear a lot of people say oh

794

00:39:19,420 --> 00:39:17,599

but we haven't had hurricanes again

795

00:39:21,789 --> 00:39:19,430

so what does it matter then one thing

796

00:39:23,799 --> 00:39:21,799

is the trajectory that the hurricane follows and

797

00:39:25,180 --> 00:39:23,809

what will be influencing that the

798

00:39:27,250 --> 00:39:25,190

hurricanes are following a

799

00:39:29,170 --> 00:39:27,260

trajectory that for some time has not

800

00:39:30,849 --> 00:39:29,180

touched the south of the priority by 10 and tex

801

00:39:32,740 --> 00:39:30,859

with the intensity that is that people

802

00:39:34,420 --> 00:39:32,750

confuse they are their head true no and we

803

00:39:37,960 --> 00:39:34,430

are not really experiencing a

804

00:39:41,550 --> 00:39:37,970

decrease that we do not see them close

805

00:39:43,650 --> 00:39:41,560

we always that is correct

806

00:39:47,010 --> 00:39:43,660

hurricanes are two very complicated phenomena that

807

00:39:51,240 --> 00:39:49,770

is to say that every time I hear the

808

00:39:54,720 --> 00:39:51,250

news that says that the hurricane

809

00:39:58,170 --> 00:39:54,730

deviated safely into the

810

00:39:59,700 --> 00:39:58,180

middle of the ocean I tremble because what

811

00:40:01,350 --> 00:39:59,710

happens to buyers and

812

00:40:03,680 --> 00:40:01,360

boaters that they were sailing through the

813

00:40:10,500 --> 00:40:07,280

well there for example last year

814

00:40:12,420 --> 00:40:10,510

sandy that it is a storm

815

00:40:15,259 --> 00:40:12,430

there is a direct relationship to

816

00:40:19,359 --> 00:40:15,269

climate change and it is that there was an

817

00:40:25,539 --> 00:40:23,200

with a zone of high pressure king in

818

00:40:28,920 --> 00:40:25,549

southern greenland that was pushing all of the

819

00:40:32,910 --> 00:40:28,930

north towards the

820

00:40:34,769 --> 00:40:32,920

east coast of the usa so to start there

821

00:40:37,049 --> 00:40:34,779

you already have

822

00:40:40,049 --> 00:40:37,059

a case where the climate actually

823

00:40:43,890 --> 00:40:40,059

changed and produced such a consequence in the

824

00:40:47,189 --> 00:40:43,900

path of the storms it is a bit

825

00:40:49,439 --> 00:40:47,199

anecdotal but there is the rotation

826

00:40:51,839 --> 00:40:49,449

as is the evaluation of the intensity

827

00:40:55,229 --> 00:40:51,849

of the hurricane with the surface with the

828

00:40:58,009 --> 00:40:55,239

portrait of the surface either there is no

829

00:41:01,499 --> 00:40:58,019

direct relationship without prayer or it is

830

00:41:04,859 --> 00:41:01,509

increasing in temperature the

831

00:41:08,080 --> 00:41:04,869

storms could become much

832

00:41:12,310 --> 00:41:10,600

very well there are about 20 minutes left without a

833

00:41:13,810 --> 00:41:12,320

hangout and we have at least 3

834

00:41:15,940 --> 00:41:13,820

more questions from the public to see if

835

00:41:18,340 --> 00:41:15,950

we can answer them all and if someone

836

00:41:20,530 --> 00:41:18,350

else is encouraged to ask something you can

837

00:41:22,960 --> 00:41:20,540

do it through youtube in the

838

00:41:23,890 --> 00:41:22,970

comments section or in google plus or on

839

00:41:26,050 --> 00:41:23,900

twitter

840

00:41:28,300 --> 00:41:26,060

using the hashtag ask güeyma

841

00:41:31,180 --> 00:41:28,310

in the first question is from tony

842

00:41:32,980 --> 00:41:31,190

jimenez what question are the

843

00:41:35,290 --> 00:41:32,990

poles expected to melt more than expected or are they going

844

00:41:37,690 --> 00:41:35,300

at the rate that was predicted seems to be a

845

00:41:40,030 --> 00:41:37,700

question for you santiago

846

00:41:43,720 --> 00:41:40,040

more than necessary I don't know exactly what

847

00:41:46,390 --> 00:41:43,730

that is but definitely the

848

00:41:51,820 --> 00:41:46,400

projections so far have been

849

00:41:55,210 --> 00:41:51,830

rather conservative still in 2008

850

00:41:57,520 --> 00:41:55,220

Talking that the Arctic is going to

851

00:42:00,790 --> 00:41:57,530

remain in sea ice was a bit

852

00:42:04,780 --> 00:42:00,800

daring and now only five years

853

00:42:07,930 --> 00:42:04,790

later it is already this is a fact that the

854

00:42:08,860 --> 00:42:07,940

sea in the Arctic is going to disappear in the

855

00:42:15,130 --> 00:42:08,870

next decades

856

00:42:17,500 --> 00:42:15,140

in the summer then then I think that in

857

00:42:21,670 --> 00:42:17,510

fact our models are not advancing with the

858

00:42:26,960 --> 00:42:21,680

speed with which data

859

00:42:32,390 --> 00:42:29,810

that influence the melting of the

860

00:42:35,240 --> 00:42:32,400

polar caps are changing now there is still

861

00:42:37,210 --> 00:42:35,250

a lot that we do not understand that the

862

00:42:39,440 --> 00:42:37,220

conclusions vary from year to year

863

00:42:41,940 --> 00:42:39,450

as we have more and more

864

00:42:48,060 --> 00:42:44,730

what What I can say is that in

865

00:42:51,000 --> 00:42:48,070

certain areas the melting is

866

00:42:54,300 --> 00:42:51,010

irreversible in glaciers that

867

00:42:56,609 --> 00:42:54,310

end in an ocean, possibly with the

868

00:42:58,530 --> 00:42:56,619

exception of some glaciers in

869

00:43:01,260 --> 00:42:58,540

Patagonia, for example,

870

00:43:04,750 --> 00:43:01,270

Amaya, two lasers will go back

871

00:43:09,520 --> 00:43:04,760

until they reach Luján,

872

00:43:11,920 --> 00:43:09,530

in the alpine zone. The salt glaciers

873

00:43:15,040 --> 00:43:11,930

in Europe are going to another part of the

874

00:43:17,350 --> 00:43:15,050

next 50 years but in the cndh they are going to

875

00:43:20,050 --> 00:43:17,360

recede and they are going to lose a lot of their

876

00:43:24,310 --> 00:43:20,060

mass in the next centuries but

877

00:43:26,950 --> 00:43:24,320

again not all beings follow the same

878

00:43:29,710 --> 00:43:26,960

time scale or not they repeat themselves

879

00:43:32,980 --> 00:43:29,720

faster than others so this one if we

880

00:43:36,610 --> 00:43:32,990

have to analyze by case no line

881

00:43:39,859 --> 00:43:36,620

arctic and antarctica are two

882

00:43:41,839 --> 00:43:39,869

different beasts and so we analyze them

883

00:43:43,670 --> 00:43:41,849

very well and the next question has

884

00:43:46,099 --> 00:43:43,680

to do with scientific communication so I would

885

00:43:48,680 --> 00:43:46,109

ask you angela since

886

00:43:51,470 --> 00:43:48,690

you are a science communicator and it comes from

887

00:43:53,420 --> 00:43:51,480

iván fernando gonzález who asks what

888

00:43:55,400 --> 00:43:53,430

to do when reports from respected

889

00:43:57,650 --> 00:43:55,410

world entities are denied by a

890

00:43:59,210 --> 00:43:57,660

minority without scientific backing how to

891

00:44:02,510 --> 00:43:59,220

connect effectively to

892

00:44:04,160 --> 00:44:02,520

communicate this important information

893

00:44:05,870 --> 00:44:04,170

angela how do you think scientists

894

00:44:07,700 --> 00:44:05,880

could do a better job to

895

00:44:10,220 --> 00:44:07,710

communicate the new discoveries

896

00:44:12,410 --> 00:44:10,230

on climate change very good

897

00:44:14,310 --> 00:44:12,420

question and I congratulate the listener for

898

00:44:16,470 --> 00:44:14,320

making it

899

00:44:18,980 --> 00:44:16,480

the report has to be well

900

00:44:21,780 --> 00:44:18,990

informed and does not have to, as we say,

901
00:44:24,960 --> 00:44:21,790
swallow it whole so a reporter

902
00:44:27,780 --> 00:44:24,970
who knows the science is now the one to

903
00:44:29,450 --> 00:44:27,790
ask simply what The first thing you are going

904
00:44:33,120 --> 00:44:29,460
to do is go to the

905
00:44:35,340 --> 00:44:33,130
accredited entities and really make sure you

906
00:44:38,760 --> 00:44:35,350
read the scientific reports to talk to

907
00:44:40,440 --> 00:44:38,770
people like our three panelists and not

908
00:44:42,210 --> 00:44:40,450
do what many of

909
00:44:44,190 --> 00:44:42,220
our newspaper editors say and that is that

910
00:44:47,790 --> 00:44:44,200
they tend to allocate you the same

911
00:44:50,070 --> 00:44:47,800
amount of text or the same amount of

912
00:44:51,870 --> 00:44:50,080
air time to two theories that are

913
00:44:55,410 --> 00:44:51,880

opposed while there is a theory that

914

00:44:57,300 --> 00:44:55,420

has a 95% consensus in the

915

00:44:58,920 --> 00:44:57,310

world scientific community versus one

916

00:45:01,320 --> 00:44:58,930

that has a 5 percent consensus

917

00:45:03,540 --> 00:45:01,330

then that should be the the first time

918

00:45:07,320 --> 00:45:03,550

he threw the journalist well no I am not going

919

00:45:11,100 --> 00:45:07,330

to give so much importance to what

920

00:45:12,770 --> 00:45:11,110

this minority has naturally that he does not

921

00:45:14,850 --> 00:45:12,780

mention it because that is part of the

922

00:45:17,490 --> 00:45:14,860

let's say the culture of what is

923

00:45:21,750 --> 00:45:17,500

happening but definitely

924

00:45:23,430 --> 00:45:21,760

it is simply to mention it but with

925

00:45:25,200 --> 00:45:23,440

weapons of understanding, that is to say,

926

00:45:25,890 --> 00:45:25,210

then one goes and asks this

927

00:45:27,360 --> 00:45:25,900

minority,

928

00:45:29,730 --> 00:45:27,370

you must take our data,

929

00:45:31,710 --> 00:45:29,740

you and you have to go to him because he

930

00:45:34,620 --> 00:45:31,720

because he because until you get to this

931

00:45:36,780 --> 00:45:34,630

granite that finally disarms it as

932

00:45:39,210 --> 00:45:36,790

happened to me but the question is

933

00:45:43,050 --> 00:45:39,220

Excellent,

934

00:45:45,270 --> 00:45:43,060

well, and the scientists wanted to comment

935

00:45:47,220 --> 00:45:45,280

on how they think the

936

00:45:50,750 --> 00:45:47,230

scientific community could better explain what

937

00:45:58,310 --> 00:45:53,300

I think that scientists do a

938

00:46:01,250 --> 00:45:58,320

job that is in front of the

939

00:46:03,590 --> 00:46:01,260
investigation, searching with the

940

00:46:05,440 --> 00:46:03,600
tools we have with satellites

941

00:46:09,000 --> 00:46:05,450
with

942

00:46:10,990 --> 00:46:09,010
all the comfort and trying to

943

00:46:13,930 --> 00:46:11,000
understand what is happening with our

944

00:46:16,060 --> 00:46:13,940
system, that is, with a climate system, we

945

00:46:18,339 --> 00:46:16,070
should possibly make it

946

00:46:21,460 --> 00:46:18,349
easier to explain the simplest things,

947

00:46:25,569 --> 00:46:21,470
but the problem is really

948

00:46:28,660 --> 00:46:25,579
complicated because it is not the light at home,

949

00:46:33,660 --> 00:46:28,670
it is the entire planet and as I said At the

950

00:46:37,740 --> 00:46:33,670
beginning of Google, there are no borders and

951

00:46:41,309 --> 00:46:37,750

many changes accumulate and the system

952

00:46:44,190 --> 00:46:41,319

has to adapt to that, it has to

953

00:46:47,730 --> 00:46:44,200

respond to these changes and we don't know

954

00:46:50,940 --> 00:46:47,740

how the air masses are there,

955

00:46:55,289 --> 00:46:50,950

the ice masses are in large quantities and

956

00:46:58,740 --> 00:46:55,299

only the biosphere is not only the

957

00:47:01,140 --> 00:46:58,750

human being all the living beings on

958

00:47:04,289 --> 00:47:01,150

the planet have to adapt they

959

00:47:06,800 --> 00:47:04,299

believe it in their word where they will have to

960

00:47:09,470 --> 00:47:06,810

go what they can do

961

00:47:11,380 --> 00:47:09,480

is very complicated we have to make it

962

00:47:15,020 --> 00:47:11,390

easier and I think it is to look for

963

00:47:17,780 --> 00:47:15,030

solutions the idea is to see what It is what

964

00:47:20,300 --> 00:47:17,790

is happening and why obviously

965

00:47:23,340 --> 00:47:20,310

we have these changes but looking for a

966

00:47:25,590 --> 00:47:23,350

solution to adapt

967

00:47:27,180 --> 00:47:25,600

to the changes that await us

968

00:47:29,310 --> 00:47:27,190

very well because on the one hand we have

969

00:47:31,920 --> 00:47:29,320

Angela saying that journalists

970

00:47:35,280 --> 00:47:31,930

have to play a better role in only going to

971

00:47:37,080 --> 00:47:35,290

experts and not going to the skeptic on

972

00:47:39,270 --> 00:47:37,090

duty to give the opposite vision in

973

00:47:42,030 --> 00:47:39,280

their stories, no, and on the other hand, as

974

00:47:43,680 --> 00:47:42,040

Tony tells us, it is a

975

00:47:46,470 --> 00:47:43,690

very complex problem that is sometimes difficult to

976
00:47:49,020 --> 00:47:46,480
communicate and we also have to start

977
00:47:51,150 --> 00:47:49,030
talking about adaptation, changing the

978
00:47:53,670 --> 00:47:51,160
subject, we have another question from tony

979
00:47:55,860 --> 00:47:53,680
jimenez, what is your question, will there be any

980
00:47:57,510 --> 00:47:55,870
negative changes in the short term in five years from now on

981
00:47:59,760 --> 00:47:57,520
the planet, unfortunately due to

982
00:48:01,950 --> 00:47:59,770
climate change, we could start, for

983
00:48:03,690 --> 00:48:01,960
example, with Santiago, with the

984
00:48:08,279 --> 00:48:03,700
polar regions that we hope to see in the

985
00:48:11,620 --> 00:48:11,079
we don't even have to wait five

986
00:48:15,849 --> 00:48:11,630
years

987
00:48:18,179 --> 00:48:15,859
last year greenland was subjected to

988
00:48:22,679 --> 00:48:18,189

the highest temperatures ever recorded

989

00:48:25,359 --> 00:48:22,689

and a massive melt in

990

00:48:28,779 --> 00:48:25,369

us is camping for a month

991

00:48:31,059 --> 00:48:28,789

on the edge of a glacier and what we

992

00:48:36,160 --> 00:48:31,069

were seeing on the glacier after

993

00:48:42,089 --> 00:48:39,690

the planet practically has a

994

00:48:45,180 --> 00:48:42,099

one time scale where what

995

00:48:47,460 --> 00:48:45,190

is happening there well maybe

996

00:48:51,000 --> 00:48:47,470

it will take time to see signs in some

997

00:48:56,910 --> 00:48:51,010

parts of the planet but right now

998

00:48:58,770 --> 00:48:56,920

bernand is already a let's go it is a

999

00:49:01,400 --> 00:48:58,780

natural laboratory where we are experiencing the

1000

00:49:04,980 --> 00:49:01,410

consequences of climate change this is

1001

00:49:11,190 --> 00:49:04,990

all that goes from temperatures to

1002

00:49:11,790 --> 00:49:11,200

radiation in the drainage of the ice cap,

1003

00:49:17,910 --> 00:49:14,940

everything is registering much higher numbers

1004

00:49:20,250 --> 00:49:17,920

than we could predict and we

1005

00:49:22,589 --> 00:49:20,260

still do not understand it well because they

1006

00:49:24,810 --> 00:49:22,599

are not yet well assimilated the

1007

00:49:27,740 --> 00:49:24,820

data are models what the effects will be,

1008

00:49:30,599 --> 00:49:27,750

for example to the current

1009

00:49:32,839 --> 00:49:30,609

thermohaline, which is what controls the

1010

00:49:37,589 --> 00:49:32,849

stability and temperature of the ocean,

1011

00:49:39,410 --> 00:49:37,599

how will it affect sea ice in a few years from now

1012

00:49:45,910 --> 00:49:43,309

? Once it melts, it is

1013

00:49:48,620 --> 00:49:45,920

completely the sea ice of a

1014

00:49:51,020 --> 00:49:48,630

region, it is very difficult for it to recover

1015

00:49:54,079 --> 00:49:51,030

because it recovers in a year and the next one

1016

00:49:57,079 --> 00:49:54,089

melts again you need ice

1017

00:49:59,839 --> 00:49:57,089

formed over many years to

1018

00:50:02,120 --> 00:49:59,849

grow back in that protective layer

1019

00:50:05,030 --> 00:50:02,130

of people that protects us from

1020

00:50:07,660 --> 00:50:05,040

solar radiation so we don't have to wait it's already

1021

00:50:11,870 --> 00:50:10,099

could you tell me a little about what

1022

00:50:14,380 --> 00:50:11,880

we hope to see in the following years,

1023

00:50:18,170 --> 00:50:14,390

five years, as our

1024

00:50:19,970 --> 00:50:18,180

follower in the atmosphere asks, yes, well,

1025

00:50:23,059 --> 00:50:19,980

almost Santiago has said that

1026

00:50:26,599 --> 00:50:23,069

we are already seeing some changes.

1027

00:50:29,690 --> 00:50:26,609

Last year we already exceeded 400 parts per

1028

00:50:32,240 --> 00:50:29,700

million of CO2 and with the records that are available,

1029

00:50:38,030 --> 00:50:35,240

it can be seen that I have never had a level

1030

00:50:42,350 --> 00:50:38,040

of co2 in the atmosphere so great

1031

00:50:45,260 --> 00:50:42,360

that we know for the moment what mechanisms

1032

00:50:49,610 --> 00:50:45,270

exist for this co2 to be distributed

1033

00:50:52,400 --> 00:50:49,620

at the level of what part is absorbed by the

1034

00:50:54,920 --> 00:50:52,410

ocean what part can be absorbed by

1035

00:50:57,670 --> 00:50:54,930

the forest masses by the biosphere

1036

00:51:00,320 --> 00:50:57,680

because it is within the cycle 'the

1037

00:51:04,880 --> 00:51:00,330

photosynthetic but we are making

1038

00:51:07,160 --> 00:51:04,890

changes in those forest masses we are

1039

00:51:10,520 --> 00:51:07,170

reducing those forest masses we are

1040

00:51:13,010 --> 00:51:10,530

increasing co2 that means there is already

1041

00:51:16,040 --> 00:51:13,020

evidence that we are exceeding

1042

00:51:18,020 --> 00:51:16,050

some limits that in the first

1043

00:51:20,840 --> 00:51:18,030

protocols

1044

00:51:23,870 --> 00:51:20,850

the first kyoto protocol of the

1045

00:51:26,480 --> 00:51:23,880

first haiti panels yes yes We have already

1046

00:51:29,990 --> 00:51:26,490

exceeded those levels and we are seeing

1047

00:51:32,780 --> 00:51:30,000

that the system is responding and we will have to

1048

00:51:33,560 --> 00:51:32,790

see what must be said there are already direct changes in

1049

00:51:39,959 --> 00:51:35,579

masses of

1050

00:51:42,569 --> 00:51:39,969

low ice and above all this in

1051

00:51:44,789 --> 00:51:42,579

CO2 we already have more than 400 parts per

1052

00:51:47,249 --> 00:51:44,799

million, that is, the models are

1053

00:51:49,410 --> 00:51:47,259

making predictions with

1054

00:51:53,430 --> 00:51:49,420

higher concentrations but we have already

1055

00:51:55,349 --> 00:51:53,440

exceeded what we said before if

1056

00:52:00,630 --> 00:51:55,359

carlos you would like to comment

1057

00:52:06,120 --> 00:52:03,390

we are increasing the level of the ocean

1058

00:52:09,000 --> 00:52:06,130

due to melting ice and

1059

00:52:11,880 --> 00:52:09,010

due to thermal expansion we have the

1060

00:52:13,670 --> 00:52:11,890

problem of acidification there are

1061

00:52:16,259 --> 00:52:13,680

regions coastal areas that are extremely

1062

00:52:18,779 --> 00:52:16,269

sensitive to climate change, such as

1063

00:52:22,500 --> 00:52:18,789

coral reef areas and that we are

1064

00:52:25,270 --> 00:52:22,510

beginning to see changes in the short

1065

00:52:30,240 --> 00:52:27,880

and again these are areas are

1066

00:52:33,180 --> 00:52:30,250

biomes that are extremely sensitive

1067

00:52:37,150 --> 00:52:33,190

are ecosystems that have been maintained

1068

00:52:39,280 --> 00:52:37,160

for thousands of years under some

1069

00:52:43,390 --> 00:52:39,290

specific conditions and we are

1070

00:52:47,920 --> 00:52:45,430

very good thank you very much we are almost there we have

1071

00:52:52,329 --> 00:52:47,930

five minutes left and I would like to

1072

00:52:54,250 --> 00:52:52,339

finish by going one by one or to say what

1073

00:52:55,809 --> 00:52:54,260

is your main message that you

1074

00:52:59,049 --> 00:52:55,819

would like to communicate to the public is about

1075

00:53:03,950 --> 00:52:59,059

the science of change climate change tone and you

1076

00:53:06,750 --> 00:53:03,960

want to start yes well

1077

00:53:09,570 --> 00:53:06,760

mainly I would like to communicate

1078

00:53:14,370 --> 00:53:09,580

that it is the problem of climate change

1079

00:53:16,549 --> 00:53:14,380

it is a global thing we are all

1080

00:53:19,009 --> 00:53:16,559

on the

1081

00:53:22,339 --> 00:53:19,019

same planet and the effects are going to

1082

00:53:24,920 --> 00:53:22,349

be for everyone possibly the most

1083

00:53:27,199 --> 00:53:24,930

important thing will be to see how it is

1084

00:53:29,120 --> 00:53:27,209

All these more obvious changes are happening

1085

00:53:32,150 --> 00:53:29,130

on a day-to-day basis, not only on

1086

00:53:35,209 --> 00:53:32,160

paper because there are predictions, but

1087

00:53:38,890 --> 00:53:35,219

having them every day is that we will have to

1088

00:53:41,329 --> 00:53:38,900

adapt to that and then from NASA,

1089

00:53:44,089 --> 00:53:41,339

well, I think that a great job is being done

1090

00:53:46,039 --> 00:53:44,099

at the level of human and

1091

00:53:48,480 --> 00:53:46,049

technological resources to understand what is

1092

00:53:51,990 --> 00:53:48,490

happening with our climate

1093

00:53:54,780 --> 00:53:52,000

there are many people working on different

1094

00:53:57,020 --> 00:53:54,790

projects and trying to study the

1095

00:54:02,220 --> 00:53:57,030

different parts of the system aerosols

1096

00:54:04,880 --> 00:54:02,230

clouds atmospheric dynamics the

1097

00:54:08,840 --> 00:54:04,890

colleagues who are working on the

1098

00:54:11,700 --> 00:54:08,850

ocean and trying to put it all together and

1099

00:54:14,850 --> 00:54:11,710

trying to know a lot better what is

1100

00:54:17,280 --> 00:54:14,860

happening and see if the response of

1101

00:54:21,290 --> 00:54:17,290

those who have the last word

1102

00:54:26,010 --> 00:54:21,300

those who have the power to change

1103

00:54:28,920 --> 00:54:26,020

are real or realistic that

1104

00:54:30,890 --> 00:54:28,930

they make a decision as soon as

1105

00:54:33,799 --> 00:54:30,900

possible

1106

00:54:36,170 --> 00:54:33,809

santiago you would like to make a

1107

00:54:39,799 --> 00:54:36,180

final statement

1108

00:54:44,450 --> 00:54:39,809

well a A quick message to the

1109

00:54:46,670 --> 00:54:44,460

general public that, as Antonio said, we

1110

00:54:49,099 --> 00:54:46,680

are all in the same boat and it should not be

1111

00:54:51,470 --> 00:54:49,109

clarified, not our daily actions

1112

00:54:53,070 --> 00:54:51,480

are what have us where we are

1113

00:54:55,950 --> 00:54:53,080

now,

1114

00:54:58,530 --> 00:54:55,960

and it is not necessary to be a scientist

1115

00:55:01,770 --> 00:54:58,540

to make an account, just with a little bit of

1116

00:55:05,390 --> 00:55:01,780

common sense how we have to

1117

00:55:07,860 --> 00:55:05,400

live to be able to

1118

00:55:11,070 --> 00:55:07,870

face this challenge that is possibly

1119

00:55:13,710 --> 00:55:11,080

the greatest challenge of our era and a

1120

00:55:16,650 --> 00:55:13,720

final recommendation is when you always listen to

1121

00:55:19,500 --> 00:55:16,660

political scientists reporters

1122

00:55:23,720 --> 00:55:19,510

talk about climate change they always

1123

00:55:26,910 --> 00:55:23,730

end with a concert

1124

00:55:28,830 --> 00:55:26,920

curiosity and interest and if someone

1125

00:55:31,740 --> 00:55:28,840

says that climate change is not

1126

00:55:33,750 --> 00:55:31,750

true to ask what the

1127

00:55:36,870 --> 00:55:33,760

agenda is because my experience is that the

1128

00:55:39,450 --> 00:55:36,880

agenda that people who are informed and

1129

00:55:41,790 --> 00:55:39,460

who are smart and speak out against

1130

00:55:44,829 --> 00:55:41,800

climate change are people who are pursuing

1131

00:55:46,740 --> 00:55:44,839

a particular agenda in

1132

00:55:49,550 --> 00:55:46,750

our house

1133

00:55:53,370 --> 00:55:49,560

and Carlos, what would you like to throw yourself

1134

00:55:56,240 --> 00:55:53,380

to finish the climate picture? It's real, it

1135

00:55:59,000 --> 00:55:56,250

's a serious problem,

1136

00:56:01,370 --> 00:55:59,010

and NASA scientists and other

1137

00:56:03,640 --> 00:56:01,380

agencies in the US, as well as other agencies

1138

00:56:07,059 --> 00:56:03,650

in the rest of the planet,

1139

00:56:09,489 --> 00:56:07,069

agree that this is a problem

1140

00:56:12,029 --> 00:56:09,499

and we do our best. that we can

1141

00:56:14,019 --> 00:56:12,039

to try to communicate this

1142

00:56:16,299 --> 00:56:14,029

problem to the general population

1143

00:56:20,170 --> 00:56:16,309

but there are also confectionery for the

1144

00:56:22,959 --> 00:56:20,180

general public and be informed and make

1145

00:56:25,460 --> 00:56:22,969

wise decisions using this type of

1146

00:56:28,160 --> 00:56:25,470

information

1147

00:56:30,920 --> 00:56:28,170

remember that

1148

00:56:32,690 --> 00:56:30,930

we live in democracies and

1149

00:56:34,000 --> 00:56:32,700

our leaders are supposed to

1150

00:56:39,400 --> 00:56:36,490

basically follow the leadership that

1151

00:56:41,490 --> 00:56:39,410

citizens of the country I present to you so

1152

00:56:45,490 --> 00:56:41,500

again it is a problem

1153

00:56:47,970 --> 00:56:45,500

inform yourselves and make decisions according

1154

00:56:50,000 --> 00:56:47,980

to this information what

1155

00:56:52,130 --> 00:56:50,010

are you changing

1156

00:56:54,680 --> 00:56:52,140

and angela what is the perspective of the

1157

00:56:57,260 --> 00:56:54,690

perfectly crazy scientific journalist

1158

00:56:59,540 --> 00:56:57,270

to say carles and also of cathartic

1159

00:57:01,880 --> 00:56:59,550

thiago we have the responsibility to

1160

00:57:05,150 --> 00:57:01,890

inform ourselves And of course we are going to buy

1161

00:57:07,100 --> 00:57:05,160

light bulbs that are less

1162

00:57:09,890 --> 00:57:07,110

energy-consuming, this is fine, but first of

1163

00:57:12,320 --> 00:57:09,900

all we have to inform ourselves because if they are

1164

00:57:14,540 --> 00:57:12,330

not going to use us as if

1165

00:57:16,430 --> 00:57:14,550

we were vomiting and if we do not

1166

00:57:18,680 --> 00:57:16,440

inform them, it will be our fault and

1167

00:57:20,420 --> 00:57:18,690

no one else. It will do it for us, we have

1168

00:57:23,870 --> 00:57:20,430

to be proactive, know where the

1169

00:57:26,750 --> 00:57:23,880

good news is and do it on all

1170

00:57:28,640 --> 00:57:26,760

digital written platforms and

1171

00:57:30,170 --> 00:57:28,650

learn so that tomorrow they

1172

00:57:30,170 --> 00:57:32,180

come to tell us that this is not happening.

1173

00:57:37,100 --> 00:57:35,300

that we have to learn on

1174

00:57:39,410 --> 00:57:37,110

our own without anyone imposing on us, it

1175

00:57:41,750 --> 00:57:39,420

is also hilarious it is so complex

1176

00:57:44,740 --> 00:57:41,760

that it is fun I promise you this

1177

00:57:47,420 --> 00:57:44,750

is that thank you very much thank you

1178

00:57:49,100 --> 00:57:47,430

since we have run out of time I wanted to

1179

00:57:50,660 --> 00:57:49,110

thank the panelists above all

1180

00:57:54,050 --> 00:57:50,670

for participating but also our

1181

00:57:55,430 --> 00:57:54,060

viewers and eyes listeners in

1182

00:57:58,400 --> 00:57:55,440

any way you do

1183

00:58:00,560 --> 00:57:58,410

since hangout and this is not all because

1184

00:58:03,320 --> 00:58:00,570

the conversation is still being born keep

1185

00:58:05,720 --> 00:58:03,330

posting new information about

1186

00:58:07,850 --> 00:58:05,730

new new research on

1187

00:58:09,650 --> 00:58:07,860

climate change and I would recommend you

1188

00:58:13,970 --> 00:58:09,660

follow us on twitter we have a

1189

00:58:14,600 --> 00:58:13,980

twitter account in spanish at nasa barra

1190

00:58:17,900 --> 00:58:14,610

baja

1191

00:58:20,420 --> 00:58:17,910

that is nasa in spanish and again thank you very much

1192

00:58:25,070 --> 00:58:20,430

everyone and i hope now you have