
ARTEM

1
00:00:00,790 --> 00:00:06,200
[Music] [

2
00:00:06,210 --> 00:00:13,920
Music]

3
00:00:20,110 --> 00:00:17,950
Hi, I'm Dr. Marta Pérez Davis,

4
00:00:23,650 --> 00:00:20,120
Director of the

5
00:00:26,020 --> 00:00:23,660
NASA Glenn Research Center, Cover Up, Ohio. Today we're going to

6
00:00:27,850 --> 00:00:26,030
talk about the Artemis program, but before we

7
00:00:29,859 --> 00:00:27,860
start talking about the Artemis program,

8
00:00:32,529 --> 00:00:29,869
I want to tell you where we are,

9
00:00:35,979 --> 00:00:32,539
we're in the chamber. reverberant which is

10
00:00:38,979 --> 00:00:35,989
the most powerful in the world at the station

11
00:00:41,470 --> 00:00:38,989
with brooke in sandusky here we carry

12
00:00:44,130 --> 00:00:41,480
out acoustic tests for the

13
00:00:46,889 --> 00:00:44,140

spacecraft and the components

14
00:00:50,520 --> 00:00:46,899
what it simulates is the launch and

15
00:00:54,030 --> 00:00:50,530
we reached more or less 163 decibels which

16
00:00:57,420 --> 00:00:54,040
is equivalent to 20 rocket engines Planes at

17
00:01:01,290 --> 00:00:57,430
the same time with me are three

18
00:01:04,710 --> 00:01:01,300
engineers from NASA Mr. Rafael

19
00:01:08,670 --> 00:01:04,720
García, a mechanical engineer from the

20
00:01:11,490 --> 00:01:08,680
Florida space station in Kennedy,

21
00:01:14,760 --> 00:01:11,500
Dr. Dios Hernández Lugo, who

22
00:01:17,490 --> 00:01:14,770
works and works here at the

23
00:01:19,889 --> 00:01:17,500
Naza Glenn Research Center, and

24
00:01:23,450 --> 00:01:19,899
Mr. Vicente suárez mechanical engineer

25
00:01:26,700 --> 00:01:23,460
who also works at the

26
00:01:29,550 --> 00:01:26,710
nclr race class research station how

27
00:01:31,710 --> 00:01:29,560
are you very well thank you well thank you for

28
00:01:34,469 --> 00:01:31,720
being here with me this morning we are going to

29
00:01:37,109 --> 00:01:34,479
talk about the program artemis god who

30
00:01:39,450 --> 00:01:37,119
is artemis in the greek methodology

31
00:01:42,649 --> 00:01:39,460
alchemist is the goddess of the moon and It's

32
00:01:48,020 --> 00:01:45,529
Rafael, how are you? Thank you and

33
00:01:50,840 --> 00:01:48,030
why, because tennis before the minister

34
00:01:52,459 --> 00:01:50,850
because she's going to make the ship and the mission

35
00:01:56,660 --> 00:01:52,469
that will take the first woman to the

36
00:01:58,080 --> 00:01:56,670
moon in 1224 and the rest of the hangover is

37
00:02:02,240 --> 00:01:58,090
the man

38
00:02:04,760 --> 00:02:02,250

vicente how are you very well thank you

39
00:02:07,550 --> 00:02:04,770
tell me tennis one that we are

40
00:02:09,740 --> 00:02:07,560
barracking one currently

41
00:02:11,240 --> 00:02:09,750
tennis player one we are putting him in

42
00:02:13,550 --> 00:02:11,250
different environmental conditions that he

43
00:02:17,060 --> 00:02:13,560
will be exposed during takeoff

44
00:02:20,540 --> 00:02:17,070
and in orbit very well I have a few

45
00:02:24,570 --> 00:02:20,550
questions so let's start with

46
00:02:29,190 --> 00:02:26,310
at least of the energy systems

47
00:02:33,120 --> 00:02:29,200
that we are investigating for the moon and

48
00:02:36,630 --> 00:02:33,130
mars could you tell me what are the

49
00:02:39,660 --> 00:02:36,640
requirements for the moon with the program

50
00:02:42,360 --> 00:02:39,670
and the alchemist mission we are trying

51
00:02:47,160 --> 00:02:42,370
to go to the moon take the first woman

52
00:02:49,860 --> 00:02:47,170
to give a and nacer clan is working

53
00:02:54,600 --> 00:02:49,870
on different energy systems among

54
00:02:58,100 --> 00:02:54,610
them we have batteries and solar panels

55
00:03:02,100 --> 00:02:58,110
and nuclear systems such as

56
00:03:03,780 --> 00:03:02,110
radioisotopes and fission systems the

57
00:03:07,170 --> 00:03:03,790
reason why we are doing this

58
00:03:09,120 --> 00:03:07,180
is because on the moon we are going to have

59
00:03:12,240 --> 00:03:09,130
what is known as night lunar, which

60
00:03:13,920 --> 00:03:12,250
is 14 days, is that we are in complete

61
00:03:17,280 --> 00:03:13,930
darkness, not only that, but also the

62
00:03:18,990 --> 00:03:17,290
temperatures drop a lot, therefore

63
00:03:20,280 --> 00:03:19,000

NASA is working with

64
00:03:22,170 --> 00:03:20,290
different different systems

65
00:03:25,860 --> 00:03:22,180
developing different systems to

66
00:03:27,960 --> 00:03:25,870
form the energy architecture

67
00:03:30,420 --> 00:03:27,970
on the surface of the moon

68
00:03:33,240 --> 00:03:30,430
and instruments can survive we can

69
00:03:35,430 --> 00:03:33,250
power the habitat where

70
00:03:37,140 --> 00:03:35,440
our astronauts will be and also that

71
00:03:39,260 --> 00:03:37,150
the instruments can survive the

72
00:03:42,450 --> 00:03:39,270
very low temperatures that we are going to have

73
00:03:44,310 --> 00:03:42,460
during the night in a good year these

74
00:03:46,230 --> 00:03:44,320
technologies are very important not

75
00:03:48,690 --> 00:03:46,240
because what we want to do is go to the

76
00:03:50,940 --> 00:03:48,700
luna and demonstrate the technologies that

77
00:03:52,680 --> 00:03:50,950
we need to continue to love you so it

78
00:03:56,190 --> 00:03:52,690
is very important that we get

79
00:03:59,130 --> 00:03:56,200
accomplished in the missions on the moon before

80
00:04:02,790 --> 00:03:59,140
we leave to love you

81
00:04:05,490 --> 00:04:02,800
rafael in my understanding that you are

82
00:04:07,230 --> 00:04:05,500
here as a mechanical engineer

83
00:04:08,670 --> 00:04:07,240
in charge of some of the tests that

84
00:04:10,050 --> 00:04:08,680
we are conducting, could you tell me more

85
00:04:13,170 --> 00:04:10,060
about the tests that we are carrying out now,

86
00:04:17,370 --> 00:04:13,180
my position in the program,

87
00:04:19,590 --> 00:04:17,380
I am the leader of all the testing of

88
00:04:22,380 --> 00:04:19,600

all the tests of the spacecraft and

89
00:04:24,240 --> 00:04:22,390
I travel in the spaceship where there are different

90
00:04:26,220 --> 00:04:24,250
places for that The reason I'm here in

91
00:04:28,770 --> 00:04:26,230
plumbers for the last three months

92
00:04:31,860 --> 00:04:28,780
because here we are with you conducting

93
00:04:33,780 --> 00:04:31,870
two major mental tests in vain

94
00:04:37,170 --> 00:04:33,790
because it's the first time we're going to

95
00:04:40,170 --> 00:04:37,180
have the ship exposed to the barometer

96
00:04:44,070 --> 00:04:40,180
of the vacuum of space and the extreme

97
00:04:46,950 --> 00:04:44,080
temperatures we're doing the

98
00:04:50,190 --> 00:04:46,960
test of thermal balance in a vacuum

99
00:04:52,890 --> 00:04:50,200
to understand how the ship works, how

100
00:04:55,920 --> 00:04:52,900
the different systems relate

101
00:04:59,100 --> 00:04:55,930
to each other and to understand how we can

102
00:04:59,100 --> 00:05:00,719
control this test for the flight, we finished it

103
00:05:04,860 --> 00:05:02,999
two or three weeks ago and now we are

104
00:05:11,010 --> 00:05:08,520
doing the configuration to answer

105
00:05:17,310 --> 00:05:11,020
the electromagnetic

106
00:05:20,220 --> 00:05:17,320
that tells us how the team works

107
00:05:22,590 --> 00:05:20,230
among themselves as a team because

108
00:05:24,930 --> 00:05:22,600
how a system can affect another

109
00:05:28,050 --> 00:05:24,940
system to know how everything

110
00:05:31,380 --> 00:05:28,060
works in an integrated way then

111
00:05:35,580 --> 00:05:31,390
we are going to simulate all the radiation that the

112
00:05:37,400 --> 00:05:35,590
ship is going to do exposed since it

113
00:05:39,960 --> 00:05:37,410

is in the prat for the launch

114
00:05:44,000 --> 00:05:39,970
around the moon until it enters

115
00:05:44,000 --> 00:05:46,200
there we are going to expose the spacecraft to all these

116
00:05:51,900 --> 00:05:48,630
electromagnetic radiation to see how the spacecraft

117
00:05:57,350 --> 00:05:51,910
actions and that test is going to start in

118
00:06:00,679 --> 00:05:57,360
the next 24 hours Vicente is coming, a

119
00:06:01,969 --> 00:06:00,689
mechanical engineer, if you are Vicente, what have you

120
00:06:04,189 --> 00:06:01,979
been working on, what have you

121
00:06:06,589 --> 00:06:04,199
worked at home in terms of

122
00:06:10,010 --> 00:06:06,599
exploration systems, can you talk to him

123
00:06:10,010 --> 00:06:11,629
about that?

124
00:06:22,390 --> 00:06:20,240
Spaceships or different loads that

125
00:06:24,559 --> 00:06:22,400
make space extremely

126
00:06:27,439 --> 00:06:24,569
important for these tests because the

127
00:06:29,659 --> 00:06:27,449
objective of these tests is to simulate the

128
00:06:31,800 --> 00:06:29,669
environmental condition that these artifacts

129
00:06:35,550 --> 00:06:31,810
will be exposed to

130
00:06:38,260 --> 00:06:35,560
during takeoff, both when they are uploaded into

131
00:06:42,430 --> 00:06:38,270
space and when they are in orbit

132
00:06:45,700 --> 00:06:42,440
here at the center. From

133
00:06:48,280 --> 00:06:45,710
NASA investigations we simulate different types of

134
00:06:51,850 --> 00:06:48,290
tests, be it acoustic vibrations or

135
00:06:56,200 --> 00:06:51,860
shock waves, electrical emissions, and

136
00:06:59,380 --> 00:06:56,210
the purpose is to try to see how

137
00:07:01,450 --> 00:06:59,390
the durability of these

138
00:07:03,730 --> 00:07:01,460

devices works during these tests,

139
00:07:06,340 --> 00:07:03,740
and more than anything, it is very important because

140
00:07:08,290 --> 00:07:06,350
if there is any kind of deficiency

141
00:07:10,530 --> 00:07:08,300
it is much better to fix them here on

142
00:07:12,760 --> 00:07:10,540
earth than when they are in space they

143
00:07:15,190 --> 00:07:12,770
are vicente I know that you also

144
00:07:17,380 --> 00:07:15,200
worked with experiments for the

145
00:07:19,090 --> 00:07:17,390
international space station

146
00:07:22,150 --> 00:07:19,100
could you tell me what kind of experiments

147
00:07:25,200 --> 00:07:22,160
are you working on for

148
00:07:28,950 --> 00:07:25,210
experiments with llamas yes exactly

149
00:07:30,940 --> 00:07:28,960
as we all know microgravity

150
00:07:33,200 --> 00:07:30,950
allows scientists

151
00:07:36,800 --> 00:07:33,210
scientists to

152
00:07:39,020 --> 00:07:36,810
study flames without the effect of

153
00:07:42,320 --> 00:07:39,030
gravity that is very important because it

154
00:07:45,499 --> 00:07:42,330
can help different designers and

155
00:07:48,110 --> 00:07:45,509
engineers develop new

156
00:07:50,450 --> 00:07:48,120
types of energy systems and power plants

157
00:07:55,879 --> 00:07:53,480
and in a more efficient way

158
00:07:58,700 --> 00:07:55,889
and more friendly to the environment, in addition

159
00:08:01,010 --> 00:07:58,710
to that, we have experiments where we

160
00:08:02,930 --> 00:08:01,020
are studying the behavior of

161
00:08:05,719 --> 00:08:02,940
different materials when they are

162
00:08:07,370 --> 00:08:05,729
exposed to the intensity of fire. This

163
00:08:09,559 --> 00:08:07,380

is also very important because it

164
00:08:11,120 --> 00:08:09,569
can help us to determine how to help

165
00:08:13,070 --> 00:08:11,130
astronauts in an

166
00:08:15,920 --> 00:08:13,080
emergency at a fire when they

167
00:08:18,470 --> 00:08:15,930
are on the ship or are returning to

168
00:08:25,290 --> 00:08:22,830
god the first woman

169
00:08:27,510 --> 00:08:25,300
on the moon what does that mean for you

170
00:08:27,510 --> 00:08:30,559
as a woman but also as a nasa engineer

171
00:08:35,540 --> 00:08:33,170
since i was little growing up in puerto rico i

172
00:08:38,779 --> 00:08:35,550
was always aware of all the

173
00:08:41,480 --> 00:08:38,789
different missions that I wanted to

174
00:08:43,399 --> 00:08:41,490
watch them with the whole family on

175
00:08:45,340 --> 00:08:43,409
TV, so since I was little I always

176
00:08:48,889 --> 00:08:45,350
had an interest in coming to work

177
00:08:52,129 --> 00:08:48,899
here at NASA. It wasn't until my doctorate

178
00:08:54,800 --> 00:08:52,139
that I can start working

179
00:08:56,889 --> 00:08:54,810
with different technologies that

180
00:09:00,439 --> 00:08:56,899
NASA is working on and that brought me here to

181
00:09:03,590 --> 00:09:00,449
Mazatlan. as an engineer in the

182
00:09:06,319 --> 00:09:03,600
battery area so that's where I started so

183
00:09:08,150 --> 00:09:06,329
now I'm managing a group

184
00:09:11,420 --> 00:09:08,160
that is developing

185
00:09:15,319 --> 00:09:11,430
nuclear systems so for me this show

186
00:09:17,900 --> 00:09:15,329
and the art show mimics being able to see the

187
00:09:20,800 --> 00:09:17,910
first woman to get to the get to the

188
00:09:23,809 --> 00:09:20,810

luna is actually more than a dream to

189
00:09:26,090 --> 00:09:23,819
be able to work and be

190
00:09:27,860 --> 00:09:26,100
part of this program to be working

191
00:09:29,660 --> 00:09:27,870
on technologies that will help

192
00:09:33,379 --> 00:09:29,670
our astronauts, including women,

193
00:09:35,269 --> 00:09:33,389
to be able to do the necessary science to

194
00:09:36,210 --> 00:09:35,279
be able to learn on the moon and then be able to

195
00:09:39,450 --> 00:09:36,220
take that

196
00:09:42,720 --> 00:09:39,460
learning to love you yes if we look back

197
00:09:44,790 --> 00:09:42,730
no for me apollo was that motivation to

198
00:09:47,580 --> 00:09:44,800
study engineering I

199
00:09:48,680 --> 00:09:47,590
always remember wine the first

200
00:09:51,030 --> 00:09:48,690
steps on the moon

201
00:09:53,760 --> 00:09:51,040
artemis it will be that for the next

202
00:09:56,580 --> 00:09:53,770
generation not to motivate and inspire this

203
00:09:59,220 --> 00:09:56,590
generation for science technology

204
00:10:02,340 --> 00:09:59,230
mathematics and engineering that so it

205
00:10:05,010 --> 00:10:02,350
's not just the developments in

206
00:10:07,380 --> 00:10:05,020
terms of how it helps technology

207
00:10:10,370 --> 00:10:07,390
but also what it does to inspire the

208
00:10:12,750 --> 00:10:10,380
youth and the next generations

209
00:10:15,420 --> 00:10:12,760
all the technologies we develop

210
00:10:19,260 --> 00:10:15,430
to get to the moon to live on the

211
00:10:23,580 --> 00:10:19,270
moon to go to mars always get

212
00:10:26,760 --> 00:10:23,590
that happen is a cycle they are not technologies

213
00:10:30,450 --> 00:10:26,770

that are used to improve life here on

214
00:10:32,430 --> 00:10:30,460
earth so who knows what which is which are

215
00:10:34,950 --> 00:10:32,440
the technologies 20

216
00:10:36,480 --> 00:10:34,960
40 years from now that are the result of what

217
00:10:38,660 --> 00:10:36,490
we are working on today

218
00:10:41,220 --> 00:10:38,670
is unique we are very lucky

219
00:10:44,780 --> 00:10:41,230
lucky to be working on this

220
00:10:51,070 --> 00:10:48,820
vicente i come back to you i

221
00:10:52,870 --> 00:10:51,080
know you are working or have worked on

222
00:10:55,780 --> 00:10:52,880
one of the technologies that is one of my

223
00:10:58,570 --> 00:10:55,790
favorites at the moment it is

224
00:11:01,150 --> 00:10:58,580
shape memory alloy could you tell me

225
00:11:03,990 --> 00:11:01,160
how we are using this technology and what

226
00:11:06,250 --> 00:11:04,000
we can do make clear with that technology

227
00:11:09,700 --> 00:11:06,260
currently here at the

228
00:11:11,879 --> 00:11:09,710
research center that law

229
00:11:13,889 --> 00:11:11,889
of nasa

230
00:11:16,829 --> 00:11:13,899
we are using this type of technologies

231
00:11:18,889 --> 00:11:16,839
to develop and design new

232
00:11:21,930 --> 00:11:18,899
tires

233
00:11:23,699 --> 00:11:21,940
especially nickel and titanium

234
00:11:26,009 --> 00:11:23,709
these new high

235
00:11:28,870 --> 00:11:26,019
performance tires are going to be used in

236
00:11:32,269 --> 00:11:28,880
future missions missions framed in the moon

237
00:11:35,840 --> 00:11:32,279
the advantages of this new technology

238
00:11:38,689 --> 00:11:35,850

is that these tires mold to the

239
00:11:42,079 --> 00:11:38,699
ground where they are going to be treading, in addition

240
00:11:44,900 --> 00:11:42,089
to that they do not join as much as the

241
00:11:47,119 --> 00:11:44,910
rigid wheels that exist now that

242
00:11:49,429 --> 00:11:47,129
allows the robots to have

243
00:11:51,559 --> 00:11:49,439
much more additional loads and I

244
00:11:55,340 --> 00:11:51,569
believe It is very important that this

245
00:11:59,260 --> 00:11:55,350
new technology one of the advantages is

246
00:12:02,800 --> 00:11:59,270
that it absorbs a lot of

247
00:12:04,840 --> 00:12:02,810
energy from impacts at

248
00:12:07,750 --> 00:12:04,850
different speeds, especially at

249
00:12:09,880 --> 00:12:07,760
moderate or high speeds. This is

250
00:12:12,340 --> 00:12:09,890
very beneficial because now

251
00:12:14,530 --> 00:12:12,350
the transportation

252
00:12:17,080 --> 00:12:14,540
for astronauts that

253
00:12:18,310 --> 00:12:17,090
is currently available can be designed and developed. calculated that it will be much faster

254
00:12:22,930 --> 00:12:20,610
than the speeds of the mars robots

255
00:12:25,300 --> 00:12:22,940
I know that we have a

256
00:12:29,110 --> 00:12:25,310
facility that we have here in massacre in

257
00:12:32,500 --> 00:12:29,120
great ohio that we can simulate as the

258
00:12:35,590 --> 00:12:32,510
movement of the wheels or the

259
00:12:36,730 --> 00:12:35,600
tires on the different surfaces and

260
00:12:39,160 --> 00:12:36,740
obviously it What we do is that

261
00:12:41,890 --> 00:12:39,170
we simulate the surface of the moon or the

262
00:12:46,390 --> 00:12:41,900
surface of Mars and how the

263
00:12:50,080 --> 00:12:46,400

performance of this technology is

264
00:12:51,710 --> 00:12:50,090
that material, as we do the tests

265
00:12:56,310 --> 00:12:51,720
there,

266
00:13:01,560 --> 00:12:59,940
Rafael, and we speak in general terms

267
00:13:06,950 --> 00:13:01,570
that when we finish the tests

268
00:13:09,580 --> 00:13:06,960
here, the Orion spacecraft to return to the

269
00:13:12,770 --> 00:13:09,590
kennedy space center in florida

270
00:13:14,210 --> 00:13:12,780
and there we will integrate it into the

271
00:13:16,580 --> 00:13:14,220
space launch system, which is the most

272
00:13:18,920 --> 00:13:16,590
powerful in the world, could you tell me

273
00:13:21,680 --> 00:13:18,930
what the steps are and what will

274
00:13:23,330 --> 00:13:21,690
happen when before integrating it into the

275
00:13:26,860 --> 00:13:23,340
rocket

276
00:13:30,140 --> 00:13:26,870
immediately that the ship returns to

277
00:13:32,110 --> 00:13:30,150
kennedy we are going to do a test to

278
00:13:35,450 --> 00:13:32,120
demonstrate that everything is still working we

279
00:13:38,660 --> 00:13:35,460
are going to finish the installation of the

280
00:13:41,120 --> 00:13:38,670
solar panels that are not in the ones

281
00:13:43,250 --> 00:13:41,130
we bring to bloomberg because we

282
00:13:49,880 --> 00:13:43,260
could not use them here it is going to be integrated

283
00:13:52,970 --> 00:13:49,890
then we are going to deliver it to the team

284
00:13:57,080 --> 00:13:52,980
that is in charge of integrating the ship to the

285
00:13:59,350 --> 00:13:57,090
rocket we have 10 3 10 tests after

286
00:14:03,110 --> 00:13:59,360
the integration that we are going to continue

287
00:14:06,140 --> 00:14:03,120
30 process that takes approximately

288
00:14:09,680 --> 00:14:06,150

a year and then we will be ready

289
00:14:12,710 --> 00:14:09,690
to launch files with it

290
00:14:15,890 --> 00:14:12,720
the first flight without people around

291
00:14:20,420 --> 00:14:15,900
of the moon to demonstrate how the ship

292
00:14:25,060 --> 00:14:20,430
works on that on that mission that

293
00:14:28,570 --> 00:14:25,070
will ensure that the mission of we do 2

294
00:14:32,249 --> 00:14:28,580
with the cross to the person is not

295
00:14:38,039 --> 00:14:34,199
now I would like to talk more

296
00:14:41,699 --> 00:14:38,049
generally about how they decided the field of

297
00:14:43,829 --> 00:14:41,709
engineering or science as you decided

298
00:14:45,059 --> 00:14:43,839
about your career we have numbers

299
00:14:47,869 --> 00:14:45,069
number of students who are

300
00:14:50,659 --> 00:14:47,879
interested in knowing more about

301
00:14:53,819 --> 00:14:50,669
careers in science engineering

302
00:14:56,159 --> 00:14:53,829
mathematics and what better than you who

303
00:15:00,370 --> 00:14:56,169
have been working for a few years

304
00:15:02,610 --> 00:15:00,380
at home and contributing to technology

305
00:15:07,110 --> 00:15:02,620
that I want to start

306
00:15:10,199 --> 00:15:07,120
because I start from a young age I always

307
00:15:12,840 --> 00:15:10,209
liked mathematics

308
00:15:15,389 --> 00:15:12,850
and to see if the truth was not a

309
00:15:18,689 --> 00:15:15,399
perfect student but always

310
00:15:20,549 --> 00:15:18,699
insistent and I liked mathematics a lot

311
00:15:23,669 --> 00:15:20,559
and when I went to

312
00:15:26,249 --> 00:15:23,679
university I had not defined what I wanted

313
00:15:28,720 --> 00:15:26,259

to do but mathematics and physics

314
00:15:33,610 --> 00:15:28,730
always attracted me

315
00:15:37,150 --> 00:15:33,620
and I went on that path and decided to go to

316
00:15:43,930 --> 00:15:37,160
mechanical engineering because I like to

317
00:15:47,050 --> 00:15:43,940
take things and I like that for that reason

318
00:15:49,059 --> 00:15:47,060
I am a mechanical engineer in the

319
00:15:51,910 --> 00:15:49,069
structure of dynamics career

320
00:15:55,660 --> 00:15:51,920
that, as she said, I break them and others,

321
00:15:58,160 --> 00:15:55,670
the rules are Vicente where you went where

322
00:16:01,120 --> 00:15:58,170
where are you from

323
00:16:03,590 --> 00:16:01,130
my parents are ecuadorian i was born in

324
00:16:06,829 --> 00:16:03,600
brooklyn mayor but i grew up in guayaquil

325
00:16:10,610 --> 00:16:06,839
ecuador and i did my primary and secondary school

326
00:16:12,949 --> 00:16:10,620
in ecuador guayaquil and that's where

327
00:16:16,970 --> 00:16:12,959
stony brook new york university came from

328
00:16:19,069 --> 00:16:16,980
here in the usa and when when how did you

329
00:16:23,150 --> 00:16:19,079
decide work like nash with nasa

330
00:16:25,790 --> 00:16:23,160
like me and i remember when i was 12 or

331
00:16:29,930 --> 00:16:25,800
13 years old there was a science

332
00:16:33,740 --> 00:16:29,940
fiction program and that's where my curiosity about

333
00:16:36,740 --> 00:16:33,750
space came from, fortunately when i

334
00:16:39,050 --> 00:16:36,750
graduated from university

335
00:16:41,400 --> 00:16:39,060
i went to work in a company

336
00:16:45,059 --> 00:16:41,410
related to space

337
00:16:49,110 --> 00:16:45,069
and from there I wanted to work at NASA and

338
00:16:51,930 --> 00:16:49,120

I was fortunate that it is not an

339
00:16:54,569 --> 00:16:51,940
open position in the branch that I like

340
00:16:59,490 --> 00:16:54,579
and I have been working here at NASA for 20 years

341
00:17:02,439 --> 00:16:59,500
excellent thanks to Vicente Dio

342
00:17:05,049 --> 00:17:02,449
Dr. Hernández Lugo

343
00:17:07,449 --> 00:17:05,059
oh god we have something in common or both of us

344
00:17:11,740 --> 00:17:07,459
It is a Puerto Rico

345
00:17:13,929 --> 00:17:11,750
I was born in Ponce but

346
00:17:18,819 --> 00:17:13,939
I practically grew up in Adjuntas, a small

347
00:17:21,929 --> 00:17:18,829
town in the mountains of Puerto Rico. I

348
00:17:26,980 --> 00:17:21,939
studied Chemistry at the University of Puerto Rico,

349
00:17:29,409 --> 00:17:26,990
Colegio Mayagüez, and I was

350
00:17:31,029 --> 00:17:29,419
also fortunate as tourists that

351
00:17:32,840 --> 00:17:31,039
nothing made me an offer. and i came to

352
00:17:37,039 --> 00:17:32,850
work with nasa

353
00:17:38,750 --> 00:17:37,049
i started as a researcher and continued at the

354
00:17:42,169 --> 00:17:38,760
same time i was working i finished

355
00:17:45,409 --> 00:17:42,179
my masters with the university of toledo

356
00:17:47,450 --> 00:17:45,419
and my doctorate with the university here

357
00:17:51,529 --> 00:17:47,460
in cleveland ohio case western state

358
00:17:54,740 --> 00:17:51,539
university it was given where you were born is where

359
00:17:57,400 --> 00:17:54,750
you studied is how you got there Janasa, well,

360
00:18:01,070 --> 00:17:57,410
we have three things in common

361
00:18:01,940 --> 00:18:01,080
born and raised in Puerto Rico born in

362
00:18:05,899 --> 00:18:01,950
Ponce you

363
00:18:07,820 --> 00:18:05,909

didn't know with address and this and I

364
00:18:10,250 --> 00:18:07,830
also studied at Juve I

365
00:18:12,020 --> 00:18:10,260
left is the University of Puerto the

366
00:18:13,940 --> 00:18:12,030
University of Puerto Rico but they study

367
00:18:17,390 --> 00:18:13,950
Río Piedra

368
00:18:18,710 --> 00:18:17,400
this so I I became interested in the area

369
00:18:20,000 --> 00:18:18,720
of ■■science around

370
00:18:23,000 --> 00:18:20,010
fifth grade,

371
00:18:25,669 --> 00:18:23,010
my mother bought me a small microscope herself

372
00:18:27,860 --> 00:18:25,679
and from there my interest began to

373
00:18:29,210 --> 00:18:27,870
want to see the different samples I

374
00:18:31,000 --> 00:18:29,220
carried this microscope wherever

375
00:18:34,390 --> 00:18:31,010
I went

376
00:18:36,310 --> 00:18:34,400
family gatherings obviously

377
00:18:37,930 --> 00:18:36,320
adults always they were talking I

378
00:18:39,760 --> 00:18:37,940
told my aunt who is a teacher to

379
00:18:41,380 --> 00:18:39,770
do math exercises for me

380
00:18:43,240 --> 00:18:41,390
something good and that's how I entertained myself here

381
00:18:46,180 --> 00:18:43,250
bored but that's how I

382
00:18:48,940 --> 00:18:46,190
entertained myself this is from there my

383
00:18:51,700 --> 00:18:48,950
interest in the area of ■■science was born it's not

384
00:18:54,570 --> 00:18:51,710
until I get to my PhD which

385
00:18:57,760 --> 00:18:54,580
then I start working on

386
00:19:00,100 --> 00:18:57,770
technologies that have to do with nothing

387
00:19:03,700 --> 00:19:00,110
in particular but before I got to my

388
00:19:05,110 --> 00:19:03,710

PhD my interest was science and

389
00:19:07,600 --> 00:19:05,120
people always told me that I should

390
00:19:09,490 --> 00:19:07,610
study medicine everyone told me

391
00:19:12,090 --> 00:19:09,500
you should Being a doctor should study

392
00:19:15,340 --> 00:19:12,100
medicine, so I started in that at that

393
00:19:18,040 --> 00:19:15,350
stage, that is, I entered pre-medical and entered

394
00:19:20,140 --> 00:19:18,050
my first year of medicine, but when I

395
00:19:23,320 --> 00:19:20,150
entered my first year of medicine, I had

396
00:19:25,690 --> 00:19:23,330
the opportunity to visit the morgue and I

397
00:19:28,780 --> 00:19:25,700
said this is for me and this I am not going to

398
00:19:32,110 --> 00:19:28,790
be struggling with a body and no and

399
00:19:34,600 --> 00:19:32,120
so from there I made my change as I

400
00:19:36,850 --> 00:19:34,610
liked mathematics very much chemistry was

401
00:19:38,590 --> 00:19:36,860
the closest thing

402
00:19:40,840 --> 00:19:38,600
to mathematics I knew that biology

403
00:19:42,549 --> 00:19:40,850
I did not want to do that so I studied

404
00:19:44,830 --> 00:19:42,559
I did my bachelor's degree in

405
00:19:47,140 --> 00:19:44,840
industrial chemistry and my doctorate in

406
00:19:48,850 --> 00:19:47,150
physical chemistry, both from the University of Puerto

407
00:19:51,580 --> 00:19:48,860
Rico. When I'm doing my doctorate,

408
00:19:54,490 --> 00:19:51,590
NASA offers me a scholarship that is

409
00:19:56,950 --> 00:19:54,500
the Hub and Jenkins Fellowship and SF, which

410
00:19:59,740 --> 00:19:56,960
allowed me to come to NASA as a

411
00:20:01,660 --> 00:19:59,750
student. boarding school for three years

412
00:20:03,210 --> 00:20:01,670
because we met, that's when we

413
00:20:07,330 --> 00:20:03,220

met, that's when we met

414
00:20:11,380 --> 00:20:07,340
then and from there then I got a

415
00:20:15,159 --> 00:20:11,390
position as an intern pathway student

416
00:20:17,409 --> 00:20:15,169
and then then I got

417
00:20:20,049 --> 00:20:17,419
an offer and then I was able to start

418
00:20:24,220 --> 00:20:20,059
working here at NASA, so my

419
00:20:27,460 --> 00:20:24,230
process is a bit long, but I had the

420
00:20:29,919 --> 00:20:27,470
opportunity to benefit from different

421
00:20:32,799 --> 00:20:29,929
education programs that have us, to

422
00:20:35,289 --> 00:20:32,809
which I adjusted them all,

423
00:20:37,299 --> 00:20:35,299
and that was what allowed me to be

424
00:20:41,730 --> 00:20:37,309
here and work here at NASA. It has

425
00:20:45,340 --> 00:20:41,740
been my dream since I was little, there is something that

426
00:20:47,610 --> 00:20:45,350
students should note and the

427
00:20:49,890 --> 00:20:47,620
first is that

428
00:20:52,470 --> 00:20:49,900
no matter what you decide, you always

429
00:20:55,140 --> 00:20:52,480
have the decision and the opportunity to

430
00:20:57,240 --> 00:20:55,150
change why you chose which medicine is not

431
00:20:59,310 --> 00:20:57,250
and to tell you at a time that medicine

432
00:21:01,650 --> 00:20:59,320
is not For me, you ended up being a doctor, a doctor

433
00:21:04,620 --> 00:21:01,660
in the tract,

434
00:21:06,210 --> 00:21:04,630
instead, you ended up being a doctor, but

435
00:21:09,299 --> 00:21:06,220
that interest in science and

436
00:21:12,169 --> 00:21:09,309
mathematics

437
00:21:15,450 --> 00:21:12,179
is obviously reflected in your

438
00:21:16,830 --> 00:21:15,460

professional career and the fact that the

439
00:21:19,950 --> 00:21:16,840
opportunities you had to

440
00:21:23,279 --> 00:21:19,960
develop professionally where

441
00:21:25,310 --> 00:21:23,289
you are right now it's very motivating

442
00:21:29,360 --> 00:21:25,320
thank you rape

443
00:21:30,919 --> 00:21:29,370
son rafael we heard about vicente and dion his

444
00:21:32,450 --> 00:21:30,929
professional career could you

445
00:21:35,930 --> 00:21:32,460
tell us about yours i

446
00:21:40,100 --> 00:21:35,940
am the youngest of the group i

447
00:21:43,490 --> 00:21:40,110
was born in a marked puerto rico i lived in

448
00:21:45,409 --> 00:21:43,500
san lorenzo and i graduated from

449
00:21:49,970 --> 00:21:45,419
mayagüez engineering college

450
00:21:52,820 --> 00:21:49,980
Mechanics that interested me in NASA in 1969

451
00:21:55,220 --> 00:21:52,830
when they were making the landing

452
00:21:57,350 --> 00:21:55,230
I was in fifth or sixth grade and

453
00:21:59,960 --> 00:21:57,360
I decided that I wanted to work with NASA and

454
00:22:05,379 --> 00:21:59,970
everyone tells me you have to be an

455
00:22:08,480 --> 00:22:05,389
engineer and dedicate yourself to mechanical

456
00:22:11,180 --> 00:22:08,490
structure and structure, which is what you

457
00:22:14,779 --> 00:22:11,190
need and then I started looking for

458
00:22:16,899 --> 00:22:14,789
the school I went to chrome I studied

459
00:22:21,169 --> 00:22:16,909
since they concluded that it

460
00:22:21,169 --> 00:22:22,680
focuses on science and mathematics of college degree

461
00:22:29,370 --> 00:22:27,240
and received the NASA offer in houston and

462
00:22:33,360 --> 00:22:29,380
they were starting in the

463
00:22:36,300 --> 00:22:33,370

shuttle and I started doing

464
00:22:39,840 --> 00:22:36,310
what I am now doing

465
00:22:42,360 --> 00:22:39,850
the verification tests and starting when the

466
00:22:45,960 --> 00:22:42,370
second flight of the shuttle I was

467
00:22:49,980 --> 00:22:45,970
the one who carried the light, the tools and

468
00:22:56,400 --> 00:22:52,830
and I remember moving in Tehran

469
00:22:58,590 --> 00:22:56,410
inside the ship putting the equipment and

470
00:23:01,980 --> 00:22:58,600
then I finished the shuttle

471
00:23:04,169 --> 00:23:01,990
in development and verification I was involved

472
00:23:06,240 --> 00:23:04,179
in the space station for 13 years

473
00:23:08,870 --> 00:23:06,250
doing the same thing

474
00:23:13,700 --> 00:23:08,880
testing each module

475
00:23:16,160 --> 00:23:13,710
and integration and I got here on schedule, that

476
00:23:18,590 --> 00:23:16,170
is, my entire 40-year career

477
00:23:24,170 --> 00:23:18,600
because this year I turned 40 with nothing,

478
00:23:26,900 --> 00:23:24,180
this has been testing the ships before

479
00:23:28,970 --> 00:23:26,910
that they fly so that to prove that the

480
00:23:32,110 --> 00:23:28,980
design requirements have been

481
00:23:36,740 --> 00:23:32,120
manifested it has been an

482
00:23:40,490 --> 00:23:36,750
incredible incredible incredible race I say

483
00:23:43,100 --> 00:23:40,500
that they pay me for the fund in the portal

484
00:23:44,870 --> 00:23:43,110
to enjoy the situation that Rafael is coming

485
00:23:48,410 --> 00:23:44,880
and who would say not that when

486
00:23:52,190 --> 00:23:48,420
you started it was polo And now you are

487
00:23:55,250 --> 00:23:52,200
leaving the contribution that you are

488
00:23:59,150 --> 00:23:55,260

making to the future with Artemisa,

489
00:24:01,790 --> 00:23:59,160
my base is incredible. The people who

490
00:24:04,400 --> 00:24:01,800
taught me to work were from the support of the

491
00:24:06,890 --> 00:24:04,410
dust program and now one of the things

492
00:24:10,850 --> 00:24:06,900
that I am trying to do is a

493
00:24:13,460 --> 00:24:10,860
group of engineers starting to pass on

494
00:24:14,899 --> 00:24:13,470
the knowledge that there are some for the

495
00:24:17,299 --> 00:24:14,909
new generation that is called

496
00:24:20,539 --> 00:24:17,309
the generation of the first exact tennis player

497
00:24:22,489 --> 00:24:20,549
that is coming excellent thank you thank you for

498
00:24:24,830 --> 00:24:22,499
all that your contributions to nasa

499
00:24:27,289 --> 00:24:24,840
but your contributions to the development

500
00:24:32,780 --> 00:24:27,299
of space technology is incredible

501
00:24:39,490 --> 00:24:35,450
I had the opportunity to start

502
00:24:44,020 --> 00:24:39,500
over would you change your trajectory

503
00:24:45,600 --> 00:24:44,030
no no absolutely going to work at

504
00:24:49,120 --> 00:24:45,610
nasa

505
00:24:53,400 --> 00:24:49,130
as rafael said a blessing

506
00:24:57,600 --> 00:24:53,410
would not change anything at all

507
00:24:59,220 --> 00:24:57,610
my experience that in the link has

508
00:25:02,760 --> 00:24:59,230
been that

509
00:25:05,340 --> 00:25:02,770
most if not all engineers

510
00:25:08,760 --> 00:25:05,350
who work at nasa They feel very

511
00:25:10,790 --> 00:25:08,770
proud of what they do every day in

512
00:25:13,730 --> 00:25:10,800
a family environment

513
00:25:16,070 --> 00:25:13,740

in an environment of progress and in an

514
00:25:19,520 --> 00:25:16,080
environment that is very important

515
00:25:22,670 --> 00:25:19,530
for learning and so no, I

516
00:25:25,430 --> 00:25:22,680
would not change that at all. What advice do you

517
00:25:27,820 --> 00:25:25,440
give today's students to someone

518
00:25:32,350 --> 00:25:27,830
who If you are interested in

519
00:25:35,799 --> 00:25:32,360
the field of agronomy, what would be the

520
00:25:38,440 --> 00:25:35,809
advice given because it has happened with

521
00:25:41,030 --> 00:25:38,450
friends and colleagues,

522
00:25:44,210 --> 00:25:41,040
you have to love what you are doing

523
00:25:46,400 --> 00:25:44,220
if you can stay studying because

524
00:25:48,350 --> 00:25:46,410
what the sentence is, like you, you can

525
00:25:51,080 --> 00:25:48,360
stay studying at three in the morning

526
00:25:53,360 --> 00:25:51,090
tomorrow because you love what you are

527
00:25:57,410 --> 00:25:53,370
doing if I am not doing something you

528
00:26:01,490 --> 00:25:57,420
do not love you will not enjoy it and if you do not love

529
00:26:03,830 --> 00:26:01,500
what you study engineering or what we

530
00:26:06,350 --> 00:26:03,840
are doing do not waste time

531
00:26:08,080 --> 00:26:06,360
because you will never enjoy it there are people who

532
00:26:10,340 --> 00:26:08,090
la la what

533
00:26:14,280 --> 00:26:10,350
they love

534
00:26:20,100 --> 00:26:16,710
for the car that's what they have to

535
00:26:21,920 --> 00:26:20,110
do because that's where they're going to excel, that is, they have to

536
00:26:25,200 --> 00:26:21,930
prove it don't

537
00:26:28,170 --> 00:26:25,210
think about money don't think about the

538
00:26:33,180 --> 00:26:28,180

pride of working don't think about what that

539
00:26:36,420 --> 00:26:33,190
he loves and is going to be more you are going to do the ideal he

540
00:26:39,610 --> 00:26:36,430
left in the degree and he left very well I

541
00:26:44,320 --> 00:26:42,730
tell him is that if they are

542
00:26:46,360 --> 00:26:44,330
interested in science and

543
00:26:47,950 --> 00:26:46,370
mathematics and they think that you can do

544
00:26:50,200 --> 00:26:47,960
something of what already We have

545
00:26:52,000 --> 00:26:50,210
explained it here, all of us work

546
00:26:54,100 --> 00:26:52,010
in different centers and we

547
00:26:55,710 --> 00:26:54,110
focus and specialize in

548
00:26:58,090 --> 00:26:55,720
different areas.

549
00:27:00,280 --> 00:26:58,100
I think that in the group I am the only one

550
00:27:03,400 --> 00:27:00,290
who is a little off from the others

551
00:27:08,049 --> 00:27:03,410
because for my education it was not in

552
00:27:09,520 --> 00:27:08,059
engineering but to bring I think my story

553
00:27:12,250 --> 00:27:09,530
is important because

554
00:27:14,350 --> 00:27:12,260
students should understand that NASA not

555
00:27:17,260 --> 00:27:14,360
only recruits in the area of ■■engineering,

556
00:27:19,990 --> 00:27:17,270
but NASA also has another area

557
00:27:22,390 --> 00:27:20,000
that is the research area where

558
00:27:24,970 --> 00:27:22,400
people with other

559
00:27:26,440 --> 00:27:24,980
types of education besides the area

560
00:27:29,100 --> 00:27:26,450
of ■■education are also recruited. accounting in the area of

561
00:27:32,730 --> 00:27:29,110
human resources so there is a range of

562
00:27:35,080 --> 00:27:32,740
opportunities within this agency

563
00:27:36,880 --> 00:27:35,090

for those who are interested in

564
00:27:39,280 --> 00:27:36,890
science and math I tell you that

565
00:27:41,440 --> 00:27:39,290
all of us went through all the

566
00:27:43,060 --> 00:27:41,450
math through all the science

567
00:27:45,370 --> 00:27:43,070
many were the ones

568
00:27:47,080 --> 00:27:45,380
who had the good notes

569
00:27:49,930 --> 00:27:47,090
others had to work a little more

570
00:27:51,909 --> 00:27:49,940
but if that is really your interest that is what you

571
00:27:53,680 --> 00:27:51,919
want to do all of us did it

572
00:27:55,509 --> 00:27:53,690
all of us come from a

573
00:27:58,509 --> 00:27:55,519
background that we are Hispanics from

574
00:28:01,090 --> 00:27:58,519
different areas and we have come

575
00:28:04,570 --> 00:28:01,100
this far and we are involved in projects and

576
00:28:06,490 --> 00:28:04,580
programs that They are important for the

577
00:28:08,200 --> 00:28:06,500
agency, so just as we

578
00:28:10,090 --> 00:28:08,210
did, all the students

579
00:28:11,950 --> 00:28:10,100
out there can also do it with effort and

580
00:28:14,860 --> 00:28:11,960
dedication.

581
00:28:18,940 --> 00:28:14,870
An emphasis that I want to give

582
00:28:20,590 --> 00:28:18,950
about your answer is that if we

583
00:28:22,149 --> 00:28:20,600
recruit more than engineers and

584
00:28:25,240 --> 00:28:22,159
scientists, we don't also need

585
00:28:26,590 --> 00:28:25,250
lawyers people in business administration

586
00:28:33,509 --> 00:28:30,360
anyway in any field like any

587
00:28:36,580 --> 00:28:33,519
industry we need everything to

588
00:28:40,360 --> 00:28:36,590

achieve the missions

589
00:28:43,060 --> 00:28:40,370
assigned to us vicente do you have any

590
00:28:45,890 --> 00:28:43,070
other advice for students

591
00:28:48,870 --> 00:28:45,900
of course this persistence

592
00:28:52,290 --> 00:28:48,880
is very important

593
00:28:54,240 --> 00:28:52,300
I sometimes remember of my life and I was

594
00:28:57,690 --> 00:28:54,250
a boy in Guayaquil playing in the

595
00:29:01,290 --> 00:28:57,700
streets with my friends and now I'm

596
00:29:03,480 --> 00:29:01,300
here at NASA I mean it's something that

597
00:29:05,730 --> 00:29:03,490
sometimes I myself medium low

598
00:29:09,660 --> 00:29:05,740
impressive no but all your persistence

599
00:29:11,790 --> 00:29:09,670
dedication persistence and

600
00:29:14,550 --> 00:29:11,800
to a certain extent that Do not get carried

601
00:29:16,620 --> 00:29:14,560
away by the grades or by the bad

602
00:29:19,950 --> 00:29:16,630
moments that the university gives you

603
00:29:21,690 --> 00:29:19,960
because it is in the real world

604
00:29:24,390 --> 00:29:21,700
of course, in general you have to be a good

605
00:29:28,740 --> 00:29:24,400
student for the real world what is

606
00:29:30,990 --> 00:29:28,750
worth is persistence in a project

607
00:29:33,360 --> 00:29:31,000
the desire to work and as

608
00:29:36,900 --> 00:29:33,370
Rafael said, the love he has for work,

609
00:29:40,259 --> 00:29:36,910
then this, as God said, if

610
00:29:43,159 --> 00:29:40,269
we achieve that we come

611
00:29:44,849 --> 00:29:43,169
from countries to certain

612
00:29:47,070 --> 00:29:44,859
underdeveloped points and we are here

613
00:29:49,489 --> 00:29:47,080

representing these countries and in

614
00:29:52,499 --> 00:29:49,499
NASA I believe that everyone can achieve it

615
00:29:56,520 --> 00:29:52,509
commitment and dedication commitment and dedication

616
00:30:01,330 --> 00:29:58,850
something else that you want to add a comment at the end

617
00:30:08,509 --> 00:30:03,890
thank you for inviting me

618
00:30:17,029 --> 00:30:13,430
go ahead and now real relationships the

619
00:30:19,159 --> 00:30:17,039
first woman to the moon exhibit 2024 with

620
00:30:19,909 --> 00:30:19,169
the artemisa program and we continue for

621
00:30:21,739 --> 00:30:19,919
martín

622
00:30:26,159 --> 00:30:21,749
thank you for all that you have contributed