



1
00:00:05,690 --> 00:00:02,869
hey everyone I'm Marina Jurika with

2
00:00:07,430 --> 00:00:05,700
NASA's jet propulsion laboratory and

3
00:00:09,770 --> 00:00:07,440
we're live here on lab in Southern

4
00:00:12,950 --> 00:00:09,780
California to tell you a little bit more

5
00:00:16,670 --> 00:00:12,960
about the SWAT Mission now the Swatch

6
00:00:18,769 --> 00:00:16,680
satellite will be observing almost 90

7
00:00:21,290 --> 00:00:18,779
percent of the water on the Earth's

8
00:00:23,630 --> 00:00:21,300
surface for the first time and the swap

9
00:00:27,290 --> 00:00:23,640
mission is led by NASA and the French

10
00:00:30,050 --> 00:00:27,300
space agency canes and here to tell me a

11
00:00:32,210 --> 00:00:30,060
little bit more about what SWAT will do

12
00:00:35,750 --> 00:00:32,220
and how it will benefit each and every

13
00:00:38,270 --> 00:00:35,760

one of us is JPL hydrologist Cedric

14

00:00:40,490 --> 00:00:38,280

David and I'm going to be calling him

15

00:00:51,410 --> 00:00:40,500

into this Instagram live right now so

16

00:00:51,420 --> 00:01:02,029

all right just sent him the invitation

17

00:01:07,609 --> 00:01:04,609

and they're used hello Cedric can you

18

00:01:08,170 --> 00:01:07,619

hear me yes hi are we live this is it we

19

00:01:10,030 --> 00:01:08,180

are Live

20

00:01:12,230 --> 00:01:10,040

[Laughter]

21

00:01:14,510 --> 00:01:12,240

Well Cedric thank you so much for

22

00:01:16,190 --> 00:01:14,520

joining us today well thanks for having

23

00:01:17,690 --> 00:01:16,200

me and hello everyone out there on the

24

00:01:19,850 --> 00:01:17,700

internet thank you for joining us for

25

00:01:21,350 --> 00:01:19,860

the SWAT Revolution

26

00:01:23,929 --> 00:01:21,360

all right so tell me a little bit about

27

00:01:26,270 --> 00:01:23,939

where you're joining us from today so

28

00:01:28,310 --> 00:01:26,280

I'm currently standing in the Von Carmen

29

00:01:30,649 --> 00:01:28,320

auditorium at Nasa Street propulsion

30

00:01:32,690 --> 00:01:30,659

laboratory in Pasadena California and

31

00:01:35,090 --> 00:01:32,700

I'm standing right in front of a

32

00:01:37,249 --> 00:01:35,100

miniaturized model right here of the

33

00:01:39,710 --> 00:01:37,259

SWAT spacecraft that is three times

34

00:01:41,510 --> 00:01:39,720

smarter than the real Dion that has none

35

00:01:44,330 --> 00:01:41,520

of the bells and whistles of what we'll

36

00:01:46,370 --> 00:01:44,340

be launching into space next week

37

00:01:48,109 --> 00:01:46,380

and I wanted to thank so many people who

38

00:01:50,929 --> 00:01:48,119

are joining us I can see a lot of people

39

00:01:52,969 --> 00:01:50,939

are starting to sign in and I'm very

40

00:01:55,609 --> 00:01:52,979

happy to see everybody getting excited

41

00:01:58,969 --> 00:01:55,619

about this very unique Mission so tell

42

00:02:01,429 --> 00:01:58,979

us Cedric what SWAT stands for and also

43

00:02:03,410 --> 00:02:01,439

what it's going to do to benefit the

44

00:02:08,150 --> 00:02:03,420

work that you do as a hydrologist

45

00:02:10,969 --> 00:02:08,160

so SWAT is s-w-o-t it stands for surface

46

00:02:13,190 --> 00:02:10,979

water and ocean topography it's a new

47

00:02:15,949 --> 00:02:13,200

space mission will be launching next

48

00:02:18,650 --> 00:02:15,959

week and it will be observing all the

49

00:02:21,410 --> 00:02:18,660

waters on Earth 90 of the waters on

50

00:02:23,630 --> 00:02:21,420

Earth on two sides in the ocean and on

51
00:02:26,089 --> 00:02:23,640
the land and what we'll do is we'll be

52
00:02:27,410 --> 00:02:26,099
seeing where water is and how high it is

53
00:02:30,170 --> 00:02:27,420
and from that we can know where it's

54
00:02:32,390 --> 00:02:30,180
going it's really incredible and the

55
00:02:34,369 --> 00:02:32,400
ocean we'll be continuing 30 years of

56
00:02:36,830 --> 00:02:34,379
observations of sea levels but doing

57
00:02:38,630 --> 00:02:36,840
that in such a much finer way that we'll

58
00:02:40,430 --> 00:02:38,640
be able to better understand ocean

59
00:02:42,650 --> 00:02:40,440
currents and that's really important for

60
00:02:44,690 --> 00:02:42,660
things like navigation for example

61
00:02:46,309 --> 00:02:44,700
now on land on the continents and that's

62
00:02:48,229 --> 00:02:46,319
really what I do on an everyday basis

63
00:02:51,050 --> 00:02:48,239

that I'm really excited about we'll be

64

00:02:53,210 --> 00:02:51,060

looking at rivers lakes reservoirs so

65

00:02:55,670 --> 00:02:53,220

we'll know where they are how high they

66

00:02:58,009 --> 00:02:55,680

are and how much water is Flowing which

67

00:02:59,869 --> 00:02:58,019

means that we will know the changes in

68

00:03:02,210 --> 00:02:59,879

the volume of water the storage how much

69

00:03:04,190 --> 00:03:02,220

water we have on on continents in those

70

00:03:06,229 --> 00:03:04,200

water bodies but we also know how much

71

00:03:09,470 --> 00:03:06,239

water is flowing through them and that's

72

00:03:10,970 --> 00:03:09,480

kind of like taking the pulse on Earth's

73

00:03:12,830 --> 00:03:10,980

arteries because Earth is a living

74

00:03:14,570 --> 00:03:12,840

planet and it's the same thing that when

75

00:03:16,790 --> 00:03:14,580

we go to the doctor to take our pulse

76

00:03:19,369 --> 00:03:16,800

we'll be doing that from space for the

77

00:03:21,410 --> 00:03:19,379

Earth's rivers with satellites

78

00:03:22,910 --> 00:03:21,420

and for the first time Cedric which is

79

00:03:25,490 --> 00:03:22,920

great and we really need to know about

80

00:03:28,850 --> 00:03:25,500

that pulse because we need to know about

81

00:03:30,649 --> 00:03:28,860

fresh water to be able to survive so I'm

82

00:03:32,089 --> 00:03:30,659

very excited about this as well too now

83

00:03:34,130 --> 00:03:32,099

what made you want to become a

84

00:03:35,930 --> 00:03:34,140

hydrologist and for folks out there who

85

00:03:38,089 --> 00:03:35,940

might be interested in this field what

86

00:03:41,210 --> 00:03:38,099

advice do you have for them well so I

87

00:03:42,949 --> 00:03:41,220

have a thankful for water uh Marina but

88

00:03:44,449 --> 00:03:42,959

I've always been curious about the

89

00:03:47,089 --> 00:03:44,459

environment just understanding what's

90

00:03:50,270 --> 00:03:47,099

happening around us and what's so great

91

00:03:52,610 --> 00:03:50,280

with NASA is that of course we go into

92

00:03:54,949 --> 00:03:52,620

space we look in the solar system and

93

00:03:57,350 --> 00:03:54,959

beyond and all that is incredibly

94

00:03:58,729 --> 00:03:57,360

exciting and important but as long as

95

00:04:01,789 --> 00:03:58,739

we've been looking we haven't really

96

00:04:04,430 --> 00:04:01,799

found another planet for us to live on

97

00:04:07,250 --> 00:04:04,440

right so planet Earth remains Planet a

98

00:04:08,509 --> 00:04:07,260

and there is no Planet B what this means

99

00:04:10,729 --> 00:04:08,519

is that it's very important for us to

100

00:04:12,530 --> 00:04:10,739

understand how our planet works and the

101
00:04:14,809 --> 00:04:12,540
way we do that is we ship satellites up

102
00:04:17,030 --> 00:04:14,819
in in space and they rotate around the

103
00:04:19,670 --> 00:04:17,040
earth and they take Earth selfies to

104
00:04:22,250 --> 00:04:19,680
help us observe many

105
00:04:23,870 --> 00:04:22,260
of the of many characteristics of the

106
00:04:25,610 --> 00:04:23,880
natural environment that allow us to

107
00:04:27,530 --> 00:04:25,620
plan for future Generations is really

108
00:04:30,590 --> 00:04:27,540
really important

109
00:04:32,409 --> 00:04:30,600
and also on that same vein it is an

110
00:04:34,610 --> 00:04:32,419
international truly an international

111
00:04:37,129 --> 00:04:34,620
collaboration so tell us a little bit

112
00:04:39,050 --> 00:04:37,139
about everyone who is involved with this

113
00:04:41,990 --> 00:04:39,060

swap Mission why it plays a little

114

00:04:44,170 --> 00:04:42,000

special place in your heart as well yeah

115

00:04:46,490 --> 00:04:44,180

so you're right this is an international

116

00:04:48,050 --> 00:04:46,500

collaboration with hundreds if not

117

00:04:49,670 --> 00:04:48,060

thousands of people right and it's just

118

00:04:51,409 --> 00:04:49,680

two of us talking about it but so many

119

00:04:54,110 --> 00:04:51,419

people have been involved in the mission

120

00:04:56,689 --> 00:04:54,120

for many years and so it's currently an

121

00:04:59,629 --> 00:04:56,699

international collaboration between NASA

122

00:05:01,790 --> 00:04:59,639

the French space agency kness but also

123

00:05:03,409 --> 00:05:01,800

the UK space agency and the Canadian

124

00:05:06,110 --> 00:05:03,419

space agency so an international

125

00:05:08,270 --> 00:05:06,120

collaboration International effort kind

126
00:05:10,070 --> 00:05:08,280
of like the World Cup except that at the

127
00:05:12,050 --> 00:05:10,080
end everybody wins because we all

128
00:05:14,990 --> 00:05:12,060
understand better about the Earth's uh

129
00:05:17,450 --> 00:05:15,000
water cycle now just so happens that I

130
00:05:20,090 --> 00:05:17,460
was born in France and I've lived in the

131
00:05:22,310 --> 00:05:20,100
US for nearly 20 years and I study the

132
00:05:24,710 --> 00:05:22,320
world's Rivers so there are three things

133
00:05:26,990 --> 00:05:24,720
about this that that connect me to the

134
00:05:29,270 --> 00:05:27,000
swap mission that makes it kind of a

135
00:05:31,249 --> 00:05:29,280
little bit of a match made in heaven for

136
00:05:33,050 --> 00:05:31,259
me to play a very small part in a huge

137
00:05:35,689 --> 00:05:33,060
mission

138
00:05:38,450 --> 00:05:35,699

and at International collaboration truly

139

00:05:41,029 --> 00:05:38,460

shows that water unites us all which is

140

00:05:42,710 --> 00:05:41,039

a really really amazing so we've talked

141

00:05:45,170 --> 00:05:42,720

a little bit about how SWAT is going to

142

00:05:47,629 --> 00:05:45,180

track almost 90 percent of the water on

143

00:05:49,969 --> 00:05:47,639

the Earth's surface why is that so

144

00:05:52,430 --> 00:05:49,979

critical not only to us understanding

145

00:05:55,610 --> 00:05:52,440

the water on Earth but for your work as

146

00:05:57,830 --> 00:05:55,620

well yeah so water is is very important

147

00:05:59,749 --> 00:05:57,840

for me I have a special connection with

148

00:06:01,490 --> 00:05:59,759

water it's my lifelong friend and my

149

00:06:03,409 --> 00:06:01,500

happy place and I encourage our audience

150

00:06:05,270 --> 00:06:03,419

to go look at the at the video that we

151
00:06:07,370 --> 00:06:05,280
recently released on my adventure with

152
00:06:09,110 --> 00:06:07,380
water but now for us all

153
00:06:10,850 --> 00:06:09,120
and I'll focus on the continents because

154
00:06:14,570 --> 00:06:10,860
that's my thing

155
00:06:16,550 --> 00:06:14,580
um the United Nation tells us that safe

156
00:06:19,310 --> 00:06:16,560
access to fresh water for drinking and

157
00:06:20,689 --> 00:06:19,320
for sanitation is a human right now if

158
00:06:23,270 --> 00:06:20,699
you think about it

159
00:06:25,850 --> 00:06:23,280
on Earth 200 years ago was one billion

160
00:06:28,370 --> 00:06:25,860
people with a B right and now it's more

161
00:06:29,990 --> 00:06:28,380
than 8 billion people the amount of

162
00:06:32,150 --> 00:06:30,000
water that we've had on Earth has been

163
00:06:34,430 --> 00:06:32,160

the same since the beginning of times

164

00:06:37,129 --> 00:06:34,440

but with more and more people it's very

165

00:06:38,930 --> 00:06:37,139

important to make sure we we understand

166

00:06:40,969 --> 00:06:38,940

how the water is moving around the earth

167

00:06:43,550 --> 00:06:40,979

as best as possible so that we can

168

00:06:45,830 --> 00:06:43,560

ensure safe access to fresh water for

169

00:06:48,590 --> 00:06:45,840

everyone on this planet

170

00:06:50,809 --> 00:06:48,600

that's so important and earlier you were

171

00:06:54,230 --> 00:06:50,819

talking about how there's the spacecraft

172

00:06:56,570 --> 00:06:54,240

model right behind you so tell us a

173

00:06:58,670 --> 00:06:56,580

little bit about what you think is the

174

00:07:02,390 --> 00:06:58,680

coolest part of this satellite yeah

175

00:07:04,909 --> 00:07:02,400

Marina do you like fireworks I do okay I

176
00:07:07,610 --> 00:07:04,919
love Fireworks right it's it's so

177
00:07:10,670 --> 00:07:07,620
exciting so this spacecraft in real life

178
00:07:12,710 --> 00:07:10,680
it's 30 feet in width that's about 10

179
00:07:14,629 --> 00:07:12,720
meters right it's so big that it doesn't

180
00:07:16,610 --> 00:07:14,639
fit in the spacecraft it doesn't fit in

181
00:07:18,350 --> 00:07:16,620
the rocket and the rocket that will be

182
00:07:20,809 --> 00:07:18,360
shipping next week so that means we have

183
00:07:23,270 --> 00:07:20,819
to fold it we have incredible Engineers

184
00:07:25,189 --> 00:07:23,280
that figured out a way to fold the arms

185
00:07:28,249 --> 00:07:25,199
and then attach them with little

186
00:07:30,529 --> 00:07:28,259
pyrotechnic devices that are attached to

187
00:07:32,689 --> 00:07:30,539
Springs and what we'll do is once we've

188
00:07:36,230 --> 00:07:32,699

packed it put in the rocket launched it

189

00:07:37,909 --> 00:07:36,240

up in space will uh be doing the

190

00:07:39,890 --> 00:07:37,919

unfolding and that involves little

191

00:07:41,629 --> 00:07:39,900

explosions to release the Springs so

192

00:07:44,150 --> 00:07:41,639

that the arms can open up and be as big

193

00:07:46,550 --> 00:07:44,160

as they need to be so space pyrotechnics

194

00:07:47,770 --> 00:07:46,560

space fireworks I think it's just so

195

00:07:51,409 --> 00:07:47,780

cool

196

00:07:54,650 --> 00:07:51,419

it is and before we get to do all of

197

00:07:56,990 --> 00:07:54,660

that unfolding we've actually got to

198

00:07:59,029 --> 00:07:57,000

launch the spacecraft next week actually

199

00:08:01,430 --> 00:07:59,039

really close to where we are right now

200

00:08:03,650 --> 00:08:01,440

Cedric so where are you going to be for

201

00:08:06,290 --> 00:08:03,660

that big launch day next week well if

202

00:08:09,770 --> 00:08:06,300

all goes well I will be uh at the base

203

00:08:12,950 --> 00:08:09,780

in Vandenberg uh next week to uh be able

204

00:08:15,589 --> 00:08:12,960

to say Bon Voyage to the spacecraft the

205

00:08:19,309 --> 00:08:15,599

spacecraft and wish it uh save Journey

206

00:08:22,670 --> 00:08:19,319

Up Up and Away to space say go swap

207

00:08:25,730 --> 00:08:22,680

and so I know that a lot of your science

208

00:08:27,589 --> 00:08:25,740

will be of course after it launches but

209

00:08:29,629 --> 00:08:27,599

is there anything you know butterflies

210

00:08:31,309 --> 00:08:29,639

in your stomach is there anything that

211

00:08:33,829 --> 00:08:31,319

you are thinking of now as we're just

212

00:08:36,769 --> 00:08:33,839

one week away from launch I think it's

213

00:08:39,050 --> 00:08:36,779

butterflies and everybody's stomachs uh

214

00:08:40,610 --> 00:08:39,060

Marina you know it's as I was as I

215

00:08:41,810 --> 00:08:40,620

mentioned earlier is hundreds if not

216

00:08:43,430 --> 00:08:41,820

thousands of people who have been

217

00:08:45,230 --> 00:08:43,440

working on this mission for you know

218

00:08:47,630 --> 00:08:45,240

many of them much longer than I have

219

00:08:49,550 --> 00:08:47,640

it's been 20 years in the making and so

220

00:08:51,110 --> 00:08:49,560

you know every one of us has been

221

00:08:53,090 --> 00:08:51,120

working very hard to make sure that

222

00:08:55,550 --> 00:08:53,100

everything goes as planned and when

223

00:08:57,889 --> 00:08:55,560

finally we'll get the observations the

224

00:08:59,509 --> 00:08:57,899

data that we've been looking for that'll

225

00:09:01,190 --> 00:08:59,519

be something special but first things

226

00:09:03,230 --> 00:09:01,200

first let's make sure that it goes there

227

00:09:05,930 --> 00:09:03,240

and that everything goes well next week

228

00:09:08,030 --> 00:09:05,940

yes we have definitely all got our

229

00:09:10,310 --> 00:09:08,040

fingers crossed to make sure that it

230

00:09:12,769 --> 00:09:10,320

goes off without a hitch next week well

231

00:09:15,410 --> 00:09:12,779

thank you so much Cedric for joining us

232

00:09:17,630 --> 00:09:15,420

today we appreciate it so much good luck

233

00:09:19,009 --> 00:09:17,640

with the launch next week at Vandenberg

234

00:09:24,230 --> 00:09:19,019

and thank you so much for everything

235

00:09:28,310 --> 00:09:25,910

all right thanks so much Cedric that was

236

00:09:30,769 --> 00:09:28,320

so great I know that you have a lot of

237

00:09:33,110 --> 00:09:30,779

questions about SWAT so if you want to

238

00:09:36,650 --> 00:09:33,120

learn more about this Mission then make

239

00:09:39,050 --> 00:09:36,660

sure to follow at NASA JPL as well as at

240

00:09:41,630 --> 00:09:39,060

Nasa climate change to learn more about

241

00:09:44,389 --> 00:09:41,640

the mission and NASA on its YouTube

242

00:09:47,030 --> 00:09:44,399

channel will be broadcasting the launch

243

00:09:50,389 --> 00:09:47,040

live from Vandenberg Air Sports air

244

00:09:52,550 --> 00:09:50,399

space base next week on December the

245

00:09:54,889 --> 00:09:52,560

15th and that launch broadcast is going

246

00:09:57,110 --> 00:09:54,899

to start at three o'clock in the morning

247

00:09:58,850 --> 00:09:57,120

Pacific Standard time so make sure to

248

00:10:01,130 --> 00:09:58,860

get the coffee ready and we want to hear

249

00:10:02,930 --> 00:10:01,140

from you if you want to ask questions we

250

00:10:04,730 --> 00:10:02,940

might be able to answer it live on that

251
00:10:08,090 --> 00:10:04,740
broadcast so make sure that you tune in

252
00:10:10,070 --> 00:10:08,100
and use the hashtag tracking World water

253
00:10:11,810 --> 00:10:10,080
so that we're able to answer those

254
00:10:13,910 --> 00:10:11,820
questions live and we're going to be

255
00:10:16,370 --> 00:10:13,920
talking to a few more SWAT Mission

256
00:10:20,269 --> 00:10:16,380
members so make sure to tune in next

257
00:10:23,269 --> 00:10:20,279
month January in 2023 for more on this

258
00:10:26,090 --> 00:10:23,279
incredible Mission and remember at Nasa

259
00:10:28,610 --> 00:10:26,100
earth science you your home is our