



**SNACK
TIME
WITH NASA
CHIPS & DIP**



1
00:00:06,869 --> 00:00:04,550
we use satellite data to track

2
00:00:09,270 --> 00:00:06,879
[Music]

3
00:00:11,509 --> 00:00:09,280
hello my name is jocelyn argeta and this

4
00:00:14,150 --> 00:00:11,519
is snack time with nasa today we're

5
00:00:16,390 --> 00:00:14,160
making a big favorite in my house chips

6
00:00:18,230 --> 00:00:16,400
and dip we are nasa though so this isn't

7
00:00:21,670 --> 00:00:18,240
going to be your run-of-the-mill dip

8
00:00:23,590 --> 00:00:21,680
this will be a seven-layer cropland tip

9
00:00:25,830 --> 00:00:23,600
stick with me here did you know that

10
00:00:28,790 --> 00:00:25,840
nasa plays a big part in the food you

11
00:00:31,509 --> 00:00:28,800
eat we use data from space to monitor

12
00:00:34,229 --> 00:00:31,519
agriculture and track food security

13
00:00:37,270 --> 00:00:34,239

so coincidentally we have some of the

14

00:00:40,389 --> 00:00:37,280

crops that we keep an eye on get it now

15

00:00:42,630 --> 00:00:40,399

seven layer cropland dip so we can send

16

00:00:44,790 --> 00:00:42,640

a rover to mars but now the question is

17

00:00:46,790 --> 00:00:44,800

can we make a tasty dip but before we

18

00:00:48,950 --> 00:00:46,800

get started i want to welcome dr

19

00:00:51,270 --> 00:00:48,960

involved becker rasheff who's here to

20

00:00:53,029 --> 00:00:51,280

tell us all about nasa's connection to

21

00:00:55,189 --> 00:00:53,039

the food we eat

22

00:00:58,310 --> 00:00:55,199

hi involved how are you doing today

23

00:01:00,069 --> 00:00:58,320

hi jocelyn great how are you awesome

24

00:01:03,189 --> 00:01:00,079

it's great to have you so first things

25

00:01:06,789 --> 00:01:03,199

first are you a fan of chips and dip

26
00:01:09,670 --> 00:01:06,799
i love chips and dip yes oh good good

27
00:01:12,789 --> 00:01:09,680
good to hear so as the director of

28
00:01:14,310 --> 00:01:12,799
nasa's agriculture and food security

29
00:01:16,950 --> 00:01:14,320
program can you tell us a little bit

30
00:01:18,950 --> 00:01:16,960
about why nasa studies agriculture in

31
00:01:21,510 --> 00:01:18,960
the first place when we're known more

32
00:01:23,429 --> 00:01:21,520
for space exploration than cooking

33
00:01:26,550 --> 00:01:23,439
as we all know

34
00:01:28,469 --> 00:01:26,560
our planet earth is also a planet and so

35
00:01:30,230 --> 00:01:28,479
nasa has satellites that are pointing

36
00:01:32,230 --> 00:01:30,240
out into space but it also has a lot of

37
00:01:33,749 --> 00:01:32,240
earth observing satellites pointing here

38
00:01:35,510 --> 00:01:33,759

down at earth and of course that's

39

00:01:37,350 --> 00:01:35,520

really critical because we live here and

40

00:01:39,270 --> 00:01:37,360

that's important for us to track and

41

00:01:41,109 --> 00:01:39,280

understand how we're changing our planet

42

00:01:42,310 --> 00:01:41,119

how our planet is responding and in

43

00:01:44,389 --> 00:01:42,320

particular

44

00:01:46,710 --> 00:01:44,399

tracking agriculture which is what we're

45

00:01:48,950 --> 00:01:46,720

concerned with here food security and

46

00:01:51,350 --> 00:01:48,960

agriculture are one of the biggest

47

00:01:53,670 --> 00:01:51,360

challenges we face in in this century

48

00:01:55,830 --> 00:01:53,680

and nasa's satellite data since actually

49

00:01:57,510 --> 00:01:55,840

going back to early days of satellite

50

00:01:59,590 --> 00:01:57,520

monitoring there has always been a large

51
00:02:02,310 --> 00:01:59,600
focus on agriculture agriculture covers

52
00:02:04,310 --> 00:02:02,320
a huge part of our land system and what

53
00:02:06,469 --> 00:02:04,320
that does is that helps us to get an

54
00:02:09,430 --> 00:02:06,479
accurate and a timely understanding of

55
00:02:11,910 --> 00:02:09,440
potential shortfalls or surplus of crops

56
00:02:13,910 --> 00:02:11,920
and fruit production around the world

57
00:02:15,750 --> 00:02:13,920
so it sounds like everything is

58
00:02:17,670 --> 00:02:15,760
connected much like different

59
00:02:19,750 --> 00:02:17,680
ingredients in a larger dish and i've

60
00:02:23,350 --> 00:02:19,760
just laid down the first layer here of

61
00:02:24,150 --> 00:02:23,360
our dip which are refried black beans

62
00:02:25,910 --> 00:02:24,160
and

63
00:02:27,750 --> 00:02:25,920

sounds like earth observations work in a

64

00:02:30,070 --> 00:02:27,760

similar way where things connect

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00:02:32,710 --> 00:02:30,080

together so how do these observations

66

00:02:34,869 --> 00:02:32,720

help us better understand food security

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00:02:36,390 --> 00:02:34,879

and food production especially in the

68

00:02:38,390 --> 00:02:36,400

face of climate change

69

00:02:40,550 --> 00:02:38,400

as we said food security is one of the

70

00:02:43,110 --> 00:02:40,560

most important and critical challenges

71

00:02:45,670 --> 00:02:43,120

that that we face um and so therefore

72

00:02:47,270 --> 00:02:45,680

having information about where food is

73

00:02:50,070 --> 00:02:47,280

being grown how much of it is being

74

00:02:51,750 --> 00:02:50,080

grown um how it's changing over time how

75

00:02:53,589 --> 00:02:51,760

it responds to different climatic

76
00:02:55,270 --> 00:02:53,599
factors to extreme weather events which

77
00:02:56,550 --> 00:02:55,280
of course as as you've said under

78
00:02:58,070 --> 00:02:56,560
climate change and a warming climate

79
00:03:00,869 --> 00:02:58,080
we're seeing more and more erratic

80
00:03:03,589 --> 00:03:00,879
weather impacting our food production

81
00:03:06,630 --> 00:03:03,599
and so we have various satellites

82
00:03:08,309 --> 00:03:06,640
going up above and and turning around us

83
00:03:10,470 --> 00:03:08,319
all the time that are helping to monitor

84
00:03:12,710 --> 00:03:10,480
different aspects of the agriculture of

85
00:03:14,309 --> 00:03:12,720
our agricultural system and whether it

86
00:03:16,149 --> 00:03:14,319
is for helping us to distinguish where

87
00:03:18,390 --> 00:03:16,159
for example corn is being grown around

88
00:03:20,630 --> 00:03:18,400

the world how it's developing how it

89

00:03:22,309 --> 00:03:20,640

compares this year versus last year for

90

00:03:23,990 --> 00:03:22,319

example in the corn belt in the united

91

00:03:26,710 --> 00:03:24,000

states and so being able to provide us

92

00:03:28,710 --> 00:03:26,720

that information in a timely manner at a

93

00:03:31,030 --> 00:03:28,720

global scale

94

00:03:33,190 --> 00:03:31,040

is really critical for understanding and

95

00:03:35,990 --> 00:03:33,200

making decisions relevant both for food

96

00:03:38,229 --> 00:03:36,000

security and for sustainability and we

97

00:03:41,270 --> 00:03:38,239

do have corn here as one of our layers

98

00:03:43,830 --> 00:03:41,280

we also have rice we have avocado and

99

00:03:46,550 --> 00:03:43,840

the guacamole can we see any of these

100

00:03:48,710 --> 00:03:46,560

staple foods being grown in the u.s

101
00:03:49,430 --> 00:03:48,720
absolutely and that's a large focus both

102
00:03:52,309 --> 00:03:49,440
of

103
00:03:54,390 --> 00:03:52,319
usda for example and that nasa has

104
00:03:55,670 --> 00:03:54,400
partnered with very closely for many

105
00:03:57,830 --> 00:03:55,680
years now

106
00:04:00,550 --> 00:03:57,840
and what they're focused on is is

107
00:04:03,670 --> 00:04:00,560
utilizing satellite data for being able

108
00:04:05,589 --> 00:04:03,680
to monitor the extent of crops of where

109
00:04:07,750 --> 00:04:05,599
corn is being grown versus soybeans

110
00:04:09,509 --> 00:04:07,760
versus wheat and as we know if a farmer

111
00:04:11,110 --> 00:04:09,519
plans corn this year he might plant

112
00:04:13,429 --> 00:04:11,120
soybeans the next year so it's very

113
00:04:16,069 --> 00:04:13,439

important in the u.s and usda has a

114

00:04:18,710 --> 00:04:16,079

large focus on that but also given that

115

00:04:20,870 --> 00:04:18,720

our food system is so interconnected um

116

00:04:24,230 --> 00:04:20,880

being able to monitor both inside the us

117

00:04:26,790 --> 00:04:24,240

and globally um and satellites enable us

118

00:04:29,189 --> 00:04:26,800

to do that so you monitor crops all over

119

00:04:32,230 --> 00:04:29,199

the world but who ends up using this

120

00:04:34,469 --> 00:04:32,240

data and how exactly does it help is it

121

00:04:36,390 --> 00:04:34,479

whole governments that rely on it or do

122

00:04:37,430 --> 00:04:36,400

small-scale farmers and land managers

123

00:04:39,110 --> 00:04:37,440

use it

124

00:04:40,550 --> 00:04:39,120

that's a great question and in fact it's

125

00:04:42,950 --> 00:04:40,560

it's everybody

126

00:04:44,469 --> 00:04:42,960

it's ministries of agriculture it's uh

127

00:04:46,469 --> 00:04:44,479

statistical departments who are trying

128

00:04:49,189 --> 00:04:46,479

to estimate how much production they're

129

00:04:50,469 --> 00:04:49,199

going to have of different crops it's um

130

00:04:52,230 --> 00:04:50,479

the early warning community the

131

00:04:54,070 --> 00:04:52,240

humanitarian community who are trying to

132

00:04:56,070 --> 00:04:54,080

assess where they're going to be food

133

00:04:58,070 --> 00:04:56,080

shortages and where there will need to

134

00:04:59,909 --> 00:04:58,080

be either food aid or other mitigation

135

00:05:02,150 --> 00:04:59,919

activities and it's of course also

136

00:05:04,790 --> 00:05:02,160

farmers um and

137

00:05:07,430 --> 00:05:04,800

one example is is the the crop monitor

138

00:05:09,189 --> 00:05:07,440

program under geoglam this provides

139

00:05:10,950 --> 00:05:09,199

information at the global scale on a

140

00:05:13,990 --> 00:05:10,960

monthly basis operationally really

141

00:05:15,749 --> 00:05:14,000

targeted more at policy makers who need

142

00:05:17,990 --> 00:05:15,759

to have a very quick way of

143

00:05:19,990 --> 00:05:18,000

understanding what are global crop uh

144

00:05:21,670 --> 00:05:20,000

conditions and so we've been working

145

00:05:24,390 --> 00:05:21,680

with that policy community for a long

146

00:05:26,550 --> 00:05:24,400

time to develop products um that provide

147

00:05:28,950 --> 00:05:26,560

us a good global picture of crop

148

00:05:30,070 --> 00:05:28,960

conditions and food supplies across the

149

00:05:32,070 --> 00:05:30,080

world

150

00:05:34,550 --> 00:05:32,080

so our dips moving along here we have

151

00:05:36,150 --> 00:05:34,560

corn next and it sounds like a lot of

152

00:05:38,150 --> 00:05:36,160

the information you've talked about

153

00:05:39,909 --> 00:05:38,160

could help forecast events like food

154

00:05:42,390 --> 00:05:39,919

shortages is that right

155

00:05:44,469 --> 00:05:42,400

yeah that's absolutely right and so what

156

00:05:46,150 --> 00:05:44,479

we try to do is use the satellite data

157

00:05:47,749 --> 00:05:46,160

to give us an early warning as soon as

158

00:05:49,270 --> 00:05:47,759

possible and really we start to monitor

159

00:05:50,950 --> 00:05:49,280

crops as soon as they're in the ground

160

00:05:53,110 --> 00:05:50,960

and growing

161

00:05:55,350 --> 00:05:53,120

and try to put an alert as early as

162

00:05:58,629 --> 00:05:55,360

possible if we start to see for example

163

00:06:00,309 --> 00:05:58,639

the impacts of of a drought developing

164

00:06:01,670 --> 00:06:00,319

and track that through the season and

165

00:06:04,390 --> 00:06:01,680

this information

166

00:06:06,950 --> 00:06:04,400

as early as possible is really critical

167

00:06:09,350 --> 00:06:06,960

for policy makers for governments to be

168

00:06:11,670 --> 00:06:09,360

able to take mitigation actions to

169

00:06:13,990 --> 00:06:11,680

prevent food shortages or to prevent the

170

00:06:15,830 --> 00:06:14,000

biggest impacts of food shortages and

171

00:06:17,430 --> 00:06:15,840

implement mitigation strategies well

172

00:06:20,550 --> 00:06:17,440

ahead of time

173

00:06:22,629 --> 00:06:20,560

and i know that nasa works with the usda

174

00:06:25,510 --> 00:06:22,639

and so why is it important that agencies

175

00:06:27,670 --> 00:06:25,520

like nasa and usda work together

176

00:06:30,550 --> 00:06:27,680

usda is the united states department of

177

00:06:33,110 --> 00:06:30,560

agriculture they are responsible for

178

00:06:35,909 --> 00:06:33,120

providing global information on a

179

00:06:39,029 --> 00:06:35,919

monthly basis on crop production and

180

00:06:41,270 --> 00:06:39,039

their forecasts set the gold standard

181

00:06:42,870 --> 00:06:41,280

to which agricultural commodity markets

182

00:06:44,629 --> 00:06:42,880

react to so as soon as those numbers

183

00:06:46,710 --> 00:06:44,639

come out every month

184

00:06:49,749 --> 00:06:46,720

you can see the the reaction and the

185

00:06:52,710 --> 00:06:49,759

response in international markets and so

186

00:06:54,469 --> 00:06:52,720

it makes a lot of sense for us um to for

187

00:06:57,589 --> 00:06:54,479

for nasa to be working very closely with

188

00:07:00,070 --> 00:06:57,599

usda to ensure that they're able to take

189

00:07:02,790 --> 00:07:00,080

up the best technology and analytics

190

00:07:04,870 --> 00:07:02,800

to inform their forecasting and

191

00:07:06,469 --> 00:07:04,880

and and their policy development and

192

00:07:08,469 --> 00:07:06,479

decisions ultimately

193

00:07:11,189 --> 00:07:08,479

it sounds like it's such an important

194

00:07:13,029 --> 00:07:11,199

and exciting time now for agriculture

195

00:07:14,710 --> 00:07:13,039

monitoring

196

00:07:16,950 --> 00:07:14,720

yeah it really is an exciting time for

197

00:07:19,029 --> 00:07:16,960

agricultural monitoring and for its

198

00:07:21,270 --> 00:07:19,039

potential to help inform

199

00:07:23,830 --> 00:07:21,280

both our food security and

200

00:07:25,430 --> 00:07:23,840

sustainability decisions and to help get

201
00:07:28,070 --> 00:07:25,440
us towards

202
00:07:30,550 --> 00:07:28,080
the sdg goal of zero hunger

203
00:07:32,390 --> 00:07:30,560
increasing food uh supplies and at the

204
00:07:35,749 --> 00:07:32,400
same time doing that in a sustainable

205
00:07:40,070 --> 00:07:35,759
manner yeah absolutely that's amazing

206
00:07:42,469 --> 00:07:40,080
and what's also amazing is our dip here

207
00:07:44,230 --> 00:07:42,479
which is almost complete but i think we

208
00:07:45,270 --> 00:07:44,240
can all agree that what would make it

209
00:07:52,950 --> 00:07:45,280
perfect

210
00:07:52,960 --> 00:07:56,070
delicious

211
00:08:00,869 --> 00:07:58,950
there we go thanks so much for joining

212
00:08:02,629 --> 00:08:00,879
us today involved for sharing all this

213
00:08:04,869 --> 00:08:02,639

really great information

214

00:08:07,940 --> 00:08:04,879

and thanks everyone for watching happy

215

00:08:07,950 --> 00:08:17,029

[Music]