



1
00:00:09,589 --> 00:00:05,990

[Music]

2
00:00:11,990 --> 00:00:09,599

i'm ellen stofan also known as dr e

3
00:00:14,950 --> 00:00:12,000

and i'm thomas cerbergan also known as

4
00:00:17,590 --> 00:00:14,960

dr z and welcome to another episode of

5
00:00:20,630 --> 00:00:17,600

easy science this one

6
00:00:22,310 --> 00:00:20,640

is about earth day the 51st earth day

7
00:00:24,550 --> 00:00:22,320

and of course at nasa

8
00:00:27,670 --> 00:00:24,560

earth and earth science climate science

9
00:00:30,070 --> 00:00:27,680

is a high priority nasa really focuses

10
00:00:32,229 --> 00:00:30,080

on climate understanding our planet's

11
00:00:34,069 --> 00:00:32,239

climate and how it's changing because of

12
00:00:35,990 --> 00:00:34,079

human induced activity

13
00:00:37,750 --> 00:00:36,000

exactly and in order for us to

14

00:00:40,150 --> 00:00:37,760

understand that we need to look at the

15

00:00:42,790 --> 00:00:40,160

earth as a interconnected system of

16

00:00:45,270 --> 00:00:42,800

systems looking at the oceans looking at

17

00:00:48,150 --> 00:00:45,280

the biosphere the atmosphere all the

18

00:00:49,750 --> 00:00:48,160

parts the cryosphere ice you know

19

00:00:51,990 --> 00:00:49,760

looking at all the parts and our

20

00:00:53,590 --> 00:00:52,000

spacecraft do just that

21

00:00:56,069 --> 00:00:53,600

a lot of people don't realize nasa has

22

00:00:57,830 --> 00:00:56,079

over two dozen satellites in orbit

23

00:01:00,150 --> 00:00:57,840

around the earth right now all different

24

00:01:02,150 --> 00:01:00,160

orbits different sensors really trying

25

00:01:04,310 --> 00:01:02,160

to understand how our climate is

26
00:01:07,429 --> 00:01:04,320
changing how the earth is changing and

27
00:01:08,789 --> 00:01:07,439
how can we use that data to really help

28
00:01:10,390 --> 00:01:08,799
not just understand what's going to

29
00:01:12,390 --> 00:01:10,400
happen next with climate change but how

30
00:01:15,429 --> 00:01:12,400
to help people be more resilient to the

31
00:01:18,870 --> 00:01:15,439
changes that are taking place so we had

32
00:01:21,350 --> 00:01:18,880
an incredible launch this past november

33
00:01:22,710 --> 00:01:21,360
of a spacecraft called sentinel 6

34
00:01:23,990 --> 00:01:22,720
michael fry like of course michael

35
00:01:26,310 --> 00:01:24,000
freilich's name

36
00:01:28,789 --> 00:01:26,320
was on it the former director of earth

37
00:01:30,950 --> 00:01:28,799
science and the family was there it's an

38
00:01:32,870 --> 00:01:30,960

incredibly beautiful launch the whole

39

00:01:34,950 --> 00:01:32,880

earth was celebrating that launch it

40

00:01:37,429 --> 00:01:34,960

felt like when it went up there and it's

41

00:01:39,429 --> 00:01:37,439

taking data right now

42

00:01:40,950 --> 00:01:39,439

incredible data on sea level rise and

43

00:01:42,310 --> 00:01:40,960

this is something that mike who is a

44

00:01:45,429 --> 00:01:42,320

dear colleague of both of ours would

45

00:01:47,830 --> 00:01:45,439

have been so proud to know

46

00:01:50,149 --> 00:01:47,840

fundamental data on how is the sea level

47

00:01:51,990 --> 00:01:50,159

rising where is it rising in some areas

48

00:01:53,590 --> 00:01:52,000

faster than in others you see that where

49

00:01:55,590 --> 00:01:53,600

you see all the sudden flooding at high

50

00:01:57,270 --> 00:01:55,600

tide in communities we need to

51
00:01:59,749 --> 00:01:57,280
understand that to give people the best

52
00:02:01,590 --> 00:01:59,759
protection we can and to allow decision

53
00:02:03,190 --> 00:02:01,600
makers to take that information and

54
00:02:05,830 --> 00:02:03,200
figure out what do we do with people who

55
00:02:08,309 --> 00:02:05,840
live very close to vulnerable coastlines

56
00:02:10,229 --> 00:02:08,319
exactly so there's another launch that's

57
00:02:12,470 --> 00:02:10,239
going to happen later this year

58
00:02:14,229 --> 00:02:12,480
the next landsat mission and i remember

59
00:02:15,990 --> 00:02:14,239
in your museum there's a lot of

60
00:02:17,990 --> 00:02:16,000
information about landsat what's most

61
00:02:20,070 --> 00:02:18,000
exciting to you well you know to me

62
00:02:22,229 --> 00:02:20,080
lansa you know again that's why it's in

63
00:02:25,190 --> 00:02:22,239

the national air and space museum hugely

64

00:02:27,350 --> 00:02:25,200

long continuity of data how is the

65

00:02:30,630 --> 00:02:27,360

earth's surface changing over time can

66

00:02:32,869 --> 00:02:30,640

we look at how urban areas spread

67

00:02:35,830 --> 00:02:32,879

can we look at how deserts sometimes

68

00:02:38,630 --> 00:02:35,840

move in to urban areas or move backward

69

00:02:40,229 --> 00:02:38,640

can we really see how deforestation is

70

00:02:42,790 --> 00:02:40,239

taking place where are people cutting

71

00:02:43,750 --> 00:02:42,800

down trees where is there regrowth of

72

00:02:46,710 --> 00:02:43,760

forest

73

00:02:48,630 --> 00:02:46,720

landsat is just a critical critical

74

00:02:51,350 --> 00:02:48,640

series of spacecraft that have really

75

00:02:53,910 --> 00:02:51,360

helped us understand this planet and how

76

00:02:56,869 --> 00:02:53,920

it changes over time so this is the

77

00:02:58,790 --> 00:02:56,879

ninth one in the series and i just think

78

00:03:01,430 --> 00:02:58,800

it's an incredible partnership between

79

00:03:03,270 --> 00:03:01,440

nasa and the u.s geological survey

80

00:03:05,750 --> 00:03:03,280

absolutely incredible and

81

00:03:08,309 --> 00:03:05,760

perhaps the most valuable data set that

82

00:03:10,790 --> 00:03:08,319

we have in our everyday life whether

83

00:03:12,790 --> 00:03:10,800

it's from farming fisheries even

84

00:03:14,550 --> 00:03:12,800

firefighting

85

00:03:16,949 --> 00:03:14,560

the other spacecraft that we're going to

86

00:03:20,309 --> 00:03:16,959

launch in december is the next in the

87

00:03:22,390 --> 00:03:20,319

ghost series exposed t in this case

88

00:03:24,390 --> 00:03:22,400

and the goes satellites are really

89

00:03:26,949 --> 00:03:24,400

really critical for understanding

90

00:03:29,110 --> 00:03:26,959

weather helping predict weather helping

91

00:03:31,270 --> 00:03:29,120

look at cloud cover how hurricanes

92

00:03:33,270 --> 00:03:31,280

develop and move across the surface of

93

00:03:35,190 --> 00:03:33,280

the earth we wouldn't know as much about

94

00:03:37,350 --> 00:03:35,200

weather as we do today without those

95

00:03:39,430 --> 00:03:37,360

goes satellites really critical i have

96

00:03:41,750 --> 00:03:39,440

to tell you i'm always very proud when i

97

00:03:43,430 --> 00:03:41,760

look at the weather images because i

98

00:03:45,509 --> 00:03:43,440

know they're coming from the spacecraft

99

00:03:47,670 --> 00:03:45,519

that our teams put together with our

100

00:03:49,589 --> 00:03:47,680

friends from noaa and it's having an

101
00:03:52,070 --> 00:03:49,599
impact in my life right now and the

102
00:03:53,990 --> 00:03:52,080
impact of the lives of my family

103
00:03:56,070 --> 00:03:54,000
and one of the instruments on there that

104
00:03:58,070 --> 00:03:56,080
is in this new ghost series is that

105
00:03:59,350 --> 00:03:58,080
lightning mapper which is really

106
00:04:01,750 --> 00:03:59,360
starting to have an impact in

107
00:04:03,670 --> 00:04:01,760
forecasting my noaa friends tell me does

108
00:04:05,750 --> 00:04:03,680
that actually help you predict tornadoes

109
00:04:07,270 --> 00:04:05,760
better or severe storms absolutely it

110
00:04:09,589 --> 00:04:07,280
helps predict tornadoes and the

111
00:04:11,670 --> 00:04:09,599
occurrence of it i hope on this earth

112
00:04:13,990 --> 00:04:11,680
day everybody gives a big thank you to

113
00:04:16,390 --> 00:04:14,000

nasa noaa and the u.s geological survey

114

00:04:17,590 --> 00:04:16,400

for helping us understand our planet

115

00:04:19,749 --> 00:04:17,600

better

116

00:04:23,350 --> 00:04:19,759

happy earth day and thank you for

117

00:04:25,900 --> 00:04:23,360

joining us for another episode of easy