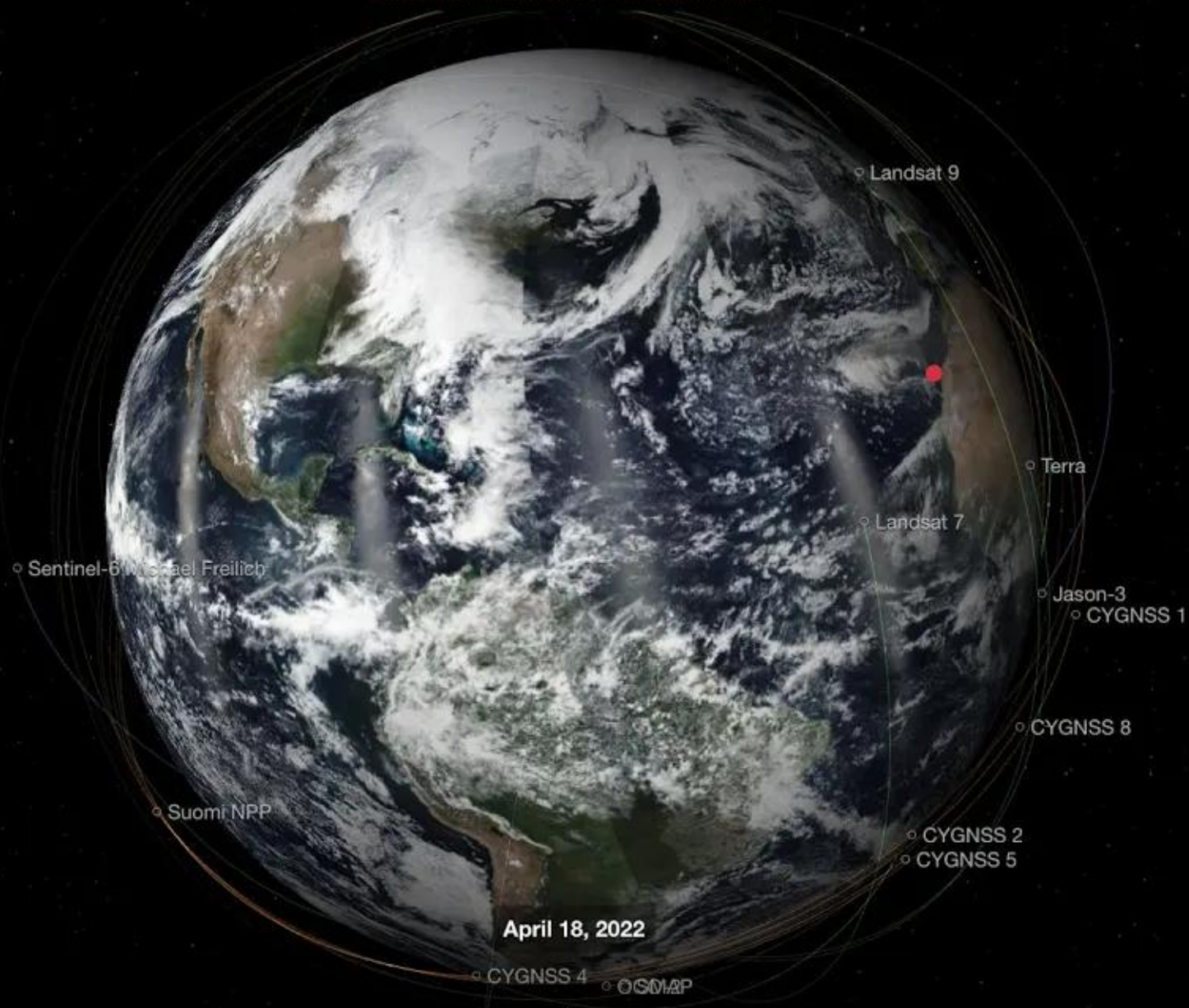




LATEST EVENT: Dust Blows From Western Sahara



1
00:00:04,870 --> 00:00:02,550
at jpl we've been developing some really

2
00:00:06,630 --> 00:00:04,880
cool software called eyes on the earth

3
00:00:08,629 --> 00:00:06,640
which is essentially an interactive

4
00:00:10,950 --> 00:00:08,639
algorithm that lets anybody see

5
00:00:12,709 --> 00:00:10,960
real-time events around the globe

6
00:00:14,470 --> 00:00:12,719
here with us today is jason craig he's

7
00:00:16,470 --> 00:00:14,480
the producer of this software howdy

8
00:00:17,590 --> 00:00:16,480
jason hi mike thanks for having me no

9
00:00:19,510 --> 00:00:17,600
problem can you tell us a little bit

10
00:00:21,189 --> 00:00:19,520
about the software sure

11
00:00:23,189 --> 00:00:21,199
this is a public outreach piece of

12
00:00:25,670 --> 00:00:23,199
software that anyone in the world can

13
00:00:27,750 --> 00:00:25,680

use with just a web browser so our

14

00:00:30,150 --> 00:00:27,760

mission is to show visually

15

00:00:32,310 --> 00:00:30,160

what earth science missions are doing

16

00:00:34,549 --> 00:00:32,320

and where they are at right now so this

17

00:00:36,310 --> 00:00:34,559

is a real time product so everywhere you

18

00:00:38,069 --> 00:00:36,320

see a label here these are actual earth

19

00:00:39,270 --> 00:00:38,079

science missions in their current

20

00:00:39,990 --> 00:00:39,280

position

21

00:00:41,510 --> 00:00:40,000

and

22

00:00:43,510 --> 00:00:41,520

more than that we can actually take the

23

00:00:44,709 --> 00:00:43,520

data and put it right on the globe

24

00:00:46,389 --> 00:00:44,719

visually

25

00:00:48,389 --> 00:00:46,399

we put in a lot of different missions

26
00:00:50,150 --> 00:00:48,399
and their data sets so let me show you

27
00:00:52,549 --> 00:00:50,160
the list of data that you can get right

28
00:00:54,389 --> 00:00:52,559
now and put on the globe

29
00:00:57,189 --> 00:00:54,399
so we have air temperature

30
00:00:58,950 --> 00:00:57,199
carbon dioxide carbon monoxide

31
00:01:01,189 --> 00:00:58,960
so we're looking at carbon monoxide

32
00:01:02,950 --> 00:01:01,199
overlaid across the entire globe here

33
00:01:04,390 --> 00:01:02,960
that's correct and this is the last

34
00:01:07,350 --> 00:01:04,400
three days and the software will

35
00:01:09,270 --> 00:01:07,360
continuously update as you open it so

36
00:01:11,030 --> 00:01:09,280
for example the mission that's creating

37
00:01:14,070 --> 00:01:11,040
the data is always shown on eyes in this

38
00:01:15,830 --> 00:01:14,080

case aqua and the air's instrument

39

00:01:17,910 --> 00:01:15,840

and so you will see where there might be

40

00:01:20,149 --> 00:01:17,920

fires around the earth for example you

41

00:01:22,870 --> 00:01:20,159

can also animate the data and go back in

42

00:01:25,109 --> 00:01:22,880

time and see it in the past

43

00:01:26,390 --> 00:01:25,119

let me show you another data set json3

44

00:01:29,190 --> 00:01:26,400

sea level

45

00:01:31,429 --> 00:01:29,200

and you can see a monthly map

46

00:01:32,870 --> 00:01:31,439

in this case january 2022

47

00:01:34,390 --> 00:01:32,880

and you can see where the c is higher

48

00:01:35,270 --> 00:01:34,400

than a previous monthly average and

49

00:01:37,109 --> 00:01:35,280

lower

50

00:01:38,950 --> 00:01:37,119

and in this way you can see things like

51
00:01:40,469 --> 00:01:38,960
el nino which you may have heard about

52
00:01:41,749 --> 00:01:40,479
on the news which means we might get

53
00:01:42,550 --> 00:01:41,759
more moisture in certain parts of the

54
00:01:44,069 --> 00:01:42,560
world

55
00:01:46,149 --> 00:01:44,079
so we want to make things visually

56
00:01:48,710 --> 00:01:46,159
intuitive so if we're talking about sea

57
00:01:50,630 --> 00:01:48,720
level we want to color code it so you

58
00:01:52,149 --> 00:01:50,640
have a legend right here and you can see

59
00:01:54,310 --> 00:01:52,159
it's in millimeters so it doesn't sound

60
00:01:56,069 --> 00:01:54,320
like all that much but when you get to

61
00:01:57,350 --> 00:01:56,079
the white part of the legend you can see

62
00:01:59,510 --> 00:01:57,360
the sea is

63
00:02:01,190 --> 00:01:59,520

almost 20 centimeters higher than normal

64

00:02:03,510 --> 00:02:01,200

it doesn't sound like a lot but when

65

00:02:05,270 --> 00:02:03,520

that sea is warm it really creates extra

66

00:02:07,429 --> 00:02:05,280

moisture and humidity which can affect

67

00:02:09,109 --> 00:02:07,439

weather patterns and if people tune in

68

00:02:11,830 --> 00:02:09,119

every day every week will they see

69

00:02:13,350 --> 00:02:11,840

changes and this spread they will

70

00:02:15,830 --> 00:02:13,360

another important point is this is the

71

00:02:17,589 --> 00:02:15,840

actual data from the missions themselves

72

00:02:19,430 --> 00:02:17,599

all we are doing is putting them in a

73

00:02:21,350 --> 00:02:19,440

visual format that is more easy to

74

00:02:22,869 --> 00:02:21,360

understand so everyone around the world

75

00:02:25,430 --> 00:02:22,879

can have the exact same data that the

76

00:02:27,190 --> 00:02:25,440

scientists themselves have exactly

77

00:02:28,790 --> 00:02:27,200

for all of these vital signs you can

78

00:02:29,750 --> 00:02:28,800

look at the legend on the bottom and

79

00:02:31,990 --> 00:02:29,760

this will tell you this is the

80

00:02:34,070 --> 00:02:32,000

concentration in parts per million of

81

00:02:36,150 --> 00:02:34,080

carbon dioxide as you know carbon

82

00:02:38,470 --> 00:02:36,160

dioxide is a crucial climate change

83

00:02:40,470 --> 00:02:38,480

driving molecule because it tends to

84

00:02:42,309 --> 00:02:40,480

oppress a certain wavelength of light

85

00:02:44,309 --> 00:02:42,319

inside earth's atmosphere calling what

86

00:02:46,869 --> 00:02:44,319

is referred to as global warming but

87

00:02:49,509 --> 00:02:46,879

here you see that it goes from 390 parts

88

00:02:52,070 --> 00:02:49,519

per million to 415

89

00:02:53,990 --> 00:02:52,080

and over time we're seeing it go up

90

00:02:56,670 --> 00:02:54,000

if you look now it's actually off the

91

00:03:01,589 --> 00:02:59,190

[Music]

92

00:03:02,790 --> 00:03:01,599

so this is a list of missions that we

93

00:03:04,309 --> 00:03:02,800

can click on

94

00:03:05,750 --> 00:03:04,319

sure when you click on one of these

95

00:03:08,390 --> 00:03:05,760

missions you'll see where it is this

96

00:03:10,229 --> 00:03:08,400

very second real time and let's try one

97

00:03:14,710 --> 00:03:10,239

everybody likes the international space

98

00:03:18,630 --> 00:03:16,710

it'll load it up in its current position

99

00:03:20,390 --> 00:03:18,640

and in you go

100

00:03:22,550 --> 00:03:20,400

so here is the space station in its

101
00:03:24,470 --> 00:03:22,560
current position around earth

102
00:03:27,110 --> 00:03:24,480
so what we're looking at here is a cad

103
00:03:28,949 --> 00:03:27,120
rendering of the iss itself but

104
00:03:31,030 --> 00:03:28,959
everything about it is real it's a

105
00:03:33,190 --> 00:03:31,040
real-time event wherever you are over

106
00:03:34,390 --> 00:03:33,200
the globe and its orientation and you

107
00:03:36,229 --> 00:03:34,400
can play around with that and rotate

108
00:03:37,830 --> 00:03:36,239
that entire thing that's correct you can

109
00:03:40,390 --> 00:03:37,840
also speed it up and you can watch the

110
00:03:41,990 --> 00:03:40,400
solar panels track the sun over time

111
00:03:44,149 --> 00:03:42,000
which is not obvious in everyday

112
00:03:46,630 --> 00:03:44,159
pictures

113
00:03:48,789 --> 00:03:46,640

so this is showing the grace follow-on

114

00:03:50,229 --> 00:03:48,799

mission it's measuring gravity changes

115

00:03:51,589 --> 00:03:50,239

across the globe

116

00:03:53,190 --> 00:03:51,599

tell us a little bit about this is it

117

00:03:55,990 --> 00:03:53,200

the same as the iss where you're looking

118

00:03:58,070 --> 00:03:56,000

at real-time spacecraft information this

119

00:04:00,390 --> 00:03:58,080

is still real-time information we can

120

00:04:02,789 --> 00:04:00,400

gather up the gravity fluctuations over

121

00:04:04,789 --> 00:04:02,799

the planet earth and visualize them

122

00:04:06,470 --> 00:04:04,799

and it turns out the principal driver of

123

00:04:09,190 --> 00:04:06,480

mass change which is what this is

124

00:04:14,149 --> 00:04:09,200

measuring is water and ice movement let

125

00:04:19,830 --> 00:04:16,069

so grace follow on we have another

126

00:04:21,349 --> 00:04:19,840

colorful map as before but over time

127

00:04:23,909 --> 00:04:21,359

you can learn through the legend that

128

00:04:26,710 --> 00:04:23,919

there's more water on the purple to blue

129

00:04:28,710 --> 00:04:26,720

areas and less water on the red areas so

130

00:04:30,390 --> 00:04:28,720

for example in southern california you

131

00:04:32,950 --> 00:04:30,400

can see it's red which means there's

132

00:04:34,469 --> 00:04:32,960

less water than the previous baseline

133

00:04:36,469 --> 00:04:34,479

and if we go back in time we can see

134

00:04:38,070 --> 00:04:36,479

that that has been red for some time but

135

00:04:40,469 --> 00:04:38,080

you can also see the fluctuations in the

136

00:04:42,629 --> 00:04:40,479

season so for example in the amazon you

137

00:04:45,670 --> 00:04:42,639

can see it go back and forth red to

138

00:04:47,350 --> 00:04:45,680

purple red to purple so rainy season dry

139

00:04:49,510 --> 00:04:47,360

season and it's really cool to see that

140

00:04:52,070 --> 00:04:49,520

visualize through gravity itself and

141

00:04:54,390 --> 00:04:52,080

users at home can scroll through huge

142

00:04:56,230 --> 00:04:54,400

periods of time to see those changes yes

143

00:04:59,430 --> 00:04:56,240

for this data set they can do 10 years

144

00:05:03,270 --> 00:05:01,510

can you tell us briefly viewers at home

145

00:05:06,230 --> 00:05:03,280

how they can get on right now and check

146

00:05:08,070 --> 00:05:06,240

this out sure just go to eyes.nasa.gov

147

00:05:09,350 --> 00:05:08,080

kind of just like your eyes and then

148

00:05:10,950 --> 00:05:09,360

it'll be a banner there and you just

149

00:05:12,870 --> 00:05:10,960

click on it and it works on your mobile

150

00:05:15,029 --> 00:05:12,880

phone your tablets your laptops your

151

00:05:17,430 --> 00:05:15,039

desktops anything with a web browser

152

00:05:18,870 --> 00:05:17,440

linux 2. very cool jason thank you so