



1
00:00:01,167 --> 00:00:04,137
DIY Glacier Modeling with
Virtual Earth System Laboratory

2
00:00:05,004 --> 00:00:06,973
A new NASA research
tool lets you

3
00:00:07,006 --> 00:00:09,876
run your own climate
modeling experiment.

4
00:00:10,844 --> 00:00:12,211
My name's Eric Larour.
I'm a scientist

5
00:00:12,244 --> 00:00:14,347
at NASA's Jet
Propulsion Laboratory.

6
00:00:14,380 --> 00:00:16,616
I work on the Ice Sheet
System Model,

7
00:00:16,649 --> 00:00:18,284
which is a software
at NASA that we use

8
00:00:18,317 --> 00:00:20,653
to predict the evolution
of polar ice caps.

9
00:00:21,654 --> 00:00:23,189
The Columbia Glacier is
a very large glacier

10
00:00:23,222 --> 00:00:25,558
in Alaska that is melting fast.

11

00:00:25,591 --> 00:00:28,061

What we would like to
do here is understand

12

00:00:28,094 --> 00:00:29,362

what happens to this glacier

13

00:00:29,395 --> 00:00:31,664

if we increase the amount of
snow that falls on it.

14

00:00:31,697 --> 00:00:34,467

We have built an interface on
the website called "VESL"

15

00:00:34,500 --> 00:00:37,170

■which is the Virtual Earth
System Laboratory■

16

00:00:37,203 --> 00:00:38,871

where you can carry
out simulations

17

00:00:38,904 --> 00:00:41,040

the way we scientists
at NASA do.

18

00:00:41,073 --> 00:00:44,510

We have a very nice simple
setup here with a slider,

19

00:00:44,543 --> 00:00:48,314

which controls the snow
that falls onto the glacier.

20

00:00:48,347 --> 00:00:49,682

You can slide it to
the right side,

21

00:00:49,715 --> 00:00:51,417

increasing the amount of snow,

22

00:00:51,450 --> 00:00:53,486
to the left side decreasing
the amount of snow.

23

00:00:53,519 --> 00:00:56,222
Then you just click
on "Run" here.

24

00:00:56,255 --> 00:00:59,358
We are grabbing,
literally, this glacier.

25

00:00:59,391 --> 00:01:02,695
Packaging it. Send it
to to a NASA server.

26

00:01:02,728 --> 00:01:06,265
Running it on the ISSM software
itself that we rely on.

27

00:01:06,298 --> 00:01:09,735
And we are downloading the
results back to this website

28

00:01:09,768 --> 00:01:12,271
and displaying it
as a movie here.

29

00:01:13,539 --> 00:01:15,942
All the red spots
here on this glacier

30

00:01:15,975 --> 00:01:18,744
are showing an increase
in thickness.

31

00:01:18,777 --> 00:01:20,546
You can see that not every area

32

00:01:20,579 --> 00:01:22,415
has the same amount
of thickness.

33

00:01:22,448 --> 00:01:26,119
And the valleys seem to be
collecting most of the snow.

34

00:01:26,152 --> 00:01:30,323
It's not something you can guess
just by observing the system.

35

00:01:30,356 --> 00:01:33,793
Nothing that you use
on VESL is prerecorded

36

00:01:33,826 --> 00:01:36,062
or like a video on YouTube.

37

00:01:36,095 --> 00:01:39,799
It is really something that is
being simulated on the fly

38

00:01:39,832 --> 00:01:41,968
using NASA servers.

39

00:01:42,001 --> 00:01:45,104
Check out other simulations we
have on the VESL website.

40

00:01:45,137 --> 00:01:47,874
One of my favorites is the
evolution of sea level

41

00:01:47,907 --> 00:01:50,643
along the coastlines
of Texas or Florida.

42

00:01:50,676 --> 00:01:52,245
You can really see the impact of

43

00:01:52,278 --> 00:01:55,915
the evolution of polar
ice caps on the local coastline.

44

00:01:55,948 --> 00:01:58,918
<https://vesl.jpl.nasa.gov>

45

00:02:00,886 --> 00:02:02,321
NASA Jet Propulsion Laboratory