



Pixels to Answers

Nathan Eaton
Director of Services

ngis
people partnership success



Google

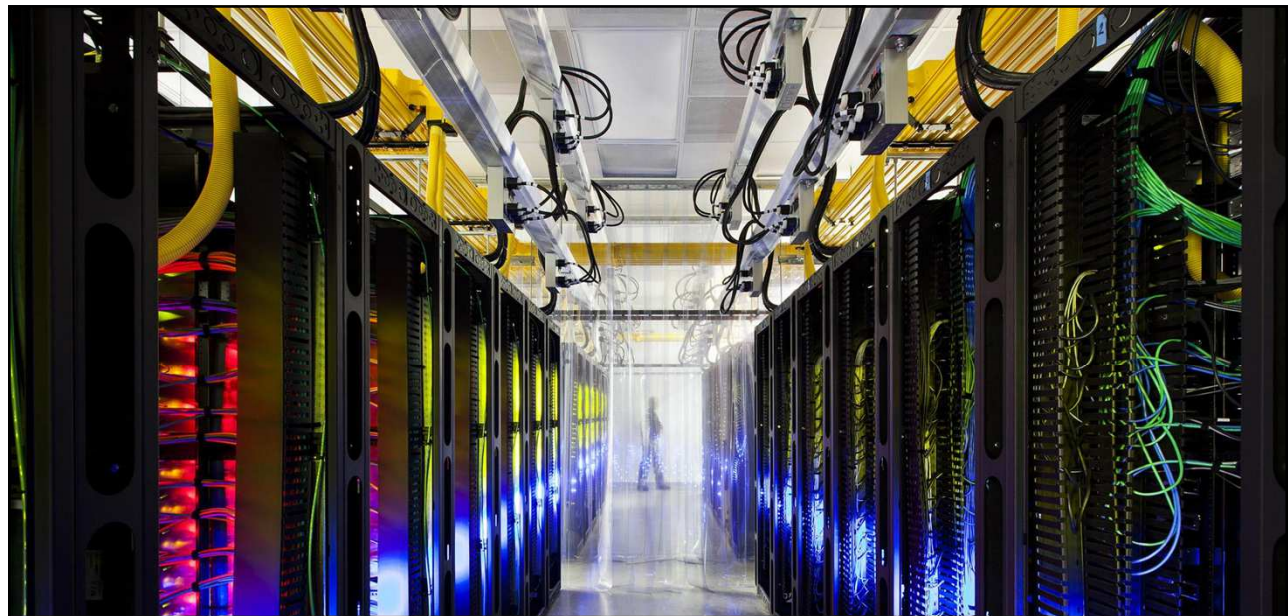
IQUITOS PERU
1984

Earth Observations



Enormous Satellite Data Archives

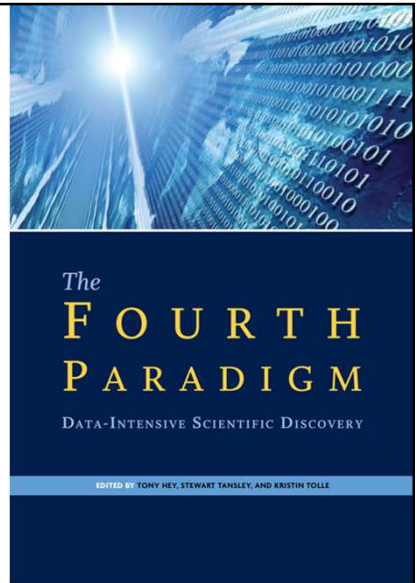
Source: Google



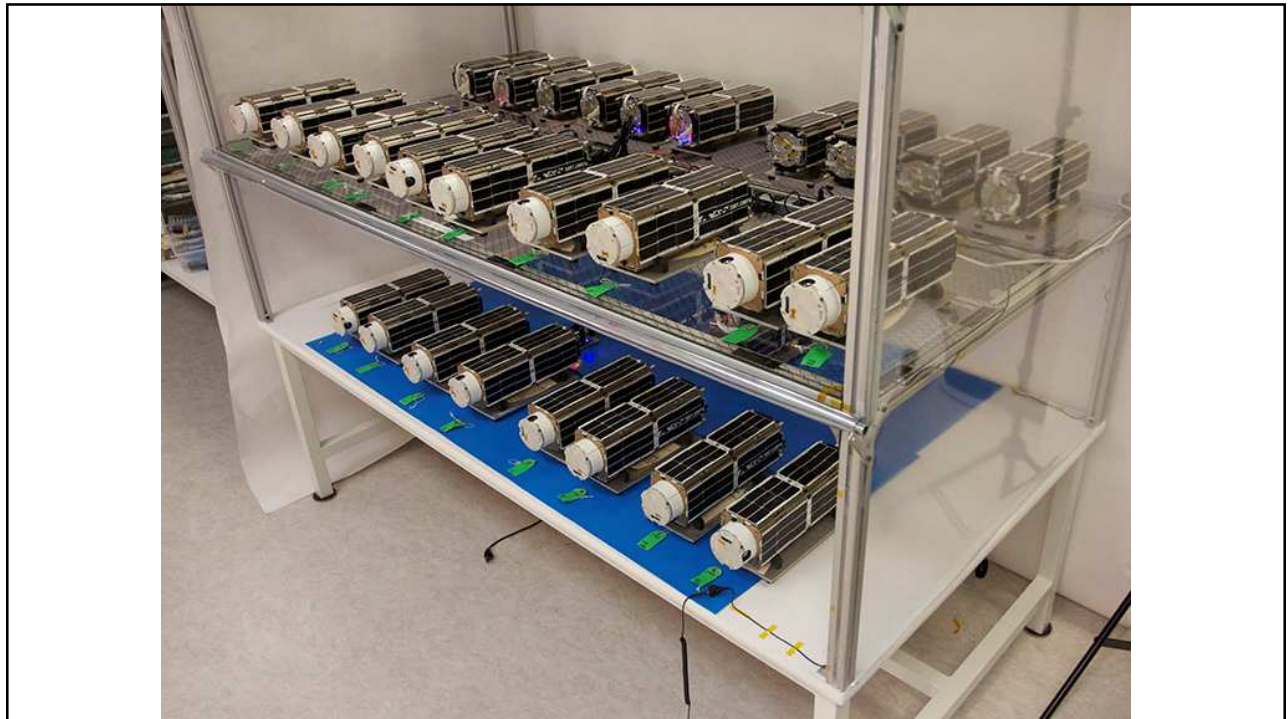
Cloud Infrastructure to use it

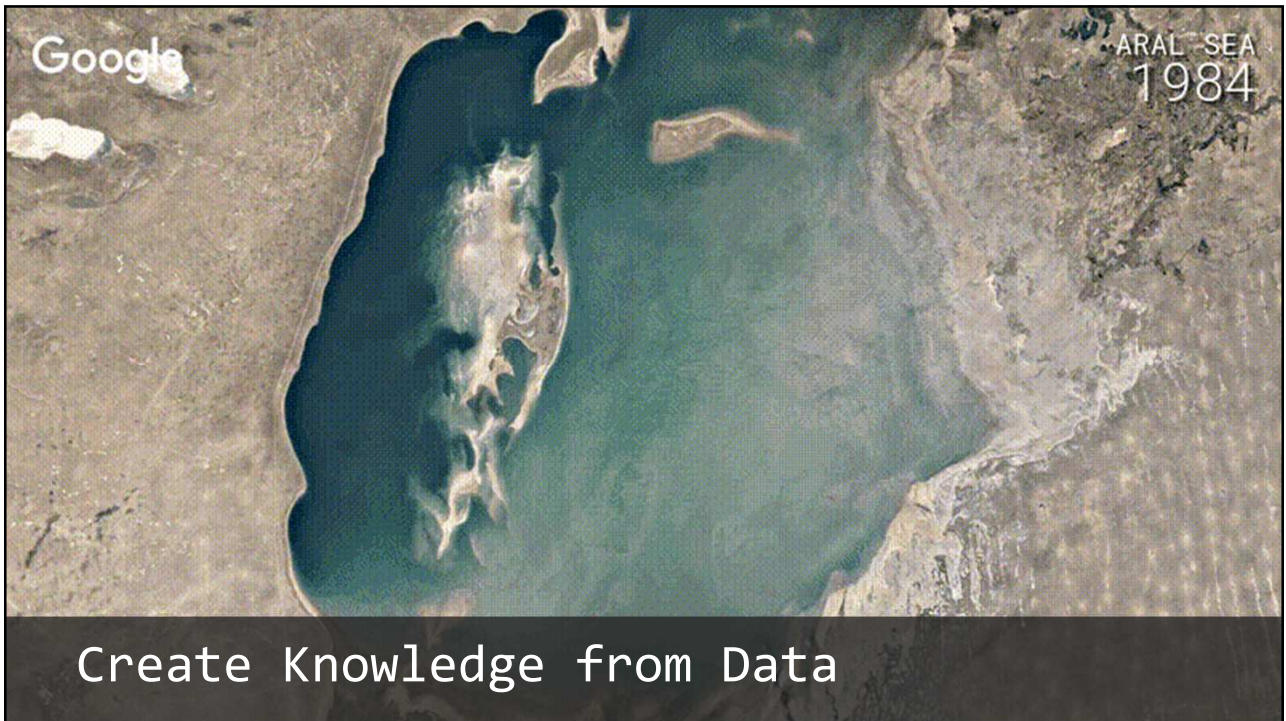
"Often it turns out to be more efficient to move the questions than to move the data."

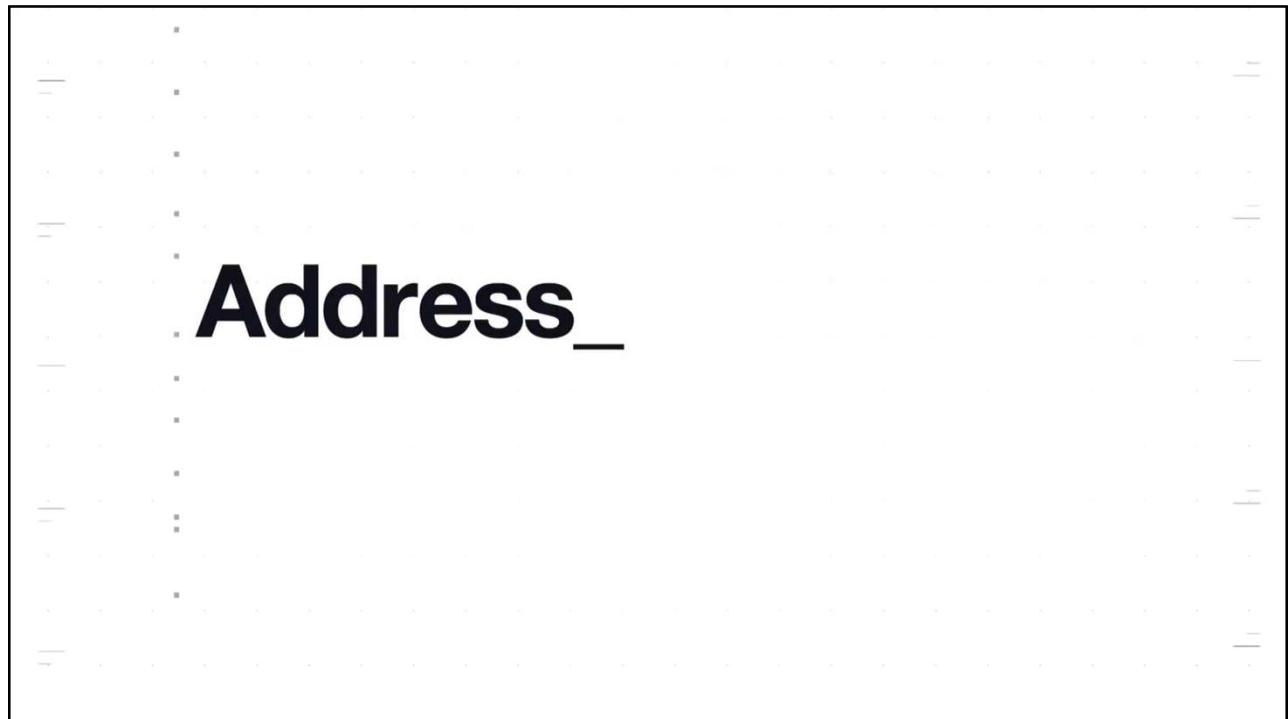
-Jim Gray (1944-2007)



Google Earth Engine











SENTINEL Hub
by SINERGISE

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THE NEXT GENERATION OF SATELLITE IMAGERY SERVICE


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FAQ TIMELAPSE DATASETS CASE STUDIES PLATFORM SIGN UP



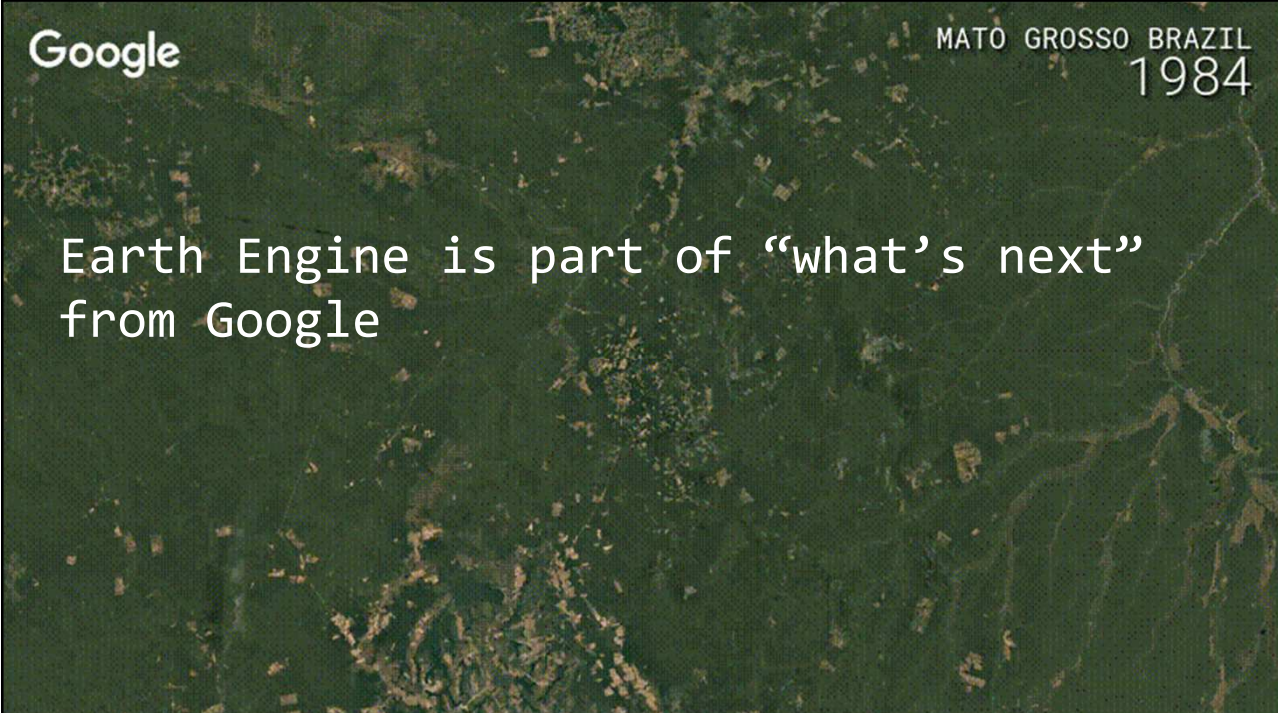
A planetary-scale platform for Earth science data & analysis

Powered by Google's cloud infrastructure

▶ WATCH VIDEO

Meet Earth Engine

Google Earth Engine combines a multi-petabyte catalog of satellite imagery and geospatial datasets with planetary-scale analysis capabilities and makes it available for scientists, researchers, and developers to detect changes, map trends, and quantify differences on the Earth's surface.



Google

MATO GROSSO BRAZIL
1984

Earth Engine is part of “what’s next”
from Google

Google LASSEN NATIONAL FOREST AND VOLCANIC PARK CALIFORNIA 1984


Earth engine is a platform for change detection, monitoring and analysis at scale

High value for organisations that have operations, land holdings or interests that are geographically significant or diverse



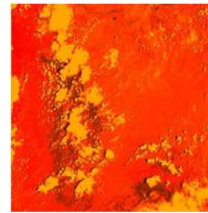
What can Earth Engine do?

- Get an image
 - Pick your: projection, resolution, bands, bounding-box, visualization*

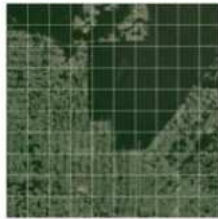
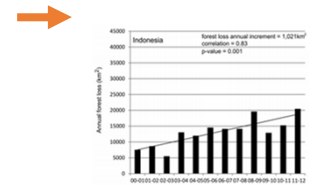


What can Earth Engine do?

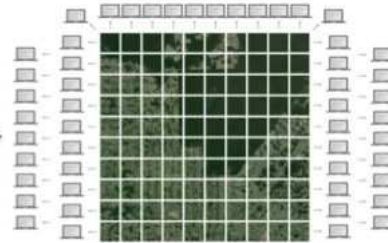
- Get an image
- Apply an algorithm to an image
- Filter a collection
- Map an algorithm over a collection
- Reduce a collection
- Compute aggregate statistics



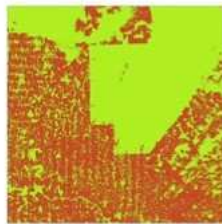
Gabon	1891	391	11898
Lithuania	1845	1226	40296
Cuba	1725	2271	68008
Mali	1694	0	1247103
Costa Rica	1653	382	11377
Czech Republic	1646	1331	46934
South Sudan	1635	38	460681
North Korea	1605	137	67695
Italy	1603	898	201331



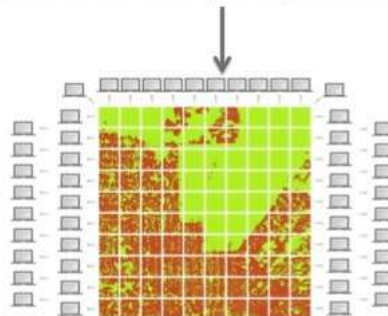
Original Image
is divided into 256px sub-units.



Sub-units are distributed
to separate machines where they can be processed in parallel.

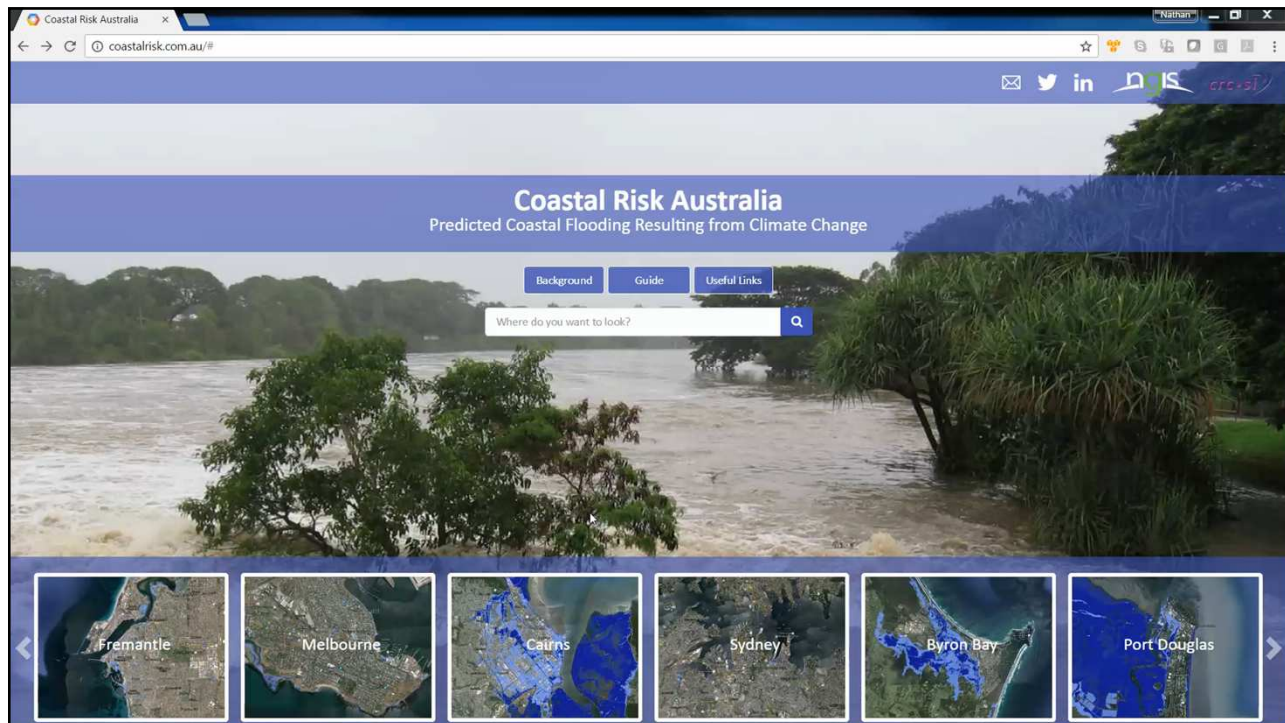
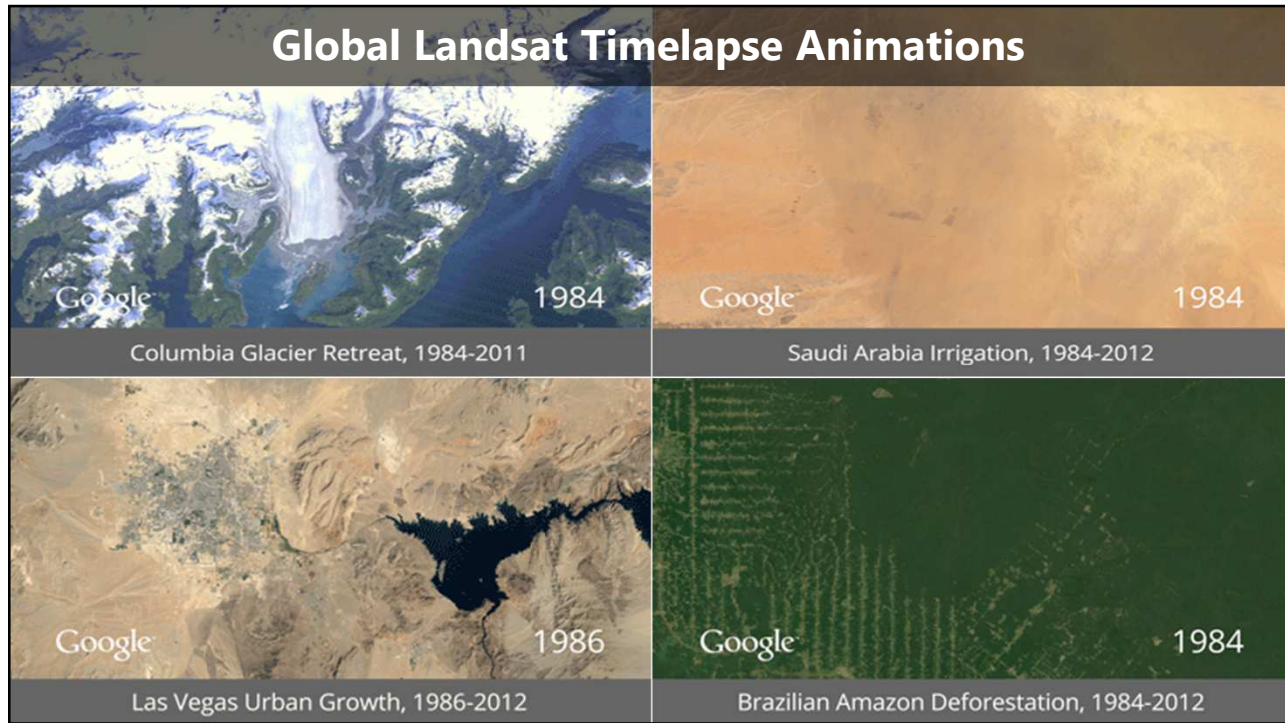


Result is reassembled
into a finished image.



Thousands can be processed
simultaneously.

Source: Google



Coastal Risk Australia 2100

Busseton, Western Australia, Australia

Predicted

Manual

Predicted Inundation Scenario

200 Radio Stations

100 Media Outlets

10 TV Stations

Background

Guide

Useful Links

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Share via Twitter

Share via Linked In

Coastal Risk Australia 2100

Busseton, Western Australia, Australia

Predicted

Manual

Predicted Inundation Scenario

200k Users

130 Countries

3m web requests in first 2 days

Background

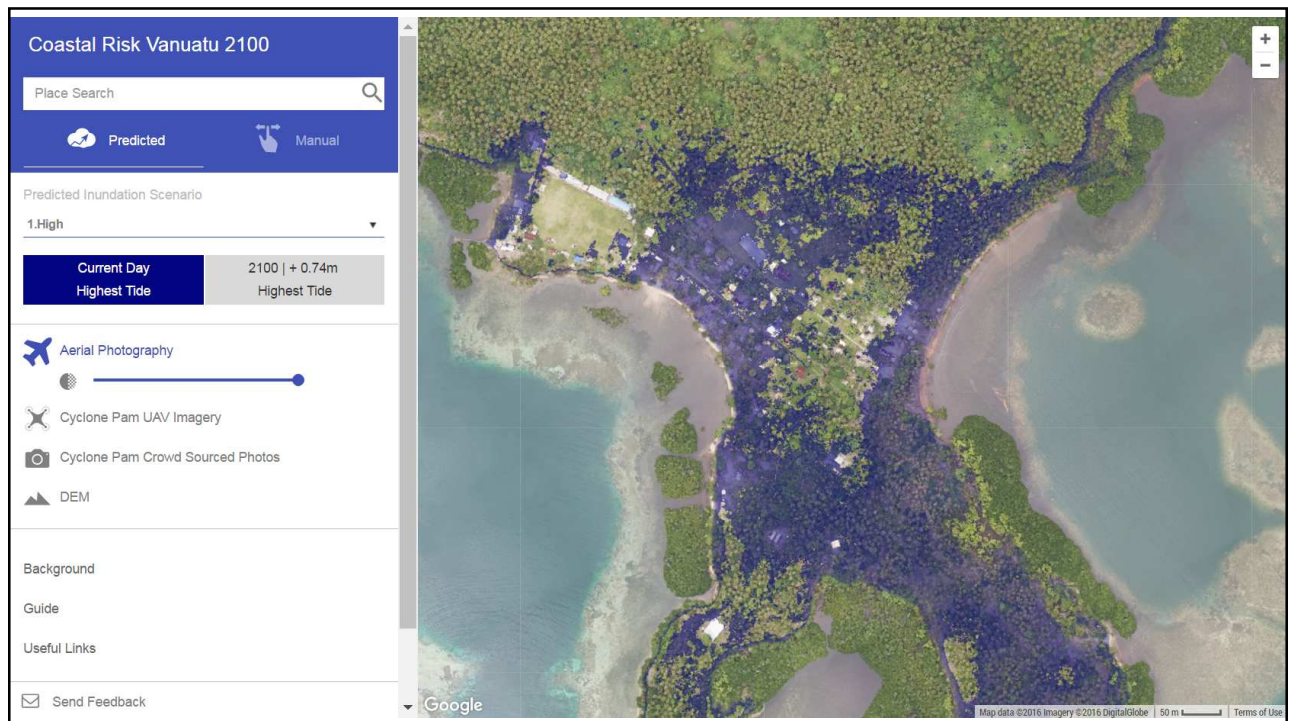
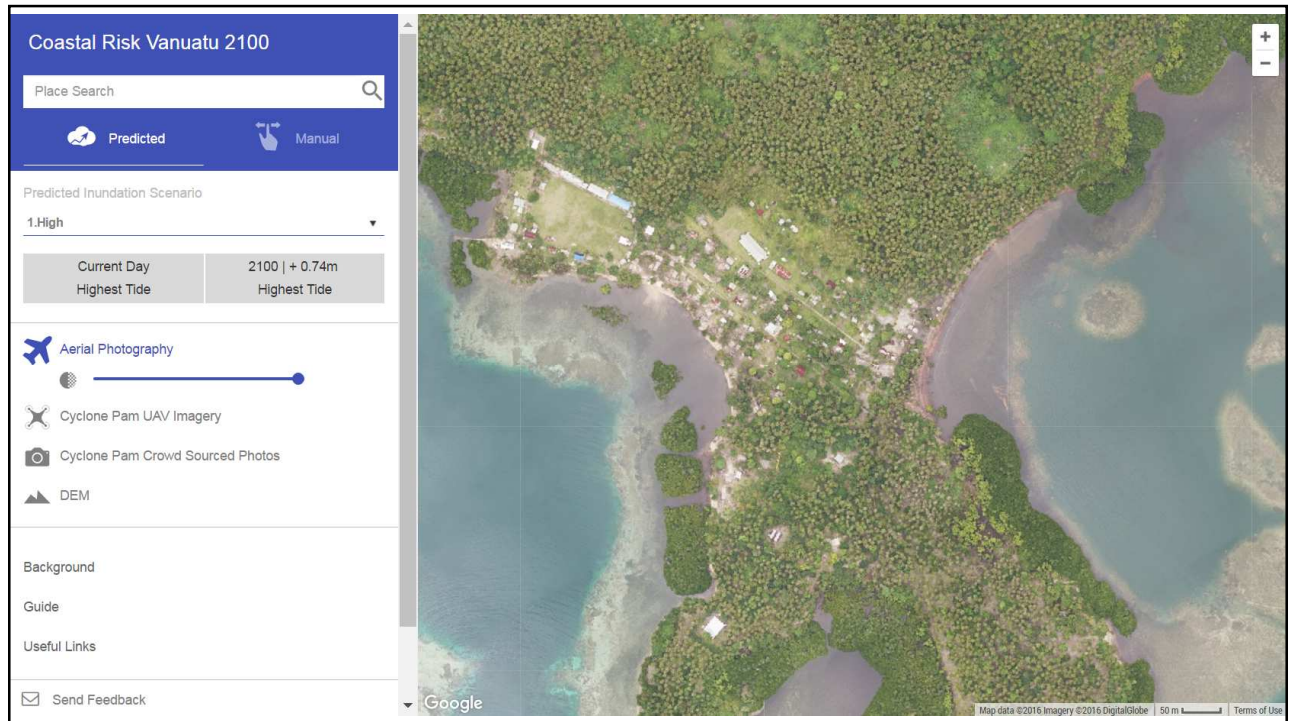
Guide

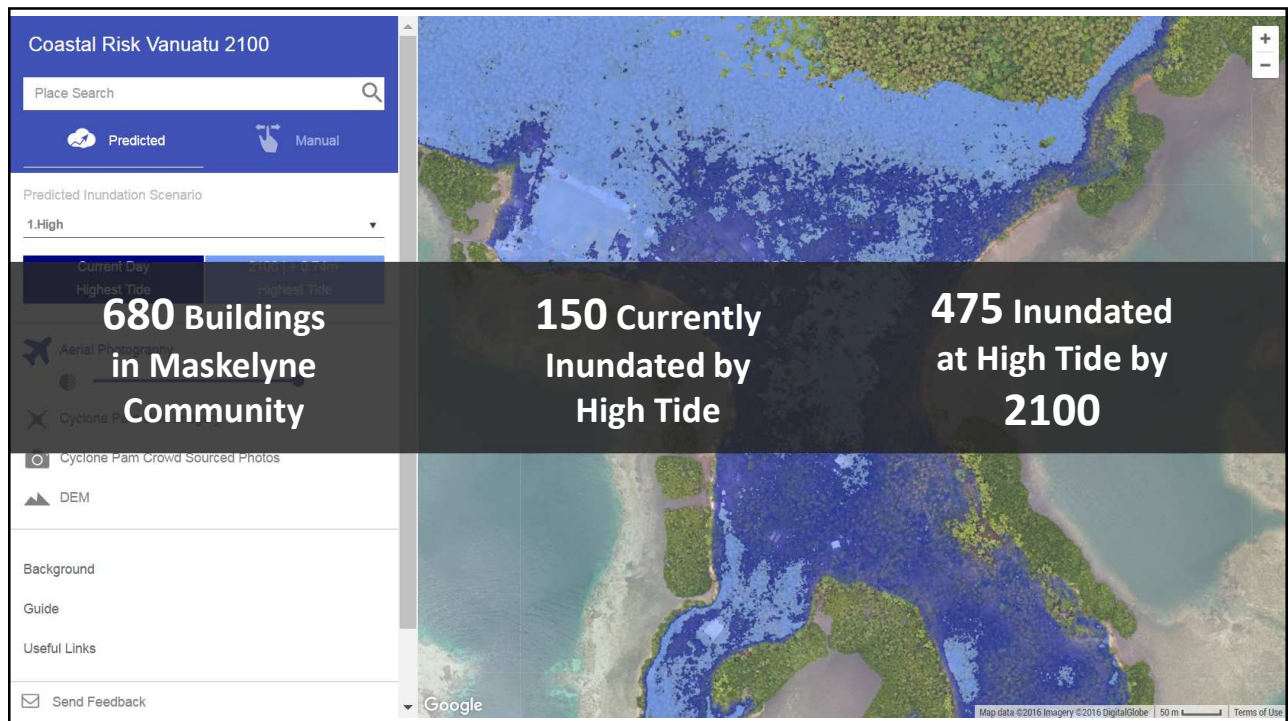
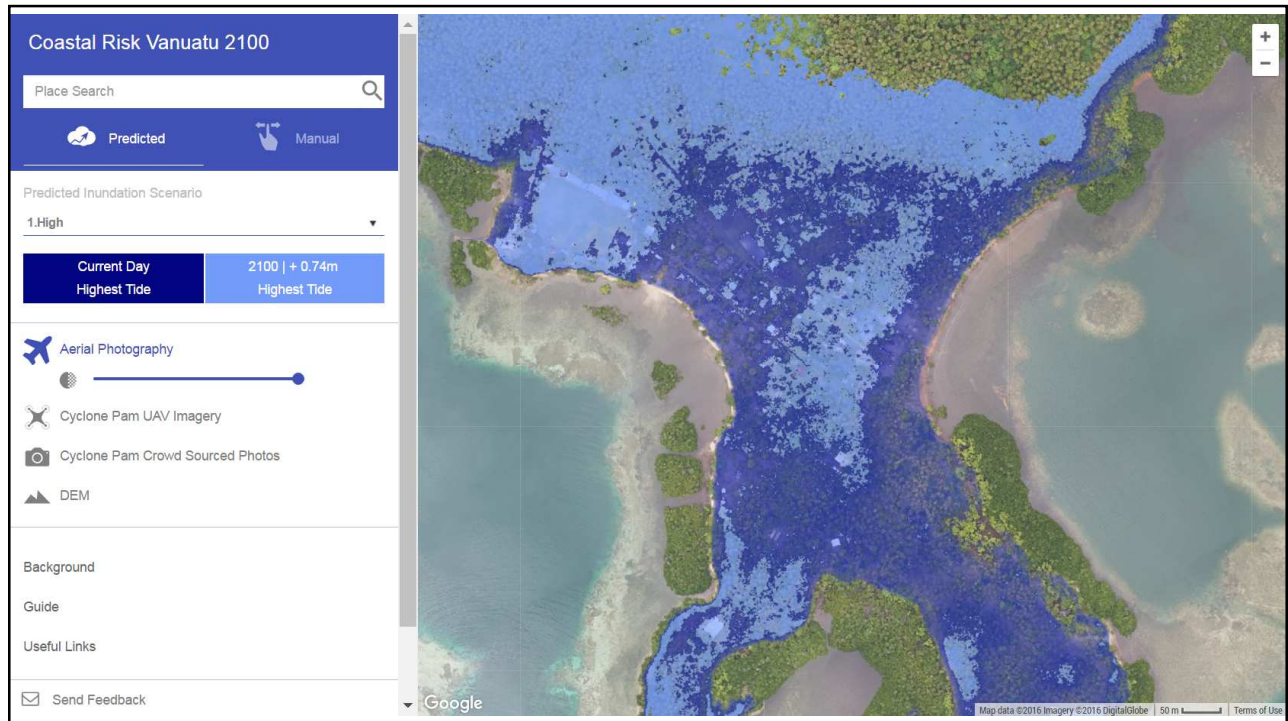
Useful Links

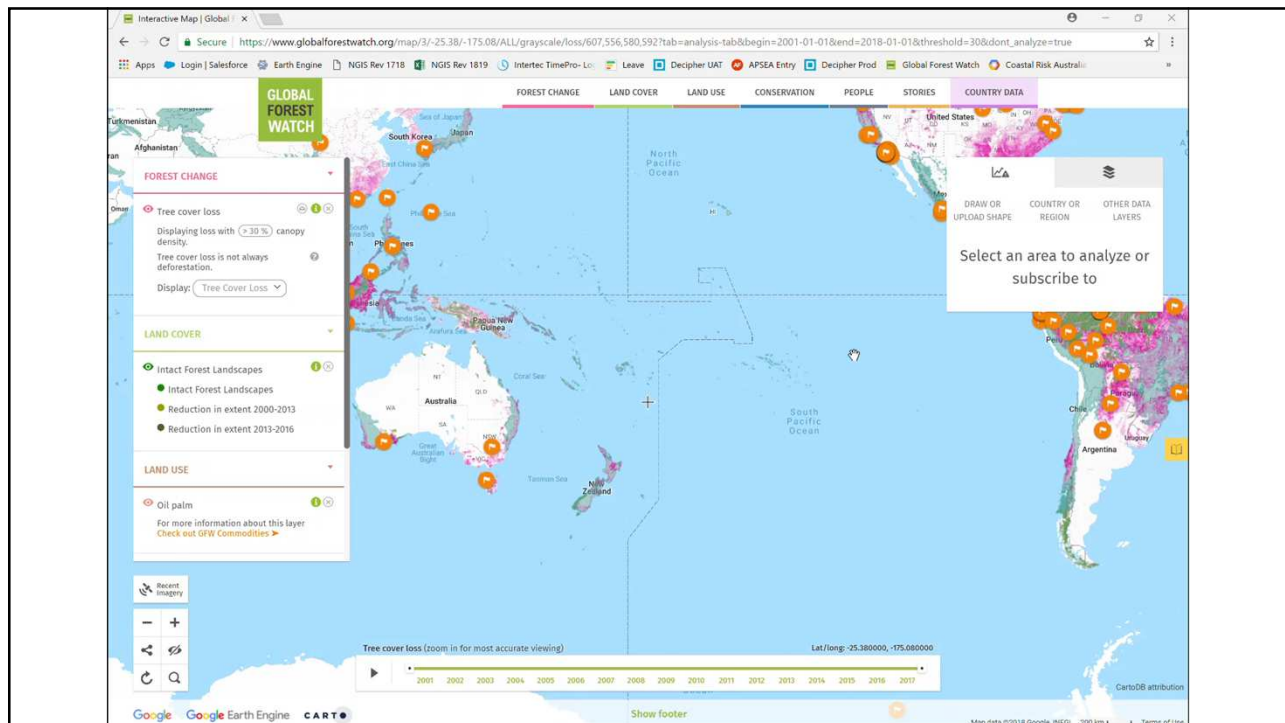
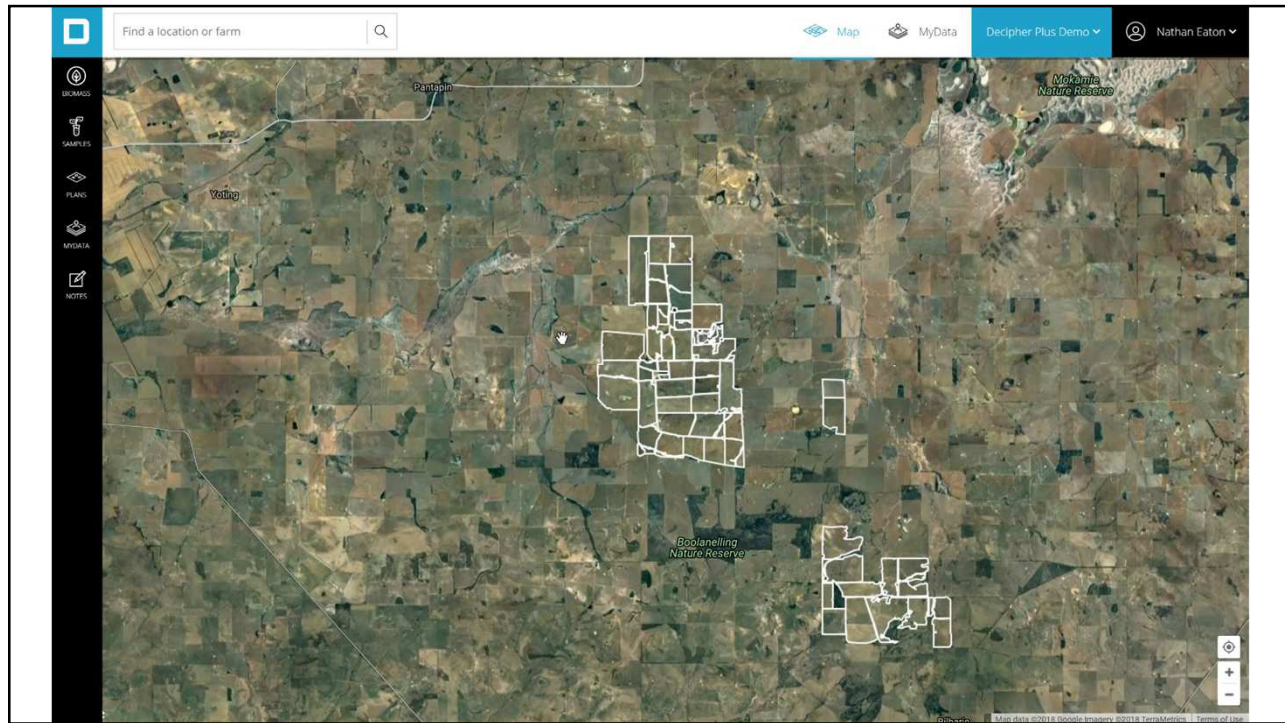
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Search for places...

100 km
50 mi

1984 2016

Miami Brisbane, Australia Shirase Glacier Polarforschung San Francisco Lassen Volcanic Par Stumpy Point Las Vegas Alberta, Canada Columbia Glacier Nuflo De C

Timelapse

Timelapse is a global, zoomable video that lets you see how the Earth has changed over the past 32 years. It is made from 33 cloud-free annual mosaics, one for each year from 1984 to 2016, which are made interactively explorable by [Carnegie Mellon University CREATE Lab's Time Machine library](#), a technology for creating and viewing zoomable and pannable

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MENU Map Figure/Data

Climate Engine

Colors Layers Masking Download Link Reset

GET TIME SERIES

Time Series Calculation: Native Time Series One Variable Analysis

Region: Point Add another region

Variable 1

Variable 1 Type: Climate Dataset: CHIRPS - Pentad Variable: Precipitation Units: millimeters Computation Resolution (Scale): 4800 m (1/20-deg) Time Period: 1981-01-01 to 2018-06-30

Total Precipitation (CHIRPS)
Target Period: 2018-05-03 to 2018-06-30

0 50 100 150 200 250 300 350 400
Precipitation (mm)

United States Mexico Gulf of Mexico Caribbean Sea

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