

# The Story of Maps

# Data Tools and Engineering for a Changing Planet

We help companies and government agencies solve problems using remote sensing, life sciences, and transportation data.  
Recently we've been:

- Working to improve disaster response data pipelines
- Building a public search API for Earth on AWS datasets

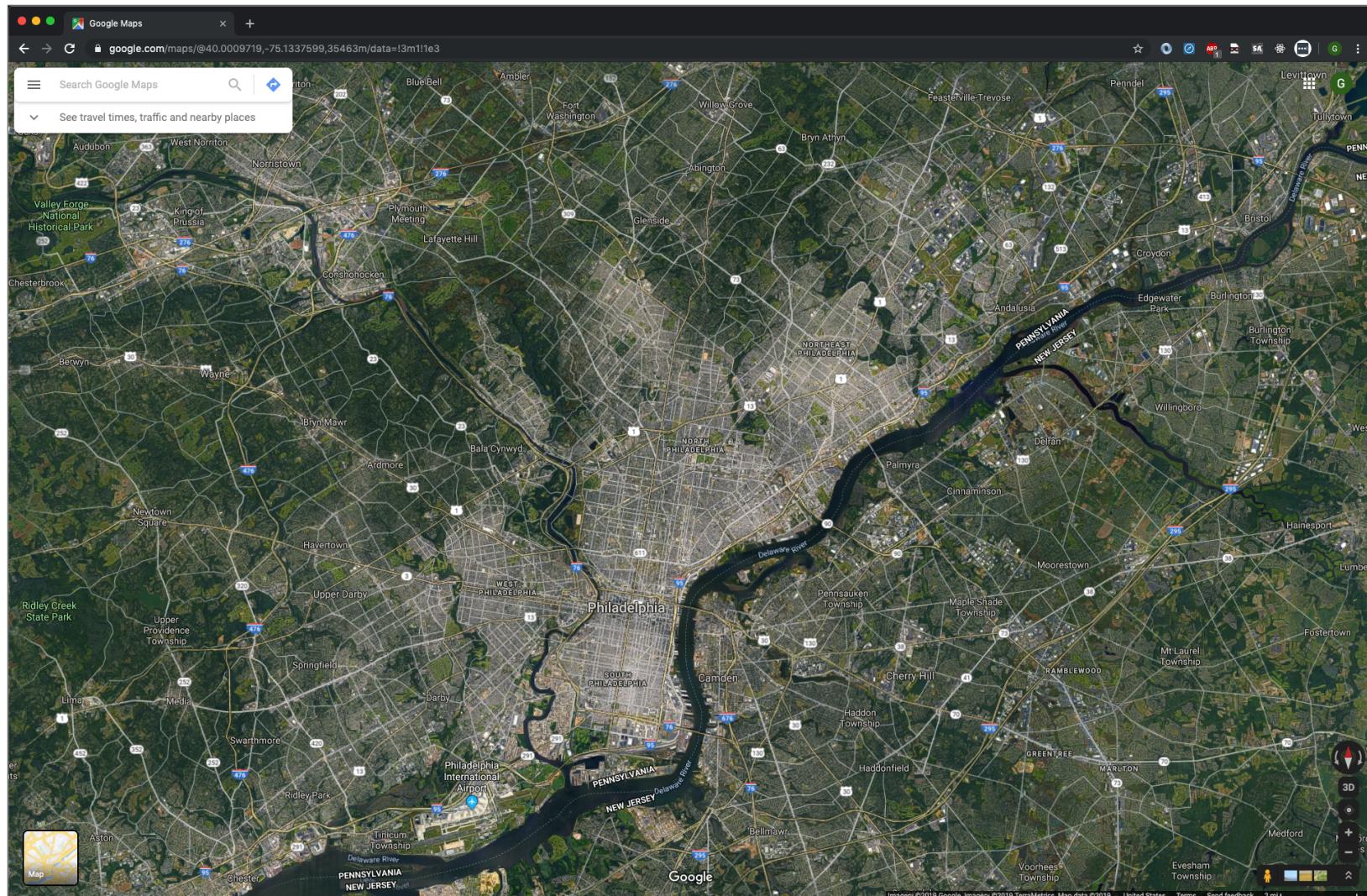
[LEARN MORE ABOUT OUR CORE SERVICES](#)



Proud to have worked with...







## TECH

- Gatsby - web UIs hosted on S3
- JavaScript
- ...Except science code (Python, Fortran, ...)
- Lambda

## USE CASES

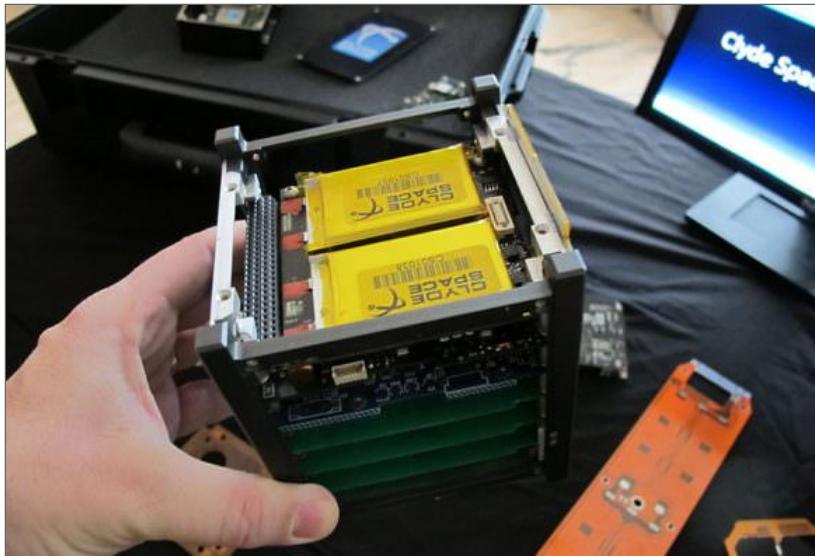
- Natural disasters - hurricanes, forest fires
- Directions - heavier use in cities, holidays
- Science research - mapping edges of ice, sahara, etc

CubeSatData.com is a hosted service for managing cube and small satellite data.

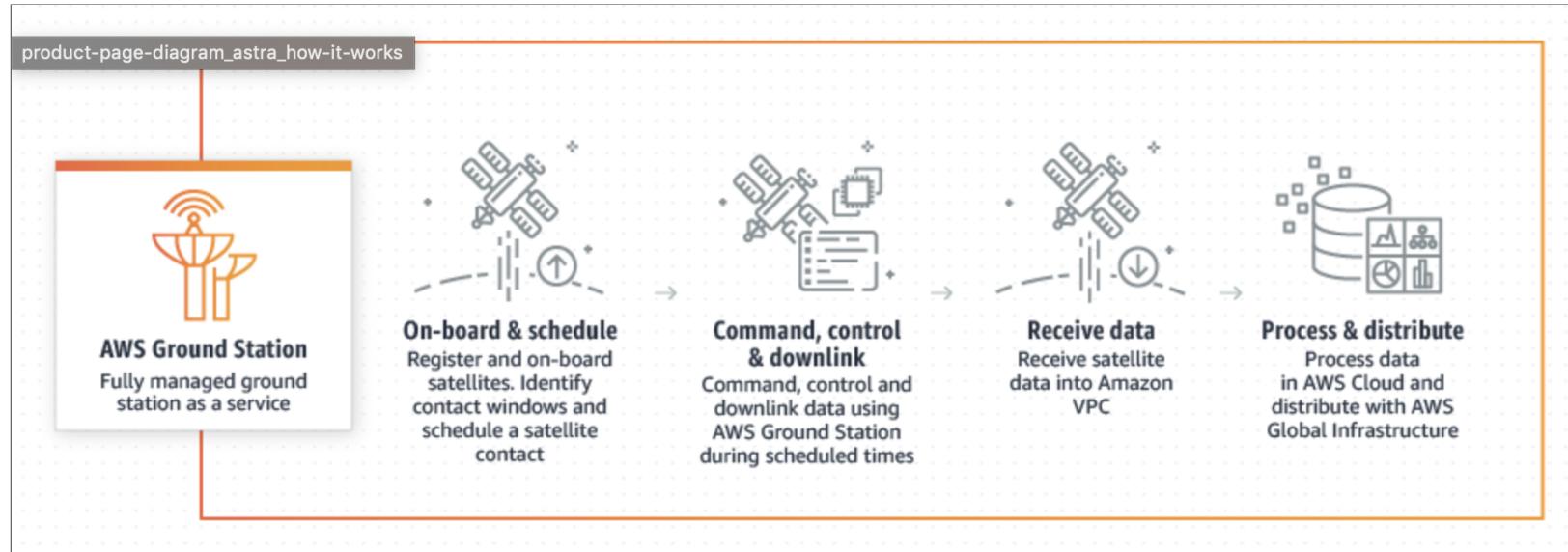
CubeSat Data can manage the entire data pipeline of your cube or small satellite mission -- from ground station downlink and data storage to automated archives of convenience so you can put your data to work solving problems.

[LET'S TALK CUBESAT!](#)

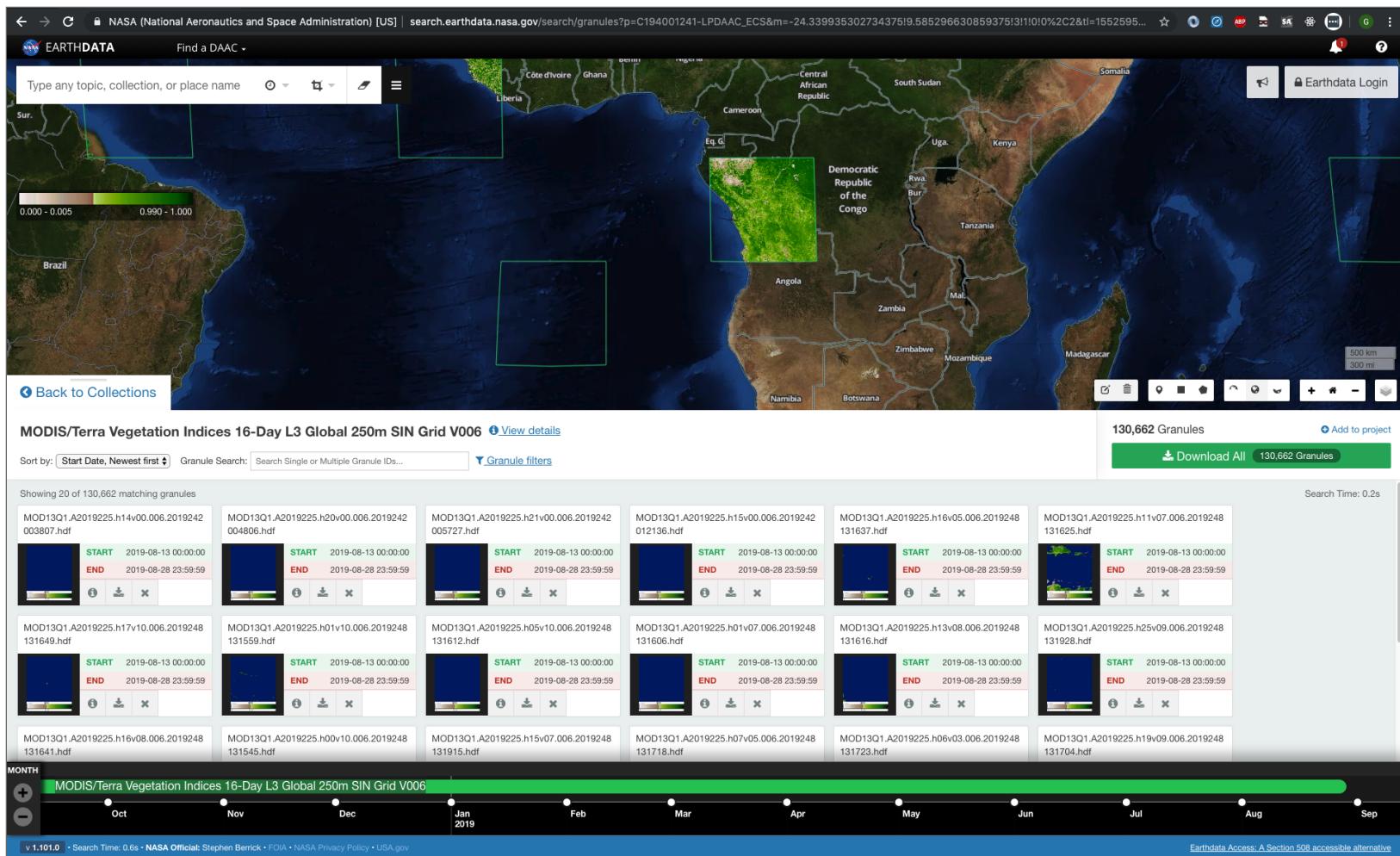




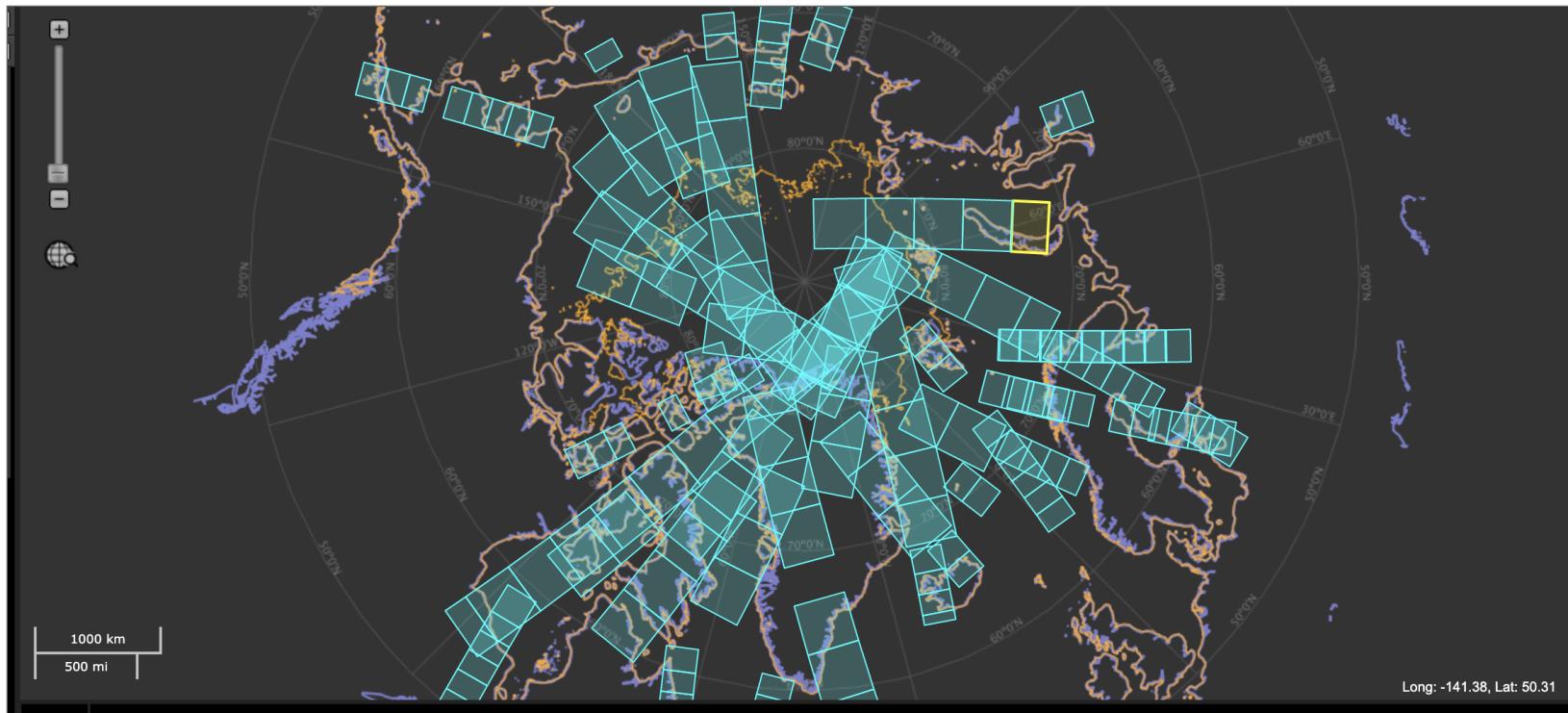
# AWS GROUNDSTATION



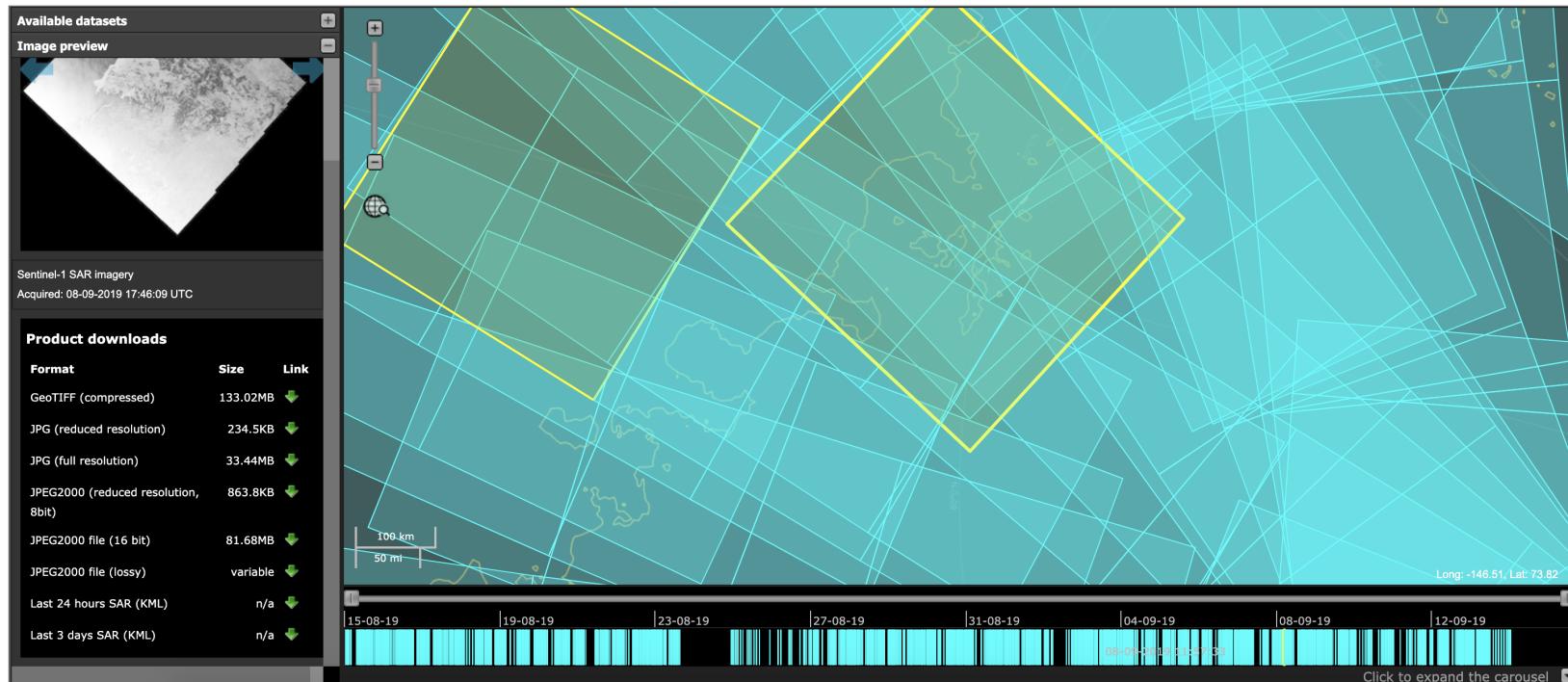
```
(base) Garys-MacBook-Pro:~ garysieling$ aws s3 ls s3://landsat-pds/L8/003/017/LC80030172015001LGN00/
2015-04-22 07:26:28    47408152 LC80030172015001LGN00_B1.TIF
2015-04-22 07:26:16    6176549 LC80030172015001LGN00_B1.TIF.ovr
2015-04-22 07:26:16    138368 LC80030172015001LGN00_B10.TIF
2015-04-22 07:26:24    23326 LC80030172015001LGN00_B10.TIF.ovr
2015-04-22 07:26:24    138368 LC80030172015001LGN00_B11.TIF
2015-04-22 07:26:17    23326 LC80030172015001LGN00_B11.TIF.ovr
2015-04-22 07:26:25    46847402 LC80030172015001LGN00_B2.TIF
2015-04-22 07:26:16    6352659 LC80030172015001LGN00_B2.TIF.ovr
2015-04-22 07:26:30    47124021 LC80030172015001LGN00_B3.TIF
2015-04-22 07:26:24    6422661 LC80030172015001LGN00_B3.TIF.ovr
2015-04-22 07:26:27    50149779 LC80030172015001LGN00_B4.TIF
2015-04-22 07:26:24    6850126 LC80030172015001LGN00_B4.TIF.ovr
2015-04-22 07:26:14    53049013 LC80030172015001LGN00_B5.TIF
2015-04-22 07:26:26    7255939 LC80030172015001LGN00_B5.TIF.ovr
2015-04-22 07:26:31    47233397 LC80030172015001LGN00_B6.TIF
2015-04-22 07:26:14    6535126 LC80030172015001LGN00_B6.TIF.ovr
2015-04-22 07:26:16    46514629 LC80030172015001LGN00_B7.TIF
2015-04-22 07:26:26    6462726 LC80030172015001LGN00_B7.TIF.ovr
2015-04-22 07:26:19    191458738 LC80030172015001LGN00_B8.TIF
2015-04-22 07:26:18    24733995 LC80030172015001LGN00_B8.TIF.ovr
2015-04-22 07:26:13    39689636 LC80030172015001LGN00_B9.TIF
2015-04-22 07:26:24    4487925 LC80030172015001LGN00_B9.TIF.ovr
2015-04-22 07:26:33    3612664 LC80030172015001LGN00_BQA.TIF
2015-04-22 07:26:26    695055 LC80030172015001LGN00_BQA.TIF.ovr
2015-08-11 12:05:32    9434 LC80030172015001LGN00_MTL.json
2015-04-22 07:26:24    7787 LC80030172015001LGN00_MTL.txt
2015-04-22 07:26:31    173623 LC80030172015001LGN00_thumb_large.jpg
2015-04-22 07:26:31    9888 LC80030172015001LGN00_thumb_small.jpg
2015-04-22 07:26:14    2598 index.html
```



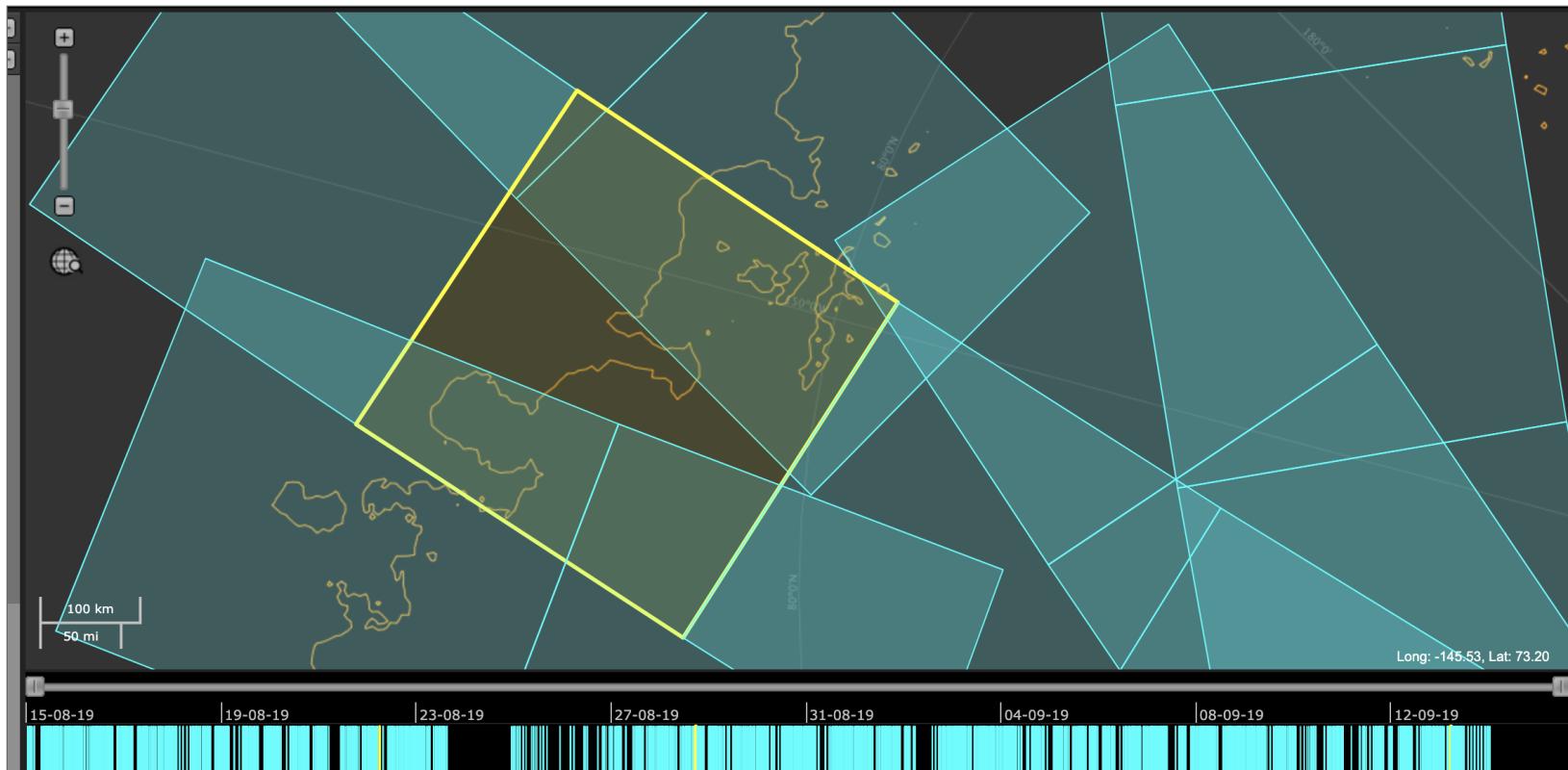




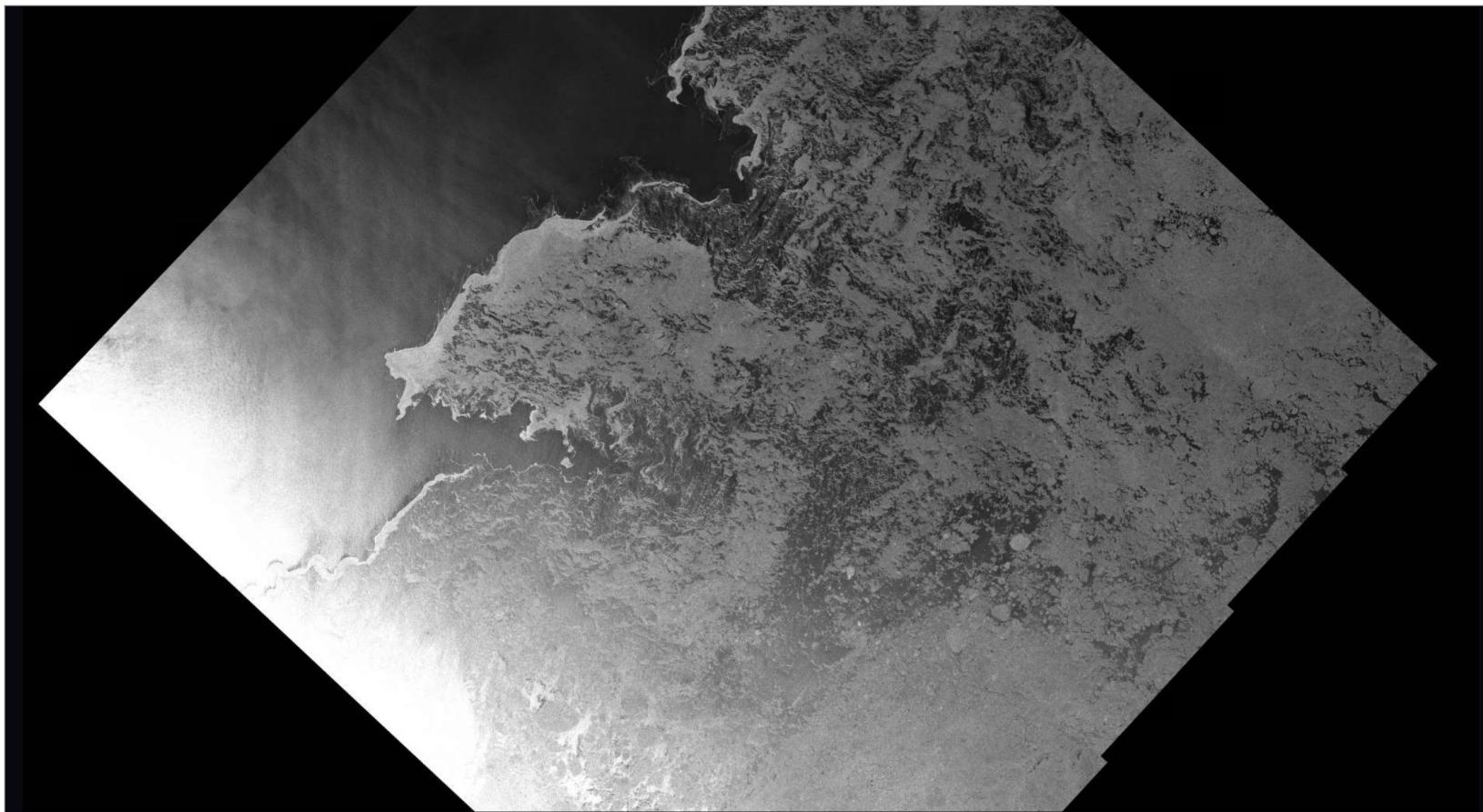
<https://www.polarview.aq/arctic>



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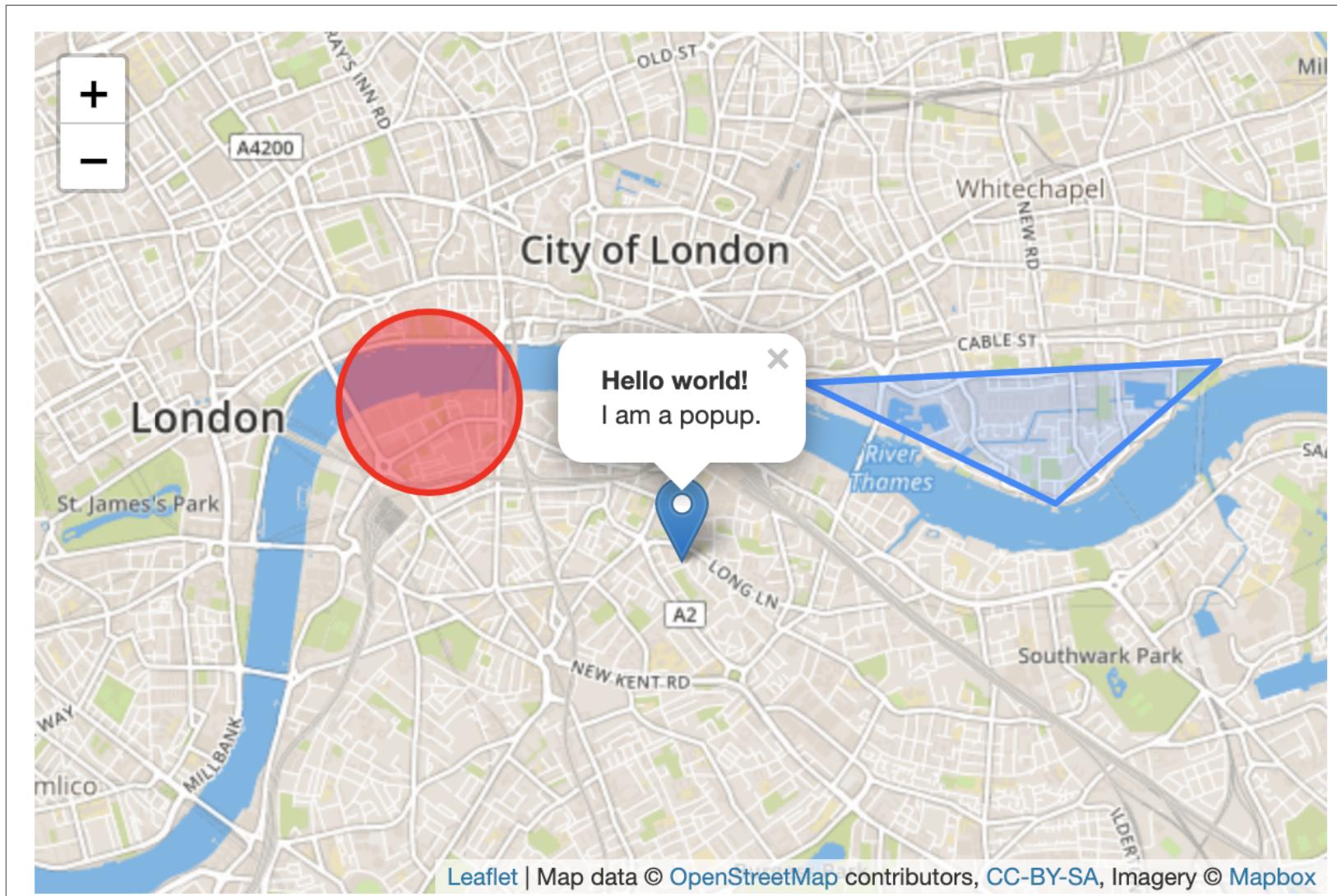


<https://www.polarview.aq/arctic>

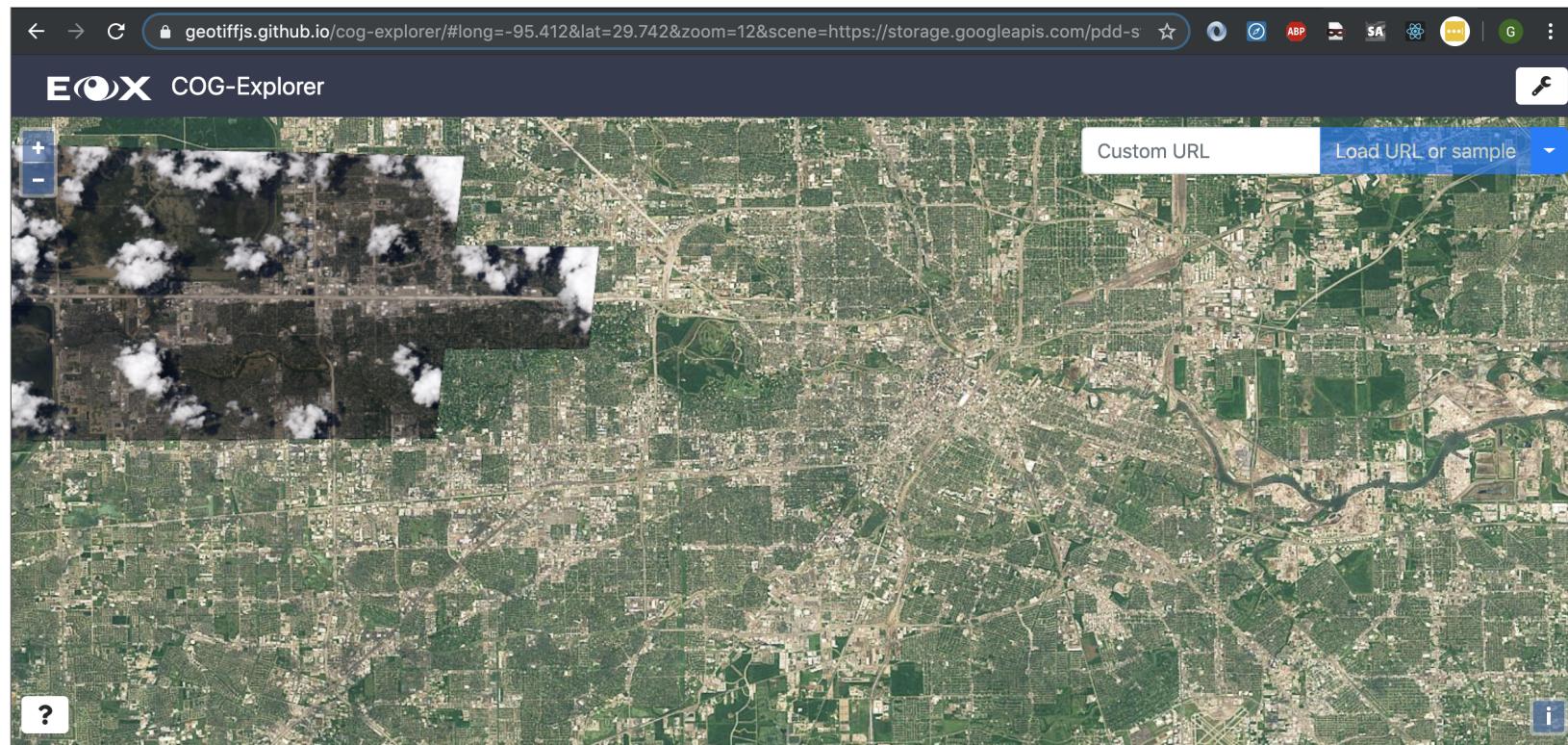
## BROWSING TILES

- Folder structure - zoom + location
- Lambda?
- S3 - byte ranging
- Leaflet.js
- TODO: find that library for making maps from python

```
// initialize the map on the "map" div with a given center and zoom const  
map = L.map('map', { center: [51.505, -0.09], zoom: 13 });
```



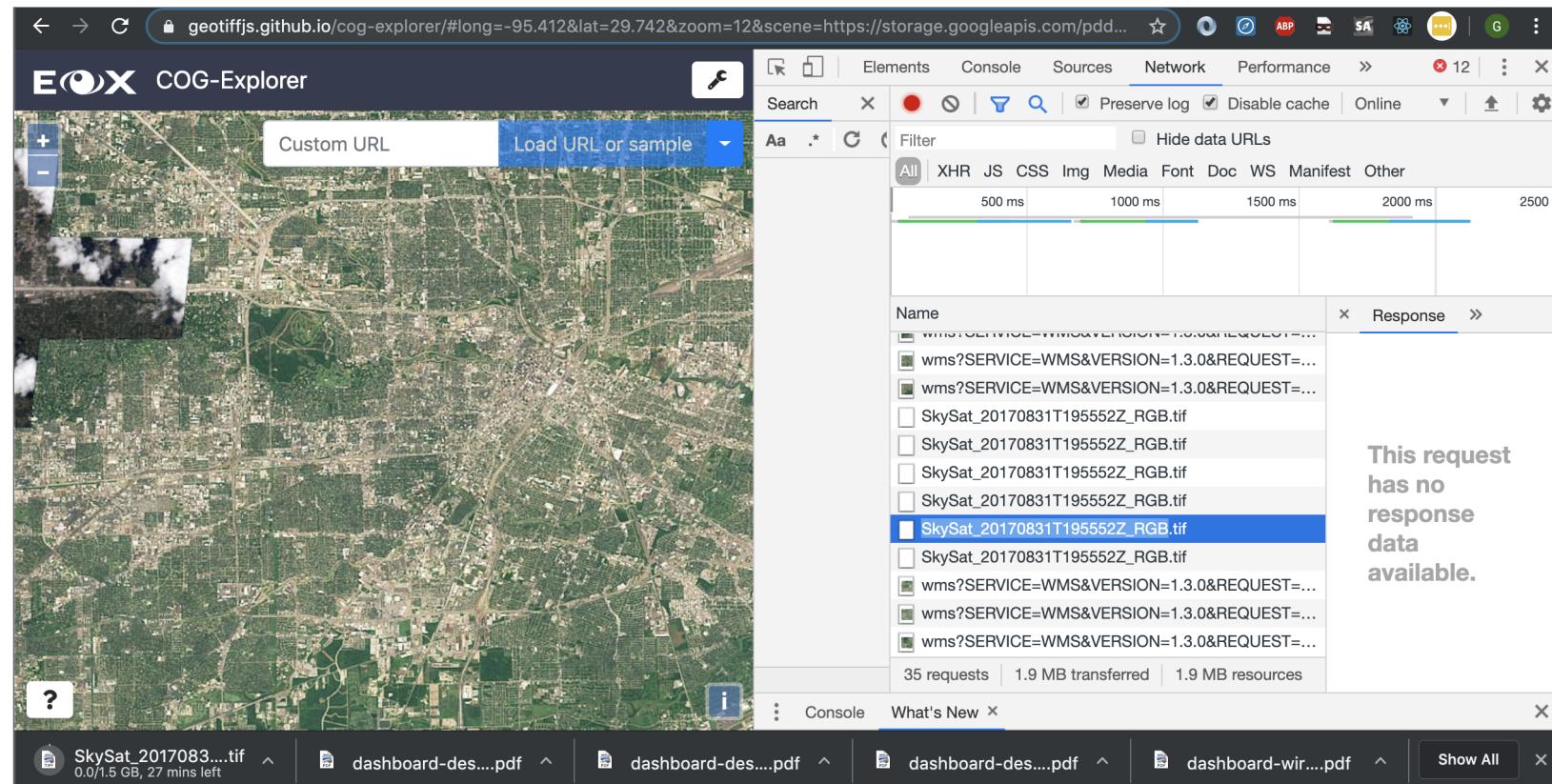
# GEOTIFF.JS - BROWSER



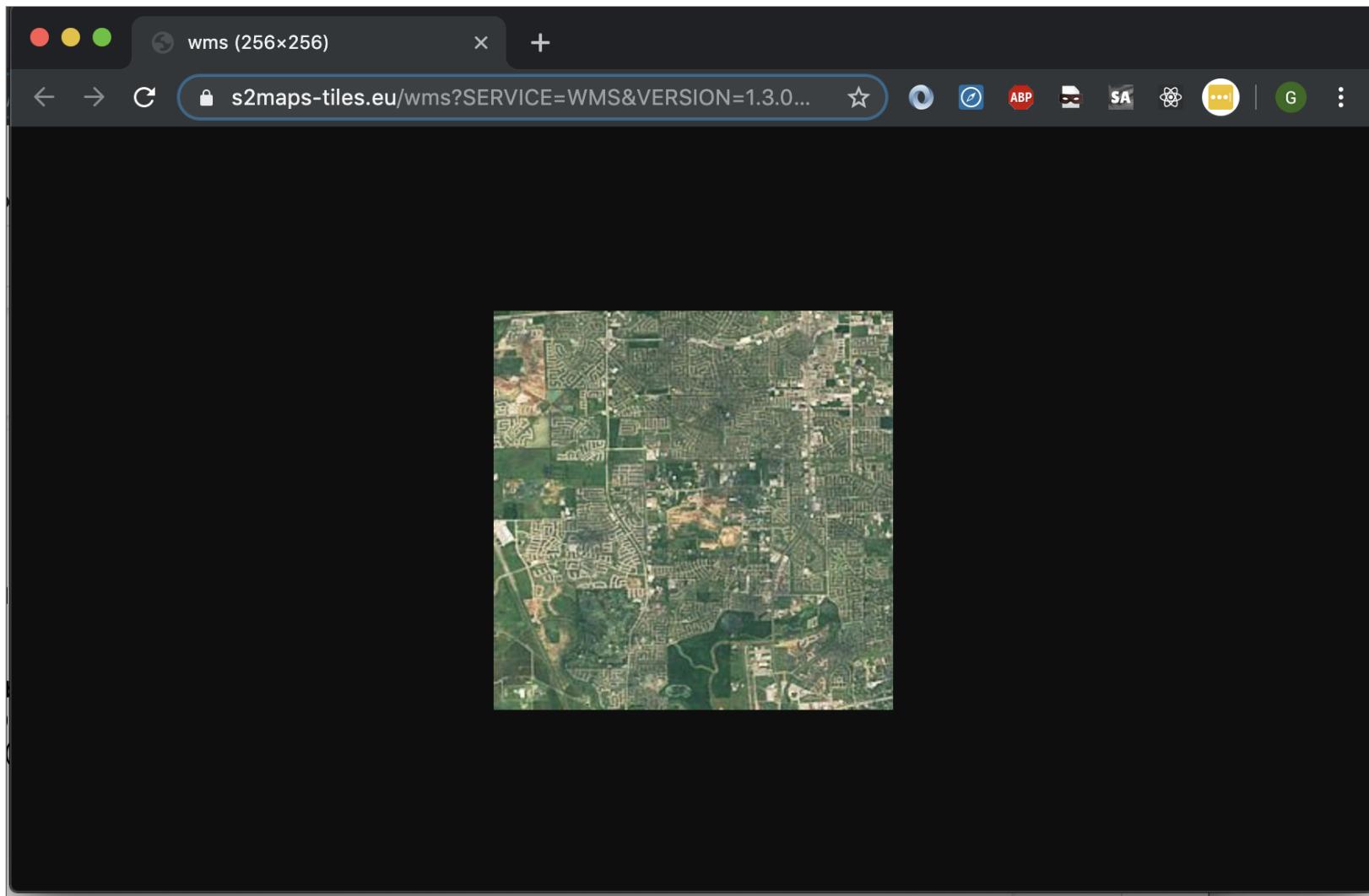
## GEOTIFF.JS - TILE

```
<canvas class="ol-unselectable" style="width: 100%; height: 100%; display: block;" width="1206" height="1012"> == $0
```

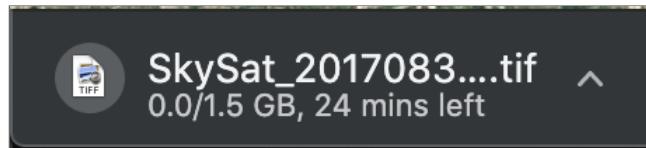
# GEOTIFF.JS - NETWORK



# GEOTIFF.JS - TILE



# GEOTIFF.JS - TILE

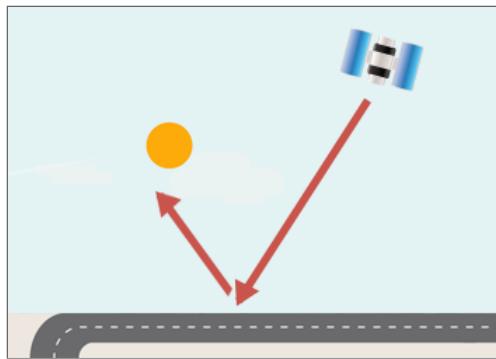


## JAVASCRIPT LAMBDA'S

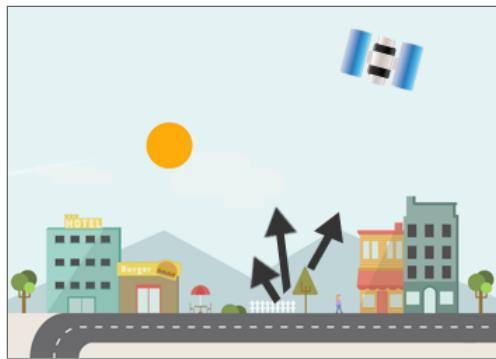
- Non-profits vs. commercial
- Cost control
- Fast startup time

# CONTAINER

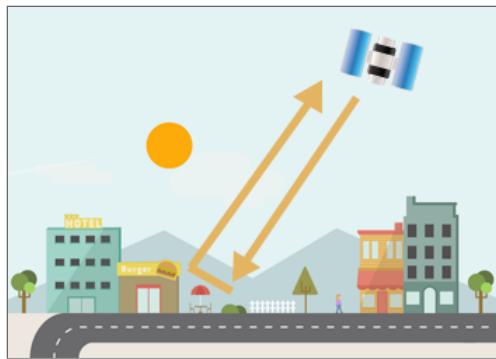
- Satellite (Cubesat, Landsat, etc)
- Plane
- Drone
- Kite
- Hot air balloon?



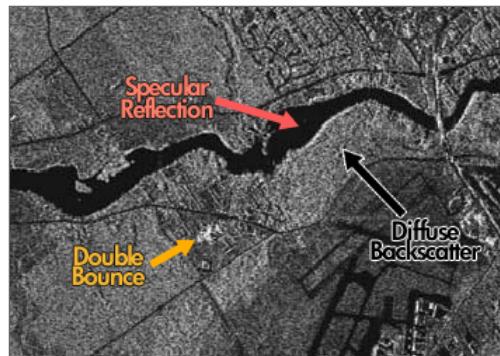
<https://gisgeography.com/synthetic-aperture-radar-examples/>



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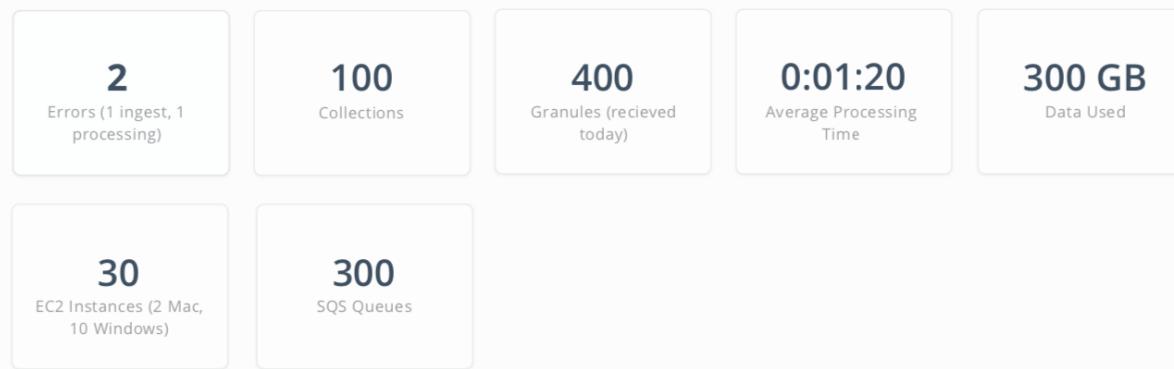
<https://gisgeography.com/synthetic-aperture-radar-examples/>

# POST-PROCESSING

# Dashboard

Last Updated: Sept. 23, 2016 | 2:00pm EST

## Updates Jan. 20, 2017



## Processing Granules (10) Jan. 20, 2017



# Granules

Back to Granules

**Overview**

- Granules (200)
- Errors (30)
- Granules (200)
- Errors (30)

## Granule Name

Last Updated: Sept. 23, 2016 | 2:00pm EST

Ingest Processing **Pushed to CMR** Archive

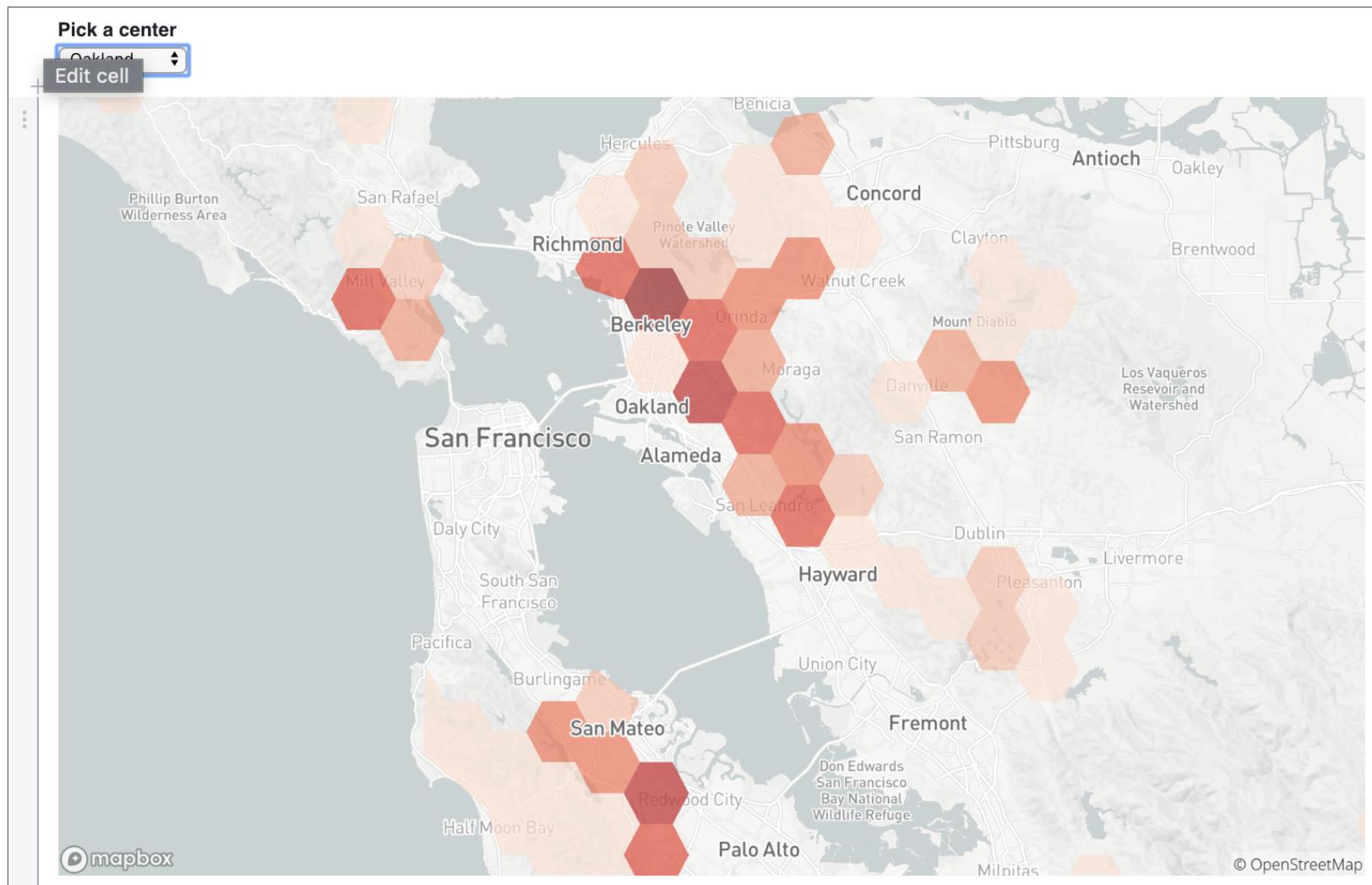
### Granule Overview

Collection	Collection Name	Processed	Date Processed
Created	Date Created	Metadata Pushed to CMR	Date Created
Ingested	Date Ingested	Archived	Date Archived
Processed	Date Processed		

Name of Files	Original	Staging	Archived	Status
D20120907_022056_P.QC.PresCorrQC.nc	Link to Original	Link to Staging	Link to Archived	Private
D20120907_022056_P.QC.eol	Link to Original	Link to Staging	Link to Archived	Protected
20120907_022056_P.meta	Link to Original	Link to Staging	Link to Archived	Public

## NOTEBOOKS

- ObservableHQ



## LESSONS LEARNED

- Gatsby let us not spend any time editing webpack files
- Easy styling
- Occasionally some hiccups from being on the bleeding edge/upgrading fast
- Production quality javascript builds up front
- Easy to build custom components with react
- Opinionated defaults prevent engineers from arguing - but lots of escape hatches
- makes basic page routing and stuff under the hood a breeze to set up