

HISTORY AND FUTURE GEONODE

ARIEL NÚÑEZ

@INGENIEROARIEL - TERRANODO LLC

- Born and live in Barranquilla, Colombia's caribbean coast.
- Husband: @cristinao
- Father of 3 daughters: Elena, Amelie and Maura.
- Electronic Engineer doing a Masters on Computer Vision
- Worked for the World Bank on Open Source and Open Data for 6 years.
- Cofounder of Terranodo LLC with Jeff Johnson (@ortelius) and Angelos Tzotsos (@kalxas)

OUR HISTORY

A close-up portrait of the late Colombian作家Gabriel García Márquez. He is shown from the chest up, looking slightly upwards and to his right with a thoughtful expression. He has a full, grey beard and mustache. He is wearing a dark blue suit jacket over a light blue shirt. A single yellow rose is pinned to his lapel on the left side. The background is solid black.

GABRIEL GARCÍA MÁRQUEZ

1927 - 2014

REALISMO MÁGICO

2009

“
HOW CAN WE GUARANTEE
THERE IS DATA BEHIND
METADATA?

— *Chris Holmes and Stuart Gill (then OpenGeo and World Bank)*

”

A STATIC JAVASCRIPT
CLIENT HITTING A
VANILLA GEOSERVER

2010

“
IT SHOULD BE EASY TO
INSTALL GEONODE AND
UPLOAD DATA

— *David Winslow (then OpenGeo)*

”

**AN STATIC CLIENT WITH A DJANGO APP
CONNECTED TO A GEOSERVER AND
GEONETWORK WITH PROGRAMMATIC
UPLOADS AND A DEBIAN INSTALLER**

2011

“
WE SHOULD ALWAYS BE
ABLE TO DOWNLOAD DATA

— Ariel Núñez (then World Bank)

”

**AN STATIC CLIENT CONNECTED TO A
DJANGO APP CONNECTED TO GEOSERVER
AND GEONETWORK WITH AN
INTEGRATION TEST SUITE AND DEBIAN**

2012

“

GEONODE NEEDS GREAT MANUALS

— *Jeff Johnson (then OpenGeo)*

”

**AN STATIC CLIENT CONNECTED TO A
DJANGO APP CONNECTED TO
GEOSERVER AND GEONETWORK WITH
AN INTEGRATION TEST SUITE, DEBIAN
INSTALLERS AND [ONLINE DOCS](#) +
[WEBSITE](#)**

2013

“
GEONODE SHOULD BE
MORE SOCIAL AND ALLOW
BEAUTIFUL PDF UPLOAD

— *Simone Dalmasso (then ITHACA and WFP)*

”

**AN STATIC CLIENT CONNECTED
DJANGO APP WITH SUPPORT FOR
USERS, ADVANCED
PERMISSIONS, GROUPS,
DOCUMENT UPLOAD CONNECTED
TO GEOSERVER AND GEONETWORK**

2014

“
**METADATA SHOULD HAVE A
SINGLE SOURCE OF TRUTH**

— *Tom Kralidis, Meteorological Service of Canada*

”

AN STATIC CLIENT CONNECTED TO
A DJANGO APP WITH A CSW
**INTERFACE BACKED BY A CUSTOM
GEOSEVER**

2015

“

GEONODE SHOULD BE
BEAUTIFUL AND USABLE

— *Paolo Pasquali, ITHACA*

”

**AN STATIC CLIENT CONNECTED TO
A BEAUTIFUL DJANGO SITE
BACKED BY A CUSTOM GEOSERVER**

2016

“
**GEONODE SHOULD
INTEGRATE BETTER WITH
GEO SERVER**
”

— Alessio Fabiani, *GeoSolutions*

A STATIC CLIENT CONNECTED TO A
CSW ENABLED DJANGO APP
BACKED BY A VANILLA GEOSERVER
WITH PLUGGABLE EXTENSIONS

2017

“
A PRODUCTION GRADE
GEONODE SHOULD BE
ONLY ONE CLICK AWAY

— *Francesco Bartoli, GeoBeyond*

”

**AN STATIC CLIENT CONNECTED TO
A DJANGO APP BACKED BY
GEOSERVER ALL RUNNING IN
DOCKER**

2018

“
GEONODE SHOULD HAVE A
ROBUST API

— *Patrick Dufour (former US Dept of State, WFP)*

”

GEONODE 3.0

API FIRST

A.K.A. SWAGGER OPENAPI 3.0



2019

“

I HAVE AN IDEA

— *Person sitting in this room*

”

**MULTIPLE STATIC CLIENTS ON EXTJS,
OPENLAYERS, LEAFLET,
ANGULARJS, REACT, VUE, D3,
MAPBOXGL CONNECTED TO A
DJANGO APP BACKED BY GEOSERVER,
QGIS, MAPSERVER, ARCGIS.**

EVERYTHING IS
DIFFERENT

EVERYTHING IS COMPATIBLE

OGC CSW

OGC WFS

OGC WMS

OGC WCS

**EVERYTHING IS A
GEONODE**

THE FRAMEWORK WHAT IS GEONODE?

**GEONODE IS A FRAMEWORK
TO BUILD WEBSITES THAT
SHARE GEOSPATIAL DATA**

THE SITE
WHAT IS A
GEONODE?

A GEONODE IS A DATA
REPOSITORY THAT PROVIDES AN
AUTOMATIC STANDARDS
COMPLIANT API FOR YOUR DATA

WILL MY GEONODE BE
ABLE TO PULL DATA FROM
YOUR GEONODE?

YES

HOW DO
WE DO IT?

END

**VIVIEN ASKED
FOR A SHORT
PRESENTATION**

HOW DO
WE DO IT?

WE NEED TO AGREE ON A
DEFINITION OF 'CORE' GEONODE
AND MAKE EVERYTHING ELSE
OPTIONAL.

SHOULD WE BE ABLE TO
HAVE GEONODE THAT IS
NOT IN PYTHON?

**IF THE API IS SIMPLE
ENOUGH, WHY NOT?**

SHOULD WE BE ABLE TO HAVE A
FULLY STATIC GEONODE THAT CAN
BE DEPLOYED ON AMAZON S3?

NO, THAT WOULD BE
TOO HARD. WINK. WINK.

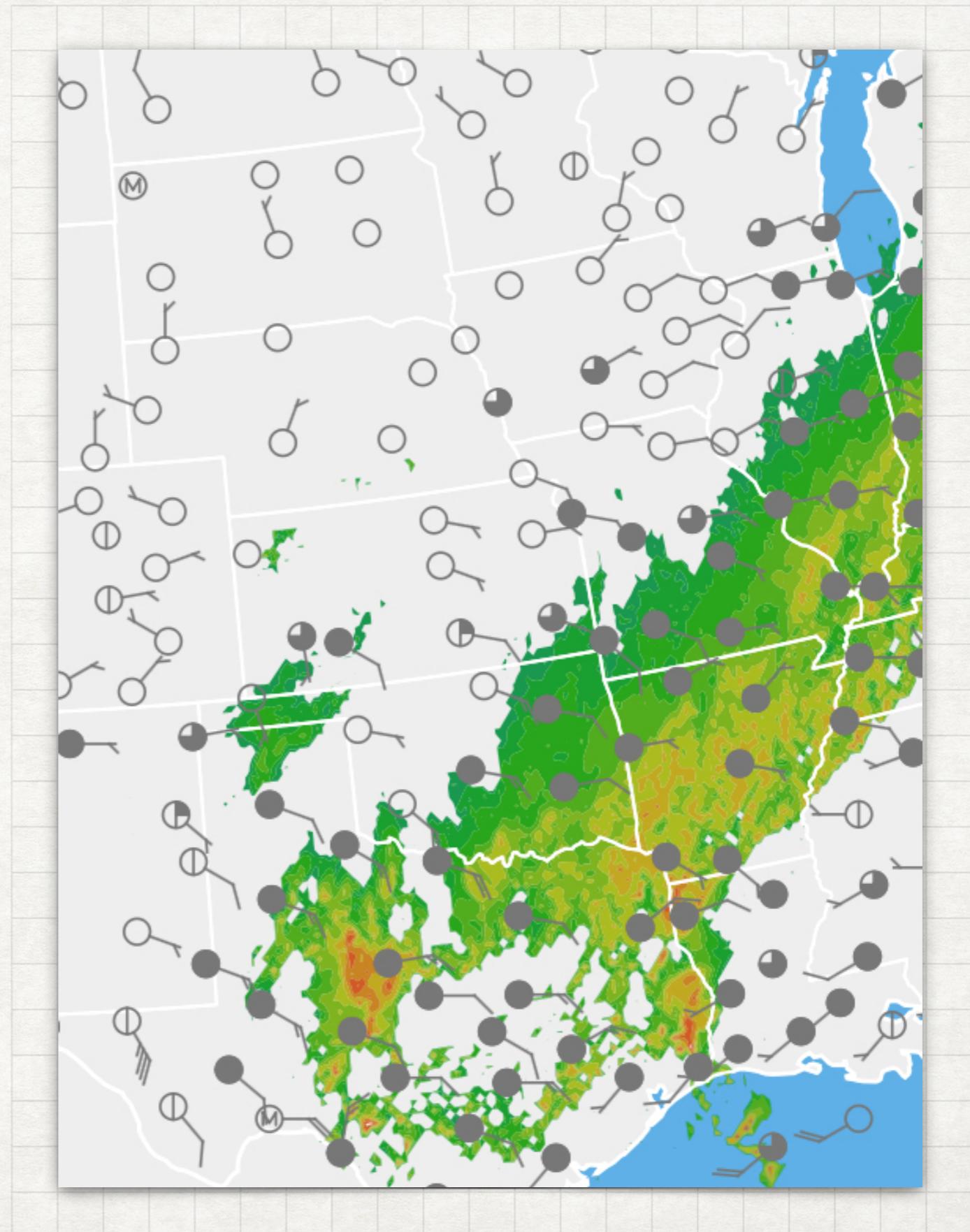
THIS TIME FOR REAL
END

MY DREAM
GEONODE

**EASY TO CREATE A
CUSTOM MAP FOR A
DATASET**

FOR EXAMPLE,
SOMETHING LIKE THIS:

SVG CUSTOM DRAWING



**POSSIBLE TO INSTALL A GEONODE
FOR FREE ON AN HTTPS ENABLED
DOMAIN IN SECONDS**

THEN COME BACK A
YEAR LATER AND SEE IT
CONTINUE TO WORK

**POSSIBILITY TO CREATE
MAPS FROM A MOBILE
DEVICE**

**SMALL CORE WITH
CATALOG, VECTOR AND
RASTER DATA ACCESS**

**POSIBILITY TO ADD LINKS TO
WIKIDATA ITEMS AT THE FEATURE
LEVEL AND AT THE METADATA
LEVEL**

EMERGING STANDARDS

VECTOR WFS 3.0

WFS3 Core Conformance Checklist

Derived from the [WFS3 spec](#) as of 2018-03-15.

- (recommended) checkboxes aren't strictly necessary for conformance
- (optional) checkboxes have value but may be ignored without problem

7.2 API landing page

- GET request at / served
- Response content is based on [root.yaml](#) and minimally includes links to:
 - /api
 - /conformance
 - /collections

7.3 API Definition

- GET request at /api served
- Response content is the api definition document
- (recommended) Response content is OpenAPI format
 - If multiple formats are provided, use content negotiation

7.4 Declaration of conformance classes

- GET request at /conformance served
- Response content is based on OpenAPI schema [req-classes.yaml](#).
 - conformsTo in response contains
 - <http://www.opengis.net/spec/wfs-1/3.0/req/core>
 - (recommended) <http://www.opengis.net/spec/wfs-1/3.0/req/html>
 - (recommended) <http://www.opengis.net/spec/wfs-1/3.0/req/geojson>

7.5 HTTP 1.1

- Conforms to [HTTP 1.1](#), including correct use of status codes, headers, etc.
- (recommended) Supports [entity tags](#)

7.7 Support for cross-origin requests

- (recommended) If the server will be accessed from the browser, allow cross-origin requests.

RASTER COGEO



CATALOG

STAC

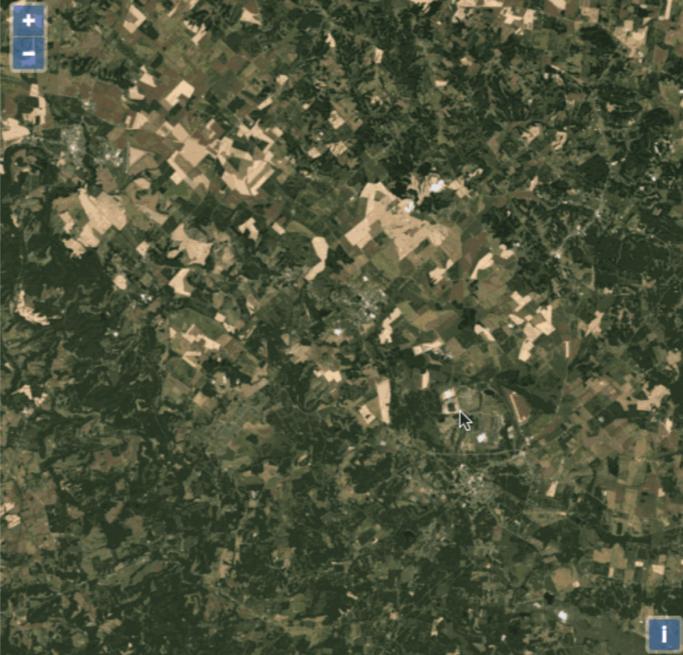
SPATIO
TEMPORAL
ASSET
CATALOG

Landsat on AWS / L8 / 022 / 034

LC08_L1TP_022034_20170908_20170908_01_RT

Endpoint: s3://landsat-pds/c1/L8/022/034/LC08_L1TP_022034_20170908_20170908_01_RT/

True Color Preview



A true color composite satellite image showing agricultural fields in various shades of green and brown, with a small town visible in the center-right. The image has a resolution grid overlaid. A zoom control in the top-left corner of the image shows '+' and '-' symbols. A blue information icon with a white 'i' is located in the bottom-right corner of the image area.

Field	Value
Image Acquisition (start)	Fri Sep 08 2017, 16:30:13 UTC
Cloud Cover	0.08%
Off Nadir Angle	-0.001
Sun Azimuth	145.52091018
Sun Elevation	53.16836239
Earth Sun Distance	1.0141560
License	PDDL-1.0
Provider	U.S. Geological Survey

Files

GeoTIFFs

- [LC08_L1TP_022034_20170908_20170908_01_RT_B1.TIF](#)
- [LC08_L1TP_022034_20170908_20170908_01_RT_B10.TIF](#)
- [LC08_L1TP_022034_20170908_20170908_01_RT_B11.TIF](#)
- [LC08_L1TP_022034_20170908_20170908_01_RT_B2.TIF](#)
- [LC08_L1TP_022034_20170908_20170908_01_RT_B3.TIF](#)
- [LC08_L1TP_022034_20170908_20170908_01_RT_B4.TIF](#)

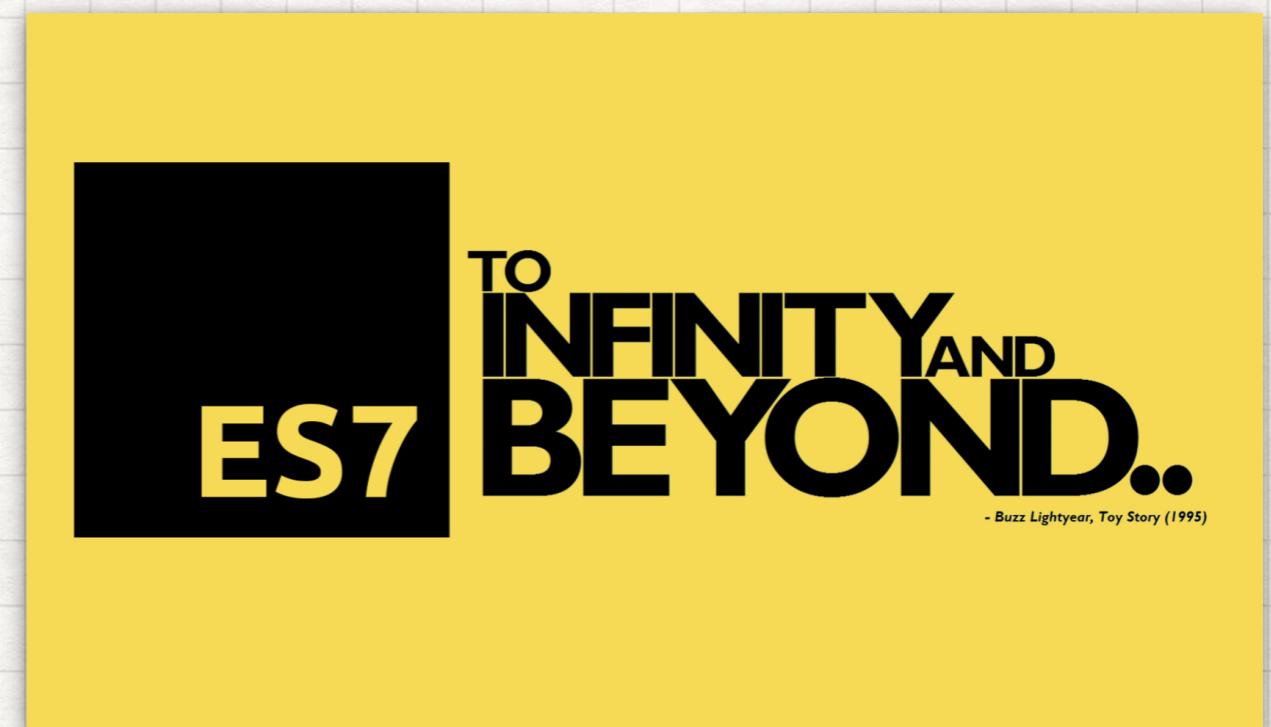
IETF RFC 8142

GEOJSON

GeoJSON Text Sequences

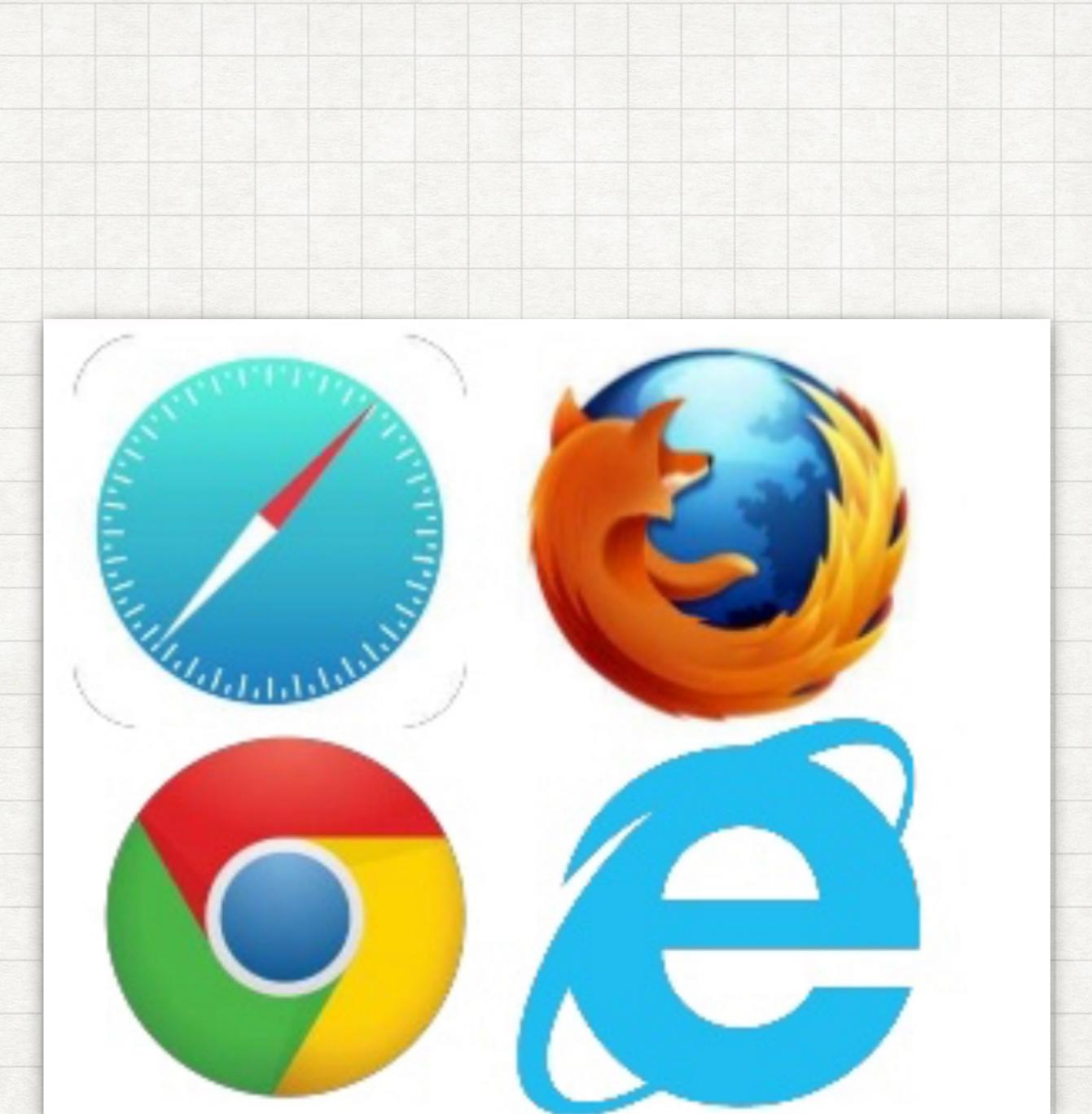
describes the GeoJSON text sequence for "geo+json-seq" media type. This format injects JSON text sequences and thereby large geographic datasets incrementing the form of GeoJSON texts within

ECMASCRIPT2016
ES7



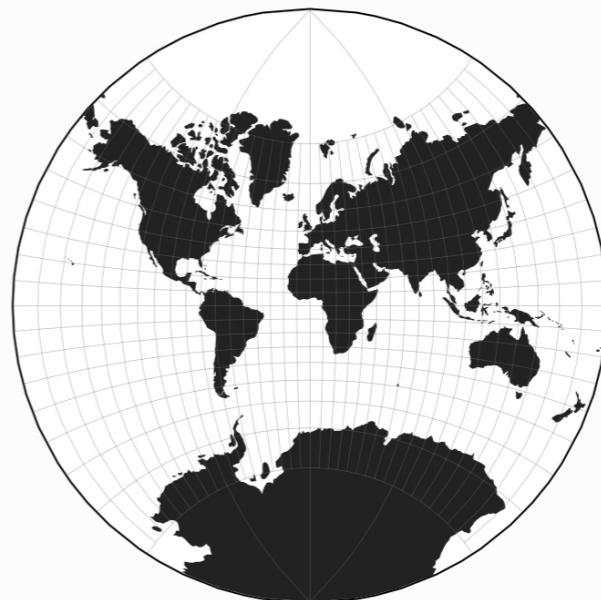
EMERGING TECHNOLOGY

USERS HAVE
DECENT BROWSERS
**EVER
GREEN**



FIRST CLASS GEO SUPPORT D3

Projection Transitions



These projections are available in the [geo.projection plugin](#).

[Open ↗](#)

index.html

```
<!DOCTYPE html>
<meta charset="utf-8">
<style>

body {
  background: #fcfcfa;
  height: 500px;
  position: relative;
  width: 960px;
}

#projection-menu {
  position: absolute;
  right: 10px;
  top: 10px;
}

.stroke {
  fill: none;
  stroke: #000;
  stroke-width: 3px;
}

</style>
```

NO NEED FOR NPM FOR SIMPLE VIZ

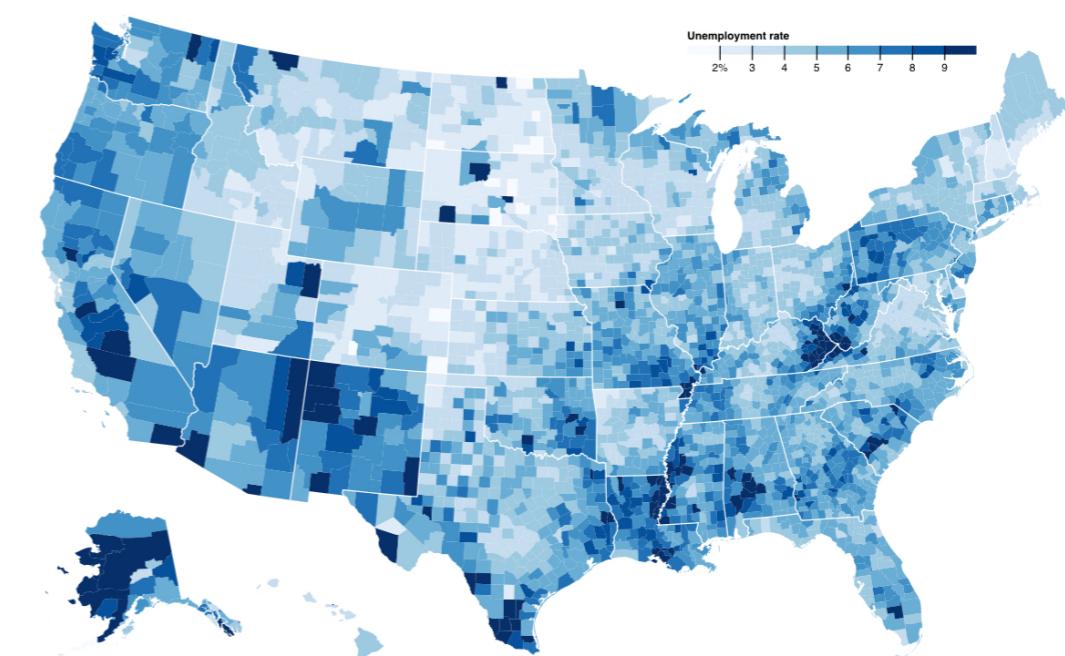
D3- REQUIRE

Mike Bostock · Nov 28, 2017
Code and data for humans. Founder @observablehq. Creator @d3. Former
@nytgraphics. Pronounced BOSS-tock.

Featured in Visualization and Maps

D3 Choropleth

Unemployment rate by county, August 2016. Source: Bureau of Labor Statistics.



```
> Map(3219) {"01001" => 5.1, "01003" => 4.9, "01005" => 8.6, "01007" =>
> "Unemployment rate"
> Object {type: "Topology", bbox: Array(4), transform: Object, objects:
> Object {bbox: f(bbox(topology).features: f(feature(topology.o).geom))}
```

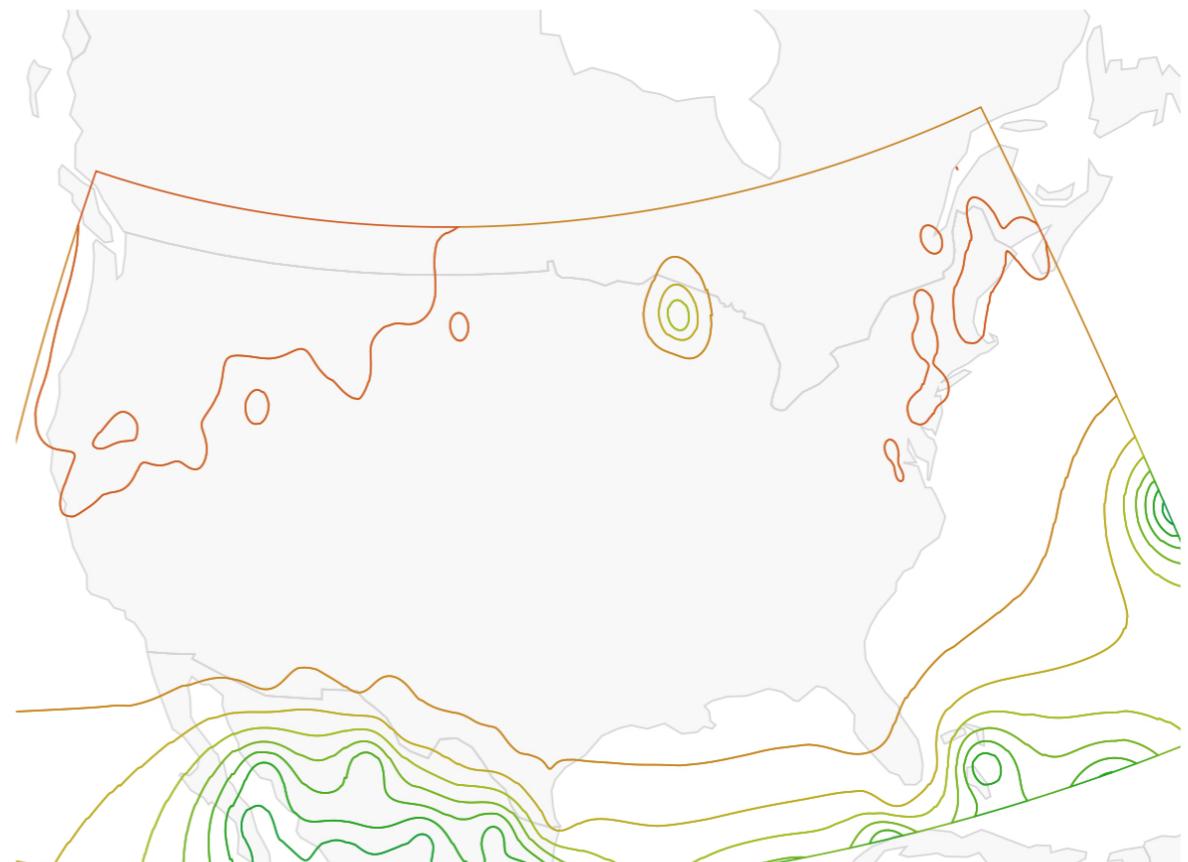
JAVASCRIPT CAN READ GEOTIFF GEOTIFF.JS



Ariel Núñez · Feb 8, 2018
@ingenieroariel

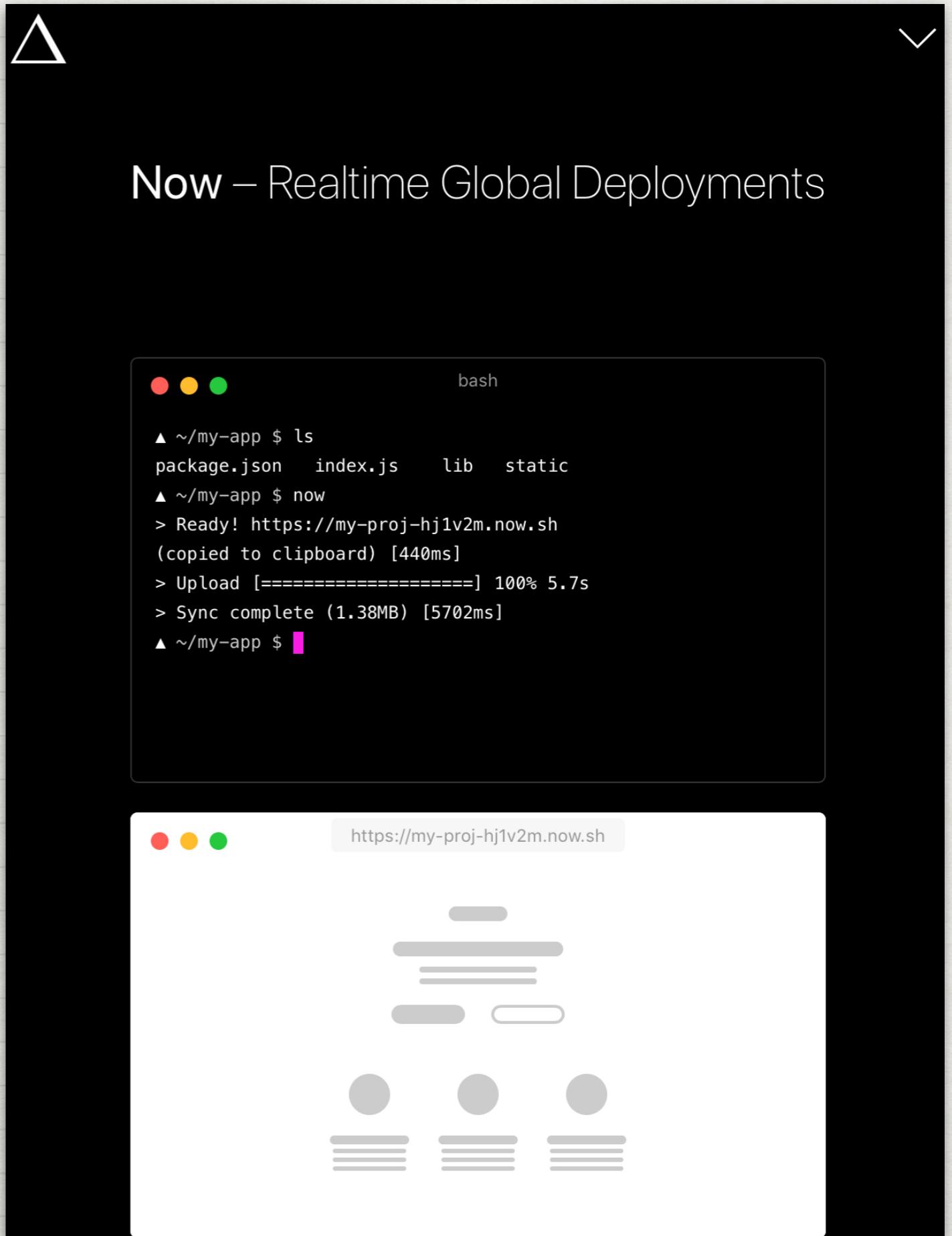
fork of Isobands for radar data and weather stations

Isolines for pressure data



This map renders a cloud optimized geotiff to a map directly on the browser.
This makes it possible to heavily cache that product without spending a lot

ONE LINK FOR EVERY VERSION IMMUTABLE DEPLOYMENTS



ASYNC READ ONLY SQLITE BASED AUTOMATIC API DATASETTE

San Francisco

Data source: data.sfgov.org

[food-trucks](#)

1,226 rows in 5 tables, 1,376 rows in 5 hidden tables

[Mobile_Food_Facility_Permit](#), [block](#), [Applicant](#), [Status](#), [FacilityType](#)

[registered-business-locations](#)

239,373 rows in 11 tables, 455,300 rows in 5 hidden tables

[Registered_Business_Locations_-San_Francisco](#), [Mail_Zipcode](#), [Sou](#)
[Mail_City](#), ...

[sf-film-locations](#)

3,368 rows in 8 tables, 3,307 rows in 5 hidden tables

[Film_Locations_in_San_Francisco](#), [Actors](#), [Title](#), [Writer](#), [Director](#), ...

[sf-trees](#)

189,785 rows in 7 tables, 379,864 rows in 5 hidden tables

[Street_Tree_List](#), [qSpecies](#), [qSiteInfo](#), [qCaretaker](#), [qCareAssistant](#), ...

ASYNCHRONOUS I/O SANIC

Hello World Example

```
from sanic import Sanic
from sanic.response import json

app = Sanic()

@app.route('/')
async def test(request):
    return json({'hello': 'world'})

if __name__ == '__main__':
    app.run(host='0.0.0.0', port=8000)
```

Installation

- pip install sanic