GEOCAT
GOVERNMENT GEOGRAPHIC DATA PUBLISHING

Einde van de catalogus?

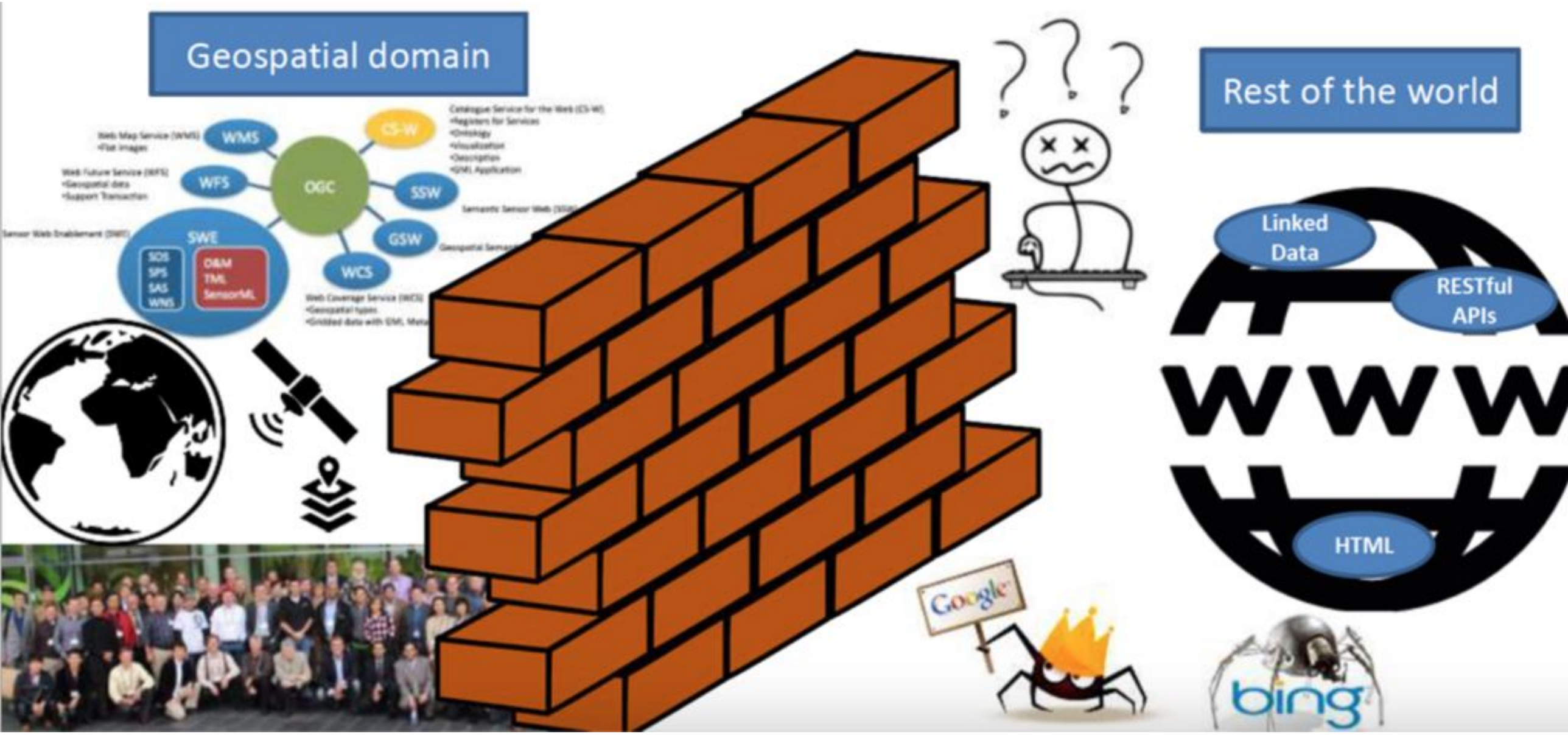
De impact van nieuwe OGC API’s op het geo landschap

Paul van Genuchten
Jorge Mendes de Jesus

GN NL Usergroup, mei 2019 Bennekom

Contents

Best practice spatial data on the web



Spatial data on the web, 2016, OGC/Geonovum

"Kaderrichtlijn Water oppervlaktewaterlichamen"

Alle Maps Shopping Afbeeldingen Nieuws Meer Instellingen Tools

Ongeveer 141 resultaten (0,46 seconden)

Kaderrichtlijn Water oppervlaktewaterlichamen RWS, lijnen - Datasets ...

https://data.overheid.nl/data/.../kaderrichtlijn-water-oppervlaktewaterlichamen-rws-lijn...

De Rijkswaterstaat **Kaderrichtlijn Water oppervlaktewaterlichamen** bevat de waterlichamen die in beheer zijn bij Rijkswaterstaat en is een onderdeel van het ...

Kaderrichtlijn Water oppervlaktewaterlichamen RWS, vlakken ...

https://data.overheid.nl/.../kaderrichtlijn-water-oppervlaktewaterlichamen.../714263bf...

Veld, Waarde. Dataset, **Kaderrichtlijn Water oppervlaktewaterlichamen** RWS, vlakken. Laatst gewijzigd, 2 februari, 2017. Gecreëerd, 2 februari, 2017. Formaat ...

Kaderrichtlijn Water oppervlaktewaterlichamen RWS, vlakken

https://www.nationaalgeoregister.nl/.../srv/.../2e31680f-68b5-4ff3-94a4-9c24109ffd5...

De Rijkswaterstaat **Kaderrichtlijn Water oppervlaktewaterlichamen** bevat de waterlichamen die in beheer zijn bij Rijkswaterstaat en is een onderdeel van het ...

krw_oppervlaktewaterdelen_rws_vlakken.xml - Rijkswaterstaat

www.rijkswaterstaat.nl/apps/.../dmc/.../krw_oppervlaktewaterdelen_rws_vlakken.xml

De oppervlaktewaterdelen zijn een onderverdeling van de Rijkswaterstaat **Kaderrichtlijn Water oppervlaktewaterlichamen** (vlak) in verschillende waterdelen ...

622a632a-c57b-44a2-83a4-e51223d5f15f utf8 dataset Servicedesk ...

geoservices.rijkswaterstaat.nl/metadata/GEODATA.WVLI_owl_lijnen

De Rijkswaterstaat **Kaderrichtlijn Water oppervlaktewaterlichamen** bevat de waterlichamen die in beheer zijn bij Rijkswaterstaat en is een onderdeel van het ...

site:ldproxy.net

Alle Afbeeldingen Nieuws Shopping Maps Meer Zoekhulpmiddelen

Pagina 3 van ongeveer 18.500 resultaten (0,17 seconden)

Lopik, Lopikerweg west 50 - Services

www.ldproxy.net/bag/inspireadressen/inspireadressen.2414293/

Lopik, Lopikerweg west 50. id: inspireadressen.2414293. streetAddress: Lopikerweg west 50. addressLocality: Lopik. postalCode: 3411AP.

Groesbeek, Hommelstraat 10 - Services

www.ldproxy.net/bag/inspireadressen/inspireadressen.8795076/

Groesbeek, Hommelstraat 10. id: inspireadressen.8795076. streetAddress: Hommelstraat 10. addressLocality: Groesbeek. postalCode: 6561ZH.

Groningen, Oosterkade 1001 - Services

www.ldproxy.net/bag/inspireadressen/inspireadressen.236/

Groningen, Oosterkade 1001. id: inspireadressen.236. streetAddress: Oosterkade 1001. addressLocality: Groningen. postalCode: 9711RS.

Joure, Sjoerd Wiersmahof 21 - Services

www.ldproxy.net/bag/inspireadressen/inspireadressen.8794864/

Joure, Sjoerd Wiersmahof 21. id: inspireadressen.8794864. streetAddress: Sjoerd Wiersmahof 21. addressLocality: Joure. postalCode: 8501VA.

Html, URL,
microdata,
json-ld, RDFa,
Schema.org,
OpenGraph

RDF, OWL,
DCAT, VOID,
SPARQL, TTL,
DBPedia, SSN

GeoJson,
TopoJson,
VectorTiles,
TMS

OData
stat-dcat

OKFN,
DataPackage,
CSV

7. Best Practices Summary

Best Practice 1: Provide metadata

Best Practice 2: Provide descriptive metadata

Best Practice 3: Provide structural metadata

Best Practice 4: Provide data license information

Best Practice 5: Provide data provenance information

Best Practice 6: Provide data quality information

Best Practice 7: Provide a version indicator

Best Practice 8: Provide version history

Best Practice 9: Use persistent URIs as identifiers of datasets

Best Practice 10: Use persistent URIs as identifiers within datasets

Best Practice 11: Assign URIs to dataset versions and series

Best Practice 12: Use machine-readable standardized data formats

Best Practice 13: Use locale-neutral data representations

Best Practice 14: Provide data in multiple formats

Best Practice 15: Reuse vocabularies, preferably standardized ones

Best Practice 16: Choose the right formalization level

Best Practice 17: Provide bulk download

Best Practice 18: Provide Subsets for Large Datasets

Best Practice 19: Use content negotiation for serving data available in multiple formats

Best Practice 20: Provide real-time access

Best Practice 21: Provide data up to date

Best Practice 22: Provide an explanation for data that is not available

Best Practice 23: Make data available through an API

Best Practice 24: Use Web Standards as the foundation of APIs

Best Practice 25: Provide complete documentation for your API

Best Practice 26: Avoid Breaking Changes to Your API

Best Practice 27: Preserve identifiers

Best Practice 28: Assess dataset coverage

Best Practice 29: Gather feedback from data consumers

Best Practice 30: Make feedback available

Best Practice 31: Enrich data by generating new data

Best Practice 32: Provide Complementary Presentations

Best Practice 33: Provide Feedback to the Original Publisher

Best Practice 34: Follow Licensing Terms

Best Practice 35: Cite the Original Publication

§ Best Practices Summary

Best Practice 1: Use globally unique persistent HTTP URIs for Spatial Things

Best Practice 2: Make your spatial data indexable by search engines

Best Practice 3: Link resources together to create the Web of data

Best Practice 4: Use spatial data encodings that match your target audience

Best Practice 5: Provide geometries on the Web in a usable way

Best Practice 6: Provide geometries at the right level of accuracy, precision, and size

Best Practice 7: Choose coordinate reference systems to suit your user's applications

Best Practice 8: State how coordinate values are encoded

Best Practice 9: Describe relative positioning

Best Practice 10: Use appropriate relation types to link Spatial Things

Best Practice 11: Provide information on the changing nature of spatial things

Best Practice 12: Expose spatial data through 'convenience APIs'

Best Practice 13: Include spatial metadata in dataset metadata

Best Practice 14: Describe the positional accuracy of spatial data

key best practices for sdi's

- Identifiers:
  - DWBP 9: Use persistent URIs as identifiers of datasets
  - DWBP 10: Use persistent URIs as identifiers within datasets
  - SDWBP 1: Use globally unique persistent HTTP URIs for Spatial Things
- Discovery:
  - SDWBP 2: Make your spatial data indexable by search engines
- Linking:
  - SDWBP 3: Link resources together to create the Web of data
- Modelling:
  - DWBP 15: Reuse vocabularies, preferably standardized ones
- Data access:
  - SDWBP 12: Expose spatial data through 'convenience APIs'
  - DWBP 12: Use machine-readable standardized data formats
  - DWBP 14: Provide data in multiple formats
  - DWBP 24: Use Web Standards as the foundation of APIs

OGC standards use the web..

..but they are not in the web.

https://hackercombat.com/the-best-10-deep-web-search-engines-of-2017/

SDI.Next
OGC API’s

Branch: master ▾ WFS_FES / README.md Find file Copy path

cportele Link to license text, not the GitHub page 64e3078 on Apr 16

4 contributors OGC

94 lines (63 sloc) 4.82 KB Raw Blame History

Web Feature Service 3.0

This GitHub repository contains the new revision of the OGC's Web Feature Service standard for querying geospatial information on the web. It is a complete rewrite of previous versions, focusing on a simple RESTful core specified as reusable OpenAPI components with responses in JSON and HTML.

Overview

A Web Feature Service is a standard API that represents collections of geospatial data.

```
GET /collections
```

Based on best practices

- New standard based on REST
- WFS3.0 is being create in a practical way with developers seating and defining the standards.
- REST oriented.
- Support various encodings (JSON & HMTL first)

Jeff Harrison and 2 others liked

Open Geospatial: OGC @opengeospatial · 20 Apr 2018

OGC

An overview of OGC's recent **WFS3** hackathon: moving towards a major overhaul of the Web Feature Service with implications for almost all OGC web services standards. go.myogc.org/2H9vgLI

4 9

- Code marathon in Ft. Collins (USA)

Developer first

- Create standard in (Swagger OpenAPI/ Standard) format
- Test it, later write the OGC standard document

https://swagger.io/

opengeospatial / **oapi_common**

Watch 15 | Star 6 | Fork 2

Code | Issues 21 | Pull requests 0 | Projects 1 | Wiki | Insights

No description, website, or topics provided.

23 commits | **4** branches | **0** releases | **3** contributors | View license

Branch: **master** | New pull request | Create new file | Upload files | Find File | Clone or download

cmheazel Misspelling ··· Latest commit 5567b1b 14 days ago

OAPI-Common	Misspelling	14 days ago
OAPI-Elements	March 6 update	3 months ago
CONTRIBUTORS.md	March 6 update	3 months ago
DEVELOPMENT.md	March 6 update	3 months ago
LICENSE	March 6 update	3 months ago
README.md	Cleanup May 7	15 days ago
implementations.md	March 6 update	3 months ago
index.adoc	Initial population	8 months ago

README.md

OGC API (OAPI) Common Specification

OGC API standards define modular API building blocks to spatially enable Web APIs. The OGC API family of standards is organized by resource type. Each resource has an associated API standard. These resource-specific API standards share a common core. This OGC API Common standard specifies requirements which are shared by all OGC API standards. The OGC API Common standard is maintained on this GitHub repository.

OAPI Coverages

opengeospatial / ogc_api_coverages

Watch 14 | Star 1 | Fork 0

Code | Issues 16 | Pull requests 0 | Projects 0 | Wiki | Insights

[WIP] OpenAPI for Coverages http://www.github.com/opengeospatial/...

31 commits | 2 branches | 0 releases | 3 contributors | Apache-2.0

Branch: master | New pull request | Create new file | Upload files | Find File | Clone or download

Schpidi Adjust as discussed in teleconference on 20190508 — Latest commit fbf871a 15 days ago

CIS+WCS-standards	PB: added relevant background information	2 months ago
OAPI-Coverages	Adjust as discussed in teleconference on 20190508	15 days ago
CONTRIBUTORS.md	Additional cleanup	3 months ago
DEVELOPMENT.md	Additional cleanup	3 months ago
LICENSE	First file	3 months ago
README.md	Update README.md	a month ago

README.md

OAPI Tiles

opengeospatial / **OGC-API-Map-Tiles**

Watch 9 | Star 3 | Fork 1

Code | Issues 4 | Pull requests 0 | Projects 0 | Wiki | Insights

OGC API - Map Tiles draft specification http://www.github.com/opengeospatial/...

15 commits | **2** branches | **0** releases | **3** contributors | Apache-2.0

Branch: **master** | **New pull request** | **Create new file** | **Upload files** | **Find File** | **Clone or download**

joanma747 Added a note about the work in the Swagger HUB — Latest commit `5c204c7` 11 hours ago

standard	Renamed the "OAPI-MapsTiles" folder to "standard"	2 months ago
.gitignore	Renamed the "OAPI-MapsTiles" folder to "standard"	2 months ago
CONTRIBUTORS.md	Raw Template	2 months ago
DEVELOPMENT.md	Raw Template	2 months ago
LICENSE	Raw Template	2 months ago
README.md	Added a note about the work in the Swagger HUB	11 hours ago
index.adoc	Raw Template	2 months ago

OAPI Tiles

- With a draft specification published, there are already test implementations on Geoserver, GDAL and Python

WFS3 - OGC WFS 3.0 service (experimental)

(GDAL/OGR >= 2.3.0)

NOTE: THIS IS BASED ON A DRAFT VERSION OF THE WFS 3.0 SPECIFICATION

This driver can connect to a OGC WFS 3.0 service. It assumes that the service supports OpenAPI 3.0/JSON/GeoJSON encoding for respectively API description, feature collection metadata and feature collection data.

Dataset name syntax

The syntax to open a WFS datasource is : *WFS3:http://path/to/WFS/endpoint*

pyGeoAPI

pyGeoAPI

pyGeoAPI being under development as supporting OAPI Features for python

pygeoapi

pygeoapi is a Python server implementation of the emerging OGC WFS 3.0 standard

Code
GitHub repository
Repository with code and docker compositions
GitHub

Install and README
How to install pygeoapi
Instructions and explanations on how to install pygeoai
README

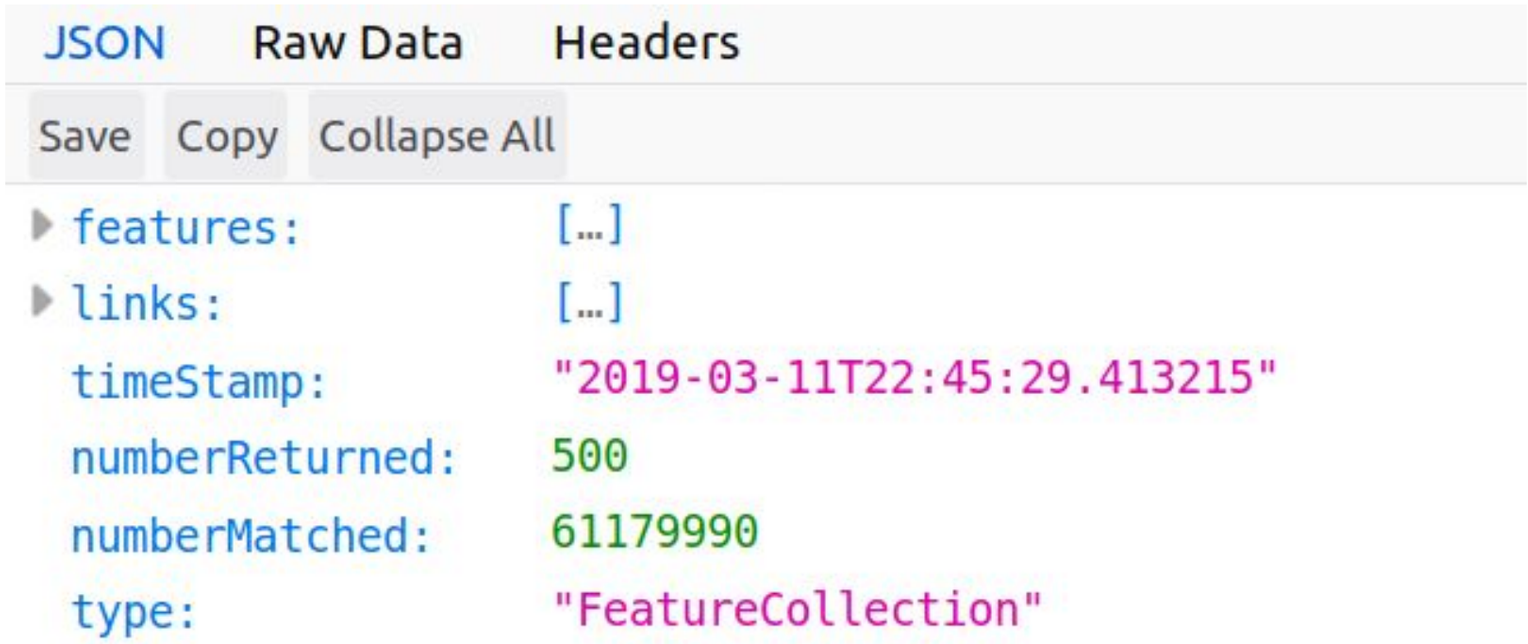
Docker images
Images hosted in dockerhub
Docker images/composition to run pygeoapi
Coming Soon

https://geopython.github.io/pygeoapi/

An implementations

Canadian National Water Data Archive

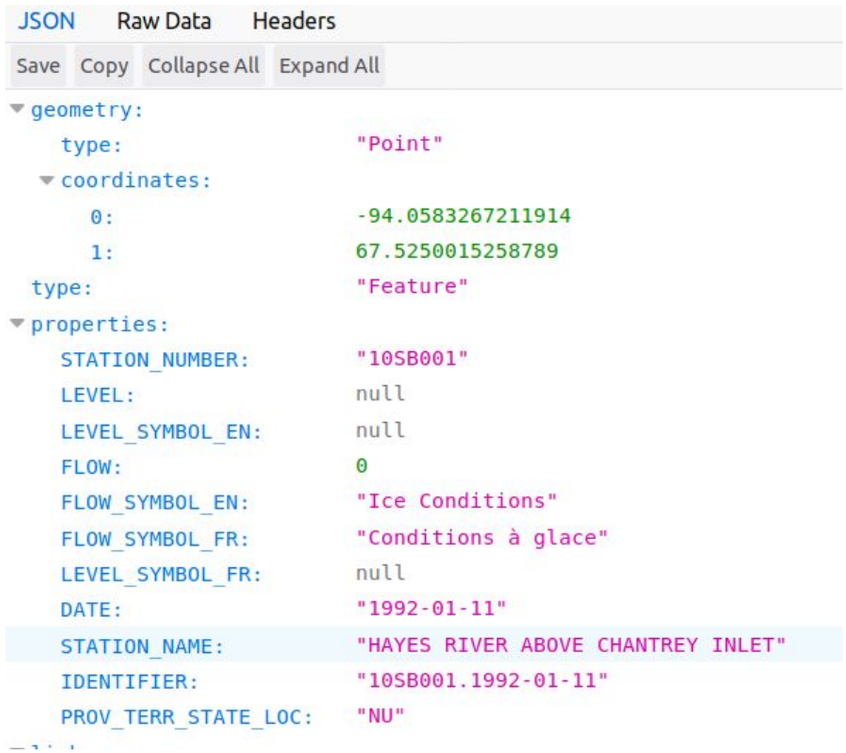
Some implementations are appearing:



http://geo.weather.gc.ca/geomet-beta/features/collections/hydrometric-daily-mean/items/

Canadian National Water Data Archive 69 million features in elastic search

http://geo.weather.gc.ca/geomet-beta/features/**collections**/**hydrometric-daily-mean**/**items**/**10SB001.1992-01-11**



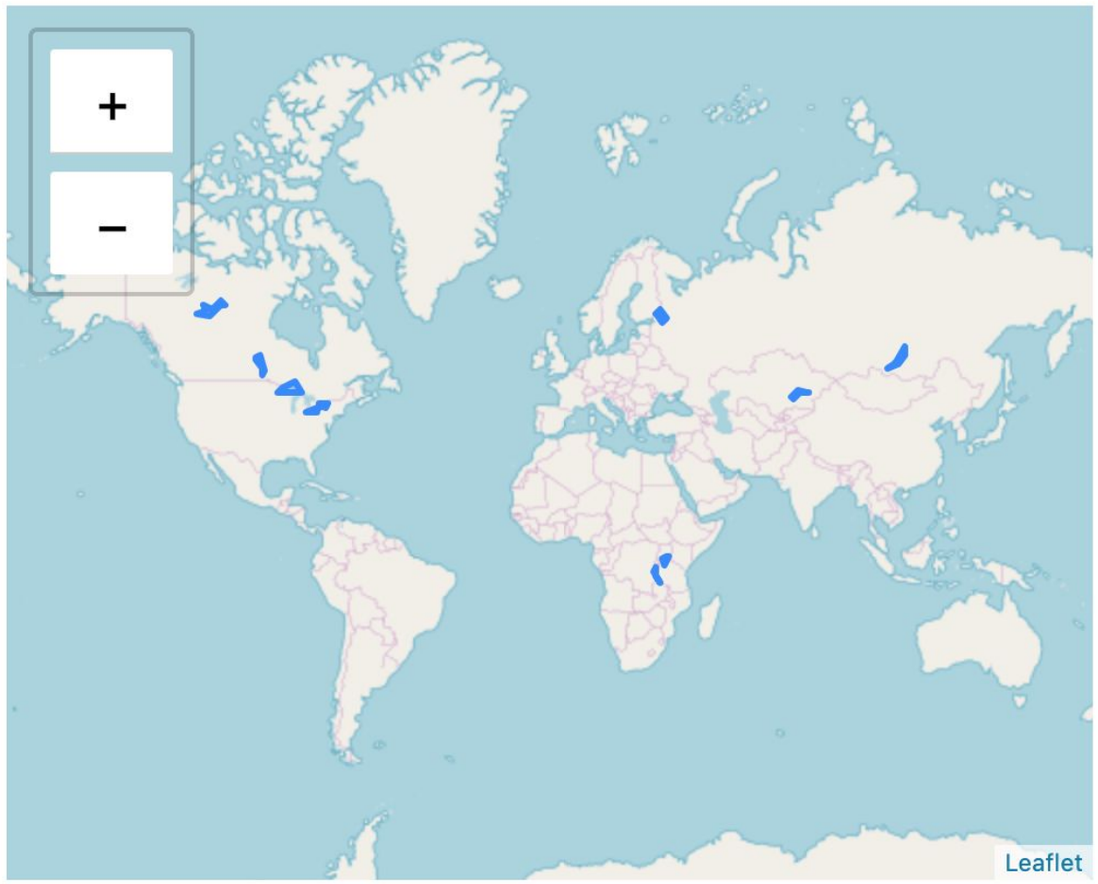
REST and W3C oriented

In a browser

pygeoapi Demo instance - running latest GitHub version Contact

Home / Collections / Large Lakes / Items JSON

Items



Items

id	id	sc...	na...	na...	ad...	fea...
0	0	0	Lake Bai...	No...	No...	Lake
1	1	0	Lake Wi...	No...	No...	Lake
2	2	0	Gr... Sla... Lake	No...	No...	Lake

In QGIS


Layers
wfs3 ahccd-stations
Browser
Identify Results
Feature
Value
wfs3 ahccd-stations
id
6075428
(Derived)
(Actions)
id
6075428
station_id__id_station
6075428
province__province
ON
identifier__identifiant
6075428
station_name__nom_...
MOOSONEE A
measurement_type__...
pressure_sea_level
year_range__annees
elevation__elevation
9
period__periode
Ann
joined__rejoint
0
trend_value__valeur_t...
id
7098895
id
7093715

OGC API's en zoek machines

Google Dataset Search Beta

Search for Datasets

Try boston education data or weather site:noaa.gov

Learn more about including your datasets in Dataset Search.

Dataset

Thing > CreativeWork > Dataset

A body of structured information describing some topic(s) of interest.

[more...]

Property	Expected Type	Description
Properties from Dataset		
distribution	DataDownload	A downloadable form of this dataset, at a specific location, in a specific format.
includedInDataCatalog	DataCatalog	A data catalog which contains this dataset. Supersedes catalog, includedDataCatalog. Inverse property: dataset.
issn	Text	The International Standard Serial Number (ISSN) that identifies this serial publication. You can repeat this property to identify different formats of, or the linking ISSN (ISSN-L) for, this serial publication.
	Text or URL	A technique or technology used in a Dataset (or DataDownload, DataCatalog), corresponding to the method used for measuring

Schema.org annotations

geopython / **pygeoapi**

Unwatch 13 | Star 26 | Fork 15

Code | Issues 24 | Pull requests 0 | Projects 1 | Wiki | Insights

add schema-org microdata based on schema.org/DataCatalog & Dataset #91

Edit

Merged **tomkralidis** merged 3 commits into `geopython:master` from `pvgenuchten:schema-org-primer` 28 days ago

Conversation 2 | Commits 3 | Checks 0 | Files changed 6 +148 −38

pvgenuchten commented on Apr 12 — Member

A suggestion to use microdata to annotate root, collections & collection pages

Due to header having service-title, I had to link it to other metadata about the service using itemref="collections"

Pages validated in google structured data testing tool:

home

DataCatalog — 3 ERRORS 0 WARNINGS

@type	DataCatalog
url	http://localhost:5000
name	pygeoapi default instance
description	pygeoapi provides an API to geospatial data
keywords	geospatial, data, api,
license	CC-BY 4.0 license
provider	
@type	Organization
name	Organization Name
url	https://github.com/geopython/pygeoapi
contactPoint	

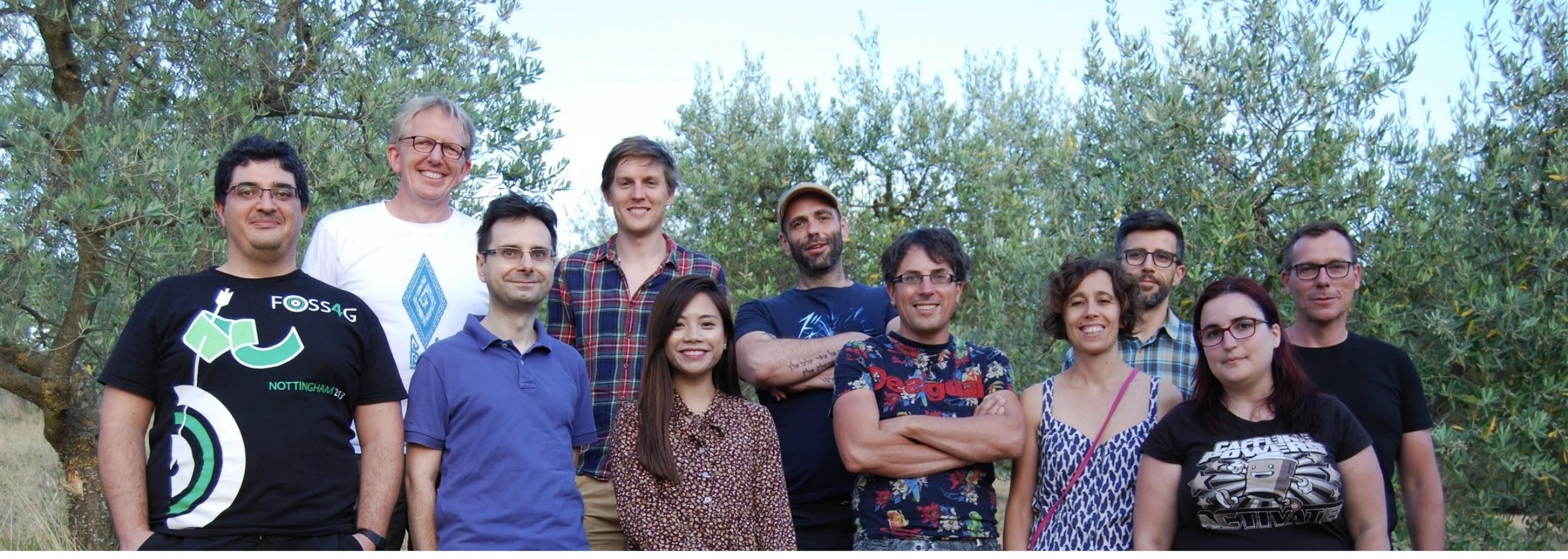
Reviewers
tomkralidis
jorgejesus

Assignees
jorgejesus

Labels
None yet

Projects
None yet

Milestone
No milestone



Thank you!