Open Geospatial Consortium

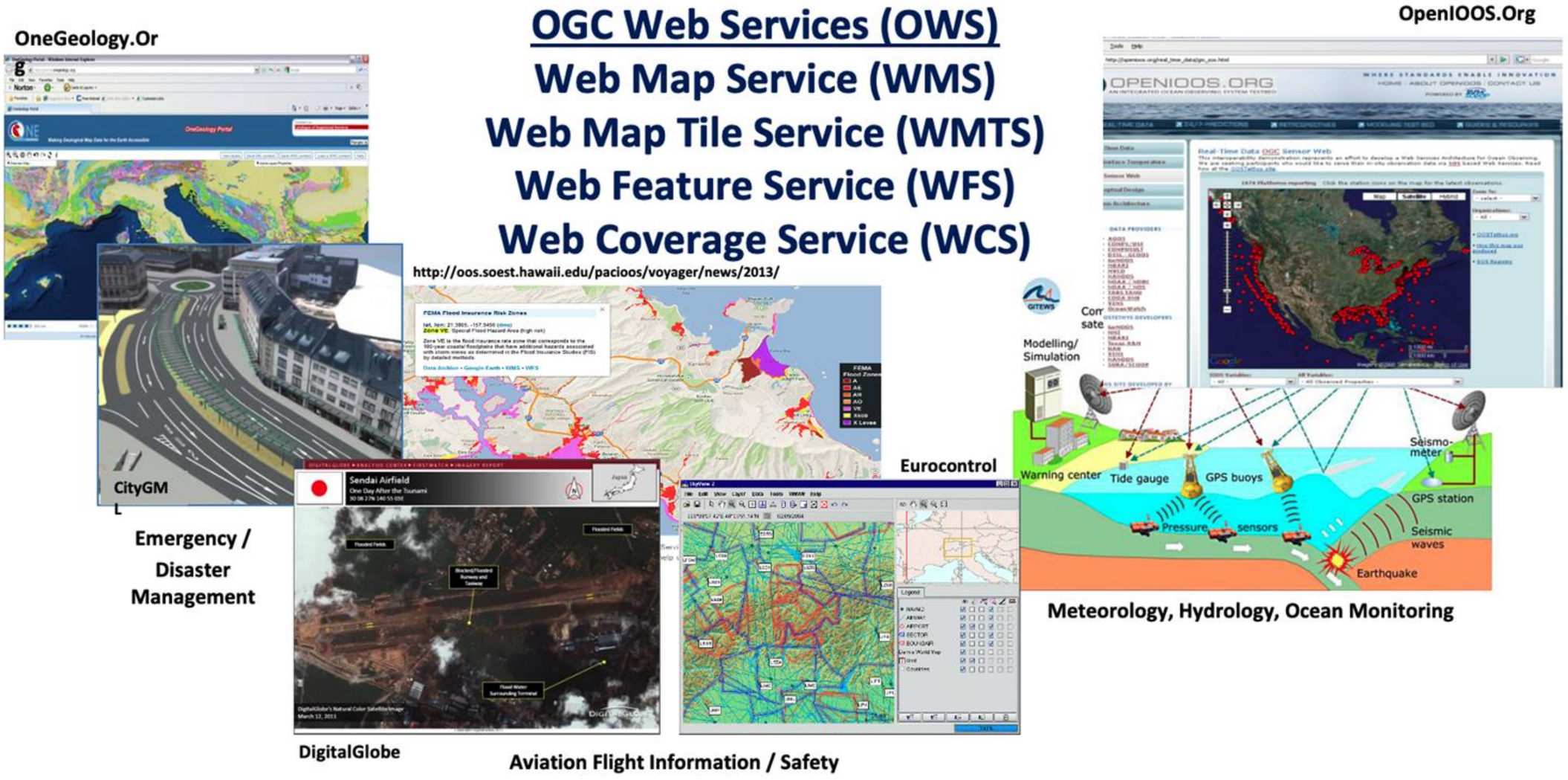
OGC API

Trazendo as práticas de web modernas às IDE

Joana Simoes

ÉVORA JiiDE23

Milhões de Conjuntos de Dados Espaciais em >200K Servidores



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1ª Geração de Serviços de Web OGC (W*s)

	WMS	WFS	WCS	WPS	SOS	SPS	CSW	WMTS
Use HTTP methods explicitly.	Y	N	Y*	N	N	N	N	Y
Be stateless.	Y	Y	Y	Y	Y	Y	Y	Y
Expose directory structure-like URIs.	N	N	N	N	N	N	N	Y
Use HTTP Error codes	N	N	N	N	N	N	N	N
Transfer XML, JavaScript Object Notation (JSON), or image.	Image	XML	Any	Any	XML	XML	XML	Image

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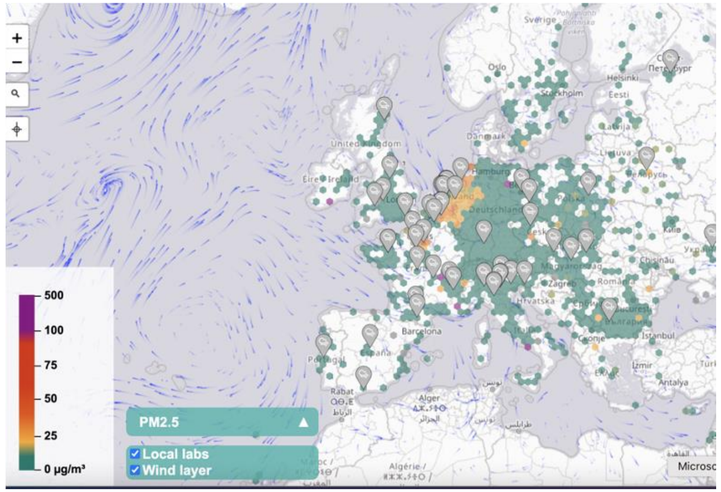
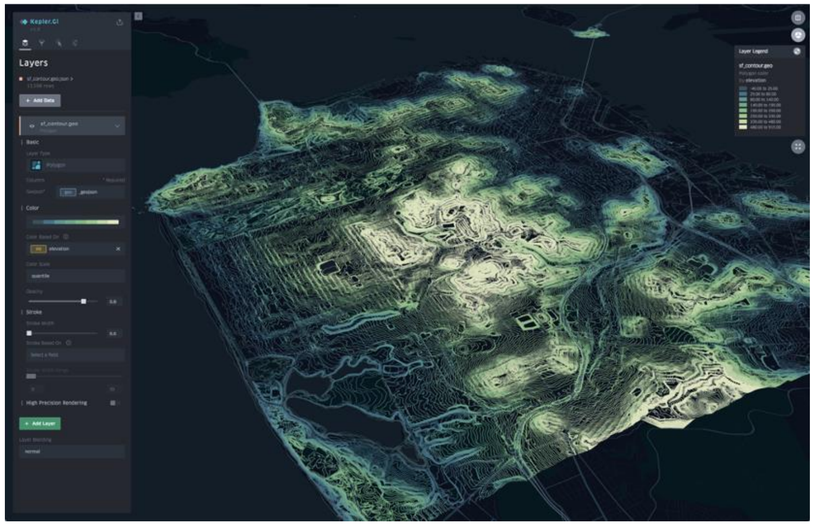
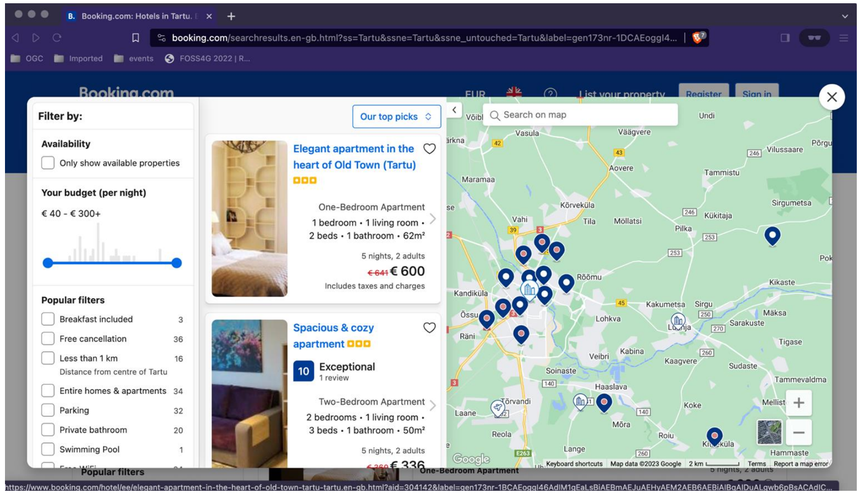
Os Dados Espaciais tornaram-se *mainstream*



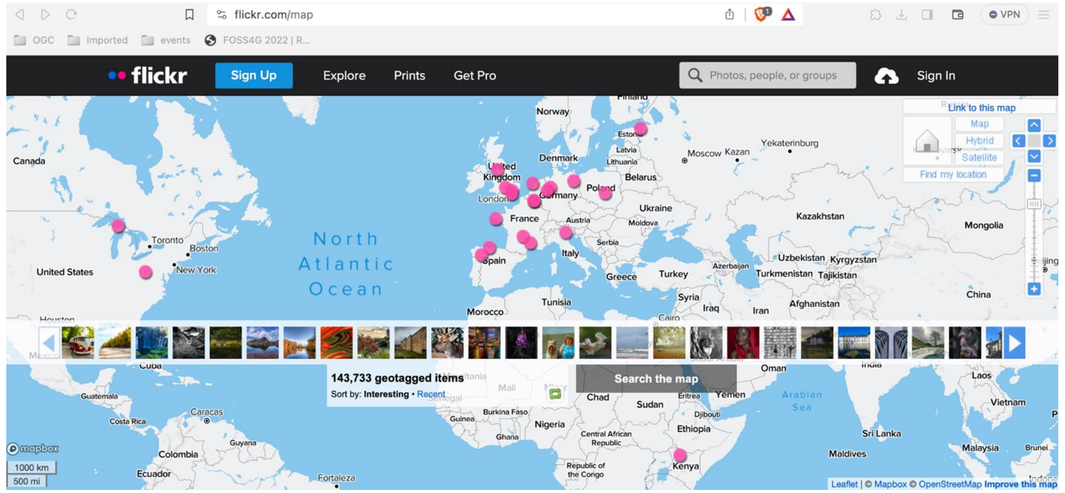
Sensor.community



Uber



Booking



Flickr

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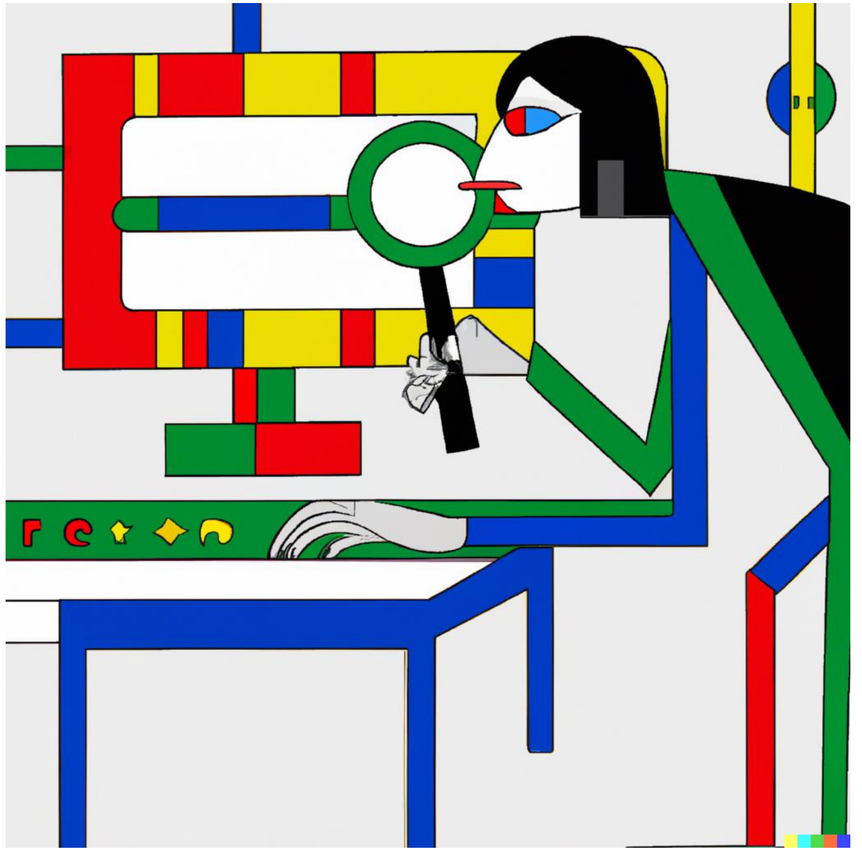
O é que os utilizadores esperam quando procuram informação espacial?



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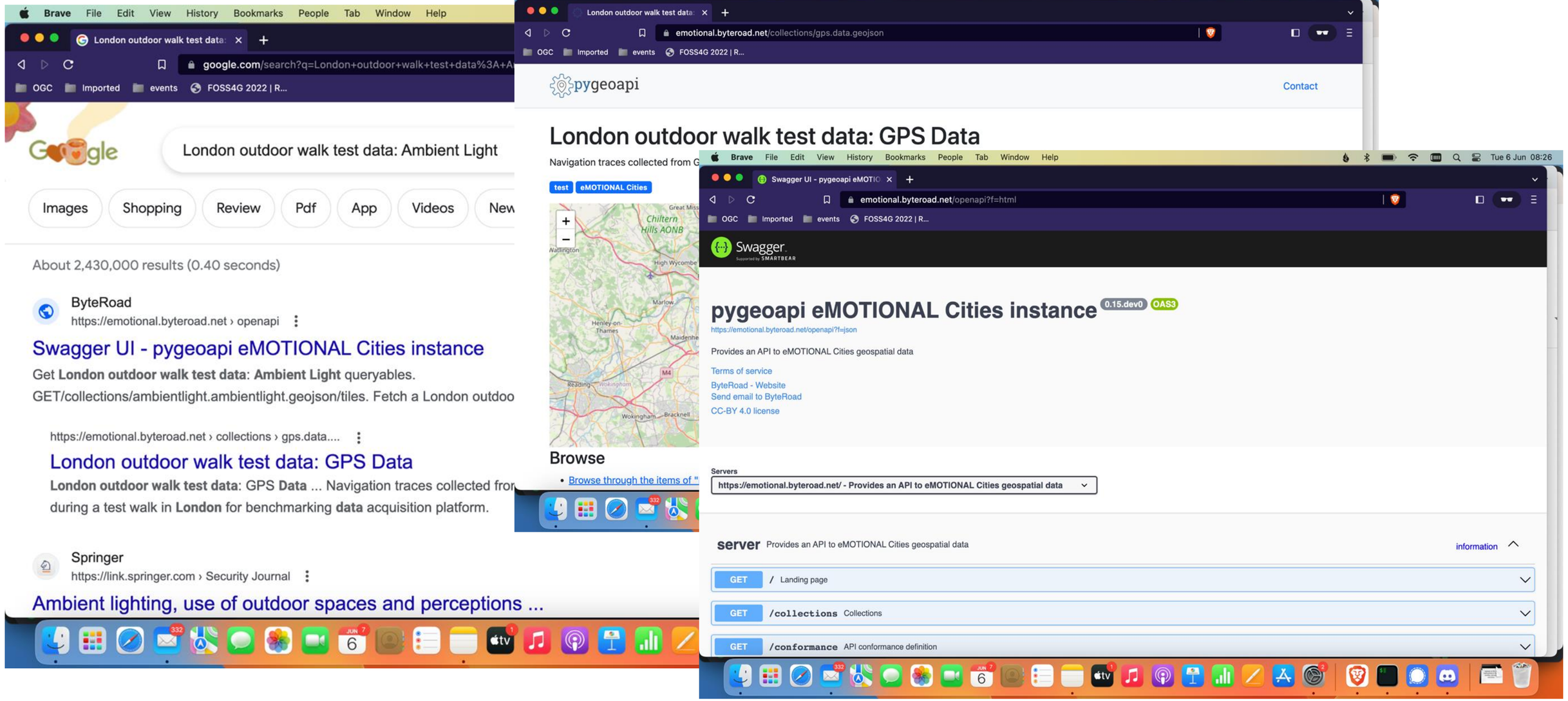

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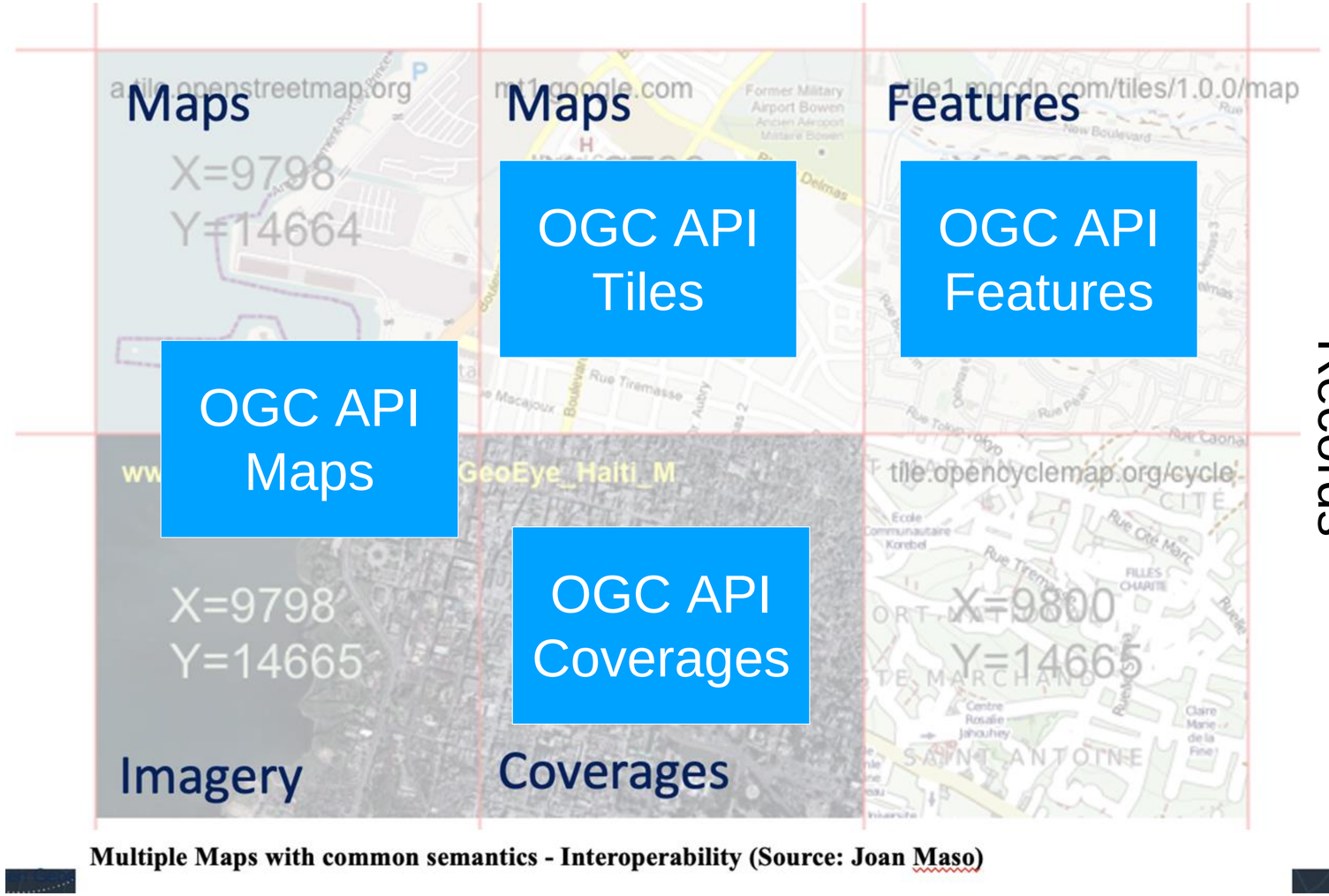
OGCAPI

- Asseguram que os dados espaciais sejam “web native”.
- Melhoram a experiência dos programadores.
- Eventualmente, substituirão e melhorarão os Serviços Web OGC (W*s).

{ REST }

OWS -> OGCAPI



Multiple Maps with common semantics - Interoperability (Source: Joan Maso)

Discover via

OGC API
Records

OGCAPI

OGC API – Discrete Global Grid Systems

OGC API – Records

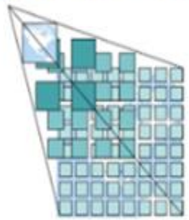
OGC API - Maps

OGC API - Styles

Sensor Things API

OGC API – Moving Features

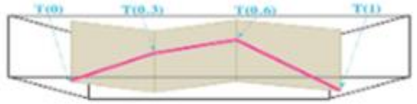
OGC API - Tiles



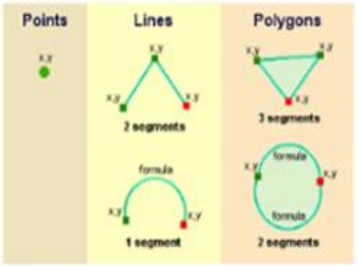
OGC API - Common

OGC API - Routes

OGC API – Environmental Data Retrieval



OGC API - Features



OGC API - Processes

OGC API – Coverages

OGC API – Joins

Green border means **approved**

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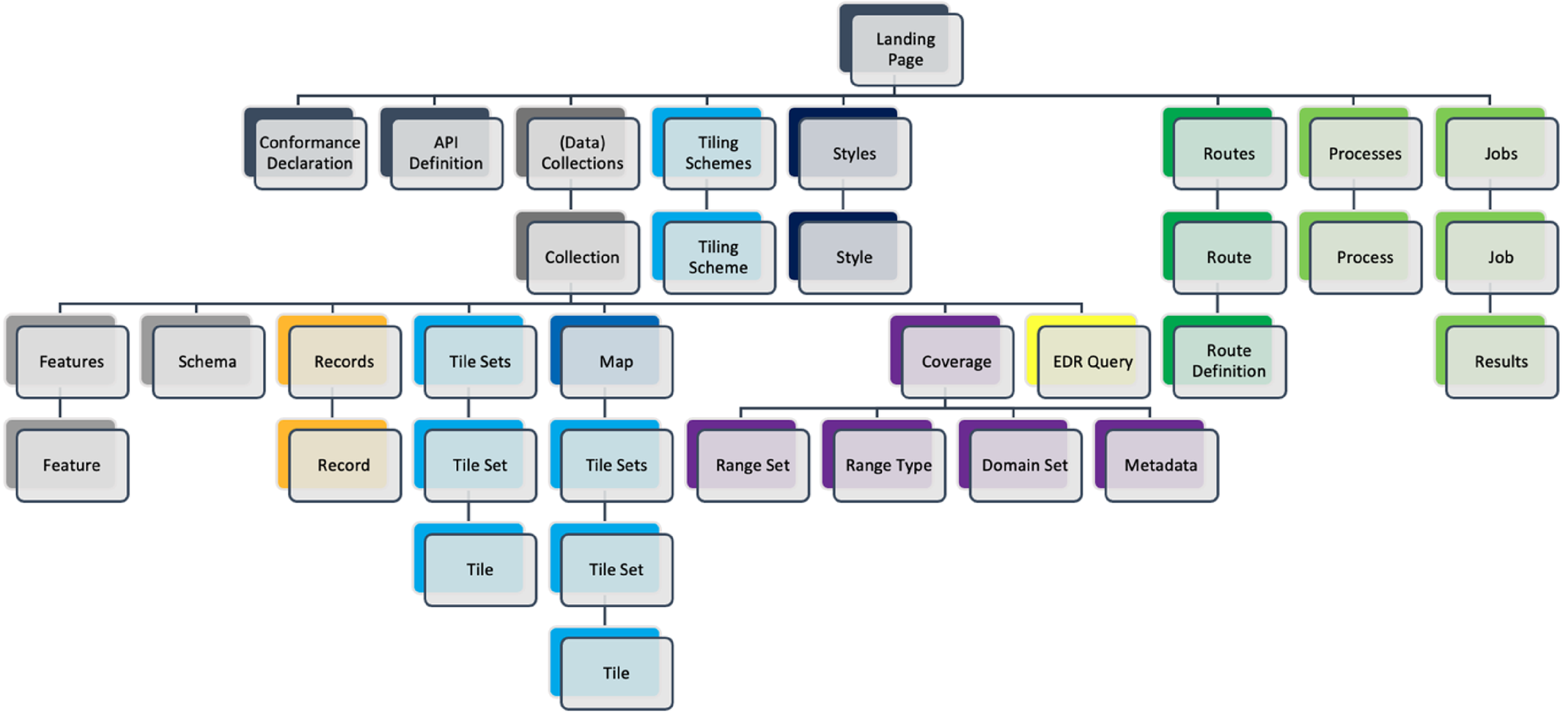
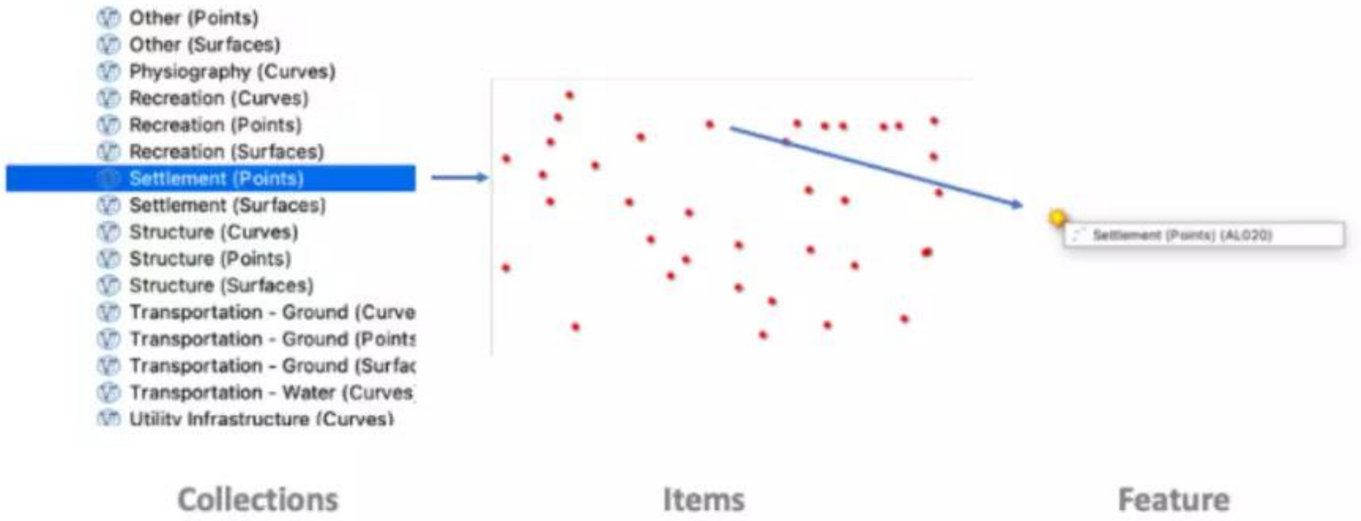
Recursos em OGCAPI



OGC API - Features

- Especifica o comportamento de APIs de web que dão acesso a entidades de um conjunto de dados, de forma independente do armazenamento dos dados.
- Sucessora do WFS.



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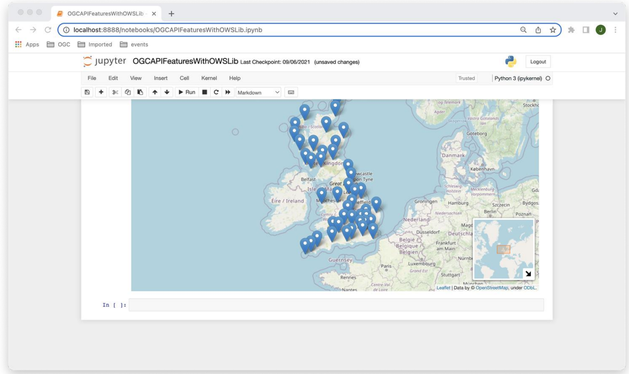
MongoDB

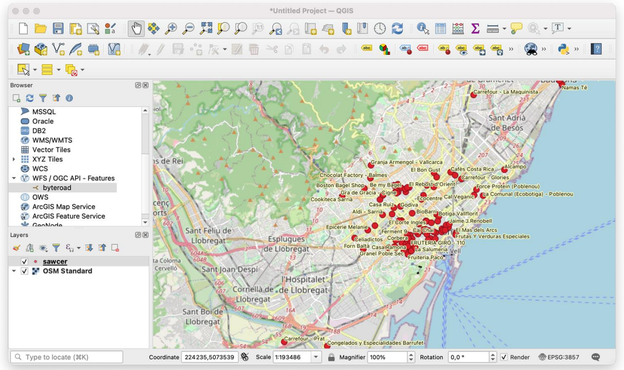
elasticsearch

esri

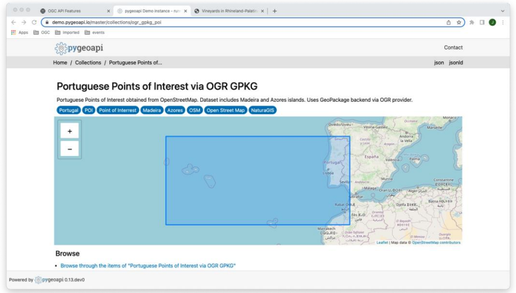
OGC API - Features



jupyter



QGIS



Leaflet

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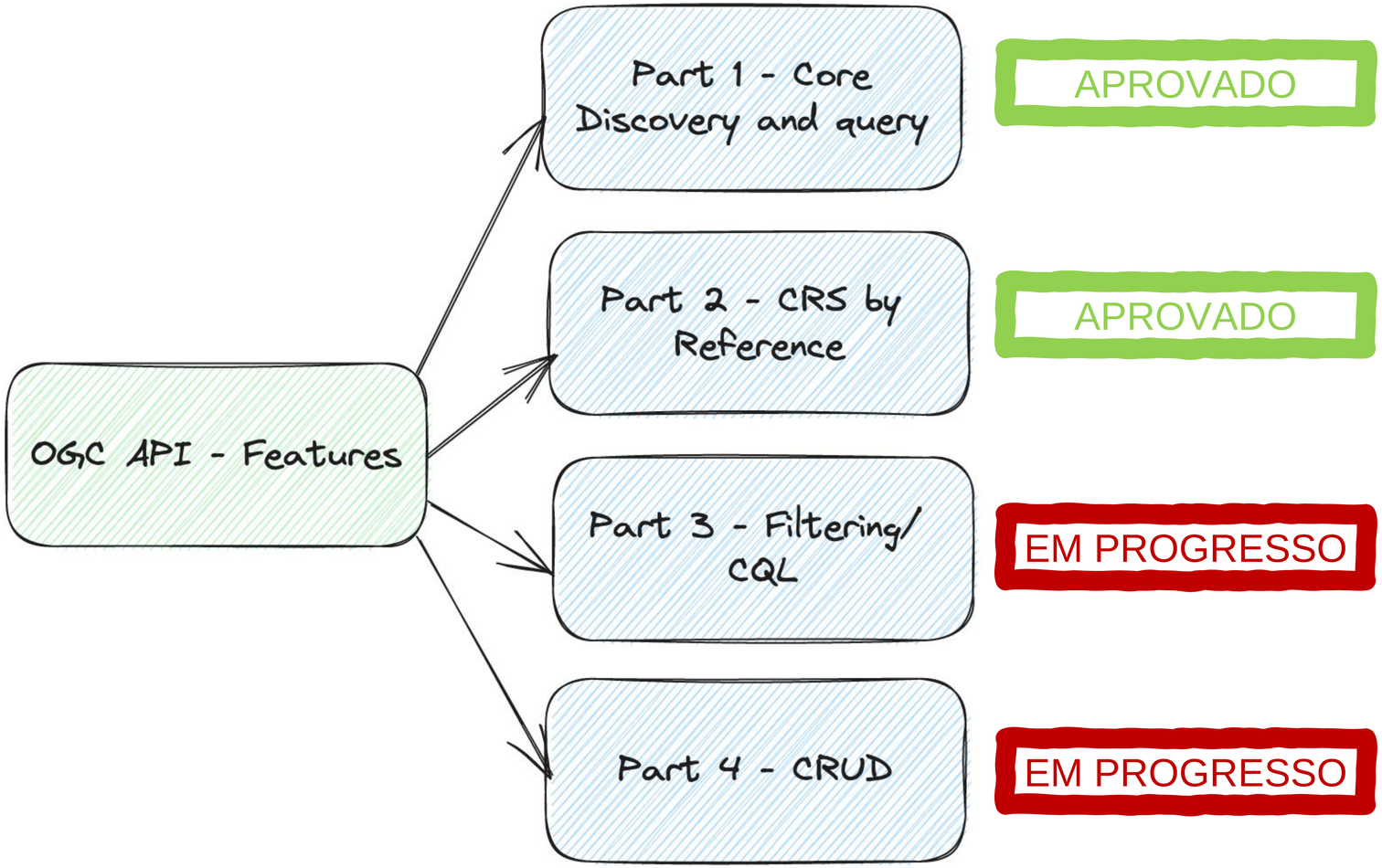
Estado da OGC API - Features



ISO/TC 211

STAC
SpatioTemporal
Asset Catalog

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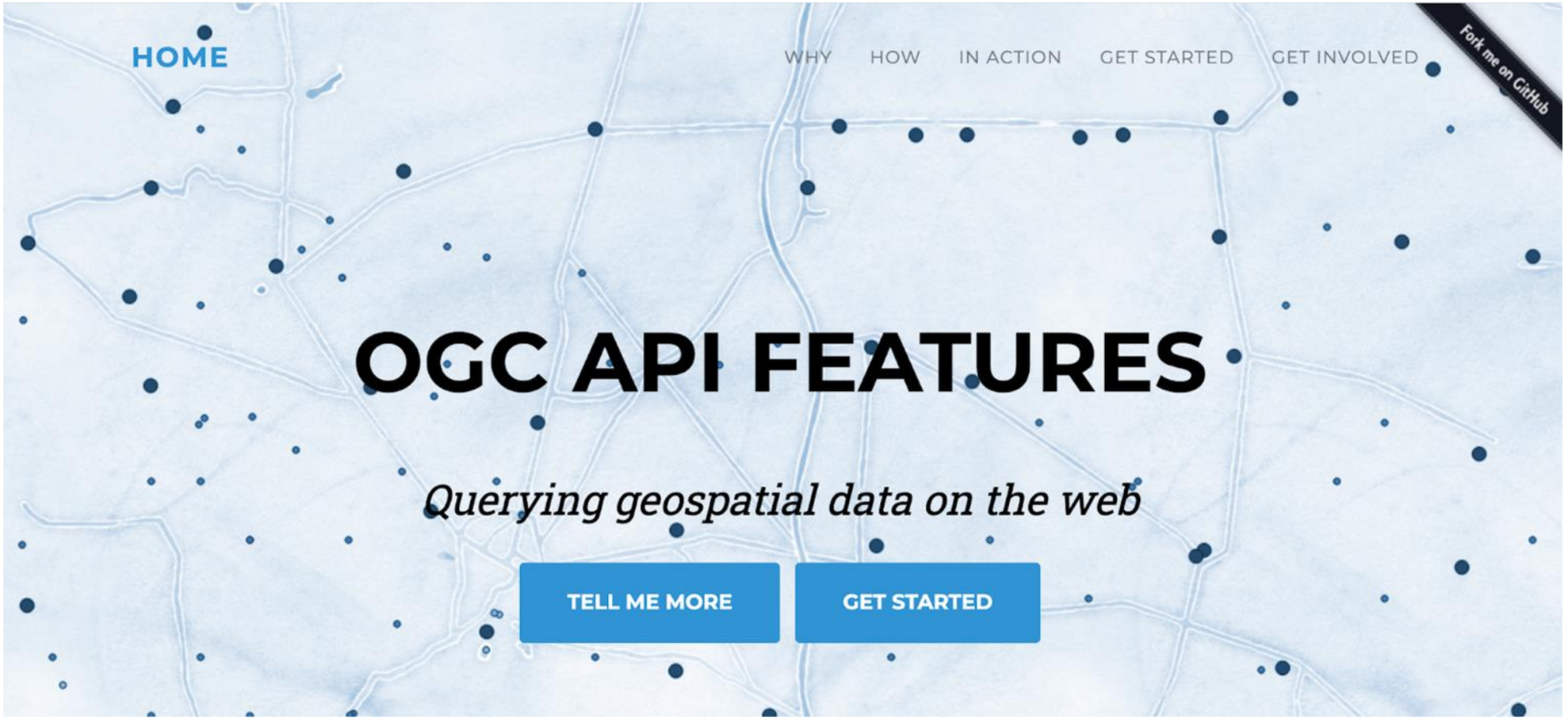
Consortium

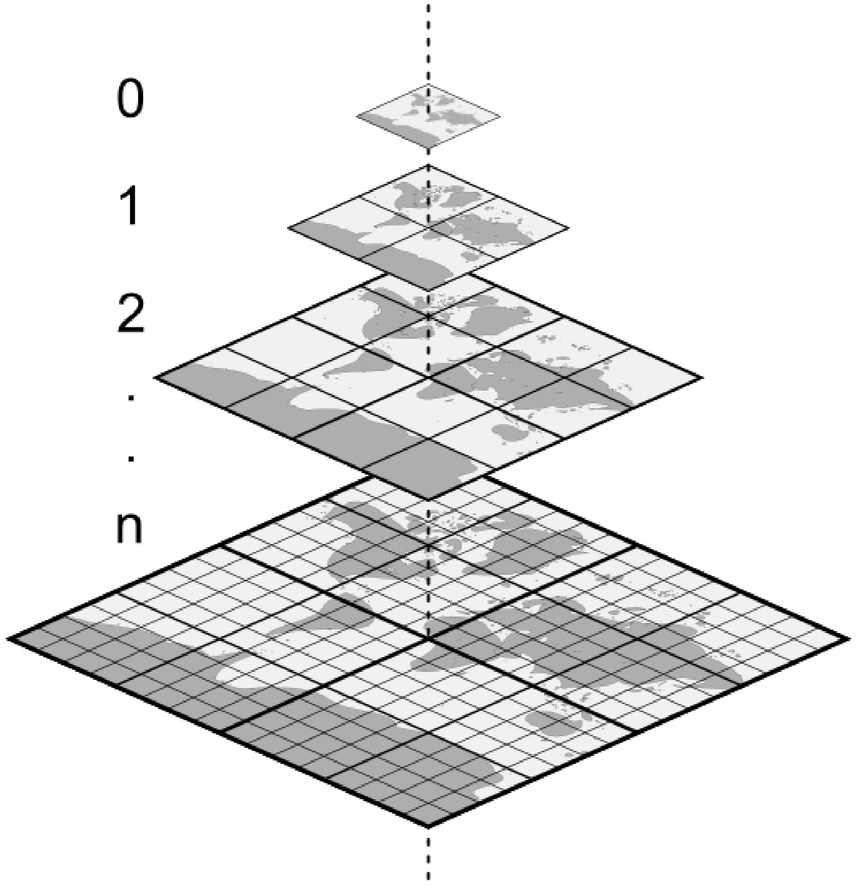


https://features.developer.ogc.org

OGC API - Tiles

APROVADO

- Descreve como os clientes de mapas (e.g.: páginas web) podem pedir informações sobre os tilesets e como pedir as tiles.
- São suportados diferentes tipos de tiles (e.g.: MVT, imagens satélite).
- Core (P1): muito simples e adiciona um pouco de formalidade ao que as pessoas já têm estado a fazer com os tilesets XYZ.
- Sucessora do WMTS.



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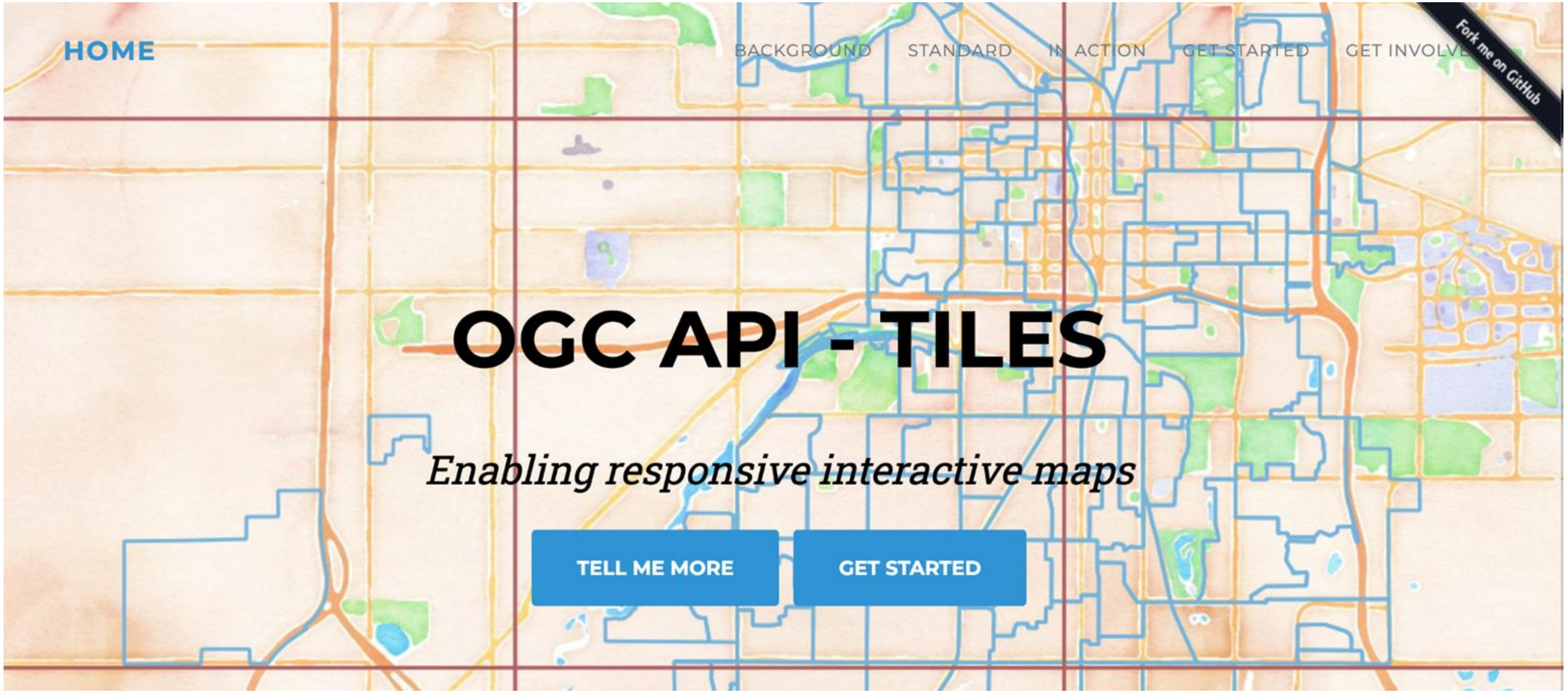

https://tiles.developer.ogc.org/

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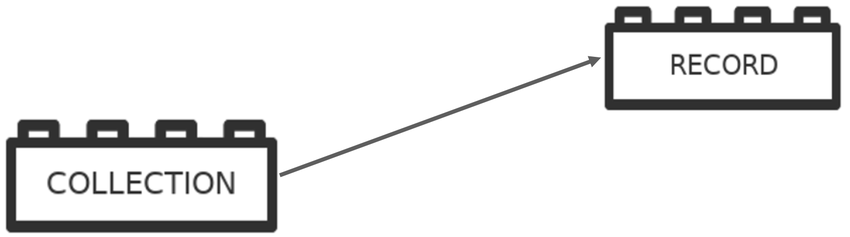
OGC API - Records

EM PROGRESSO

- Descoberta e acesso a metadados sobre recursos espaciais.
- Modelo de conteúdo + mecanismos de acesso.
- Diferentes padrões de implantação.
- Sucessor do CSW.

STAC
SpatioTemporal
Asset Catalog



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Record

- Unidade atómica de informação num catálogo.
- Modelo simples, baseado em Dublin core.
- Formatos: JSON, YAML

Queryables	Requirement	Description
recordId	M	A unique record identifier assigned by the server.
conformsTo	O	A list of identifiers indicating that the record conforms to one or more extensionsl Ideally, the requirements of each listed extension is formally published.
created	O	The date this record was created in the server.
updated	O	The most recent date on which this record was changed.
language	O	The natural language used for textual values (i.e. titles, descriptions, etc) of this record.
languages	O	The list of languages in which this record can be requested.
time	M	A characteristic temporal instance or interval associated with the resource; can be *null* if not known or applicable.
geometry	M	A characteristic spatial extent associated with the resource; can be *null* if not known or applicable.
type	M	The nature or genre of the resource described by this record.
title	M	A human-readable name given to the resource described by this record.
description	O	A free-text description of the resource.
keywords	O	A list of free-form keywords or tags associated with the resource.
resourceLanguages	O	A list of languages in which the resource can be requested.
externalIds	O	A list of identifiers for the resource assigned by one or more external entities.
themes	O	A knowledge organization system used to classify the resource.
formats	O	A list of available distributions for the resource.
contacts	O	A list of entities to contact about the resource.
license	O	A legal document under which the resource is made available.
rights	O	A statement that concerns all rights not addressed by the license such as a copyright statement.
links	O	A list of links including links for accessing the resource (e.g. download link, access link, etc.) in one of the supported distribution formats, links to other resources associated with this resource and links for navigating the API (e.g. prev, next, alternate, etc.). See link schema..

Collection

- Descreve uma colecção de recursos.
- Contém links para aceder aos recursos.

CrudeP - Obesity - Age Above 18 years	Model-based estimate for crude prevalence of obesity among adults aged >=18 years, 2019 AND Estimated confidence interval for crude prevalence of obesity among adults aged >=18 years		
CrudeP - Physical Health Not Good for People Aged Above 18 Years	Model-based estimate for crude prevalence of physical health not good for >=14 days among adults aged >=18 years, 2019 AND Estimated confidence interval for crude prevalence of physical health not good for >=14 days among adults aged >=18 years		
CrudeP - Stroke -Age Above 18 Years	Model-based estimate for crude prevalence of stroke among adults aged >=18 years, 2019 AND Estimated confidence interval for crude prevalence of stroke among adults aged >=18 years		
Demo data for workshop	Read data from the data lake		
STA Things	SensorThings API Things		
STA Datastreams	SensorThings API Datastreams		
STA Observations	SensorThings API Observations		

Records collections

Title	Description	Show
eMOTIONAL Cities Metadata catalog	eMOTIONAL Cities Metadata catalog (OGC API Records)	

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Outras OGCAPI

- OGC API - Maps: interface para mapas, customizados usando parâmetros. EM PROGRESSO
- OGC API - Styles: interface para estilos para dados espaciais. EM PROGRESSO
- OGC API - Coverages: interface para colecções homogéneas de valores no espaço e no tempo. EM PROGRESSO
- OGC API - Processes: interface para envolver tarefas computacionais dentro de processos executáveis. APROVADO
- OGC API - EDR: interface para aceder a dados ambientais, através de amostragens espacio-temporais. APROVADO

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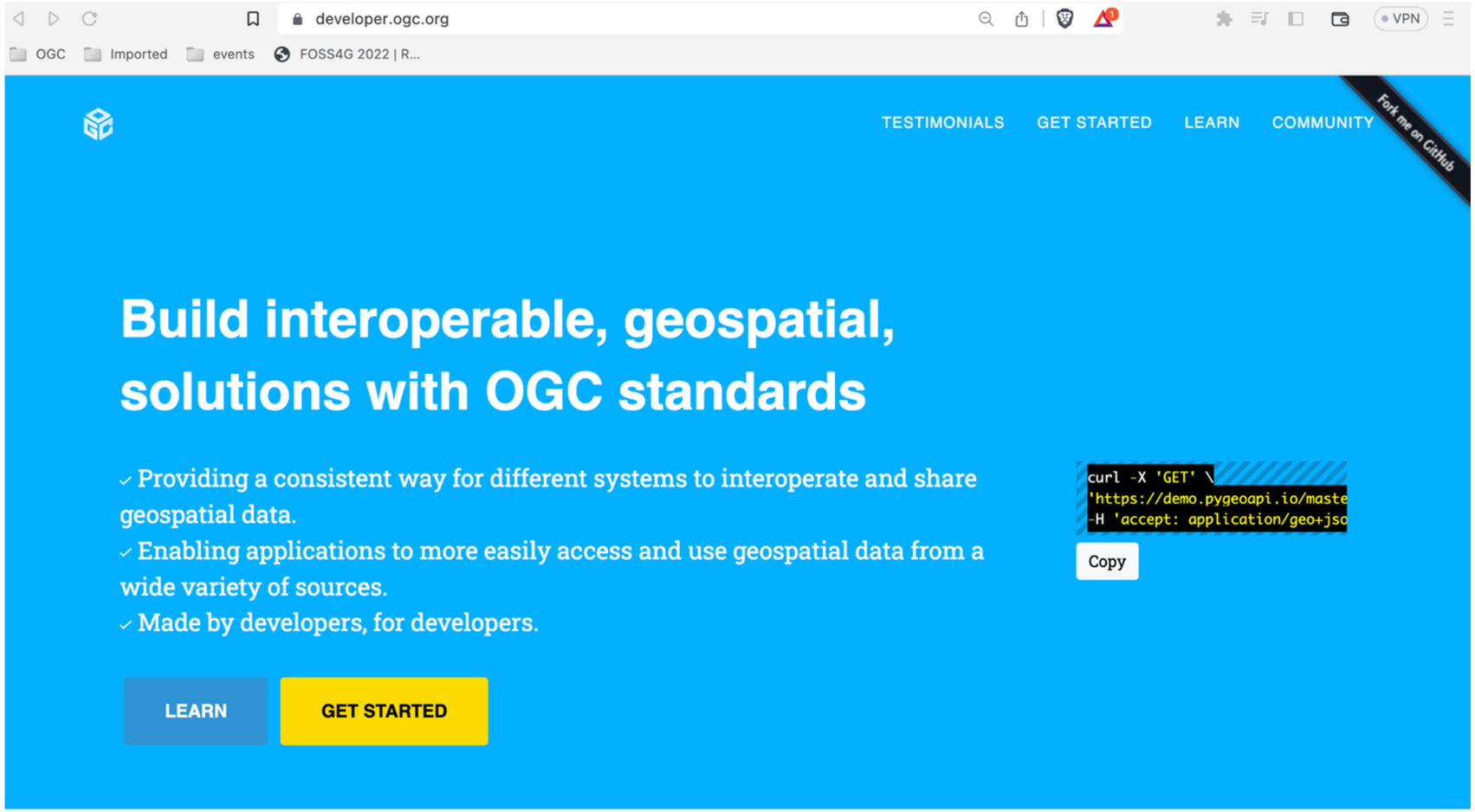

https://developer.ogc.org/

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Implementações das OGC APIs

- OGC API - Features – 21
- OGC API - Tiles -17
- OGC API Records - 11
- OGC API - Processes - 9
- OGC API - Maps - 9
- OGC API - Coverages - 7
- OGC API - EDR - 6

Fonte:
https://github.com/opengeospatial/
(10/10/2023)

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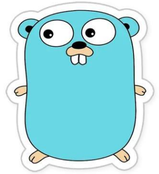
Implementações certificadas das OGC APIs

OSGeo Product	Badges
pygeoapi 0.9.0	
Degree OGCAPI 1.3	

Fonte: https://www.ogc.org/resources/certified-products/ (03/10/2023)



Compliant

Reference Implementation

Early Implementer

OGCAPI Implementation

pygeoapi

DOI 10.5281/zenodo.7949496

CERTIFIED OGC® COMPLIANT

- Implementação em Python de um servidor da suite de standards OGC API.
- O projeto emergiu em 2018 como parte dos esforços para a próxima geração de APIs da OGC.
- Fornece às organizações a capacidade de ter uma API, usando tecnologias modernas de web.
- FOSS (MIT).

RI ogcapi-features-1 1.0

RI ogcapi-edr-1 1.0

OSGeo Project

https://pygeoapi.io/

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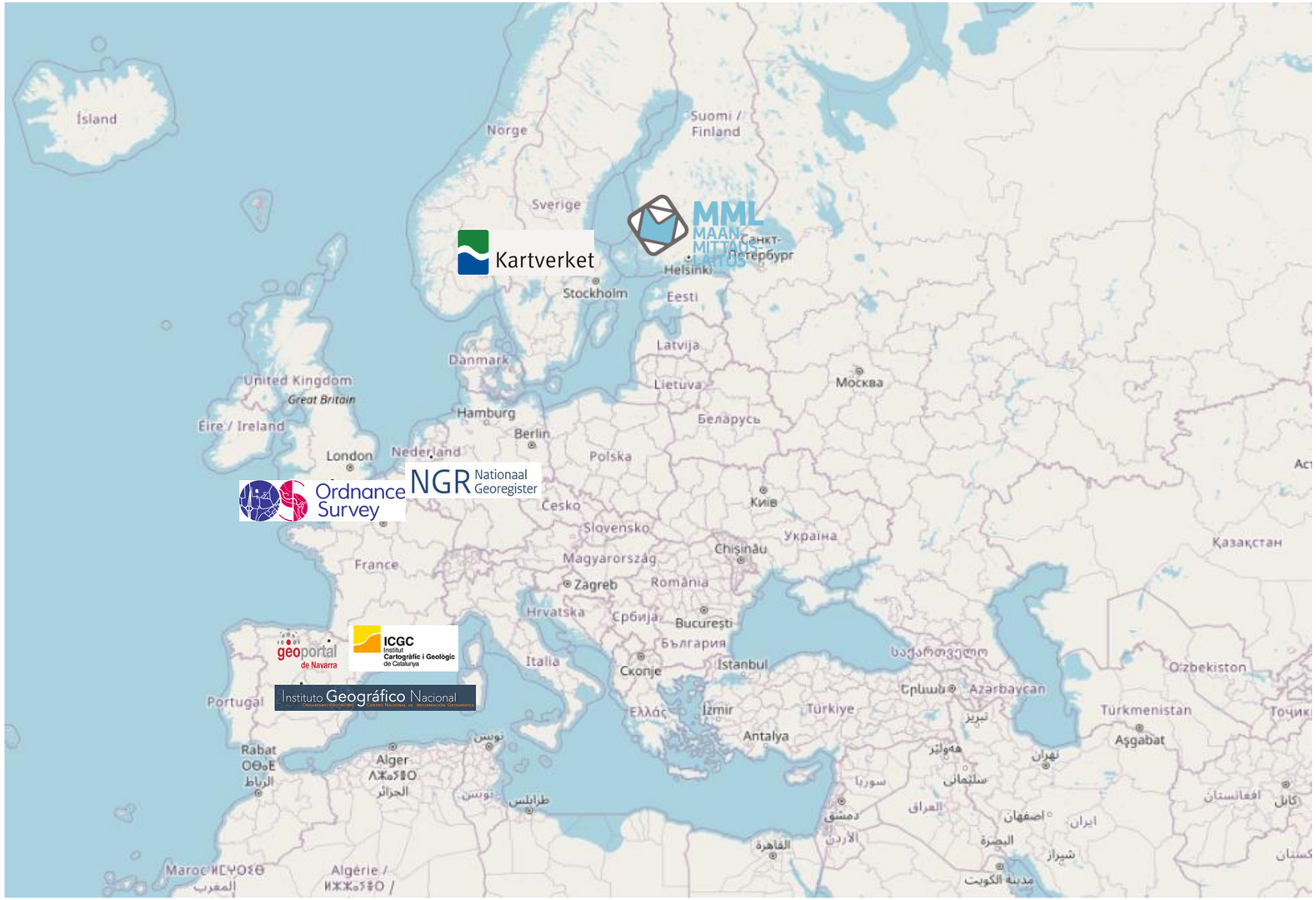
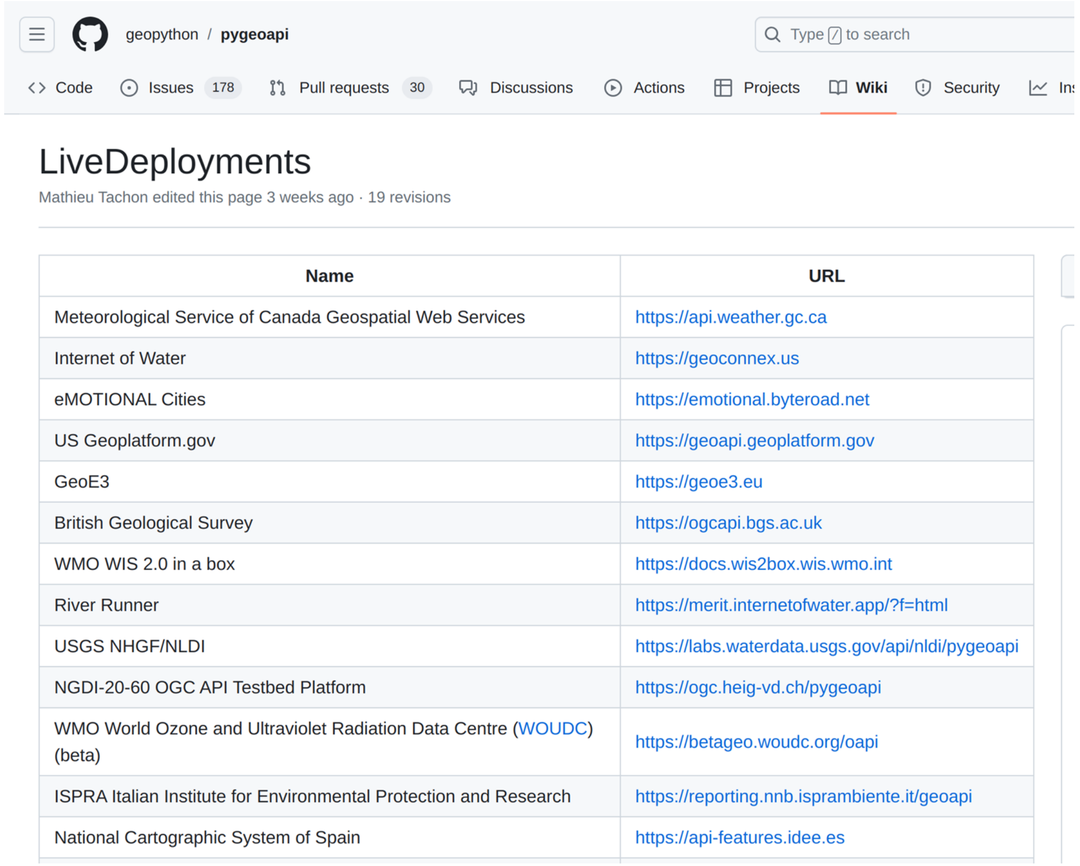
Agências Cartográficas que publicam dados com uma ou mais OGC API



Mais Casos de Uso (em todo o mundo):



LiveDeployments

Mathieu Tachon edited this page 3 weeks ago · 19 revisions

Name	URL
Meteorological Service of Canada Geospatial Web Services	https://api.weather.gc.ca
Internet of Water	https://geoconnex.us
eMOTIONAL Cities	https://emotional.byteroad.net
US Geoplatform.gov	https://geoapi.geoplatform.gov
GeoE3	https://geoe3.eu
British Geological Survey	https://ogcapi.bgs.ac.uk
WMO WIS 2.0 in a box	https://docs.wis2box.wis.wmo.int
River Runner	https://merit.internetofwater.app/?f=html
USGS NHGF/NLDI	https://labs.waterdata.usgs.gov/api/nldi/pygeoapi
NGDI-20-60 OGC API Testbed Platform	https://ogc.heig-vd.ch/pygeoapi
WMO World Ozone and Ultraviolet Radiation Data Centre (WOUDC) (beta)	https://betageo.woudc.org/oapi
ISPRA Italian Institute for Environmental Protection and Research	https://reporting.nnb.isprambiente.it/geoapi
National Cartographic System of Spain	https://api-features.idee.es

- https://github.com/geopython/pygeoapi/wiki/LiveDeployments

Powered by: pygeoapi

Como participar na OGC?

Participar como membro ✓

- Juntar-se e participar nos Grupos de Trabalho de Standards e ~~Domínios~~.

Seguir os repositórios do GitHub ✓

- Criar issues.
- Contribuir com PRs.

Juntar-se aos code sprints✓

- Criar/actualizar implementações.
- Dar feedback.
- Patrocinar.

Seguir o ILAF✓

- Participar na lista de discussão.
- Participar nos eventos.

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Participar nos Grupos de Trabalho

- Grupos de trabalho dos standards – Grupos que trabalham nos standards (novos ou revisões) através do processo OGC RFC.
- Grupos de trabalho de domínio – Grupo que trabalham na tecnologia ou requisitos específicos de domínio para a interoperabilidade.

Land Administration DWG✓

- Actividades relacionadas com a administração do território.

Metadata and Catalog DWG✓

- Aborda a forma como os metadados devem estar especificados em standards OGC
- Mantém uma colaboração estreita com o ISO TC/211.

Urban Digital Twins DWG✓

- Fórum para a discussão e apresentação de requisitos de interoperabilidade, no contexto dos Digital Twins Urbanos.

Coordinate Reference System DWG✓

- Desenvolve estratégias para codificar os CRS da terra e para fazer transformações entre CRS.

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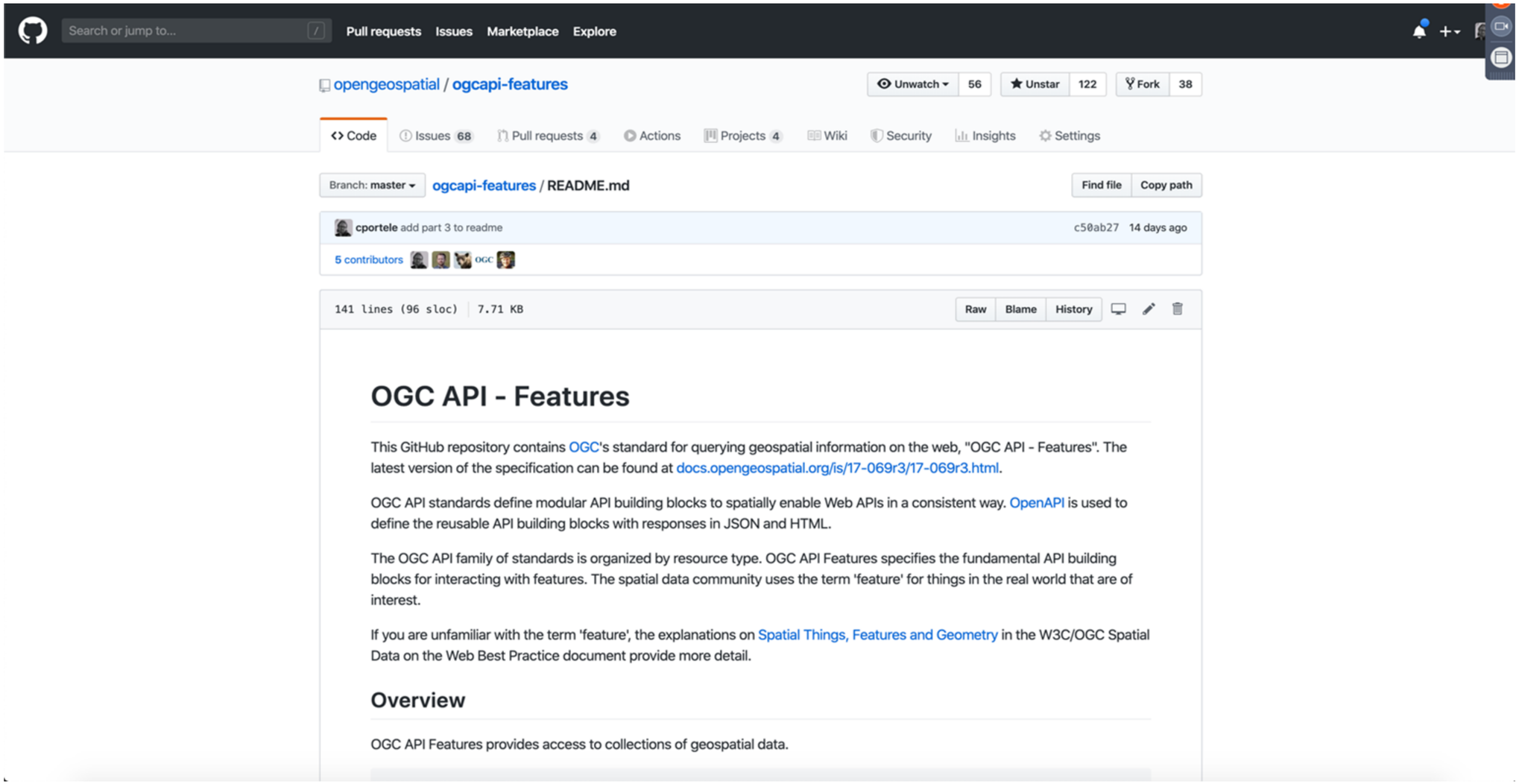
Seguir os repositórios do GitHub



https://github.com/opengeospatial/

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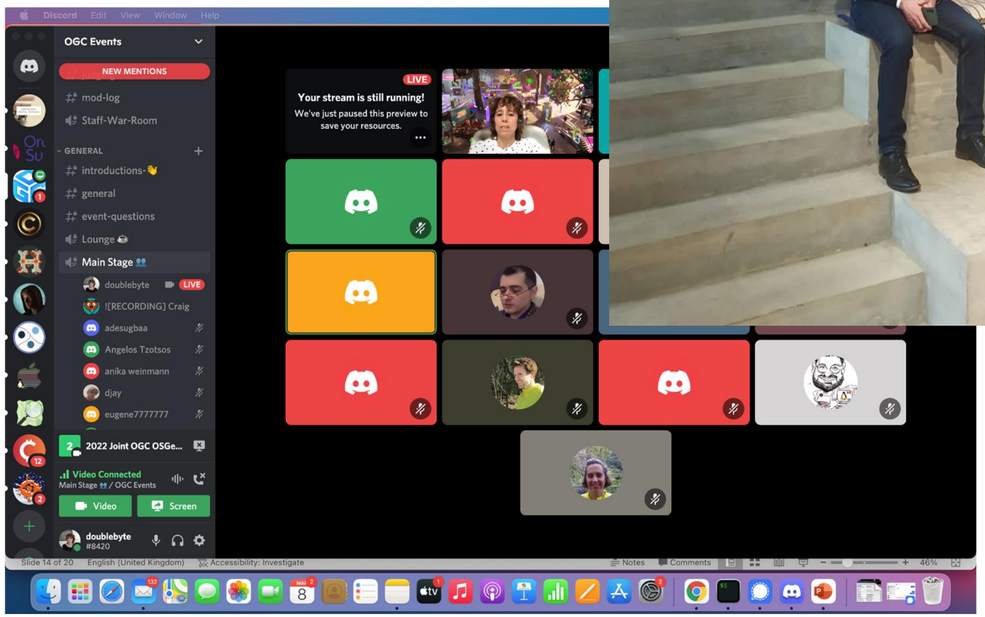
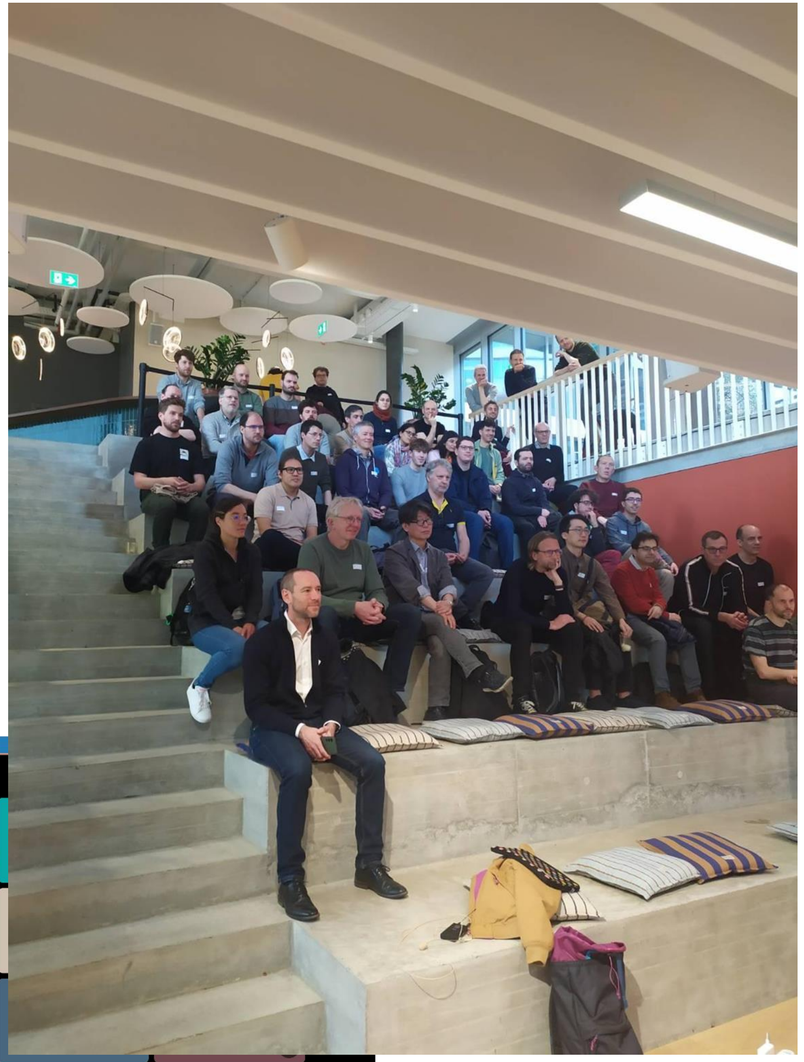
Participar nos Code Sprints

- Eventos colaborativos de três dias (híbridos).
- Impulsionar o desenvolvimento dos standards através de discussões/feedback
- Apoiar/encorajar implementações dos standards.
- Proporcionar tutoriais e orientação para todos aqueles que queiram aprender mais sobre os standards.

Source: Geospatial API November 2021 Code Sprint



Source: Open Standards and Software March 2022 Code Sprint



Source: Open Standards and Software April 2023 Code Sprint

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Seguir o Foro Ibérico e Latino-Americano da OGC

- Pretende abarcar a comunidade de língua espanhola e portuguesa interessada nos desenvolvimentos e objetivos da OGC.
- Engloba tanto os membros da OGC como todos aqueles que sem o ser, partilhem o interesse nos ditos desenvolvimentos e objetivos.

ILAF
Open Geospatial Consortium, Inc.

Inscrever-se na lista: ila.forum@lists.opengeospatial.org

https://external.ogc.org/twiki_public/ILAFpublic/WebHome

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Thank You

Community

500+ International Members
110+ Member Meetings
60+ Alliance and Liaison partners
50+ Standards Working Groups
45+ Domain Working Groups
25+ Years of Not for Profit Work
10+ Regional and Country Forums

Innovation

120+ Innovation Initiatives
380+ Technical reports
Quarterly Tech Trends monitoring

Standards

65+ Adopted Standards
300+ products with 1000+ certified implementations
1,700,000+ Operational Data Sets
Using OGC Standards

devrel@ogc.org
joanasimoes
@doublebyte@noc.social
@doublebyte1
@doublebyte