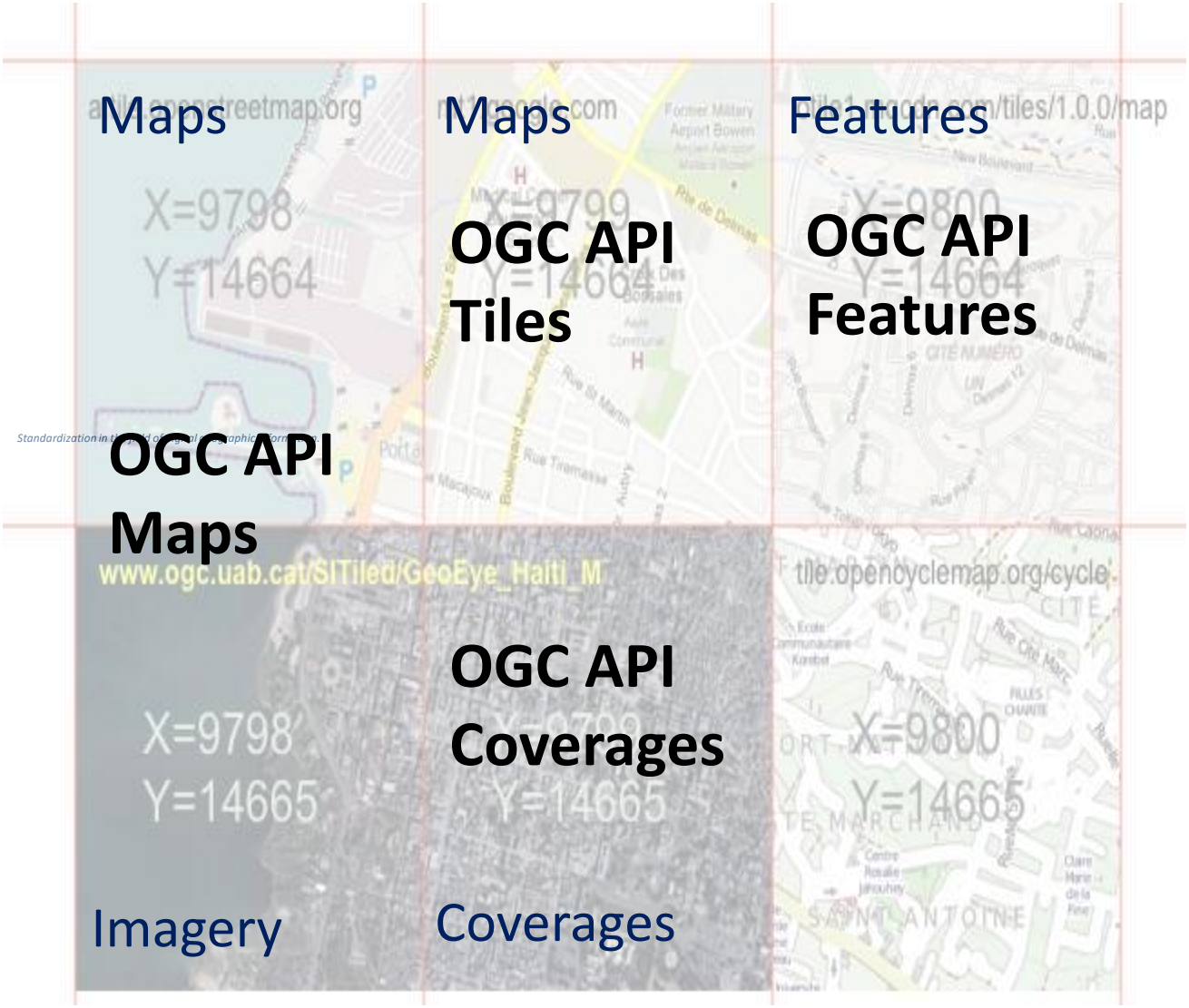
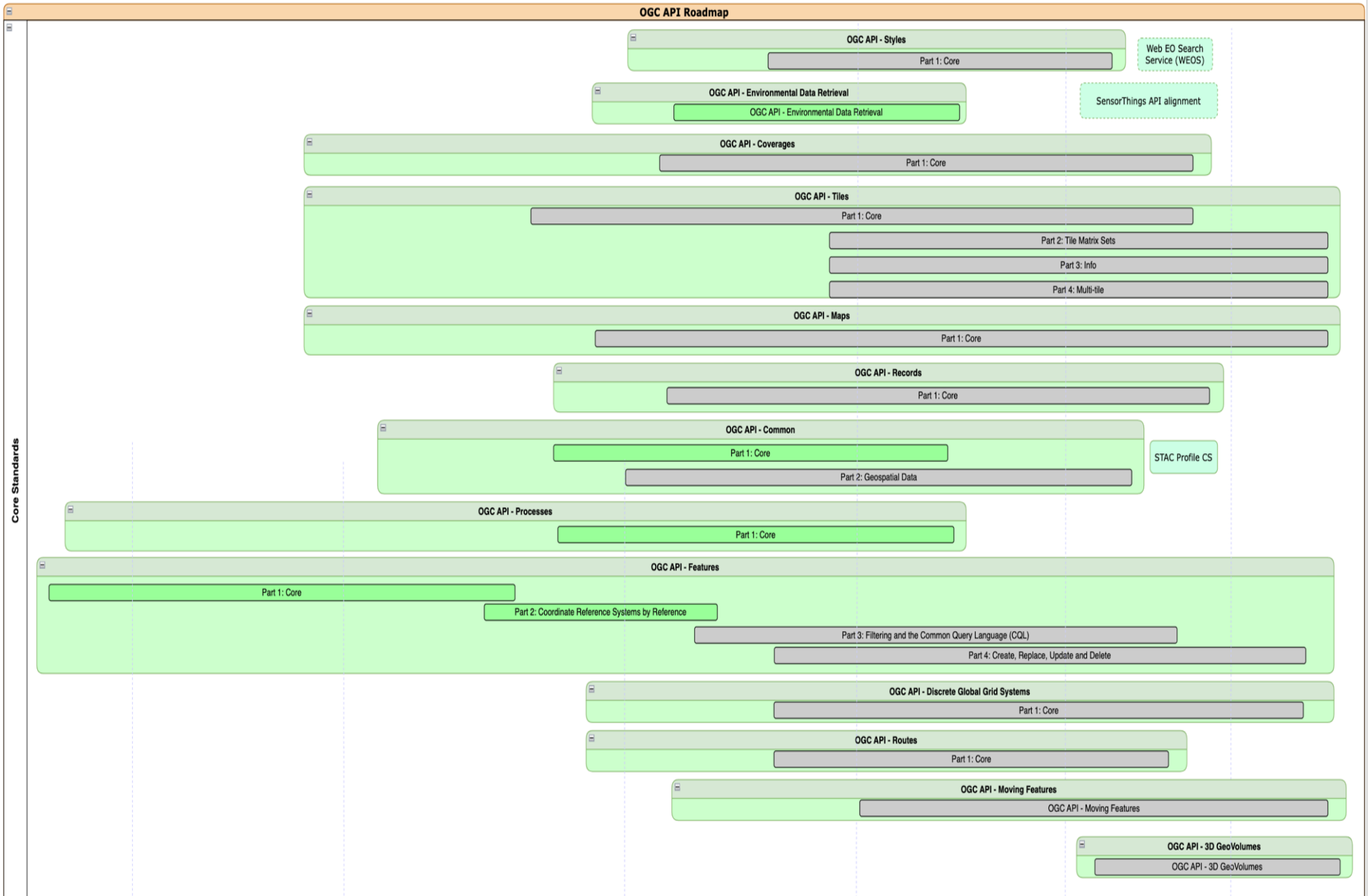
OGC APIs - https://ogcapi.ogc.org/

- “Building blocks” that can be used to assemble novel APIs for web access to geospatial content
- Ultimately will replace and enhance the existing OGC Web Service standards
- Defined with OpenAPI and published in discrete, easily implementable parts
- Ensure that geospatial data are “web native”

OGC API Standards



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


OGC API Roadmap
Core Standards
OGC API - Styles
Part 1: Core
Web EO Search Service (WEOS)
OGC API - Environmental Data Retrieval
OGC API - Environmental Data Retrieval
SensorThings API alignment
OGC API - Coverages
Part 1: Core
OGC API - Tiles
Part 1: Core
Part 2: Tile Matrix Sets
Part 3: Info
Part 4: Multi-tile
OGC API - Maps
Part 1: Core
OGC API - Records
Part 1: Core
OGC API - Common
Part 1: Core
Part 2: Geospatial Data
STAC Profile CS
OGC API - Processes
Part 1: Core
OGC API - Features
Part 1: Core
Part 2: Coordinate Reference Systems by Reference
Part 3: Filtering and the Common Query Language (CQL)
Part 4: Create, Replace, Update and Delete
OGC API - Discrete Global Grid Systems
Part 1: Core
OGC API - Routes
Part 1: Core
OGC API - Moving Features
OGC API - Moving Features
OGC API - 3D GeoVolumes
OGC API - 3D GeoVolumes

Deployment model example

User: just want features in WGS 84, but want to query

Features: CQL

Features: CRS

Features: Core

Data

OGC API - Common

Tiles

Maps

Coverages

EDR

Features: Transactions

User: tile it up and make it work on my phone

User: need features supporting other CRSs

User: I am a fire incident commander: give me everything

A sample API implementing Common, Features, Tiles, Styles

Home / Daraa JSON

Daraa

This is a test dataset for the Open Portrayal Framework thread in the OGC Testbed-15 as well as for the OGC Vector Tiles Pilot Phase 2. The data is OpenStreetMap data from the region of Daraa, Syria, converted to the Topographic Data Store schema of NGA.

Links to the main resources

Access the data
Access a web map with the data
Access the data as vector tiles
Styles to render the data in maps

API information

API description Definition of the API in OpenAPI 3.0
Documentation of the API

API provider Clemens Portele, interactive instruments GmbH
portele@interactive-instruments.de

Data license The dataset was provided by the US National Geospatial Intelligence Agency (NGA) for development and testing. For any reuse of the data outside this API, please contact NGA.

Spatial Extent

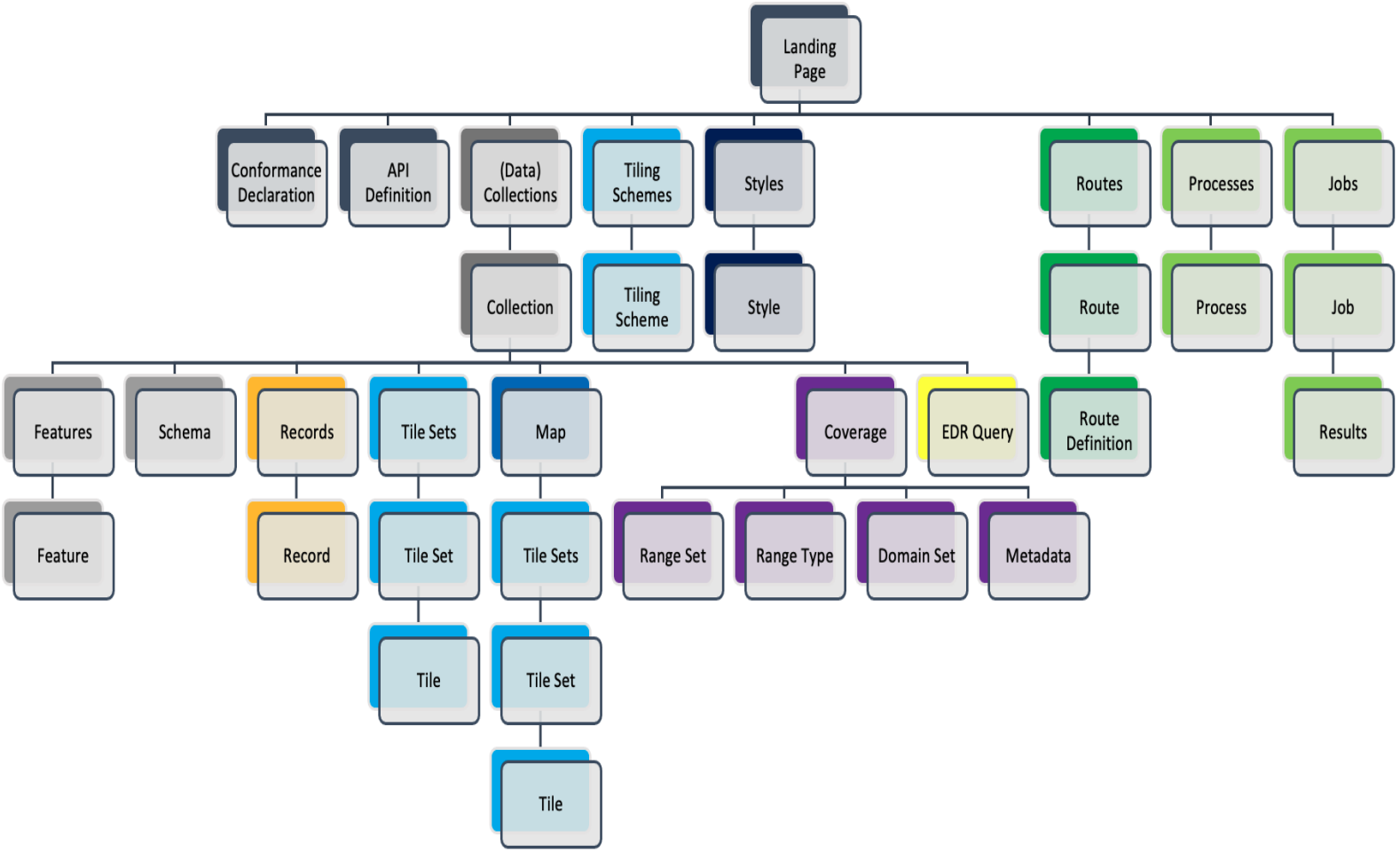
Common Part 2, Features Parts 1 to 3

Tiles, Parts 1 and 2

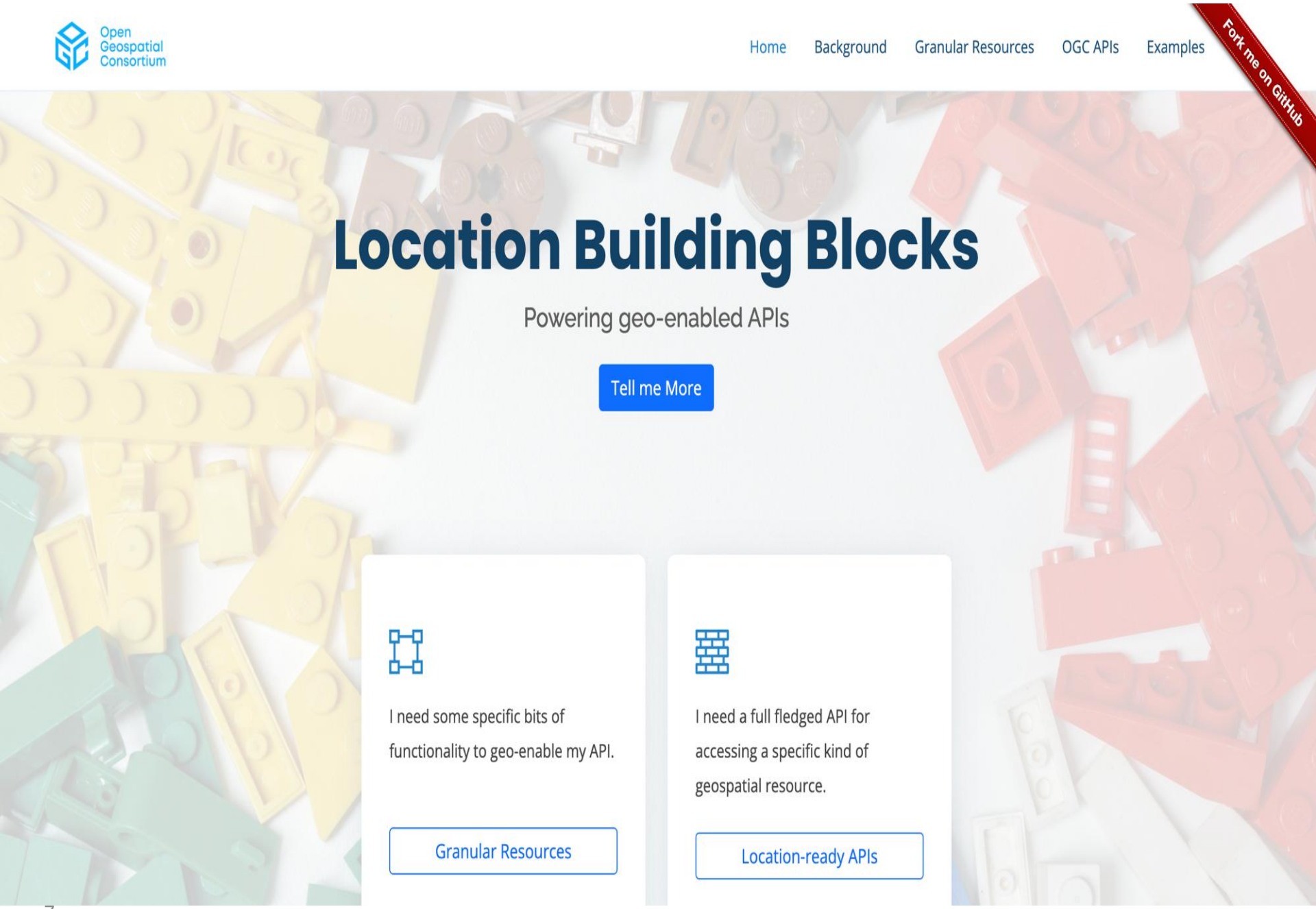
Styles

Common Part 1

Resources in OGC API Standards



Open Geospatial Consortium


Open Geospatial Consortium
Home
Background
Granular Resources
OGC APIs
Examples
Fork me on GitHub
Location Building Blocks
Powering geo-enabled APIs
Tell me More
I need some specific bits of functionality to geo-enable my API.
Granular Resources
I need a full fledged API for accessing a specific kind of geospatial resource.
Location-ready APIs

Approved and Candidate OGC API Standards

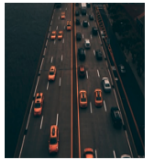
OGC API – Discrete Global Grid Systems

OGC API – Records

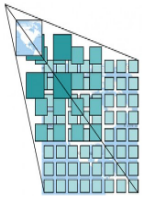
OGC API - Maps

OGC API - Styles

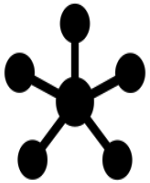
OGC API – Moving Features



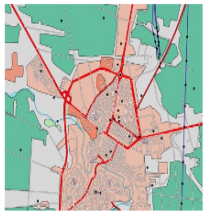
OGC API - Tiles



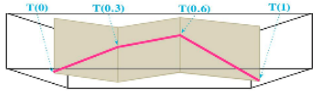
OGC API - Common



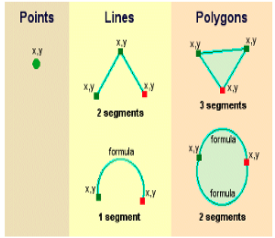
OGC API - Routes



OGC API – Environmental Data Retrieval

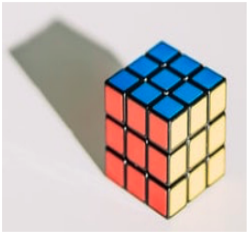


OGC API - Features



OGC API - Processes

OGC API – Coverages



OGC API – Joins

Green border means **approved**

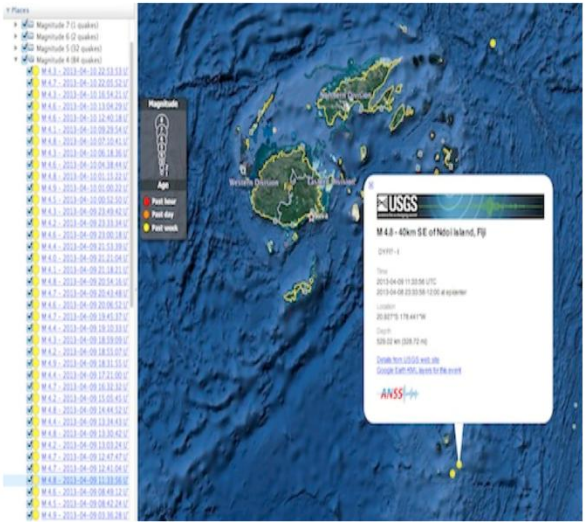
Open Geospatial Consortium

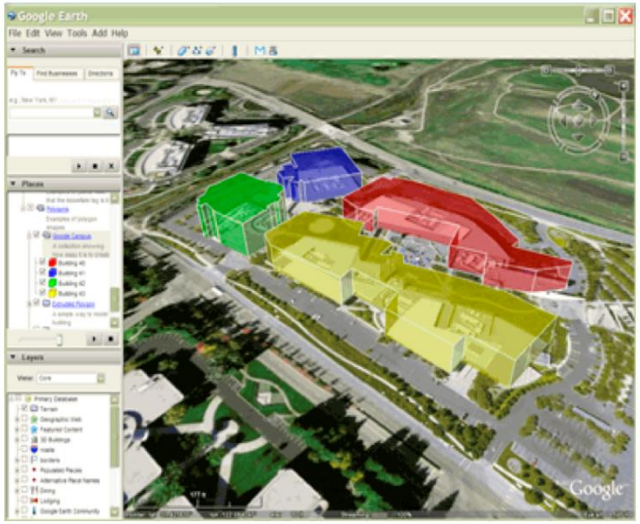
Encoding Data

Geography Markup Language (GML)

- XML here

KML





Open Geospatial Consortium

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           </LabelStyle>
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           </Point>
       </Placemark>

       <Placemark>
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           </Point>
       </Placemark>
  </Document>
</kml>
```

Features and Geometries JSON - Motivation

- Developers today prefer JSON over XML
- GeoJSON popular and widely supported
- OGC API Features implementations typically support GeoJSON
- But (intentional) limitations exist in GeoJSON that are an issue for some use cases:
  - Restricted to WGS 84 as Coordinate Reference System
  - Ellipsoidal metrics not supported
  - No support for solids
  - No guidance for the encoding of feature properties

Features and Geometries JSON (JSON-FG)

- Develop OGC Features and Geometries JSON addressing the identified limitations
  - Additional capabilities could be added in the future, if there is broad support for the initial OGC Features and Geometries JSON in implementations
- Specify as a superset of GeoJSON
  - i.e., valid GeoJSON is also valid OGC Features and Geometries JSON
- It is not the idea to develop a GML-equivalent for JSON!

- https://github.com/opengeospatial/ogc-feat-geo-json

GeoJSON

JSON-FG ✓

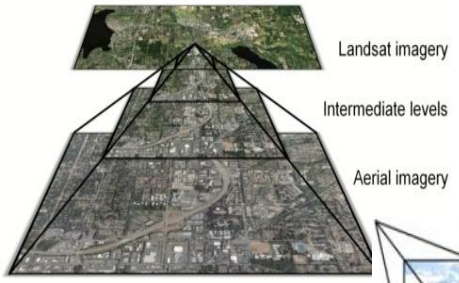
Advancing Mobility - OGC GeoPackage

- The OGC GeoPackage standard is a universal file format for geodata.
  - open, standards-based, application and platform independent, and self-describing.
  - Works on any desktop or mobile OS
  - For use in a connected / disconnected environment

- GeoPackage - the modern alternative to formats like GeoTIFF, SDTS and vendor specific
- *Experience it here:* http://www.ogcnetwork.net/geopackage

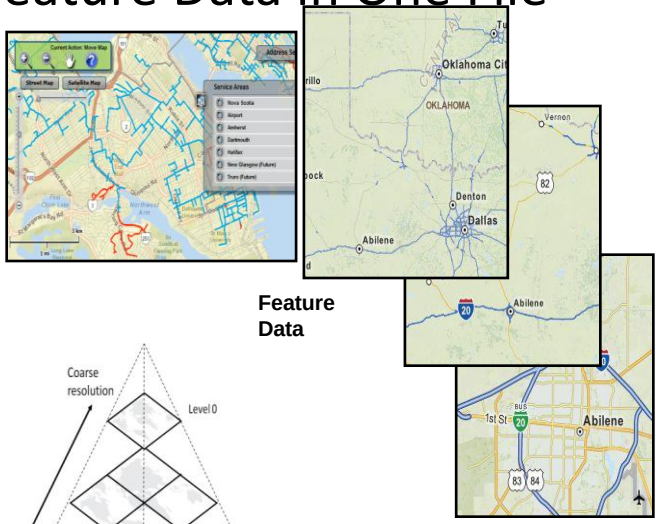
GeoPackage:

Raster Maps, Images and Feature Data in One File

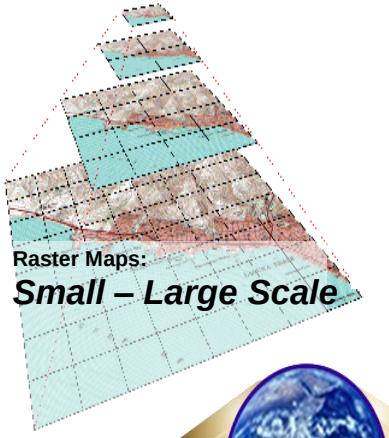


Imagery

Low – High Resolutio

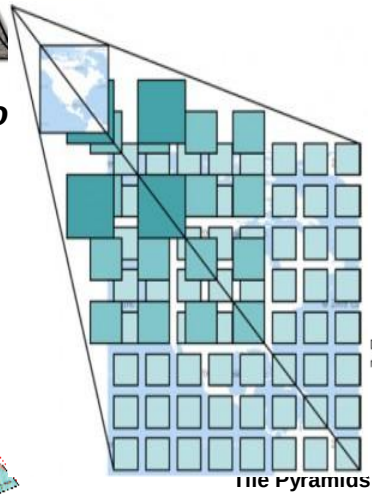


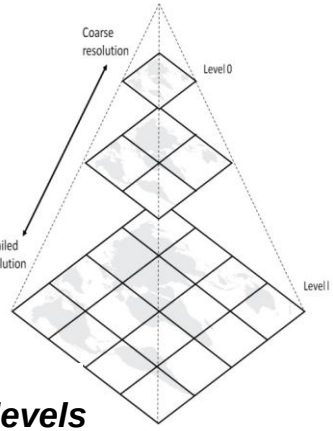
Feature Data



Raster Maps:

Small – Large Scale





The Pyramids

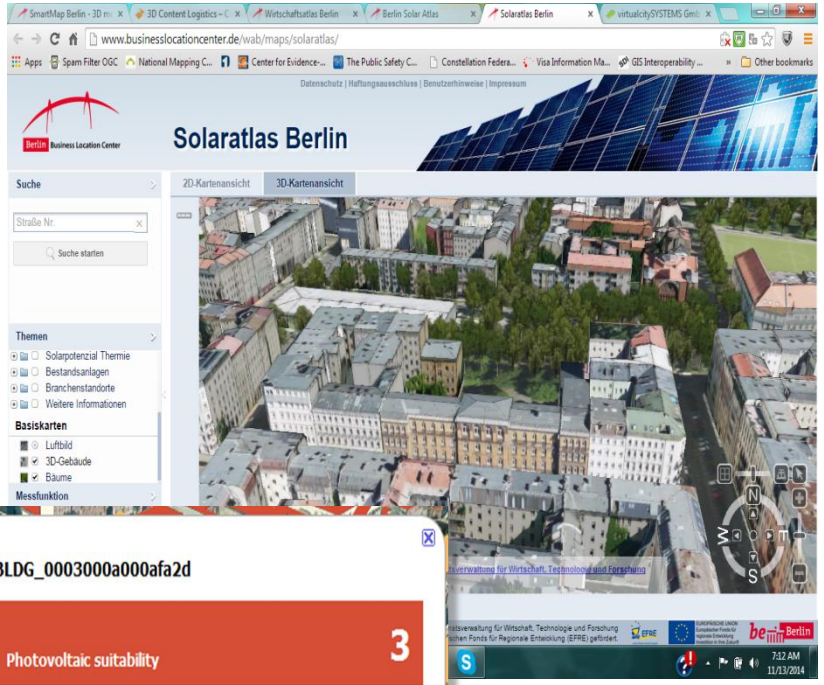
24 zoom levels

Single File Sqlite Database

containing all data for direct-use on mobile platforms & handheld devices

OGC CityGML Standard: Solar Energy Production Potential Analysis

- Solar power potential and CO2 offset potential computed for the 550,000 buildings in the Berlin 3D city model.
- City Model is based on OGC CityGML Standard



Berlin Business Location Center

http://www.businesslocationcenter.de/solarpotential

Singapore 3D City Model

Built upon the existing survey infrastructure and mapping expertise in SLA. Four major phases:

- Capture 3D Data – airborne and land-based Photogrammetry and Laser Scanning (LiDAR- Light Detection and Ranging) survey
- Create 3D Data Models – CityGML exchange format
- Establish Standards and Database – CityGML Schema
- Update Changes

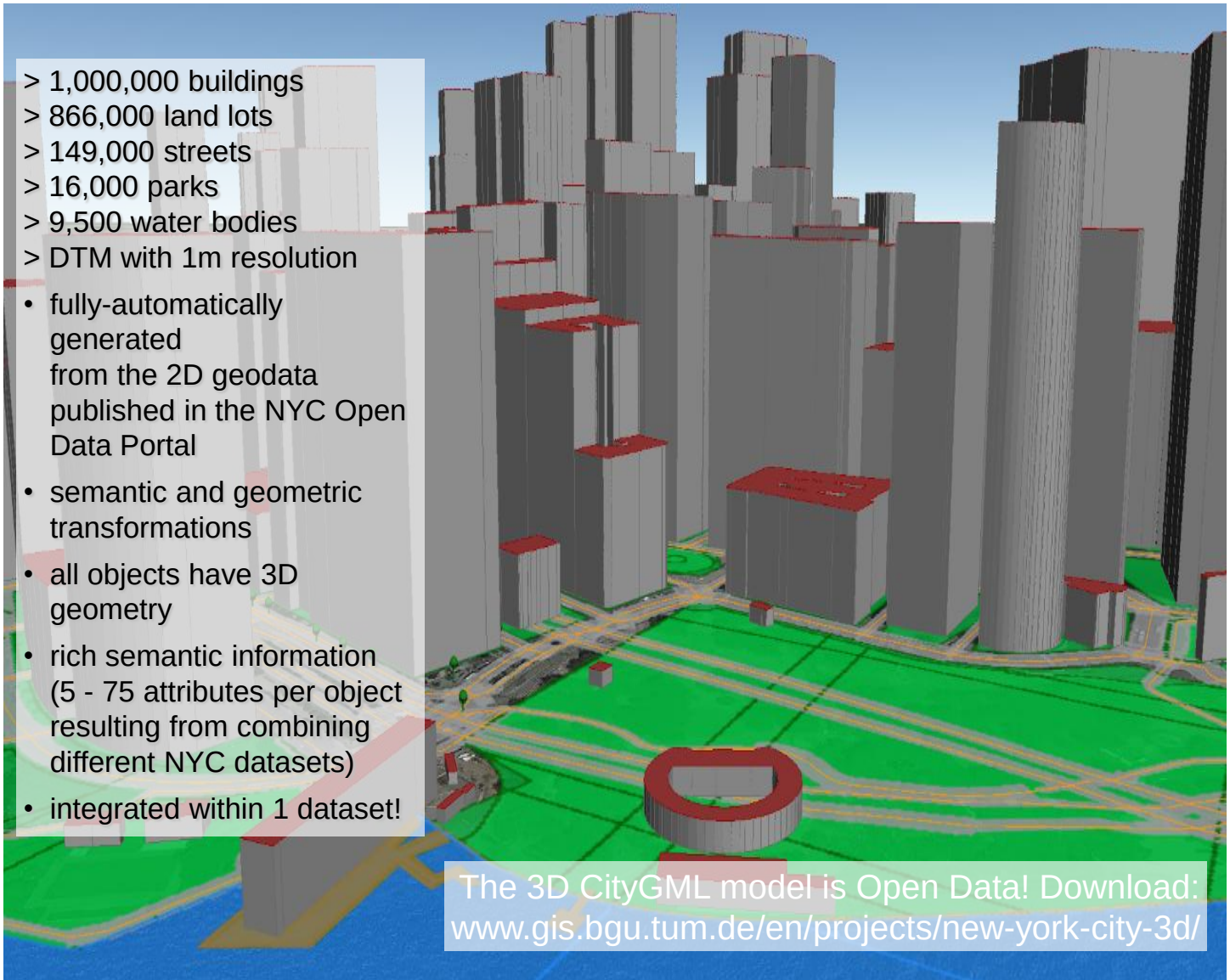
In order to support “smart” 3D applications, the 3D models are created and stored in an international open standard with intelligent data model known as the CityGML format.

Mr. Tan Boon Khai (center), Chief Executive, Singapore Land Authority receiving the

https://www.geospatialworld.net/news-posts/3d-mapping-singapore-geospatial-award/

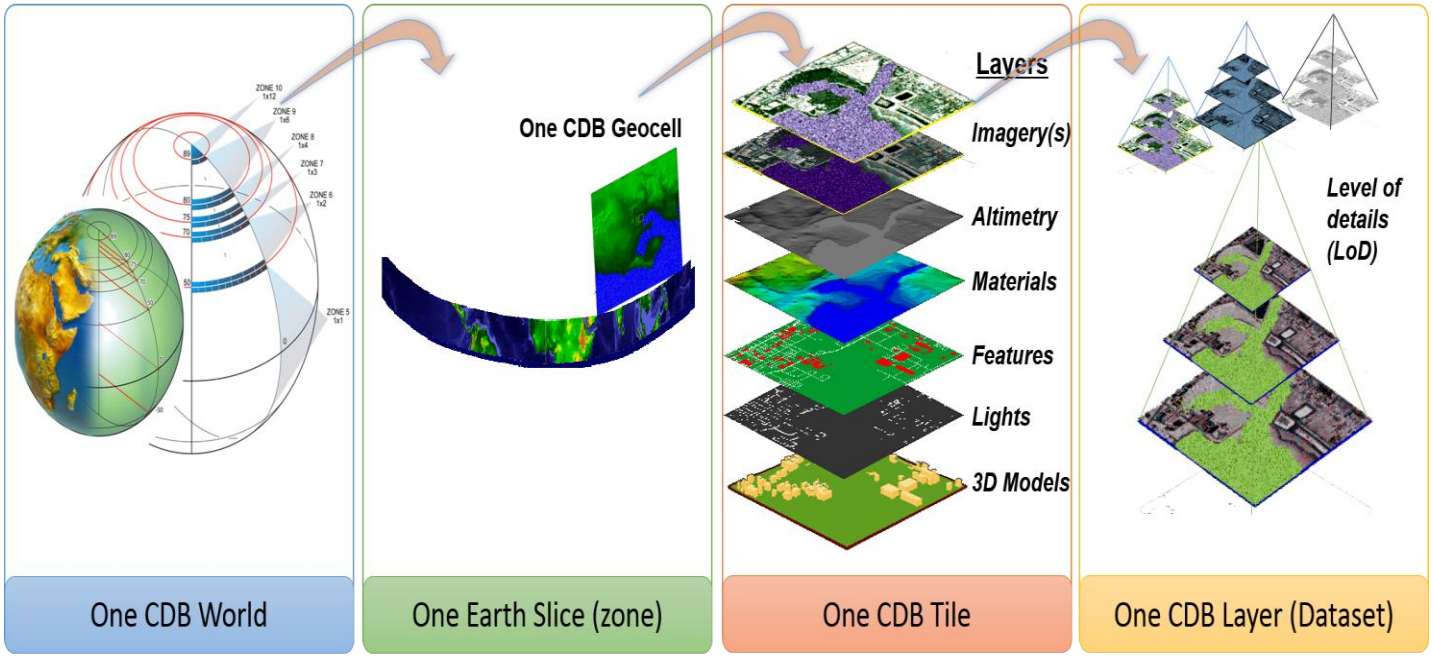
New York City 3D Model

Built from Available Open NYC Data



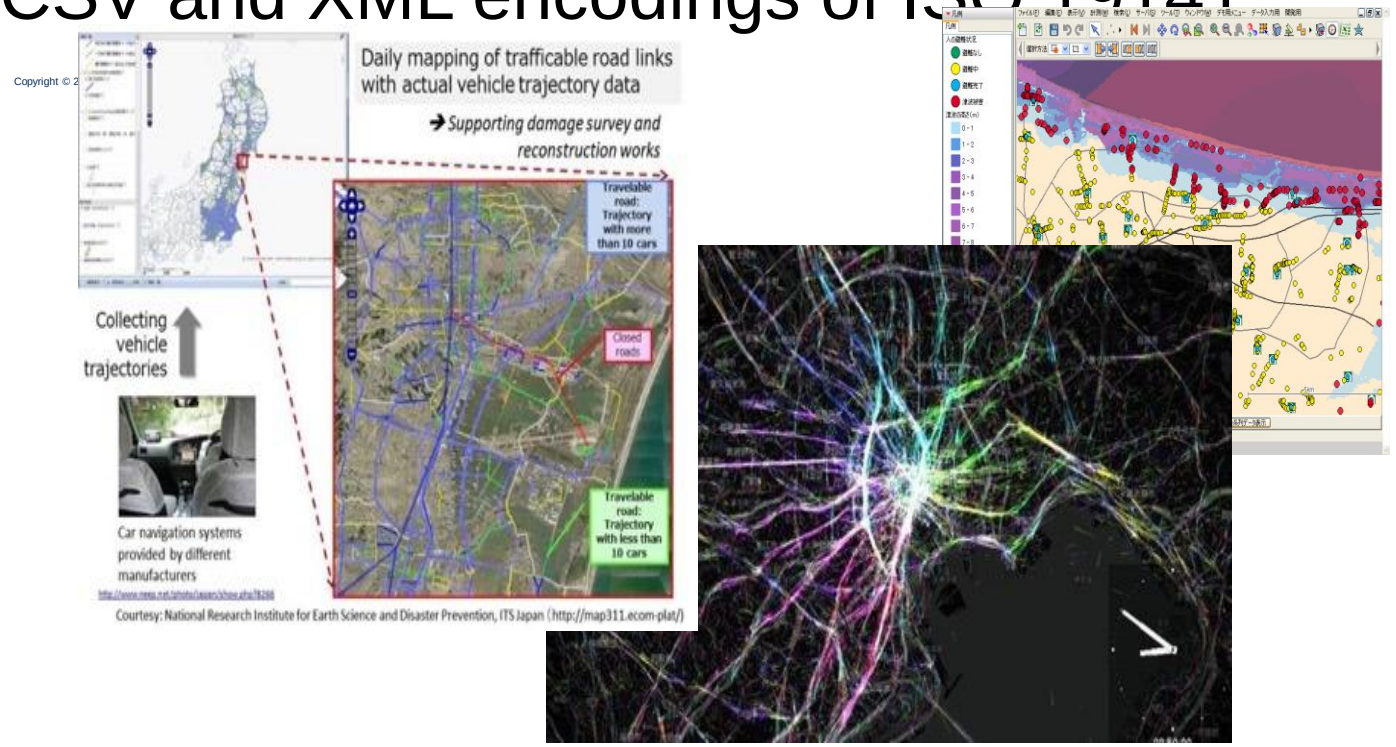
CDB

- The CDB standard relies on three important means to organize the data:
  - Tiles – organization of data by location
  - Layers – organization of data by type
  - Levels of Detail (LOD) – organization of data by detail
- Tile size and location are specified by CDB
- The amount of data per LOD is specified by CDB
- The data layers are specified by CDB (can be extended)



OGC Moving Features Encoding Standard

- "Moving features" data describes such things as vehicles, pedestrians, airplanes and ships.
  - This is Big Data – high volume, high velocity
- CSV and XML encodings of ISO 19141



Open Geospatial Consortium

Domain-specific encodings

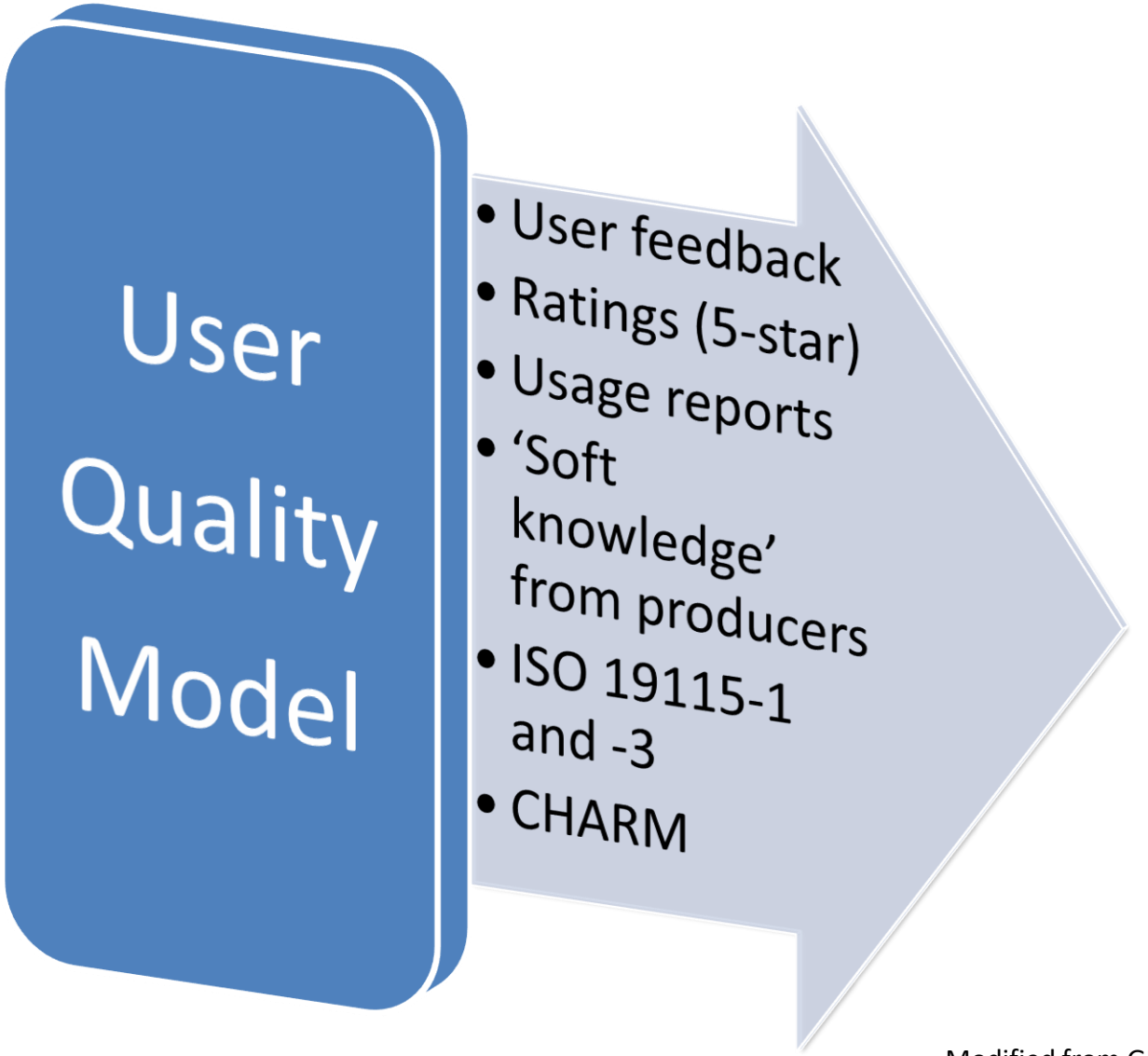
- WaterML Parts: including ground water and hydrologic features
- GeoSciML

Improving Data

Geospatial User Feedback for data

Courtesy GUF SWG, Joan Mas

Capture of quality and usefulness

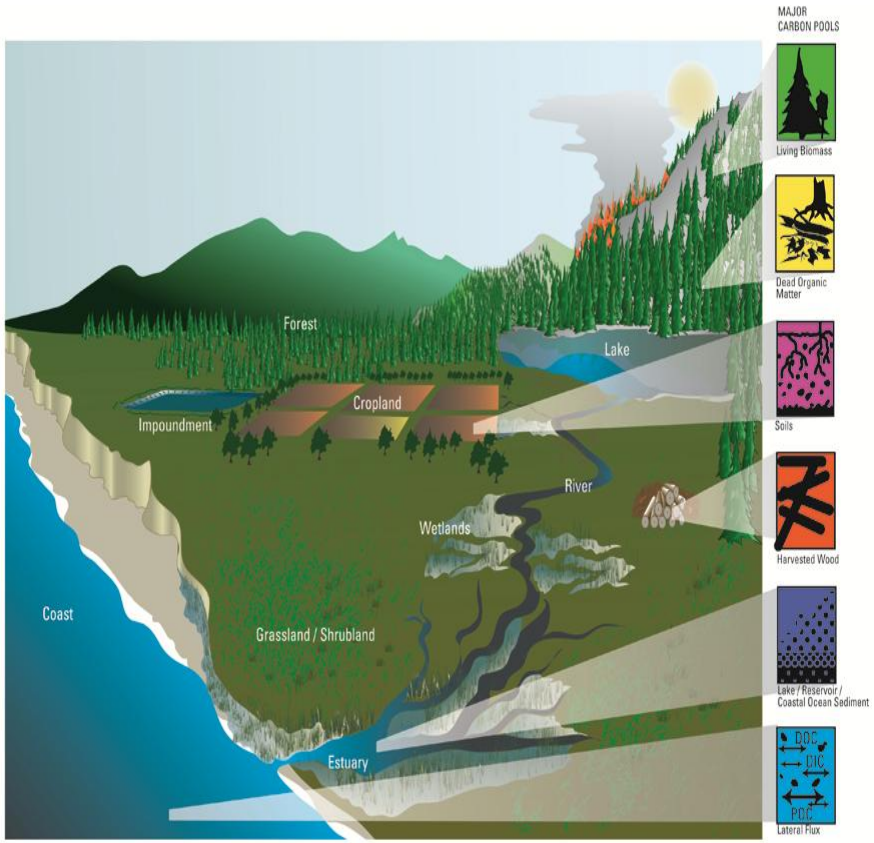


Modified from GUF SWG, Joan Masó

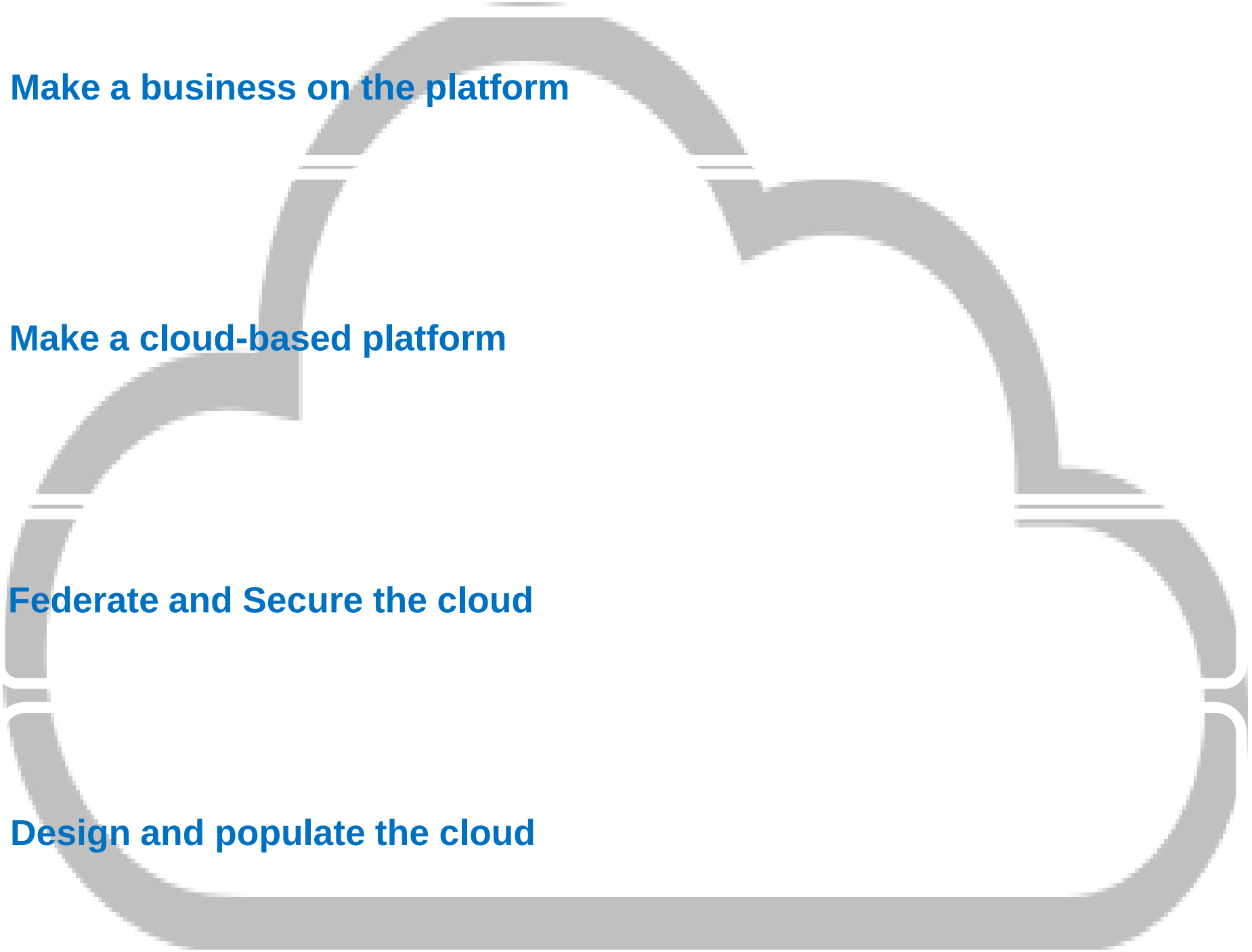
Cloud-native: it’s more than formats

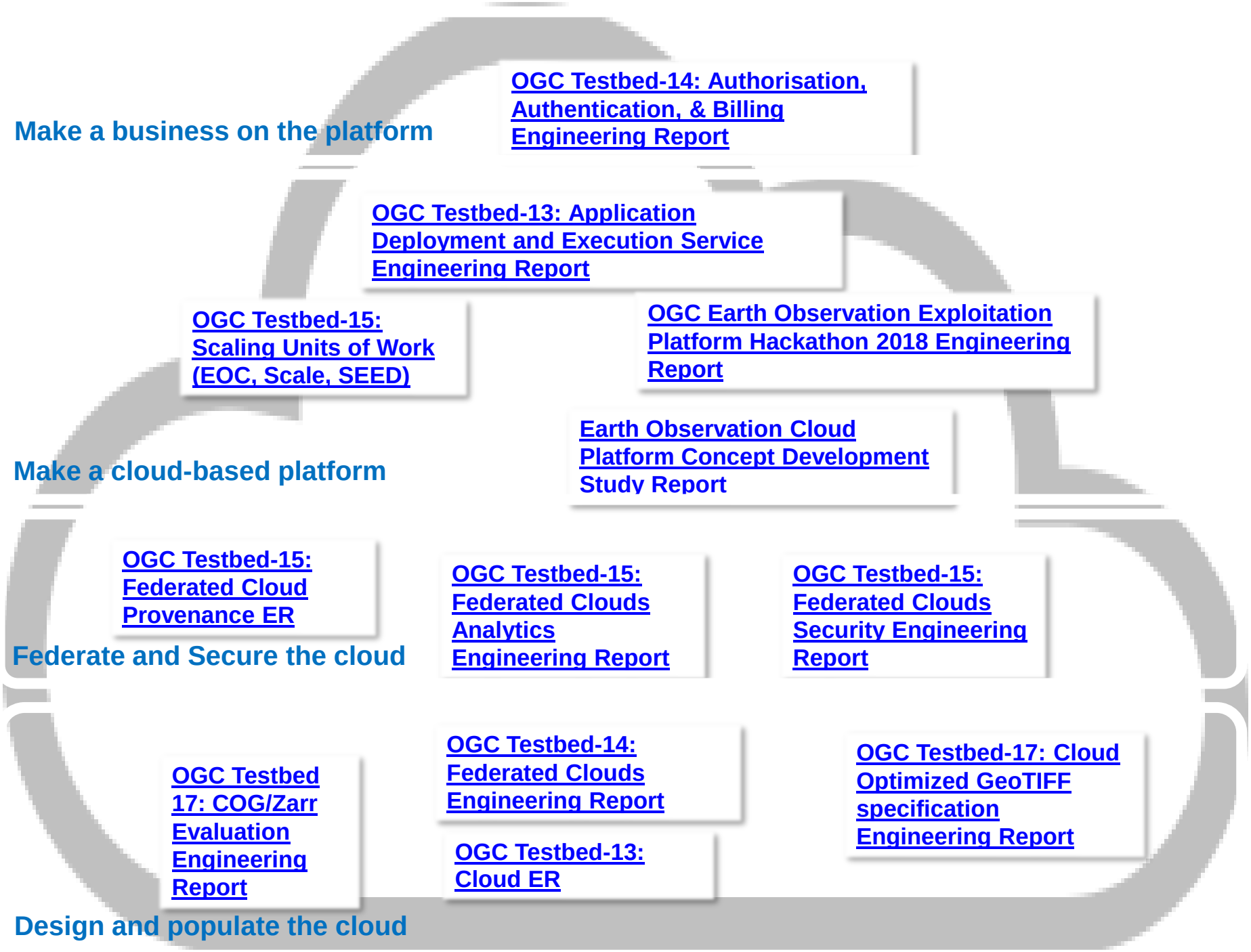
Ease of access is the focus

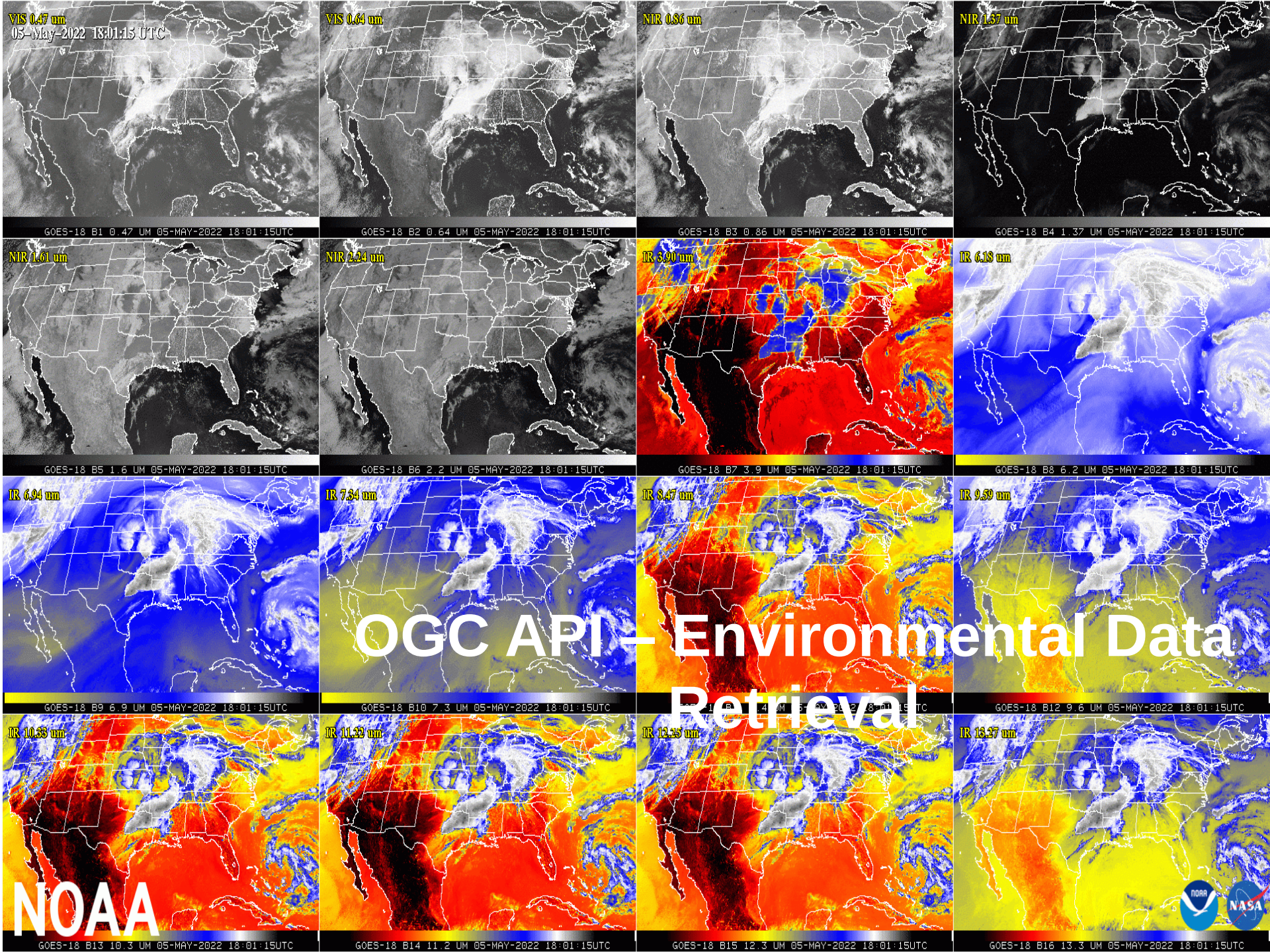
- …but there is an entire ecosystem to consider



usgs.gov


Make a business on the platform
Make a cloud-based platform
Federate and Secure the cloud
Design and populate the cloud


Make a business on the platform
OGC Testbed-14: Authorisation, Authentication, & Billing Engineering Report
OGC Testbed-13: Application Deployment and Execution Service Engineering Report
OGC Testbed-15: Scaling Units of Work (EOC, Scale, SEED)
OGC Earth Observation Exploitation Platform Hackathon 2018 Engineering Report
Make a cloud-based platform
Earth Observation Cloud Platform Concept Development Study Report
OGC Testbed-15: Federated Cloud Provenance ER
OGC Testbed-15: Federated Clouds Analytics Engineering Report
OGC Testbed-15: Federated Clouds Security Engineering Report
Federate and Secure the cloud
OGC Testbed 17: COG/Zarr Evaluation Engineering Report
OGC Testbed-14: Federated Clouds Engineering Report
OGC Testbed-13: Cloud ER
OGC Testbed-17: Cloud Optimized GeoTIFF specification Engineering Report
Design and populate the cloud


VIS 0.47 um
05-May-2022 18:01:15 UTC
GOES-18 B1 0.47 UM 05-MAY-2022 18:01:15UTC
VIS 0.64 um
GOES-18 B2 0.64 UM 05-MAY-2022 18:01:15UTC
NIR 0.86 um
GOES-18 B3 0.86 UM 05-MAY-2022 18:01:15UTC
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GOES-18 B4 1.37 UM 05-MAY-2022 18:01:15UTC
NIR 1.61 um
GOES-18 B5 1.6 UM 05-MAY-2022 18:01:15UTC
NIR 2.24 um
GOES-18 B6 2.2 UM 05-MAY-2022 18:01:15UTC
IR 3.90 um
GOES-18 B7 3.9 UM 05-MAY-2022 18:01:15UTC
IR 6.18 um
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IR 9.59 um
GOES-18 B12 9.6 UM 05-MAY-2022 18:01:15UTC
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GOES-18 B13 10.3 UM 05-MAY-2022 18:01:15UTC
IR 11.22 um
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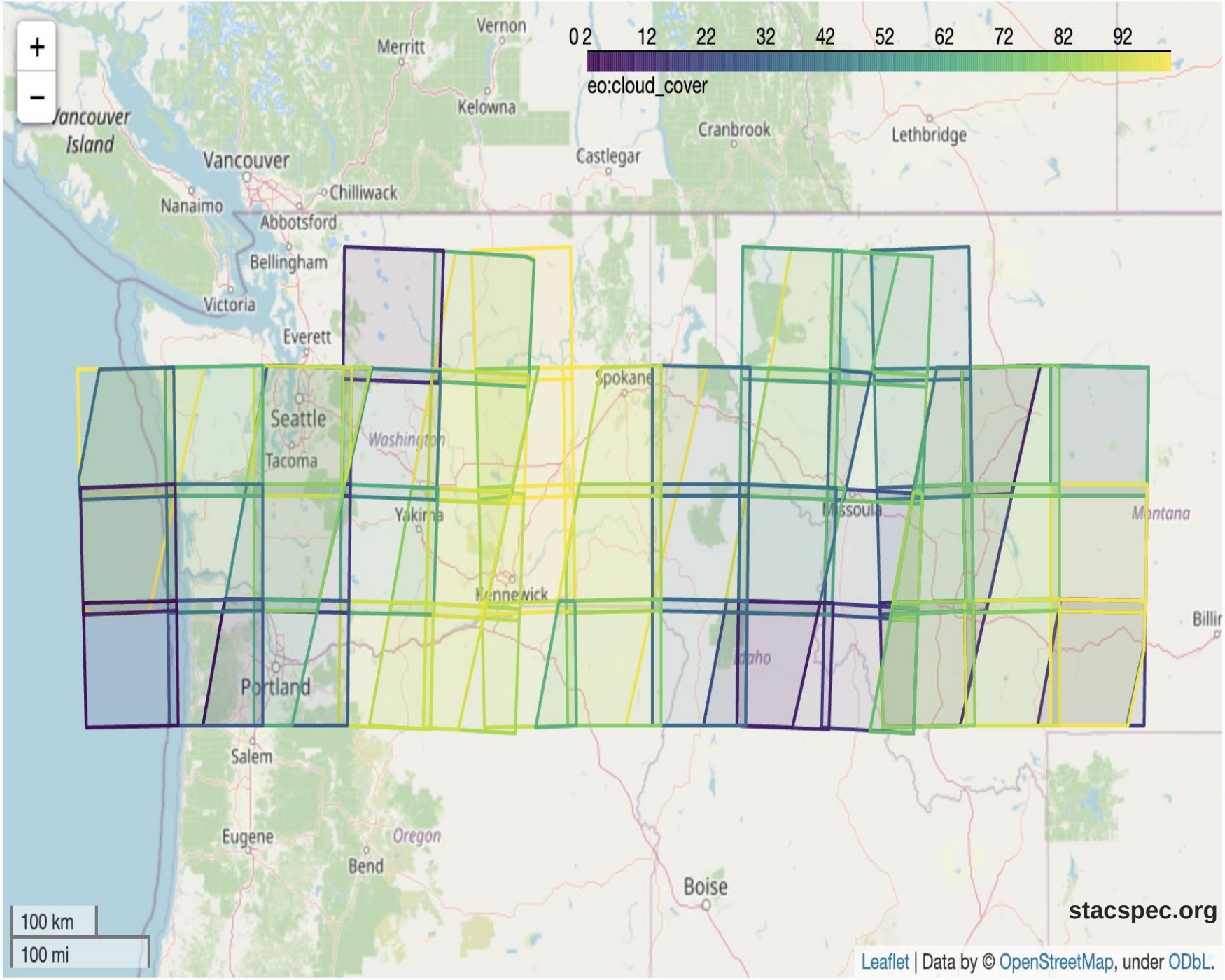
IR 12.25 um
GOES-18 B15 12.3 UM 05-MAY-2022 18:01:15UTC
IR 13.27 um
GOES-18 B16 13.3 UM 05-MAY-2022 18:01:15UTC
OGC API – Environmental Data Retrieval
NOAA

- Built on OGC API – Features Standard
- Deep collaboration with OGC API community since 2018 (and influenced OGC API – Features)
- Coordination with OGC API – Records

- API Proposed for OGC Community Standard in near future


0 2 12 22 32 42 52 62 72 82 92
eo:cloud_cover
Vernon
Merritt
Kelowna
Cranbrook
Lethbridge
Castlegar
Vancouver Island
Vancouver
Chilliwack
Nanaimo
Abbotsford
Bellingham
Victoria
Everett
Spokane
Seattle
Tacoma
Washington
Yakima
Missoula
Montana
Kennewick
Idaho
Portland
Salem
Eugene
Oregon
Bend
Boise
100 km
100 mi
stacspec.org
Leaflet | Data by © OpenStreetMap, under ODbL.

But formats are important

- OGC Community Standard

CMIP6 Google Cloud Public Dataset

Zarr in Action

- Climate Model Intercomparison Project: latest climate model projections from modeling centers around the world
- Pangeo project worked with Google Cloud to mirror data from ESGF
- Zarr was chosen as format because of its interoperability with cloud object storage
- 600 TB and growing

DATA ANALYTICS

New climate model data now in Google Public Datasets

Shane Glass
Program Manager, Google Cloud Public Dataset Program

December 9, 2019

Exploring public datasets is an important aspect of modern data analytics, and all this gathered data can help us understand our world. At Google Cloud, we maintain a collection of public datasets, and we're pleased to collaborate with the Lamont-Doherty Earth Observatory (LDEO) of Columbia University and the Pangeo Project to host the latest climate simulation data in the cloud.

https://cloud.google.com/blog/products/data-analytics/new-climate-model-data-now-google-public-datasets

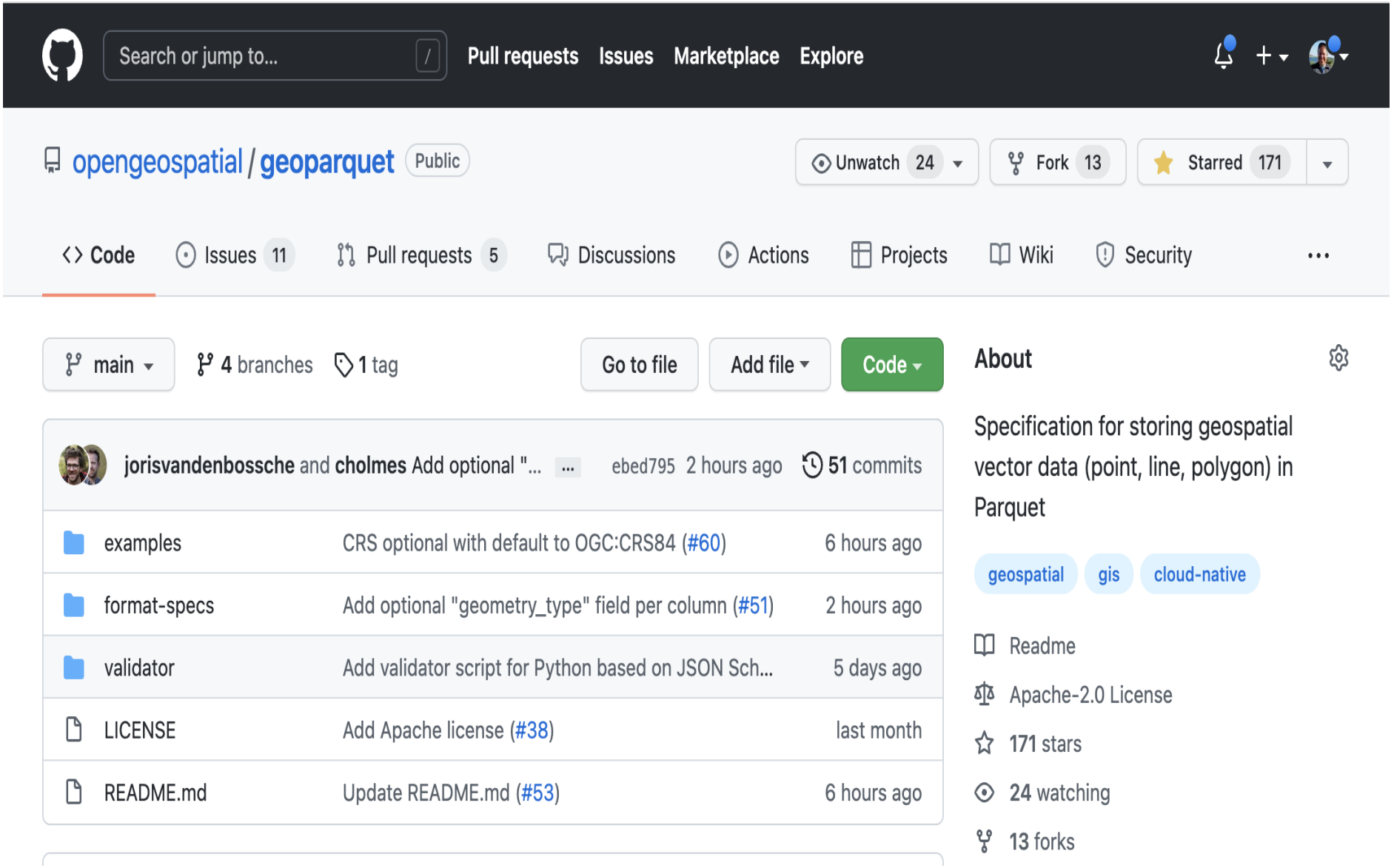
- Draft specification developed under Testbed 17 in 2021
  - https://docs.ogc.org/per/21-025.html
- Current work in GeoTIFF Standards Working Group (SWG) on candidate Standard is in Github
  - https://github.com/opengeospatial/CloudOptimizedGeoTIFF

TECHNICAL ANNOUNCEMENT

Digital Elevation Model Changes

By **Communications and Publishing** October 23, 2019

In support of ongoing efforts to provide efficient, cloud ready, open data formats, the U.S. Geological Survey National Geospatial Program is announcing plans to migrate its 3D Elevation Program (3DEP) Digital Elevation Models (DEM) to a new data delivery format called Cloud Optimized Geotiff (COG) during the first half of fiscal year 2020.


Search or jump to...
Pull requests
Issues
Marketplace
Explore
opengeospatial / geoparquet
Public
Unwatch 24
Fork 13
Starred 171
Code
Issues 11
Pull requests 5
Discussions
Actions
Projects
Wiki
Security
main
4 branches
1 tag
Go to file
Add file
Code
jorisvandenbossche and cholmes Add optional "...
ebed795 2 hours ago
51 commits
examples
CRS optional with default to OGC:CRS84 (#60)
6 hours ago
format-specs
Add optional "geometry_type" field per column (#51)
2 hours ago
validator
Add validator script for Python based on JSON Sch...
5 days ago
LICENSE
Add Apache license (#38)
last month
README.md
Update README.md (#53)
6 hours ago
About
Specification for storing geospatial vector data (point, line, polygon) in Parquet
geospatial
gis
cloud-native
Readme
Apache-2.0 License
171 stars
24 watching
13 forks

https://www.ogc.org/roadmap

OGC STANDARDS ROADMAP

Progress of Official OGC Standards OGC & Community Standards Community 2022-11-21

Show Previously Completed Standards

Proposed Standards

	SWG Work / Work Item	OAB Review	OGC-NA Review	Public Review	Prepare for Approval	TC Approval to Vote	TC Vote	PC Vote	Public Release		
Community 3D Tiles 1.1	✓		✓28d	?118d	✓59d	✓13d	✓	?46d			
OGC Abstract Spec Topic 20 - Observations, Measurements and Samples 20-082	✓48d		✓49d	✓7d	✓32d	✓326d	✓	✓71d	✓16d	?259d	
OGC Abstract Spec Topic 6 - Schema for coverage geometry and functions	?878d										
OGC CDB 2.0	?1502d										
OGC CityGML 3.0 GML Encoding	✓91d		✓	?90d	✓66d	?24d					
OGC Cloud Optimized GeoTIFF 21-026	✓		✓42d	?132d	✓67d	?65d					
OGC Common Object Model Container SWG	?1498d										
OGC Coverage Implementation Schema - ReferenceableGridCoverage Extension 1.1 16-083r6	✓94d		✓39d	✓63d	✓155d	✓58d	✓14d	✓135d	✓15d	?436d	
Community CoverageJSON	✓71d		✓29d	?132d	✓60d	✓26d	✓	?46d			
OGC Encoding Linked Data Graphs in NetCDF Files 19-002	✓10d		✓14d	✓24d	✓66d	?150d					
OGC GeoAPI 09-083r4	?1098d										
OGC GeoPackage Conceptual and Logical Model 21-053	✓252d		✓27d	✓225d	✓335d	✓66d	✓	?46d			
OGC GeoPackage WKT for Coordinate Reference Systems Extension 1.1 21-057	✓219d		✓35d	✓	✓234d	✓13d	✓	✓50d	✓15d	✓55d	
OGC GeoPose	✓251d		✓33d	✓13d	✓46d	✓76d	✓14d	✓58d	✓68d	?157d	
OGC GeoSPARQL 1.1	✓		✓14d	?76d	?76d						
Community Indexed 3D Scene Layers (I3S) 1.3	✓		✓14d	?104d	✓40d	✓18d	✓	?46d			
OGC OGC API - Common - Part 1: Core 19-072	✓3d		✓32d	?112d	✓74d	✓541d	✓	✓49d	✓86d	?292d	
OGC OGC API - Common - Part 2: Geospatial Data 20-024	✓191d		✓20d	✓182d	✓71d	?320d					
OGC OGC API - Coverages	?928d										
OGC OGC API - Features - Part 3: Filtering and the Common Query Language (CQL) 19-079	✓167d		✓20d	?678d	✓97d	?581d					

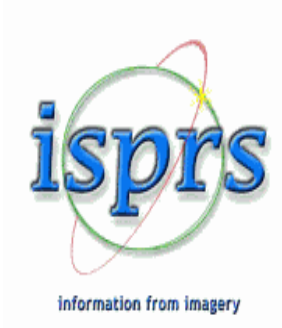
OGC OGC API - Features - Part 4: Create, Replace, Update and Delete 20-002	?865d								
OGC OGC API - Features - Part 5: OpenAPI 3.1	?865d								
OGC OGC API - Maps	?928d								
OGC OGC API - Records	?928d								
OGC OGC API - Routes - Part 1: Core 21-000	✓60d	✓14d	✓57d	✓68d	?198d				
OGC OGC API - Styles	?928d								
OGC OGC API - Tiles - Part 1: Core 1 new 20-057	✓647d	✓15d	✓47d	✓60d	✓48d	✓	✓71d	✓17d	✓59d
OGC Route Exchange Model 21-001	✓60d	✓14d	✓57d	✓68d	?198d				
OGC Simple Features 2021 21-011	✓372d	✓70d	✓302d	✓72d	✓25d	✓	✓47d	✓18d	?362d
OGC TimeseriesML 1.3 15-042r6	✓27d	✓28d	✓13d	✓80d	✓231d	✓14d	✓51d	✓17d	?664d
OGC Two Dimensional Tile Matrix Set and Tile Set Metadata 17-083r4	✓230d	✓18d	✓212d	✓81d	✓7d	✓	✓72d	✓15d	✓186d
Community Zarr	✓49d	✓25d	✓157d	✓94d	✓260d	✓14d	✓50d	✓1d	✓13d

Part 3: The Standards universe
beyond OGC

Part 3. The Standards Universe

- OGC's Alliance Partner program
- Overview of the Defense Geospatial Information Working Group (DGIWG)
- Overview of various ISO committees
- Overview of the International Hydrographic Organization (IHO)

Sample of OGC Alliance Partners



Overview of the Defence Geospatial Information Working Group (DGIWG)

- DGIWG develops and maintains a suite of digital geospatial information (DGI) standards that foster the interchange, access and use of geographic information between the defence organizations of member nations.

ISO

- TC 211 – Geography and Geomatics
- TC 204 – Intelligent Transport Syste
- TC 59 SC 13 - Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM)
- TC 20 SC 16 – Unmanned Aircraft Systems
- … and several more

International Hydrographic Organization (IHO)

- IHO is an intergovernmental organization that works to ensure all the world's seas, oceans and navigable waters are surveyed and charted.
- Established in 1921, it coordinates the activities of national hydrographic offices and promotes uniformity in nautical charts and documents.
- It issues survey best practices

Part 4: Deploying standardized solutions

Part 4: Deploying standardized solutions

- OGC Compliance and Interoperability Testing Environment (CITE)
- OGC Definitions Server
- Developer guidance
- Architectural guidance
- Test, test, test

OGC Compliance Testing

- Requirements
- Conformance Classes
- Abstract Test Suites
- Executable Test Suites

OGC Compliance Testing Resources

- Executable Test Suites
- TEAM Engine
- http://cite.opengeospatial teamengine

Specification	Version	Test Suite Revision	Status
Catalogue Service - Web (CSW)	2.0.2	1.16	Final
Catalogue Service - Web (CSW)	3.0.0	1.0	Final
GeoPackage	1.0	1.0	Final
Geography Markup Language (GML)	3.2.1	1.25	Final
OGC KML	2.2	1.12	Final
Sensor Observation Service (SOS)	1.0.0	1.13	Final
Sensor Observation Service (SOS)	2.0	1.12	Final
Sensor Planning Service (SPS)	1.0	1.7	Final
Sensor Planning Service (SPS)	2.0	1.10	Final
SensorThings API	1.0	1.0	Final
Simple Feature Access - SQL (SFS)	1.1	1.6	Final
Simple Feature Access - SQL (SFS)	1.2.1	1.4	Final
Web Coverage Service (WCS)	1.0.0	1.11	Final
Web Coverage Service (WCS)	1.1.1	1.10	Final
Web Coverage Service (WCS)	2.0.1	1.12	Final
Web Feature Service (WFS)	1.0.0	1.11	Final
Web Feature Service (WFS)	1.1.0	1.29	Final
Web Feature Service (WFS)	2.0	1.26	Final
Web Map Service (WMS)	1.1.1	1.14	Final
Web Map Service (WMS)	1.3.0	1.19	Final
Web Map Service (WMS) - Client	1.3.0	1.2	Final
Web Map Tile Service (WMTS)	1.0.0	1.0	Final

List of Certified and Implementing Products

Open Geospatial Consortium

ABOUT ▾ MEMBERSHIP ▾ STANDARDS & RESOURCES ▾ INNOVATION ▾ NEWS & EVENTS ▾

Implementation Statistics

Historically, there have been:

7677 Product Specification Implementations

2096 Compliant Product Specification Implementations

The table provides a summary of implementing and historically compliant products. Click on a Specification to view currently associated registered products. You can also click the column headers to sort the table.

Visit the compliance page and fill out the form to contact the OGC staff for further information about the Compliance program.

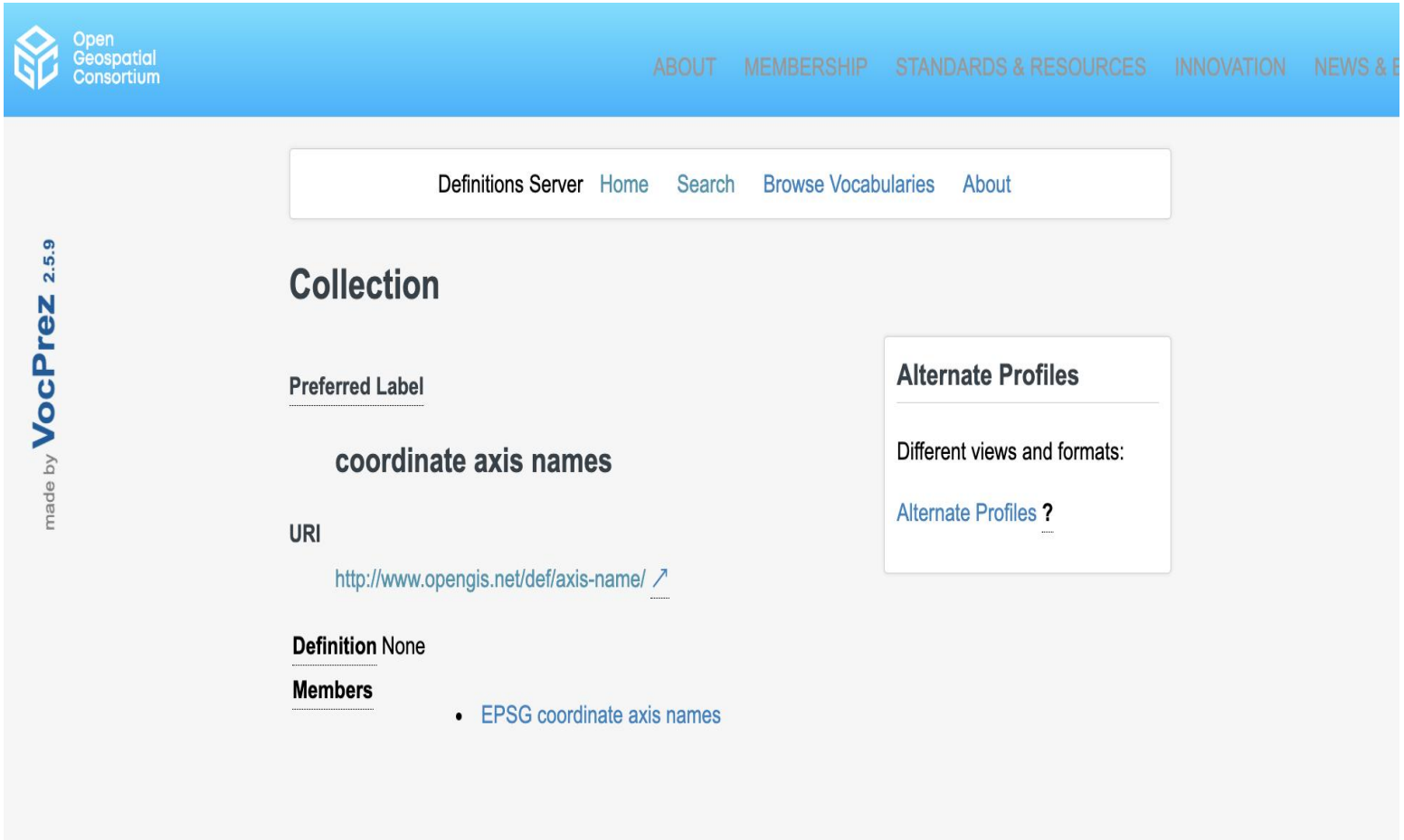
Join the OGC

Total = # of implementations. **Comp** = # of OGC certified compliant products.

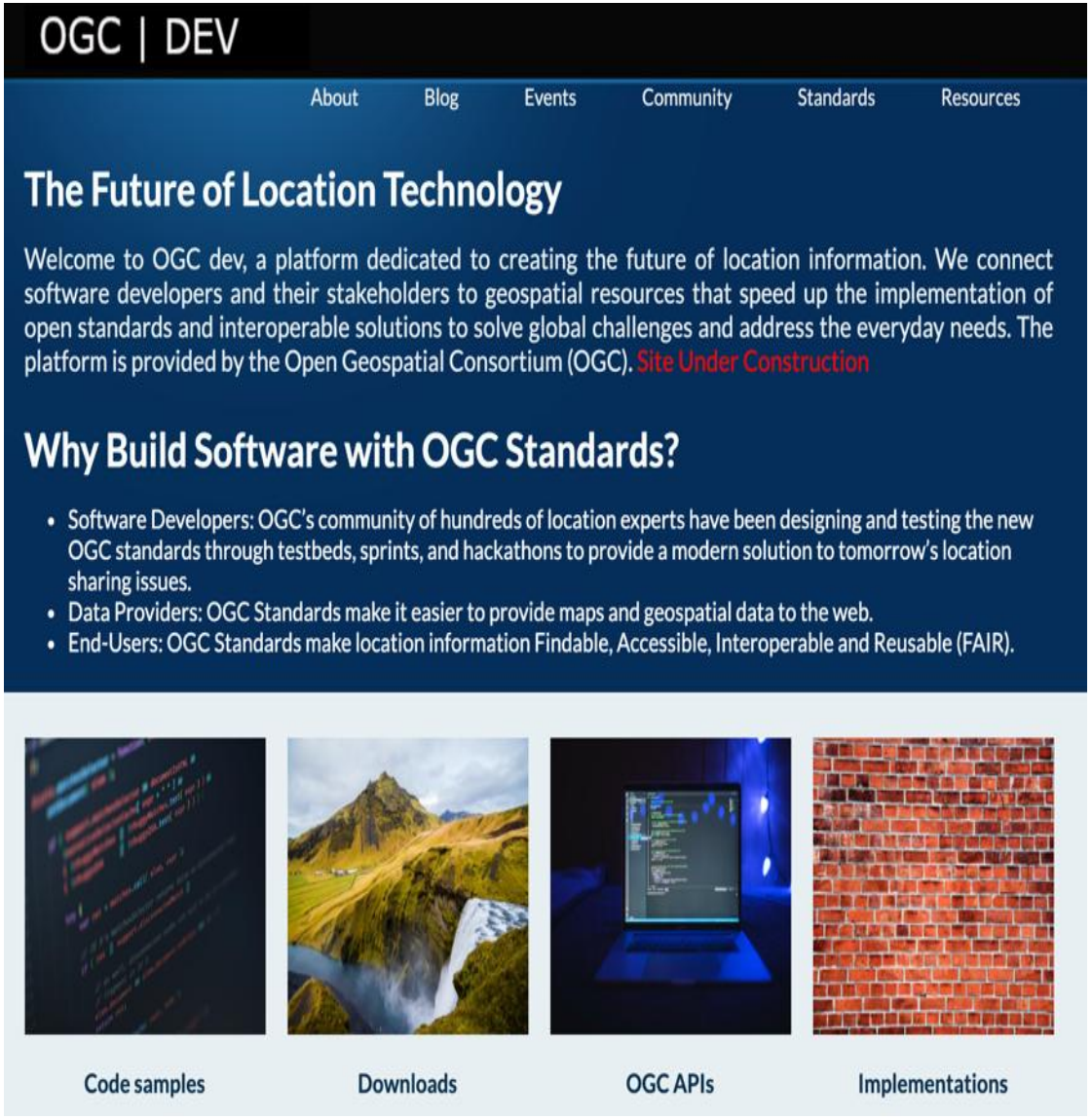
Filter: Specification | Abbreviation

Total	Comp.	Specification	Abbreviation
488	182	Web Map Service (1.1.1)	WMS 1.1.1
399	202	Web Map Service (WMS) Implementation Specification (1.3.0)	WMS 1.3.0
324	130	Web Feature Service (WFS) Implementation Specification (1.1.0)	WFS 1.1.0
317	77	Web Feature Service (1.0.0)	WFS 1.0.0
229	0	Web Map Service (1.0)	WMS 1.0

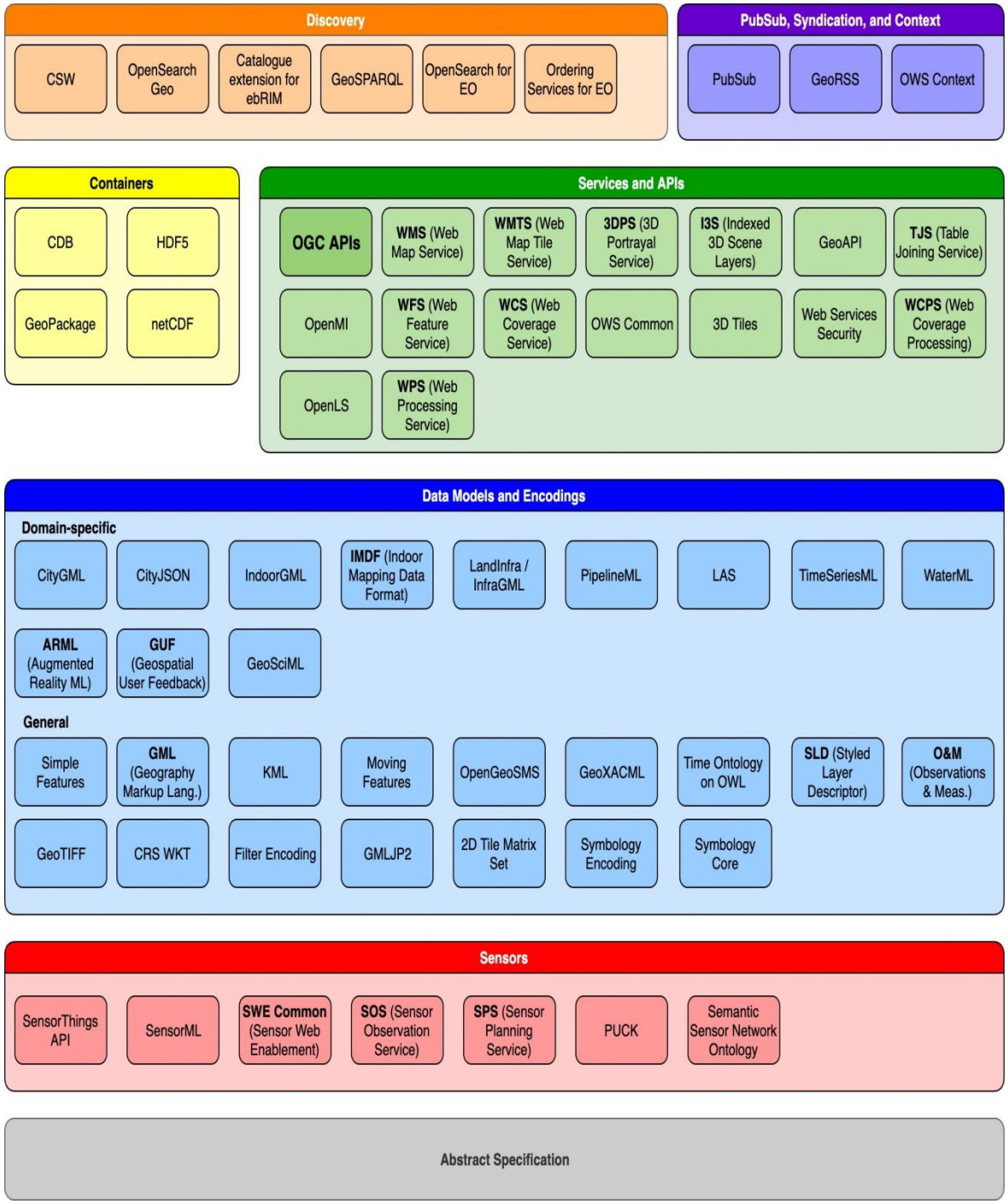
OGC Definitions Server



Developer guidance



Architectural guidance


Discovery
CSW
OpenSearch Geo
Catalogue extension for ebRIM
GeoSPARQL
OpenSearch for EO
Ordering Services for EO
PubSub, Syndication, and Context
PubSub
GeoRSS
OWS Context
Containers
CDB
HDF5
GeoPackage
netCDF
Services and APIs
OGC APIs
WMS (Web Map Service)
WMTS (Web Map Tile Service)
3DPS (3D Portrayal Service)
I3S (Indexed 3D Scene Layers)
GeoAPI
TJS (Table Joining Service)
OpenMI
WFS (Web Feature Service)
WCS (Web Coverage Service)
OWS Common
3D Tiles
Web Services Security
WCPS (Web Coverage Processing)
OpenLS
WPS (Web Processing Service)
Data Models and Encodings
Domain-specific
CityGML
CityJSON
IndoorGML
IMDF (Indoor Mapping Data Format)
LandInfra / InfraGML
PipelineML
LAS
TimeSeriesML
WaterML
ARML (Augmented Reality ML)
GUF (Geospatial User Feedback)
GeoSciML
General
Simple Features
GML (Geography Markup Lang.)
KML
Moving Features
OpenGeoSMS
GeoXACML
Time Ontology on OWL
SLD (Styled Layer Descriptor)
O&M (Observations & Meas.)
GeoTIFF
CRS WKT
Filter Encoding
GMLJP2
2D Tile Matrix Set
Symbology Encoding
Symbology Core
Sensors
SensorThings API
SensorML
SWE Common (Sensor Web Enablement)
SOS (Sensor Observation Service)
SPS (Sensor Planning Service)
PUCK
Semantic Sensor Network Ontology
Abstract Specification

Cut N Clean
Greens
COUNTRY GREEN
Cut N Clean
Greens
COUNTRY GREEN
MANN'S
MANN'S
Club Price
2/4.00

The recipe below makes a small batch. I almost always triple it. I chop the pieces of mango larger if I'm planning on serving this salsa as a salad. If I want to eat it as a dip with tortilla chips I dice the mango much smaller.

Mango Salsa

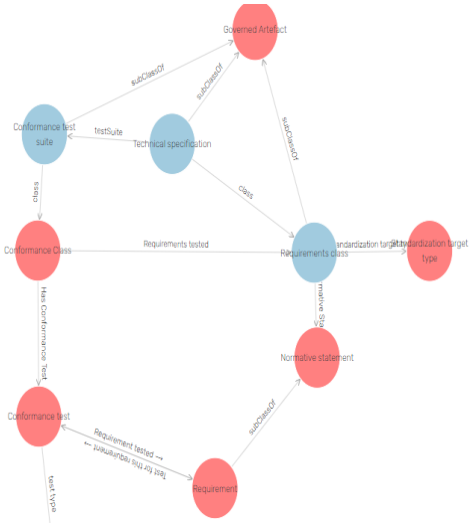
- 1 mango, diced small
- 1/2 large bell pepper, diced small (green, red, orange, whatever color you like)
- 1/4 cup diced red onion, diced small
- 2 T lime juice
- 2 T extra-virgin olive oil
- 1 tsp. ground cumin
- 1/2 tsp. of your favorite hot sauce (or more if you like it hot)
- pinch sea salt
- 2-3 T finely chopped cilantro

Combine the mango, bell pepper, and onion in bowl. Whisk lime juice, olive oil, ground cumin, hot sauce and salt in small bowl and stir into the salsa. Add chopped cilantro and stir until combined.

This is best served fresh, but it'll be just fine a day or two later.

https://rondasimmons.com/

Standard- Core: Corri...
isProfileOf
OGC Web Coverage
Service 2.0 Interface ...
Recommended
XML/GML 3.1.1 encodi...
Recommended
XML/GML 3.1.1 encodi...
isProfileOf
isProfileOf
Uses
Uses
OpenGIS Geography
Markup Language (G...
isProfileOf
Point Profile
isProfileOf
isProfileOf
GML simple features
profile
Level 0 Profile of GML3
for WFS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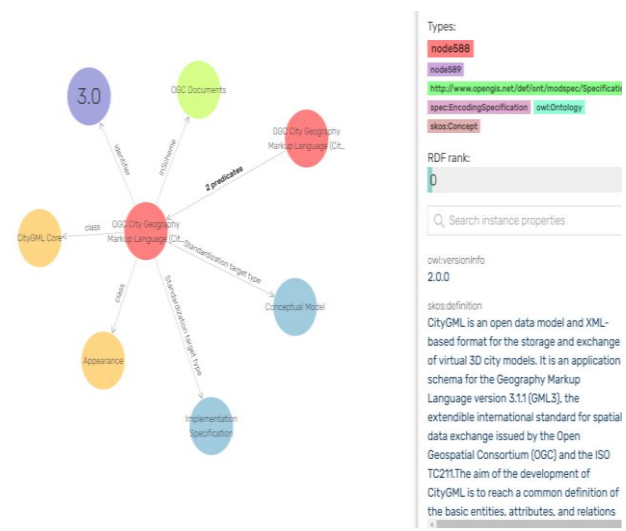
subClassOf
subClassOf
subClassOf
Conformance test
suite
testSuite
Technical specification
class
class
Conformance Class
Requirements tested
Requirements class
standardization target
type
Has Conformance Test
Normative statement
Conformance test
Requirement tested
test for the requirement
Requirement
subClassOf
test type


3.0
OGC Documents
OGC City Geography
Markup Language (Cit...
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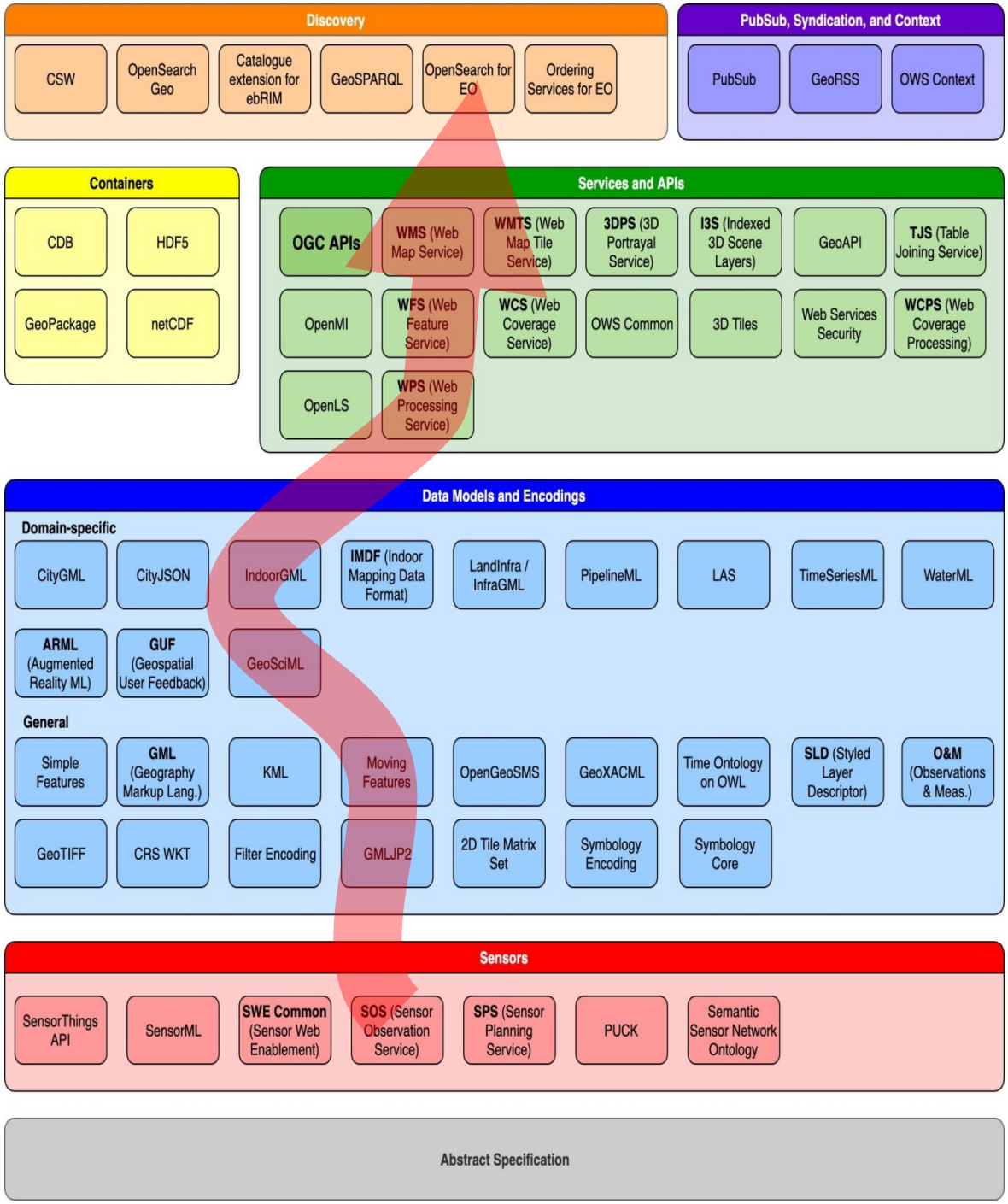
CityGML Core
class
OGC City Geography
Markup Language (Cit...
Standardization target type
Conceptual Model
class
Standardization target type
Appearance
Implementation
Specification
Types:
node588
node589
http://www.opengis.net/def/ont/modspec/Specificati
spec:EncodingSpecification
owl:Ontology
skos:Concept
RDF rank:
0
Search instance properties
owl:versionInfo
2.0.0
skos:definition
CityGML is an open data model and XML-based format for the storage and exchange of virtual 3D city models. It is an application schema for the Geography Markup Language version 3.1.1 (GML3), the extendible international standard for spatial data exchange issued by the Open Geospatial Consortium (OGC) and the ISO TC211.The aim of the development of CityGML is to reach a common definition of the basic entities, attributes, and relations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PipelineML
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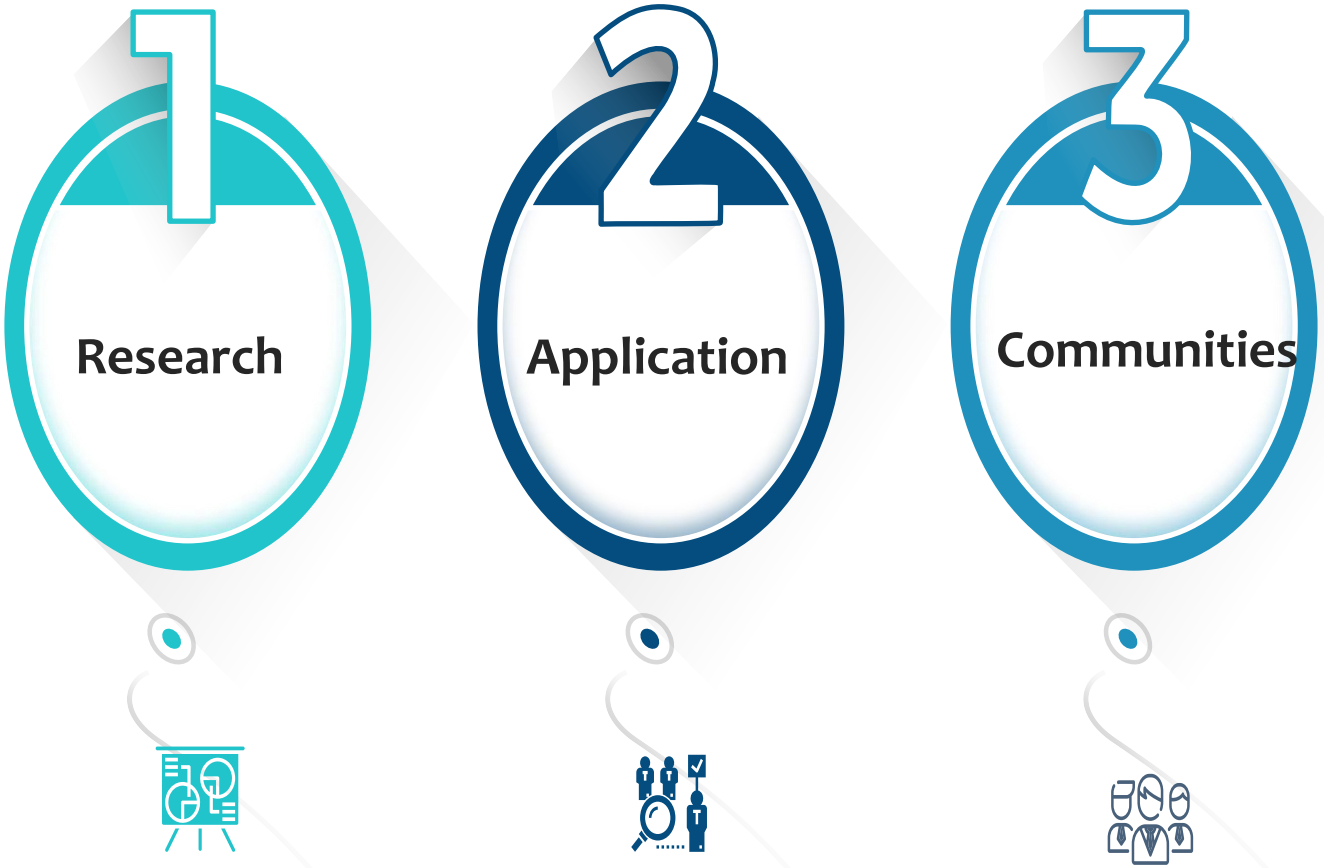
SWE Common (Sensor Web Enablement)
SOS (Sensor Observation Service)
SPS (Sensor Planning Service)
PUCK
Semantic Sensor Network Ontology
Abstract Specification

Test, test, test: COSI

Collaborative Solution and Innovation Projects

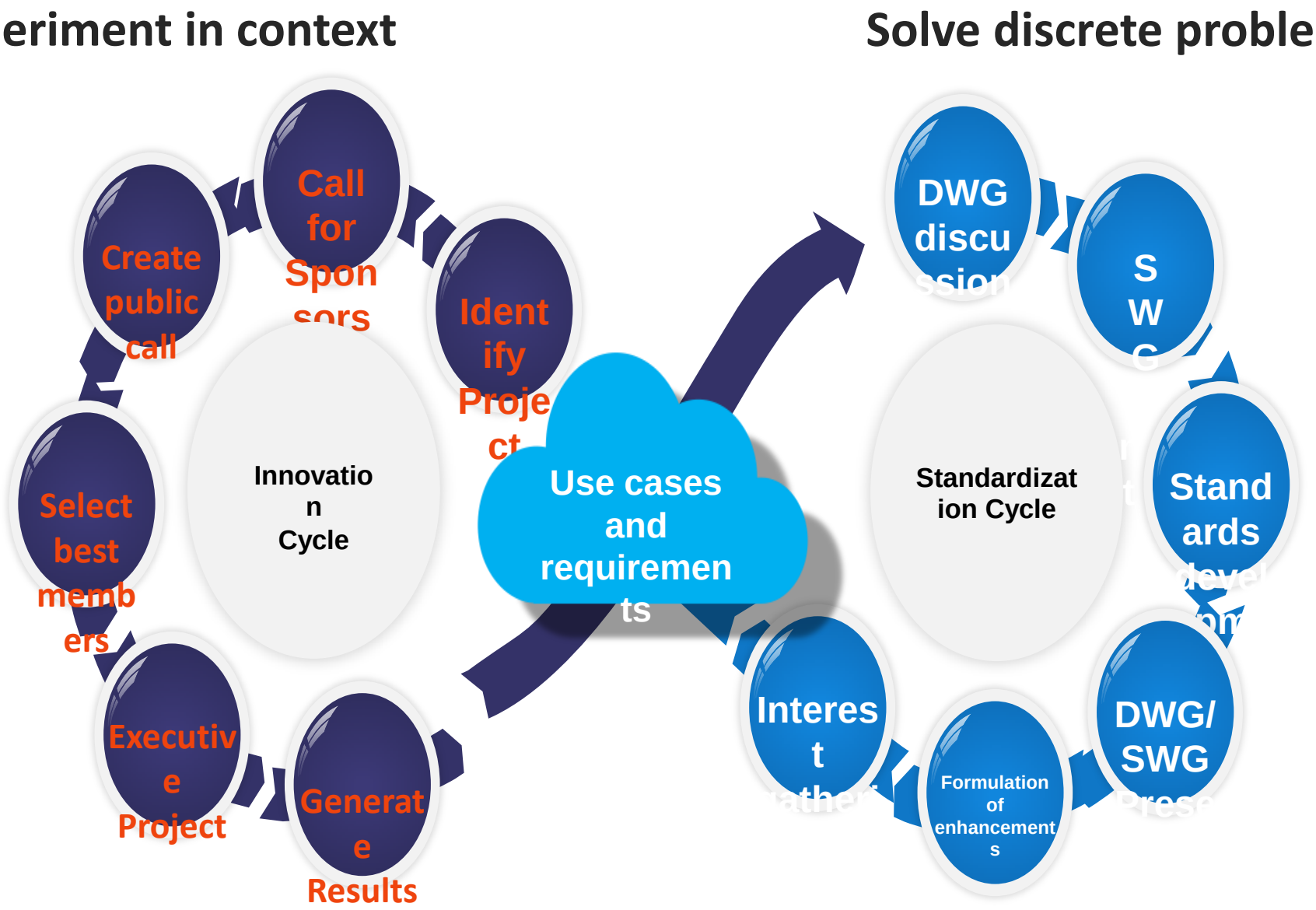


Testbed-18/19
CHEK, ACCORD
USAGE, DEMETER

GeoE3, AD4GD,
CLINT, CLIMOS,
ILIAD, eShape

Marine Pilot
Disaster Pilot
Climate Pilot

OGC Innovation-Standardization continuum



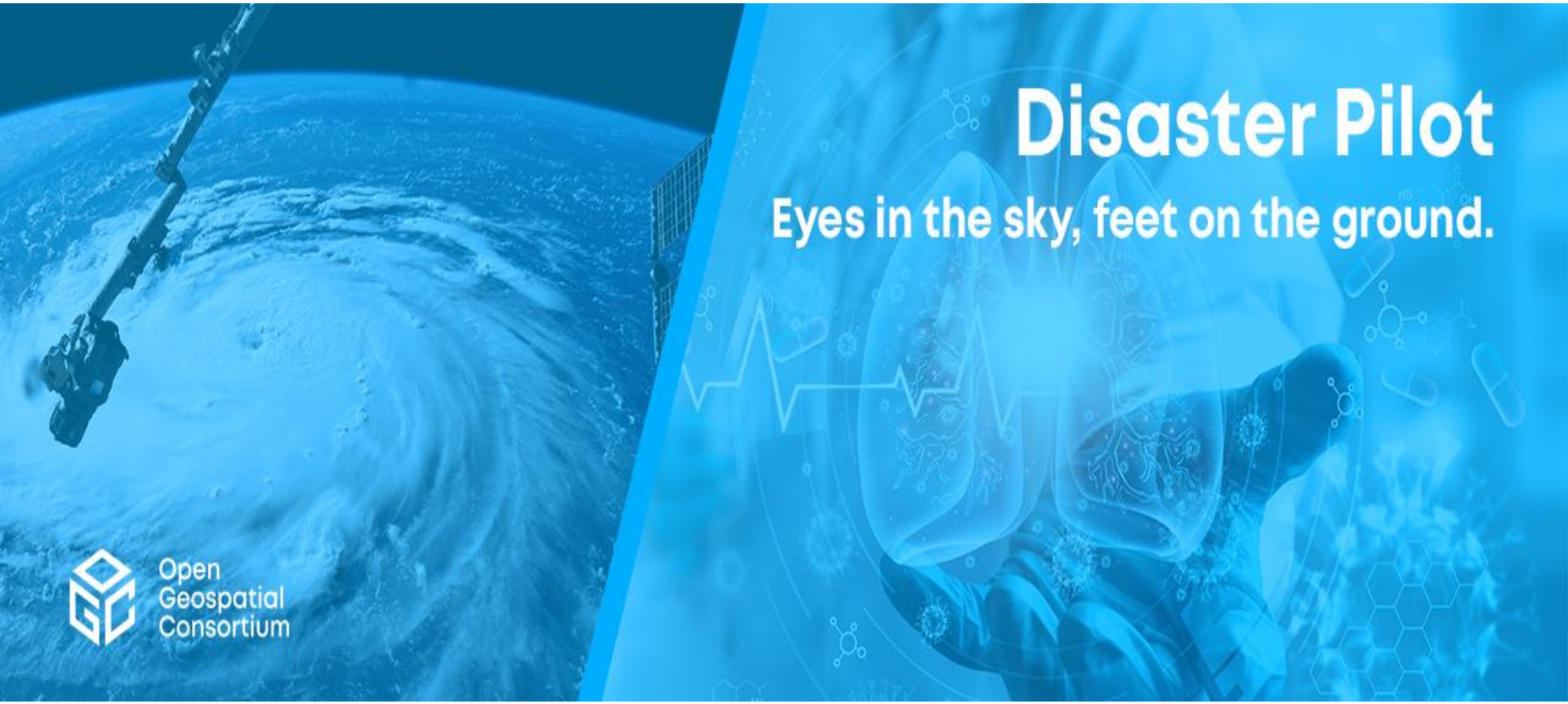
Testbed-18

Developing Location Interoperability.

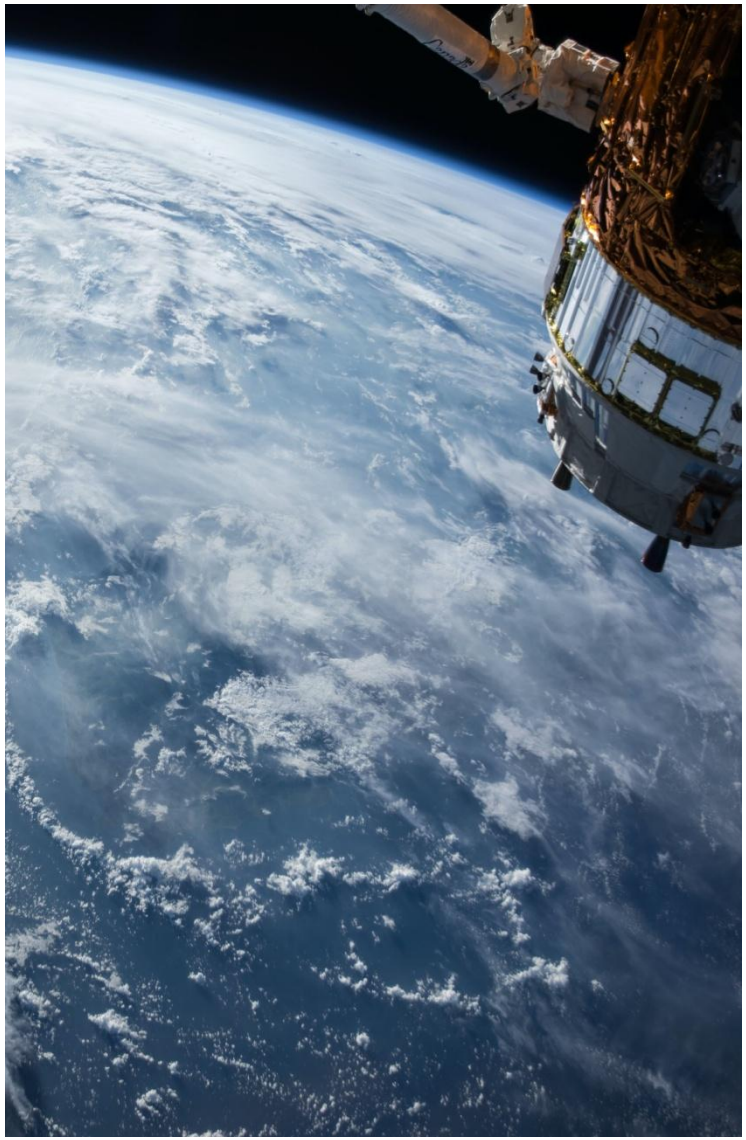
Open Geospatial Consortium

- Secure, asynchronous catalogs
- Identifiers for reproducible science
- Building energy spatial data interoperability
- Advanced filtering of SWIM feature data
- 3D+ Data Standards and Streaming
- Machine Learning Training Datasets
- Moving Features and Sensor Integration

Climate Change
Service Pilot
Enabling FAIR Standards
Open
Geospatial
Consortium


Disaster Pilot
Eyes in the sky, feet on the ground.
Open
Geospatial
Consortium

Federated Marine SDI
Connecting land & sea
across nations.
Open
Geospatial
Consortium



Thank You

Community

500+ International Members

110+ Member Meetings

60+ Alliance and Liaison partners

50+ Standards Working Groups

Innovation

45+ Domain Working Groups

120+ Innovation Initiatives

25+ Years of Not for Profit Work

380+ Technical reports

Standards

90+ Regional and Country Forums

Quarterly Tech Trends monitoring

65+ Adopted Standards

300+ products with 1000+ certified implementations

1,700,000+ Operational Data Sets

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