



Searching SELFIE

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Searching **SELFIE**

INSPIRE Discovery workshop
Ispra 03-04 July 2019

Katharina Schleidt (DataCove), Sylvain Grellet & Abdelfettah Feliachi (BRGM),
Nuno Oliveira, Simone Giannecchini & Andrea Aime (Geosolutions)

ELFIE



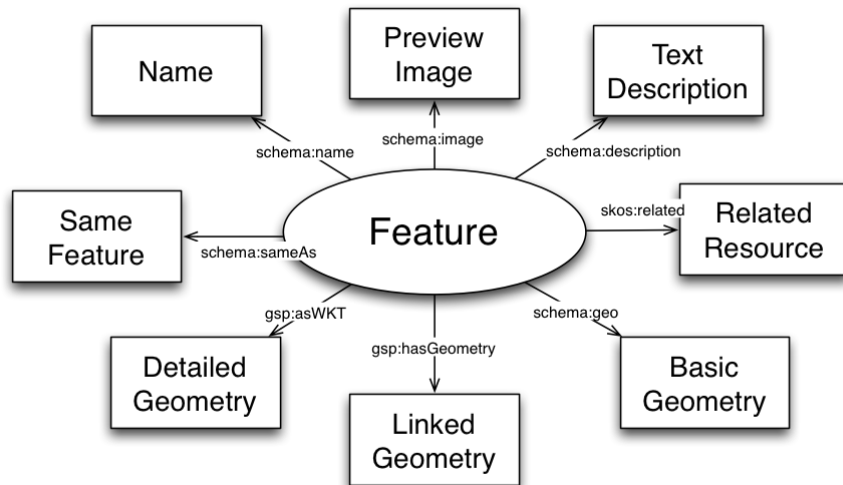
- Environmental Linked Feature Interoperability Experiment (<https://opengeospatial.github.io/ELFIE/>) a use case driven IE
- Organization: OGC, USGS, NZ Landcare Research, BRGM, NR-CAN, ...
- Goals :
 - Increase interoperability while decreasing data duplication and maintenance overhead
 - Combine the power of web services with transparency of linked data
 - Encode relationships between and among environmental features
 - Utilize commonly used and easily adopted approaches
 - **Encode highly general “preview” content for any feature : facilitate discoverability**

JSON-LD Encoding



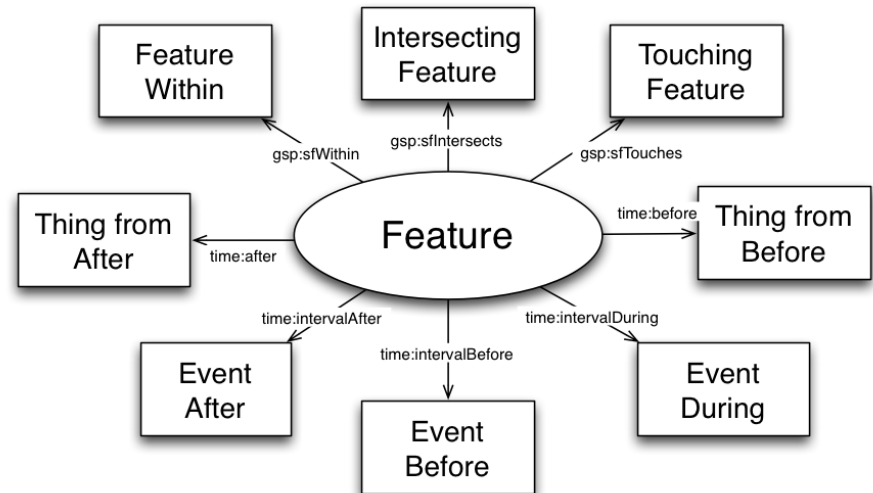
- Different views of the same Feature
 - By using different JSON-LD contexts
 - Based on Schema.org vocab and OGC domain ontologies

Preview



"schema": "http://schema.org/"
"skos": "https://www.w3.org/TR/skos-reference/"
"gsp": "http://www.opengeospatial.org/standards/geosparql"

Network



"gsp": "http://www.opengeospatial.org/standards/geosparql/"
"time": "https://www.w3.org/TR/owl-time/"

JSON-LD Encoding



- **Different views of the same Feature**
 - By using different JSON-LD contexts
 - Based on Schema.org vocab and OGC domain ontologies

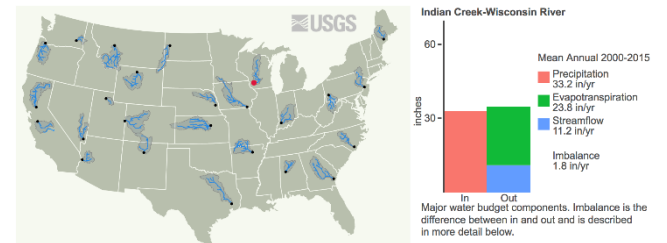
Preview

```
{
  "@context": {
    "schema": "http://schema.org/",
    "skos": "https://www.w3.org/TR/skos-reference/",
    "gsp": "http://www.opengeospatial.org/standards/geosparql",
    "description": "schema:description",
    "geo": "schema:geo",
    "hasGeometry": "gsp:hasGeometry",
    "asWKT": "gsp:asWKT",
    "image": {
      "@id": "schema:image",
      "@type": "@id"
    },
    "name": "schema:name",
    "sameAs": "schema:sameAs",
    "related": "skos:related"
  }
}
```

Network

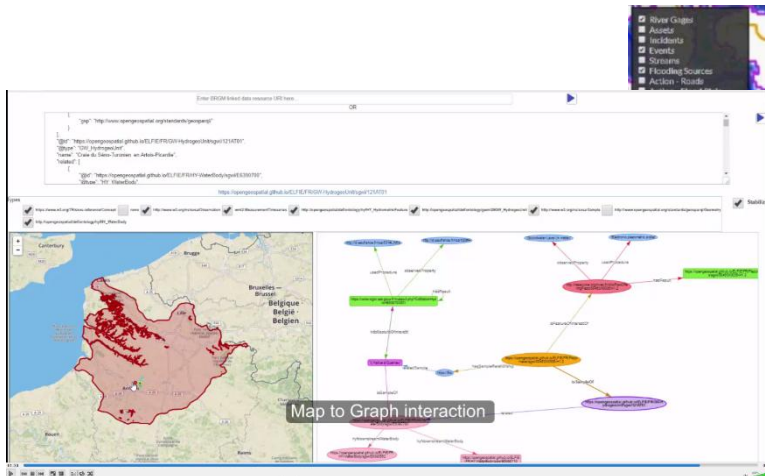
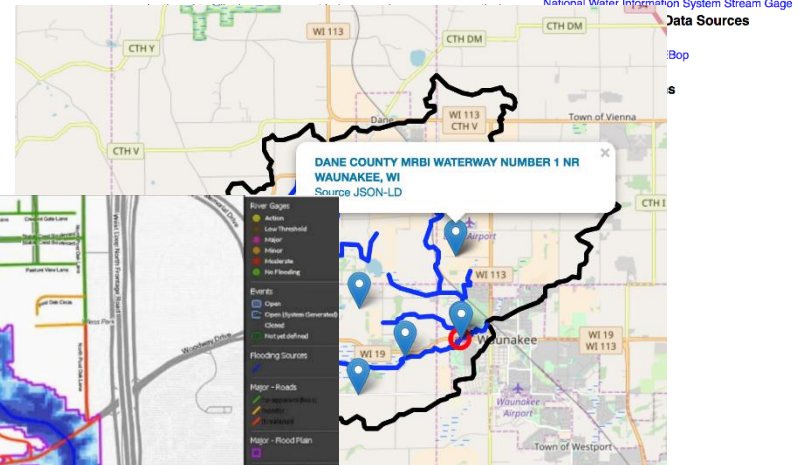
```
{
  "@context": {
    "gsp": "http://www.opengeospatial.org/standards/geosparql/",
    "time": "https://www.w3.org/TR/owl-time/",
    "intersects": "gsp:sfIntersects",
    "touches": "gsp:sfTouches",
    "within": "gsp:sfWithin",
    "after": "time:after",
    "before": "time:before",
    "intervalAfter": "time:intervalAfter",
    "intervalBefore": "time:intervalBefore",
    "intervalDuring": "time:intervalDuring"
  }
}
```


- Water Budgets Across the United States**
Hover over or click a watershed to see its water budget.



Water budgets are used to understand the movement of water into and out of a watershed. Much like a financial budget, inflows, storage, and outflows can

More Data for Currently Selected Basin
[National Water Census Data Resources](#)
[National Water Information System Stream Gage](#)
[Data Sources](#)



SELFIE



- Second Environmental Linked Feature Interoperability Experiment (<https://opengeospatial.github.io/SELFIE/>)
Organization: OGC, USGS, NZ Landcare Research, BRGM, NR-CAN, CSIRO, UK CEH, NASA, ...
- Objectives :
 - Evaluate a proposed resource model for multi-provider environmental feature and observation registries
 - Evaluate proposed HTTP behavior for non information resources and their representations
 - Design and evaluate linked data feature information index resources with media-type, language, and profile content negotiation as an extension of the building blocks provided by WFS3.

SELFIE : Methodology



- Refine of use cases developed for ELFIE
- Collate existing practices for the implementation of non-information, information index and data resources
- Define a simple ontology of linked feature resources (resource model)
- Define JSON-LD encoding practices for efficient and effective link crawling (ELFIE-1 based)
- Executing experiments that evaluate the 3 and 4 using publishable implementations (e.g. shared Jupyter Notebooks)
- Evaluate **WFS 3.0** compliant services as an ‘engine’ facilitating the creation of the index and data information resources.

SELFIE : Discoverability



- Based on the ELFIE-1 preview JSON-LD context.
- Embedding JSON-LD description of features in index (informational) pages. e.g. GSIP (Groundwater Surface-Water Initial LOD Pilot) [info pages](#)

Resource

https://geoconnex.ca/gsip/info/catchment/020J*BC#

Applications WS tt OGC Meet Sixty-Four Free Che... Google Scholar EPOS-DCAT-AP/ep... Transformation RDF... Autres favoris

GSIP Linked Data Demonstration

Watershed: Riviere l'Acadie - Cours inferieur

Type: Catchment, Thing, Resource

Identifier: https://geoconnex.ca/id/catchment/020J*BC

Representation:

- No label [application/vnd.geo+json](#) [text/html](#)

Related Features:

Grouped by relations Grouped by features

- **inside:** Watershed: Richelieu
- **drains:** Watershed: Riviere L'Acadie - Cours median
- **contains:** Hydrometric station : L'ACADIE (020J026) Wells inside watershed 020J_BC Hydrometric station (flow) : L'Acadie (030421)
- **overlaps:** Hydrogeologic unit : Southern St Lawrence Platform Hydrogeologic unit : Northern St Lawrence Platform Hydrogeologic unit : Monteregian intrusions
- **drains-into:** Watershed: Ruisseau Bernard Ouest - Riviere Richelieu

Government of Canada / Gouvernement du Canada

```
227 </script>
228 <script src="https://geoconnex.ca/gsip/app/js/ieworkaround.js"
229       type="text/javascript">
230
231 </script>
232 </body>
233 <script language="" type="application/ld+json">
234 {
235   "@graph" : [ {
236     "@id" : "http://geosciences.ca/def/hydraulic#HY_Catchment",
237     "label" : [ {
238       "@language" : "fr",
239       "@value" : "Bassin de drainage"
240     }, {
241       "@language" : "en",
242       "@value" : "Catchment"
243     } ]
244   }, {
245     "@id" : "https://geoconnex.ca/data/catchment/HYF/WSCSSSDA/NRCAN/020J*BC",
246     "format" : [ "application/vnd.geo+json", "text/html" ]
247   }, {
248     "@id" : "https://geoconnex.ca/id/catchment/020J",
249     "label" : [ {
250       "@language" : "en",
251       "@value" : "Watershed: Richelieu"
252     }, {
253       "@language" : "fr",
254       "@value" : "Bassin versant: Richelieu"
255     } ]
256   } ]
257 }
```

SELFIE : Discoverability

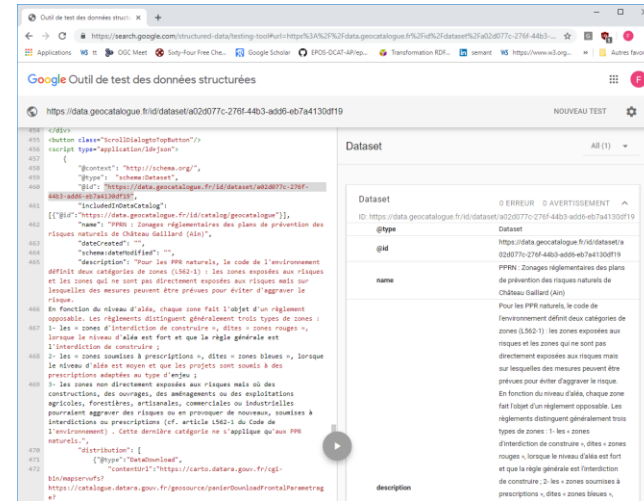
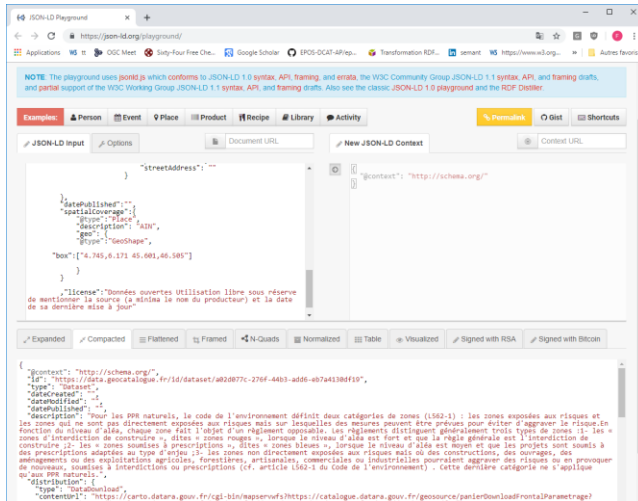


- Based on the ELFIE-1 preview JSON-LD context.
- Environment domain vocabularies : how to reuse them for indexing?
 - Should RE crawlers integrate OGC ontologies in their process?
 - Should OGC ontologies be integrated into schema.org ? → schema.org domain specific vocabulary extensions
 - E.g.
science-on-schema <https://github.com/ESIPFed/science-on-schema.org> ,
Bioschemas Types <https://bioschemas.org/types/>
 - How and when such extensions are handled by SE?

SELFIE : Discoverability



- Who's in the other end of the tunnel?
 - No team to discuss with, only local test and validation of JSON-LD through JSON-LD playground and Google structured data testing tool



- Enlarge the questioning to other SE: Bing, Qwant (first contact)

To Be Continued...



- **Join the Second Environmental Linked Features Interoperability Experiment**
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