

Von INSPIRE WCS zu SensorThings

Von Pixeln zu Messpunkten



Overview

- INSPIRE WCS
 - Where were we?
 - Where are we now?
 - Where are we going?
- OGC SensorThings API
 - Yet another INSPIRE Good Practice?
 - What's this good for?
- Points in the Pixels
 - Where do we go from here?



INSPIRE WCS - Where were we?

Ah...?



INSPIRE

Infrastructure for Spatial Information in Europe

Technical Guidance for the implementation of INSPIRE Download Services using Web Coverage Services (WCS)

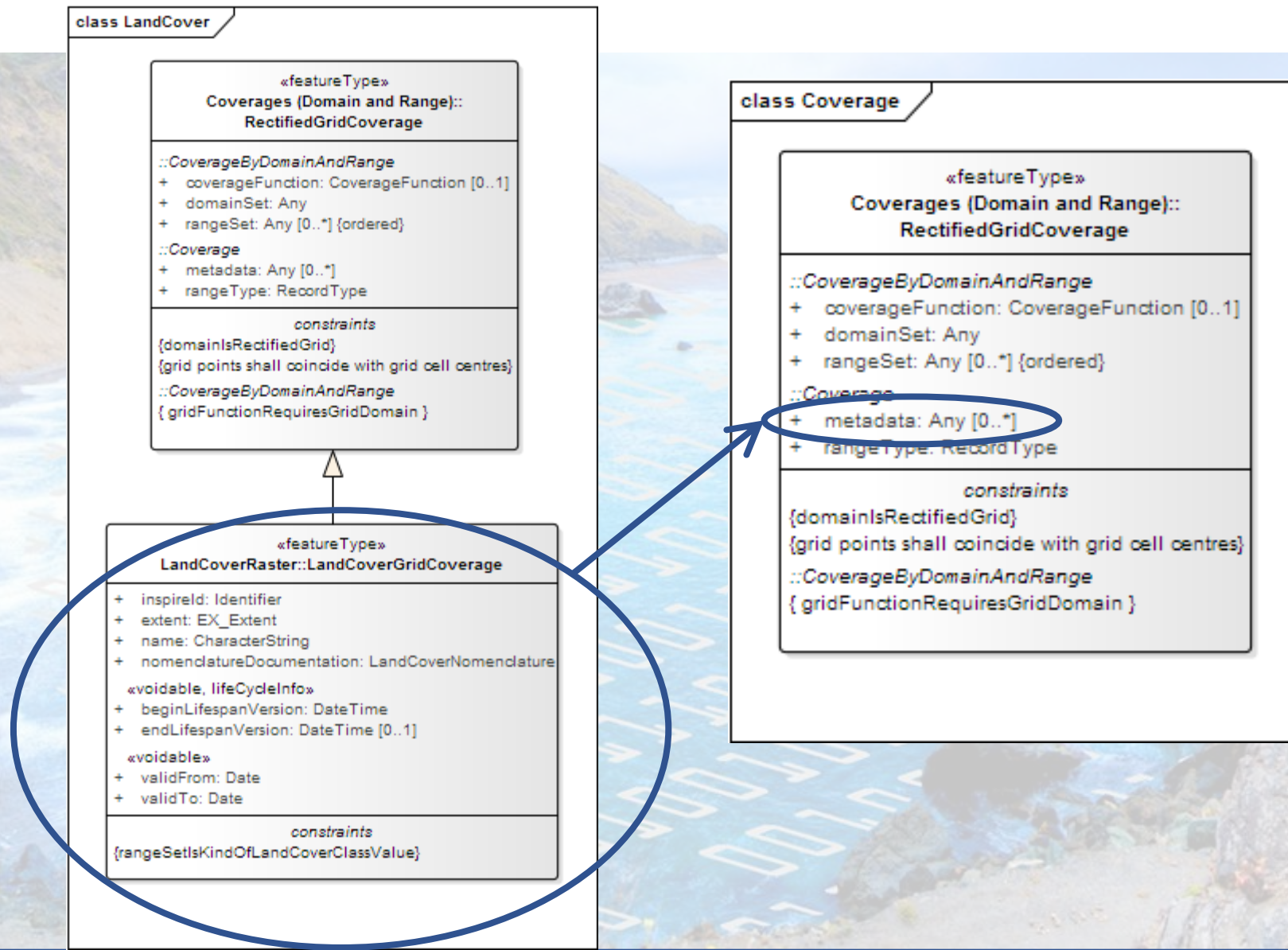
INSPIRE WCS - Where are we now?

Two major Issues:

- INSPIRE data models based on coverage classes not suited to provision via WCS
 - INSPIRE Good Practice Coverages
<https://inspire.ec.europa.eu/good-practice/ogc-compliant-inspire-coverage-data-and-service-implementation>
- No WCS Servers support the required INSPIRE extensions for download services
 - Both rasdaman and GeoSolution (GeoServer) are presently implementing these extensions

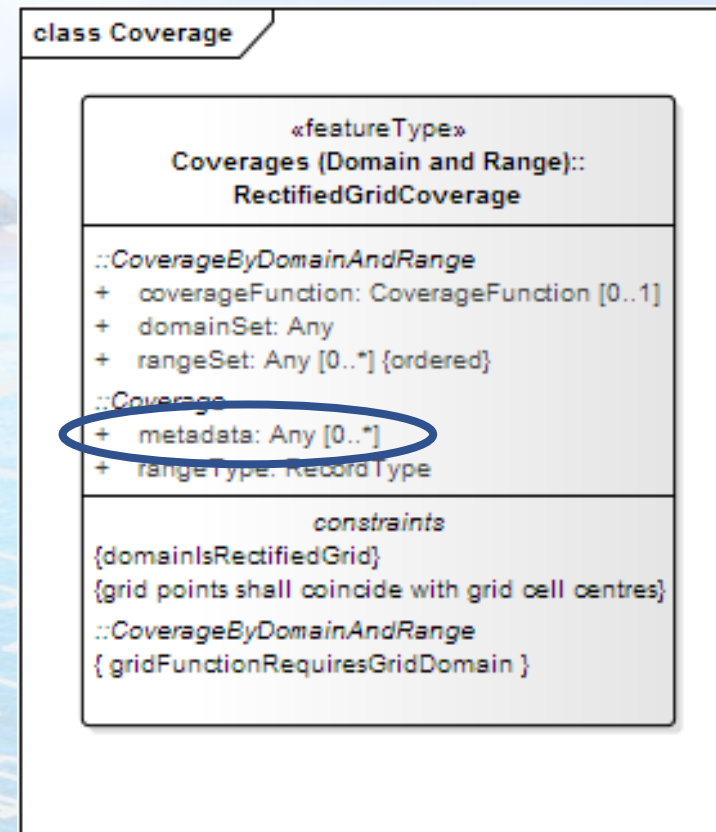
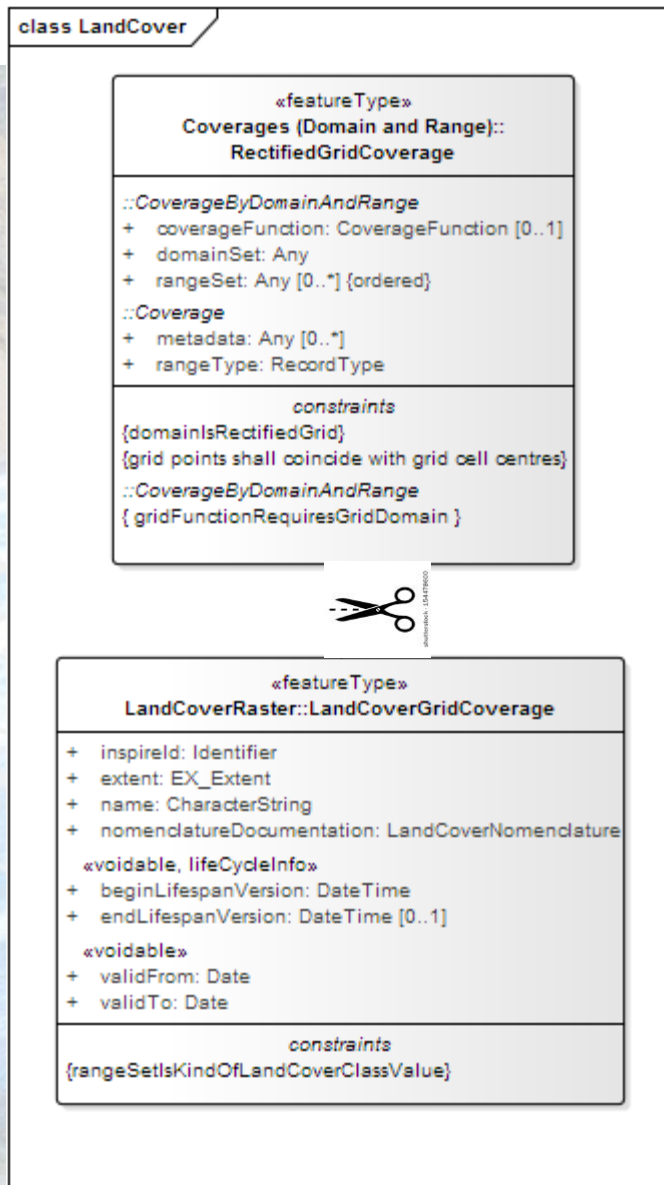


INSPIRE Coverage Good Practice

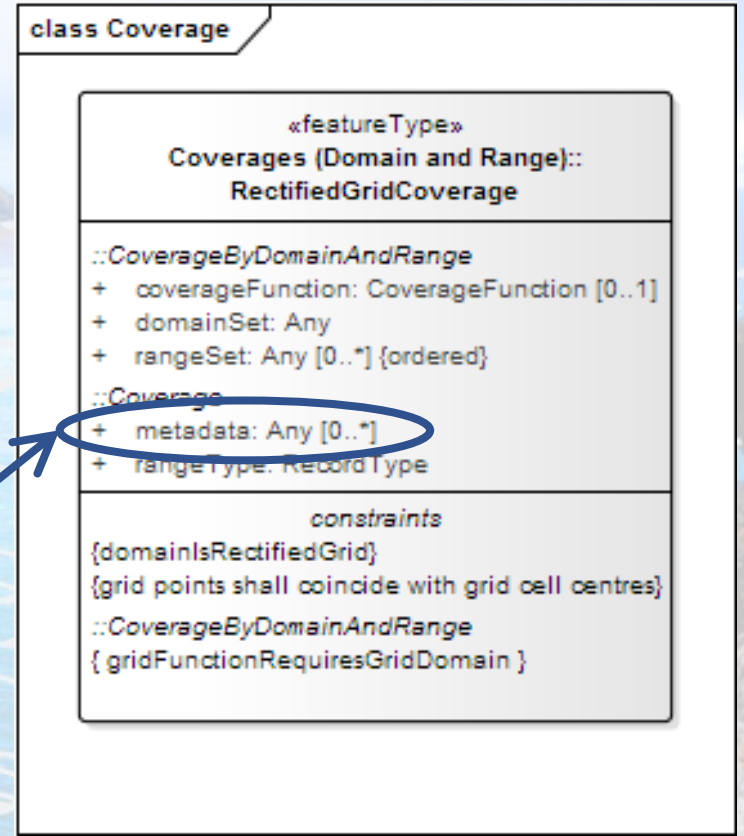
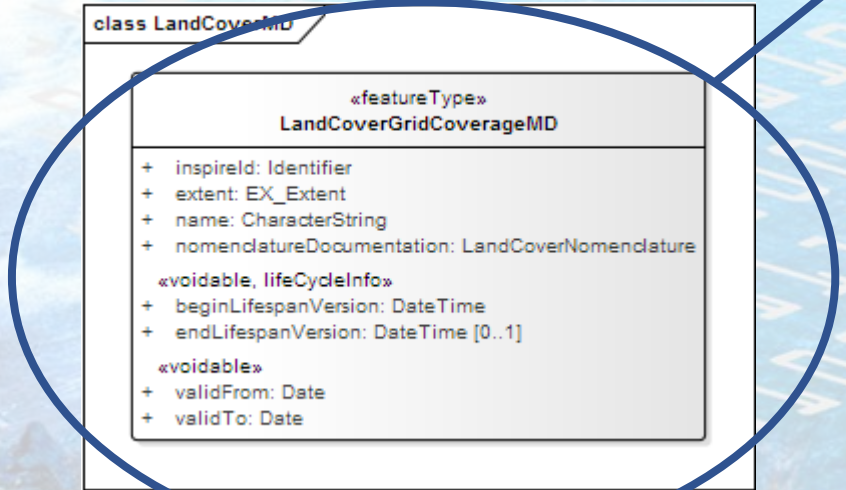




INSPIRE Coverage Good Practice



INSPIRE Coverage Good Practice





INSPIRE Coverage Good Practice

Note: **Metadata** is a very broad concept!
The Coverage Metadata described here is NOT related to INSPIRE Metadata in accordance with ISO 19115 and provided by a Catalogue Service!

```
class Coverage
+ inspireId: Identifier
+ extent: EX_Extent
+ name: CharacterString
+ nomenclatureDocumentation: LandCoverNomenclature
«voidable, lifeCycleInfo»
+ beginLifespanVersion: DateTime
+ endLifespanVersion: DateTime [0..1]
«voidable»
+ validFrom: Date
+ validTo: Date
```


INSPIRE Download Services Requirements

Following extensions to WCS must be available:

- `inspire_dls:ExtendedCapabilities`:
 - Service Metadata: link to external service metadata URL, usually ISO 19119 encoded
 - Supported Languages
 - Dataset Metadata: link to external dataset metadata URL, usually ISO 19115 encoded
- Coverage metadata element:
 - Must be possible to provide additional XML in coverage metadata element to support additional INSPIRE attributes (see Coverage Good Practice)

INSPIRE WCS – Where are we going?

Rijkswaterstaat (Executive agency of the NL Ministry of Infrastructure and Water Management) currently performing a Proof-of-Concept

- Providing elevation and bathymetry data
- Utilizing rasdaman software

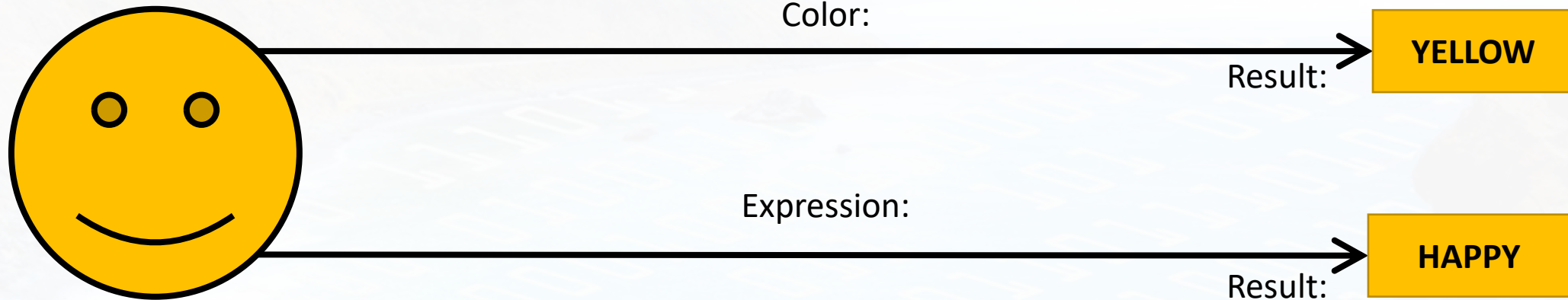
Current topics of discussion

- CRS: convincing NL responsables to provide in ETRS89-LAEA instead of locally used grids
- Resolution: NL recommended 5m, INSPIRE Grid only supports 1 or 10

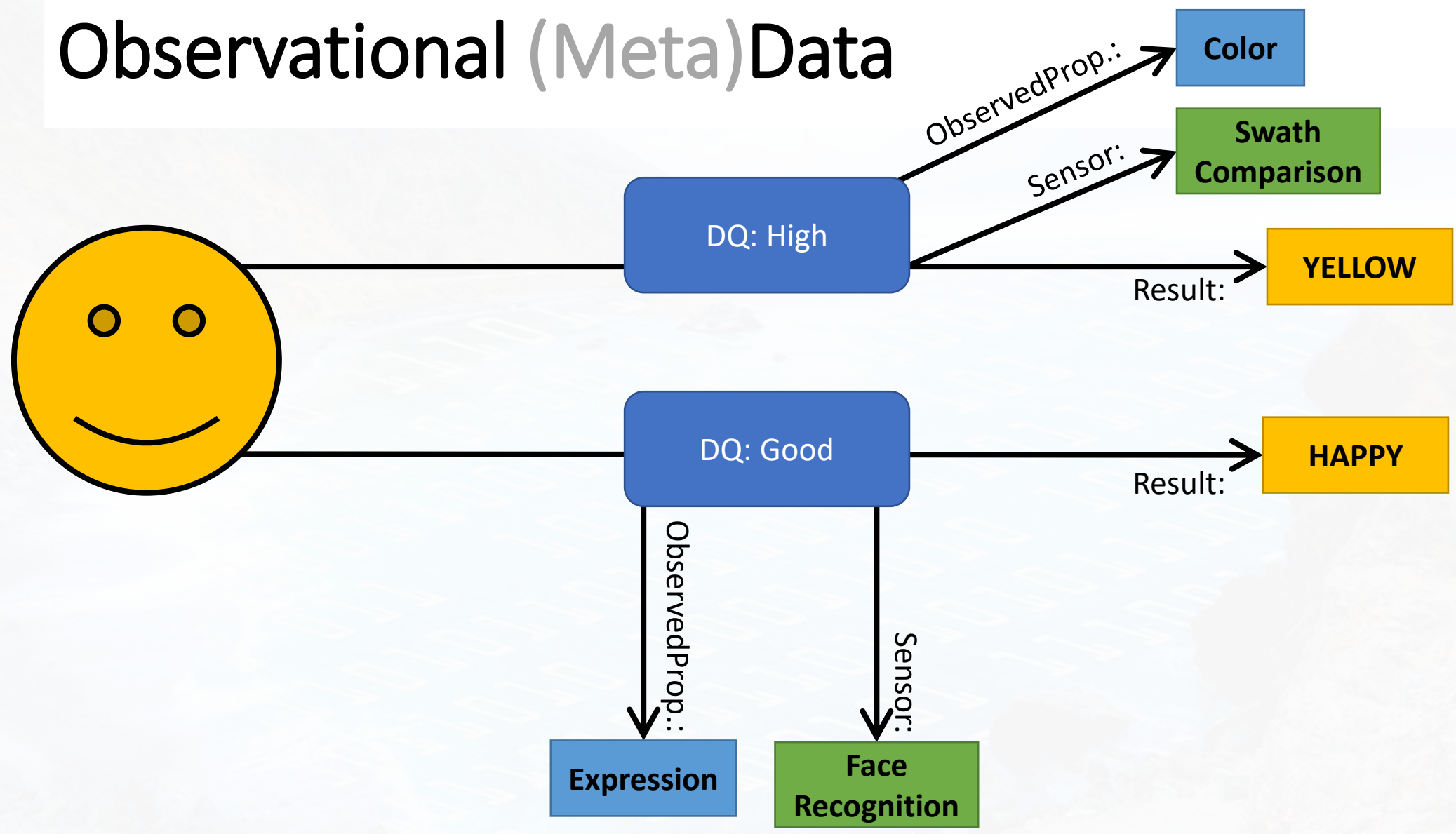
OGC SensorThings API

- INSPIRE Good Practice utilizing OGC SensorThings API as an INSPIRE Download Service
- Alternative to Sensor Observation Service (SOS) for INSPIRE Environmental Monitoring Facilities (EF) & other Themes using the Observational Model from the INSPIRE GCM, foremost:
 - Atmospheric Conditions
 - Oceanographic Features
- <https://inspire.ec.europa.eu/good-practice/ogc-sensorthings-api-inspire-download-service>

Observational (Meta)Data

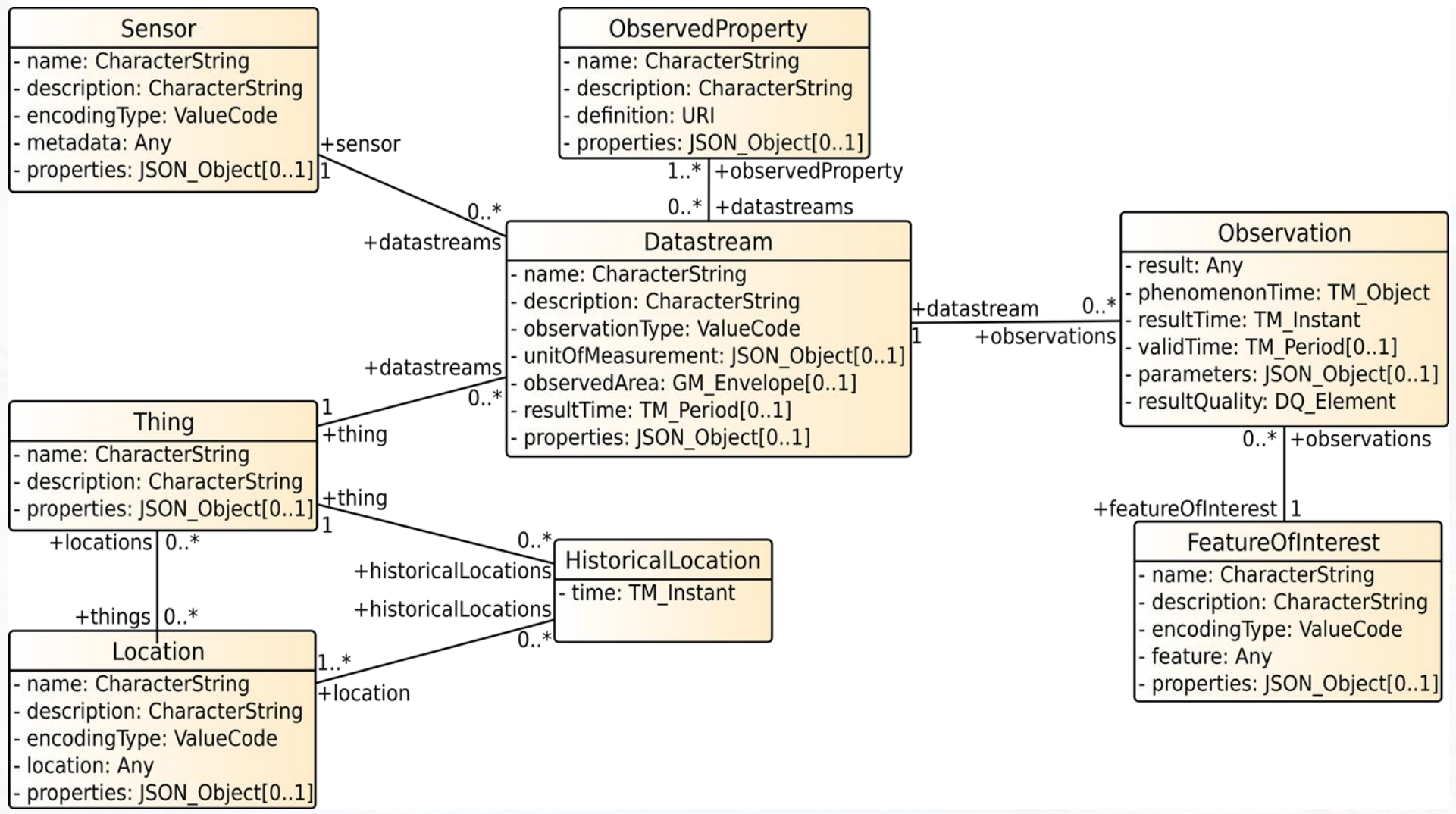


Observational (Meta)Data





OGC SensorThings API - Datamodel



OGC SensorThings API

- An API from OGC – but not an OGC API!
- API based on Odata → far more powerful query functionality
 - Queries follow data model graph
 - E.g. return all Datastreams associated with an ObservedProperty with the name “O3”
 - Responses can include associated classes (nesting)
 - Responses can be tailored (select specific attributes)
- Allows for custom extensions
 - Fraunhofer FROST supports alternative response formats, e.g. CSV, GeoJSON
- More Info:
<https://datacoveeu.github.io/API4INSPIRE/>

Points in the Pixels



Thanks for your Attention!



Kathi Schleidt

Kathi@DataCove.eu