OGC SensorThings API Data Model

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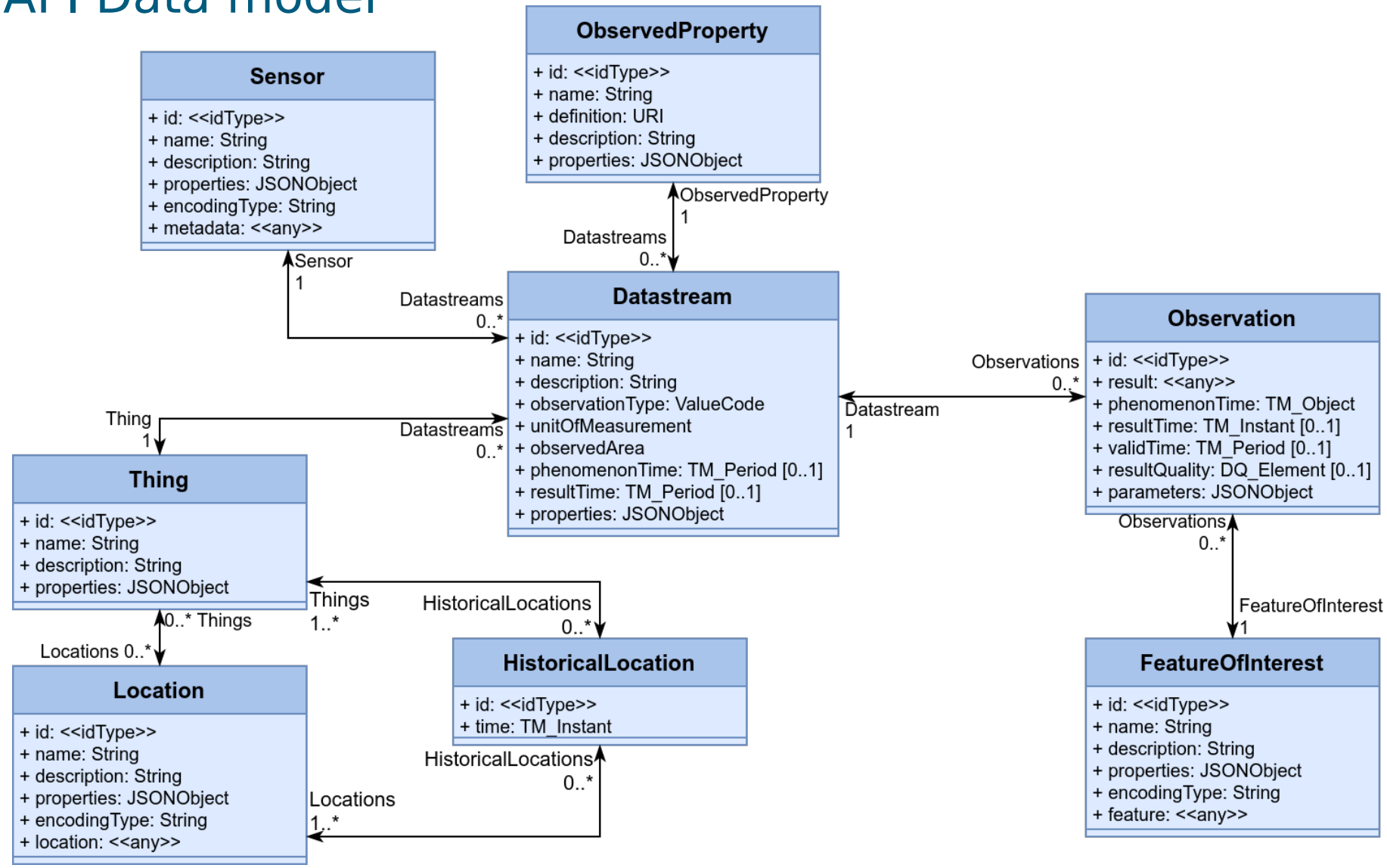
SensorThing API Data model

The Core



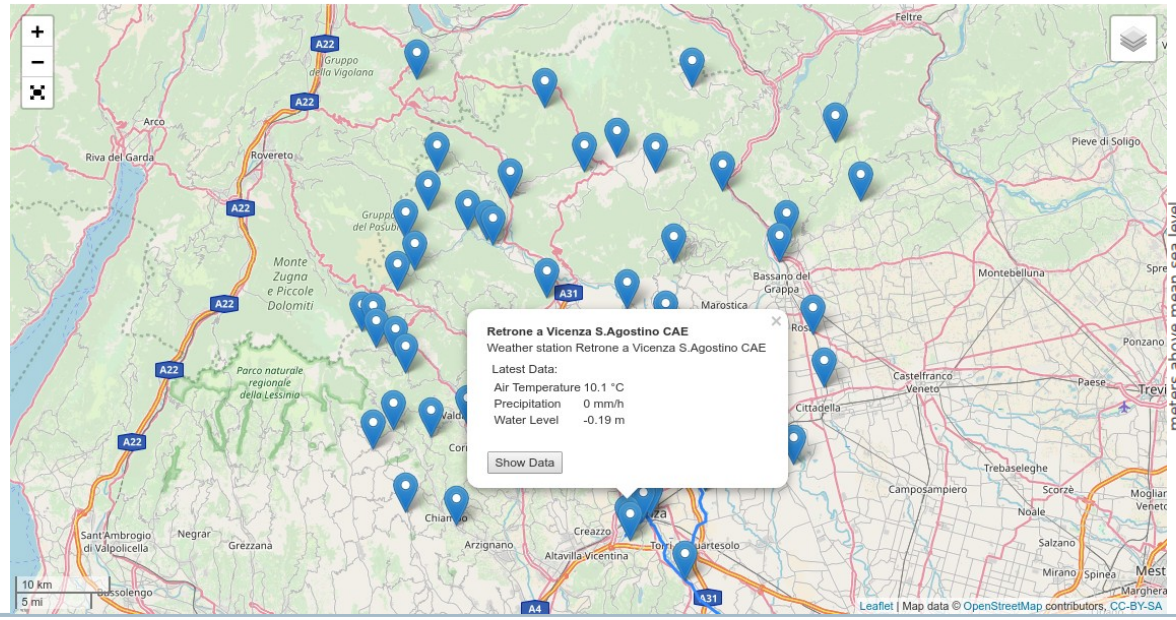
- EU-Project in Horizon 2020 framework
- Integrated solution to support forecasting, early warnings, transmission and routing of the emergency data, aggregated analysis of multimodal data and management of the coordination between the first responders and the authorities

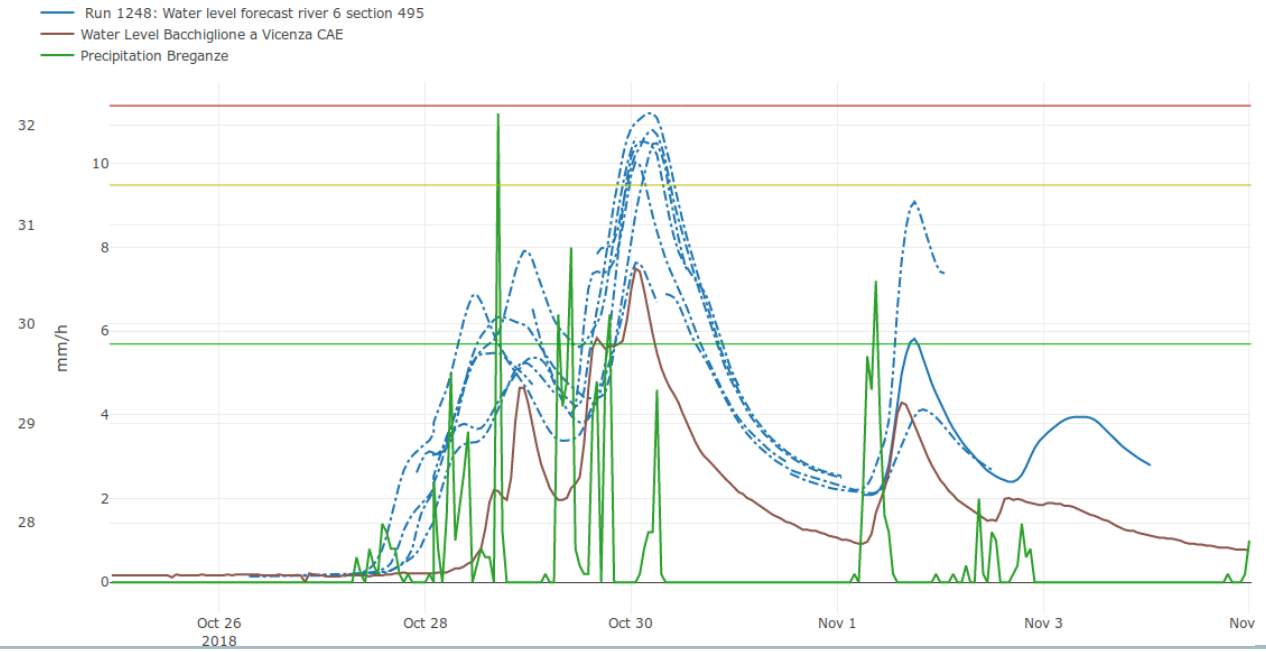
- http://beaware-project.eu/

BeAWARE
Flood Scenario Data

- Past, Current & Predicted
  - Weather (Temperature, Humidity, Rainfall, etc)
  - Water levels in rivers

Overview Map (Italy)





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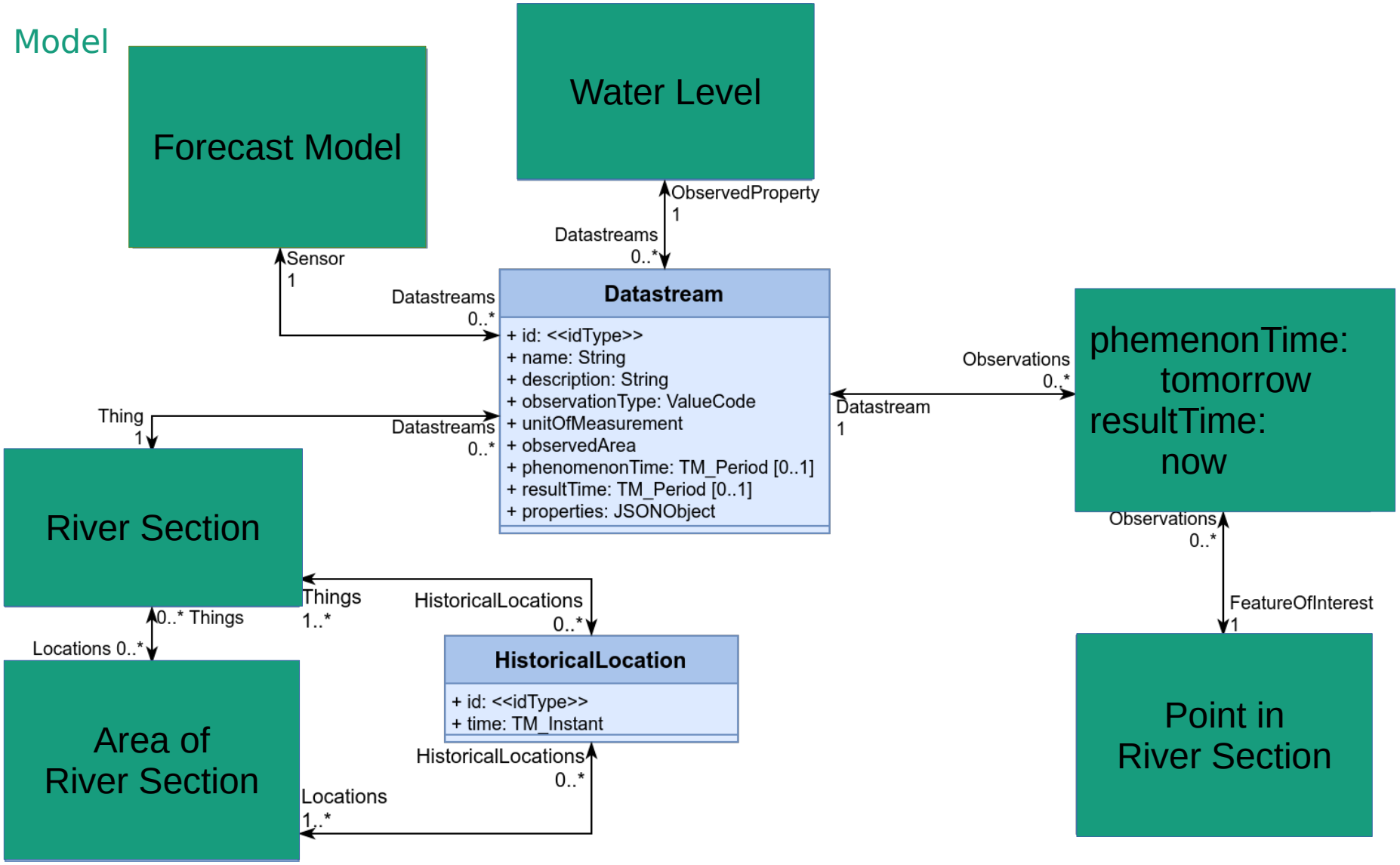
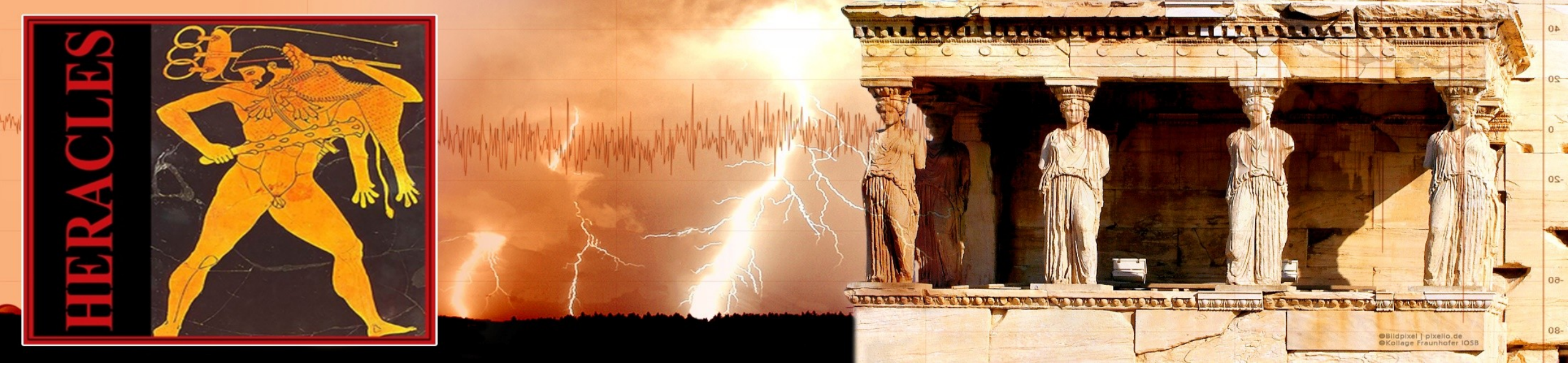
BeAWARE

Flood Scenario Data Model





- EU-Project in Horizon 2020 framework
- Design responsive systems/solutions for protecting Cultural Heritage against climate change effects
- Semantic Modeling of cultural heritage, risks, climate effects, materials, sensors, simulation models, …

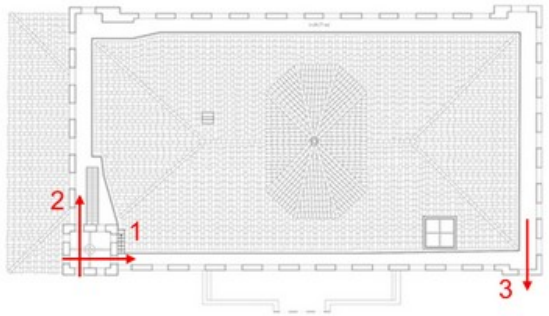
- http://www.heracles-project.eu/

HERACLES
Building Data

HERACLES > HERACLES Knowledge Base > Instances > SensorIndividuals > Accelerometer

Accelerometer

Accelerometer measure acceleration caused by shocks or structural influences. The sensors can identify individual frequencies and their impact on the observed object. The picture below shows the accelerometers on the roof of the Gubbio Palace.



Accelerometer #3

Accelerometers #1 and #2

In the pictures below sample charts of possibly obtained data is shown. The left picture shows the accelerometer amplitudes (positive values). The right picture shows a frequency analysis and depicts the occurence of specific frequencies and their distribution. In the right column sample data in text files is provided as content.

Concept

Sensor

Sensor endpoint

Endpoint for Accelerometer

Sensor monitors

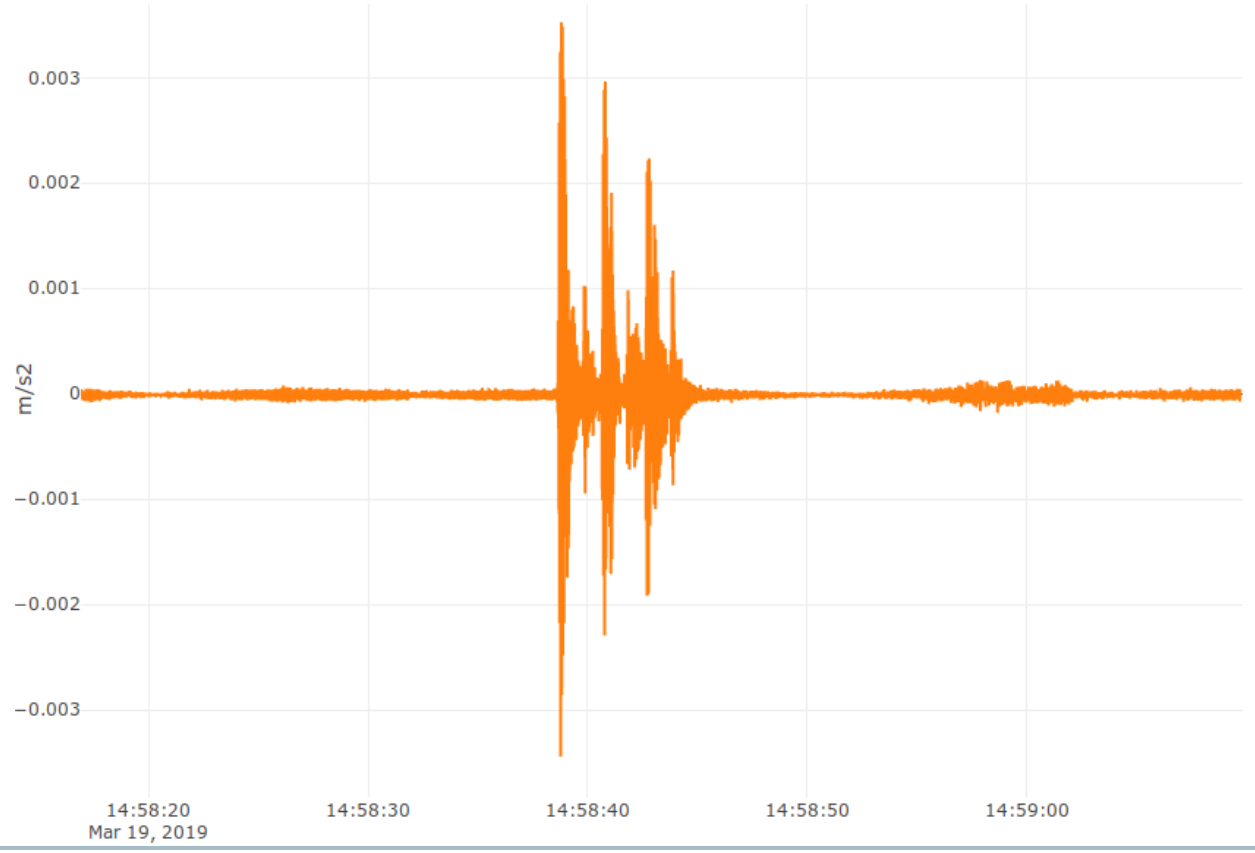
Palace of Gubbio

Sensor produces dataset

Acceleration Data Set

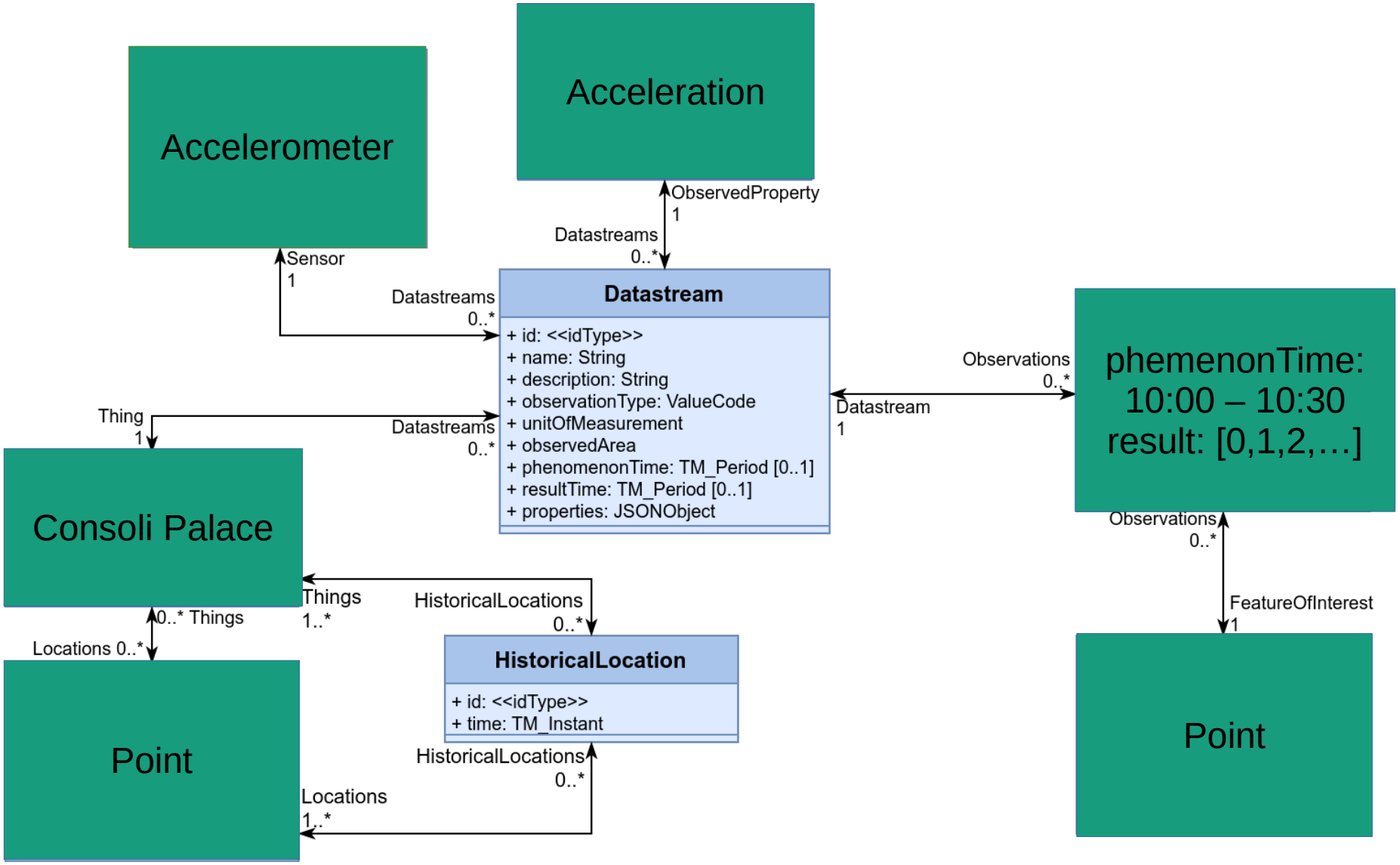
HERACLES
Building Data

- High data rate – Up to 100Hz



HERACLES

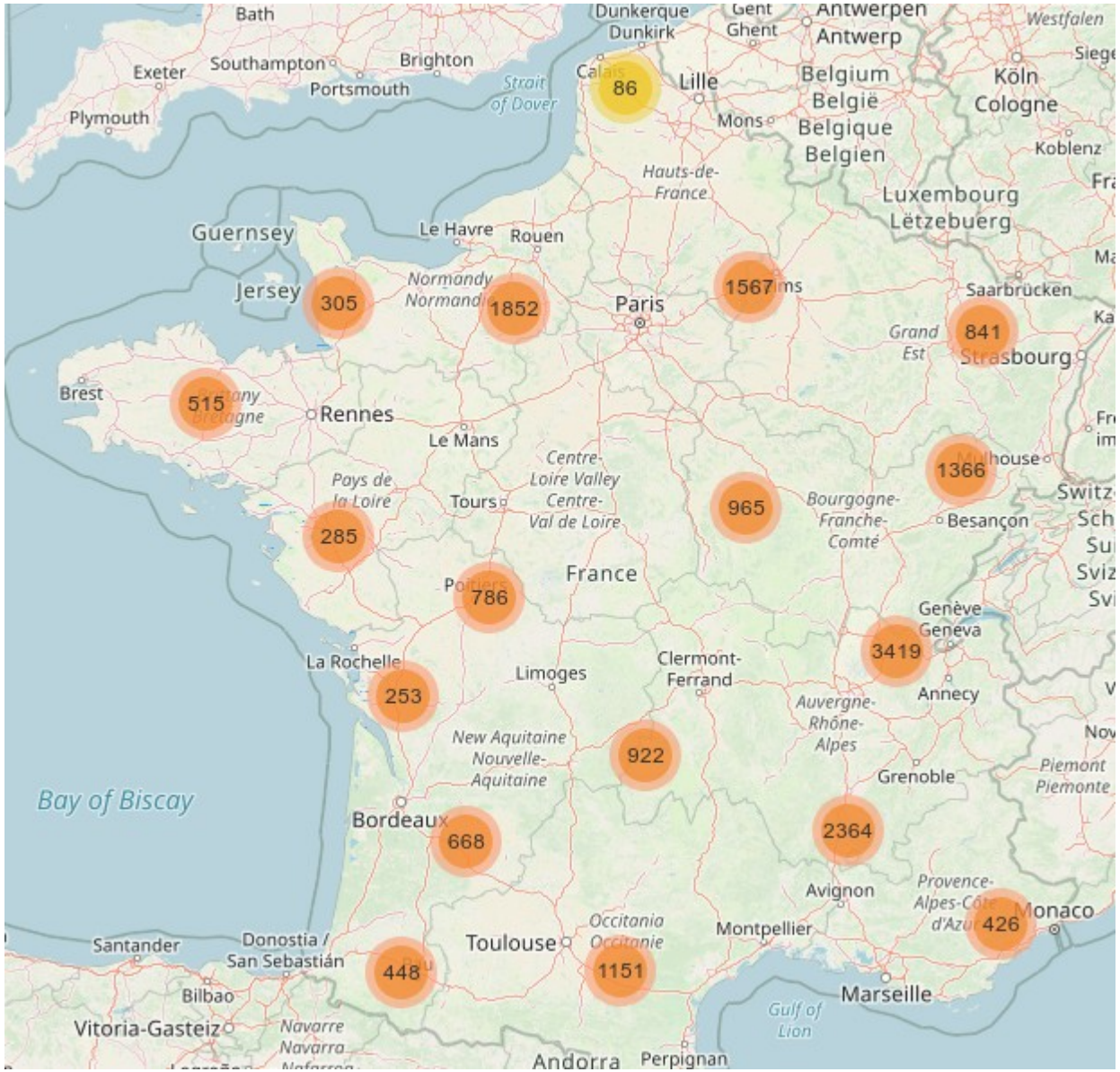
Building Data Model



BRGM

French surface water database

- French surface water quality database
  - 18478 Stations
    1874 Observed Properties
    136000000 Observations
  - INSPIRE Aligned
  - Water samples
    - analysed in laboratory
    - many results per sample



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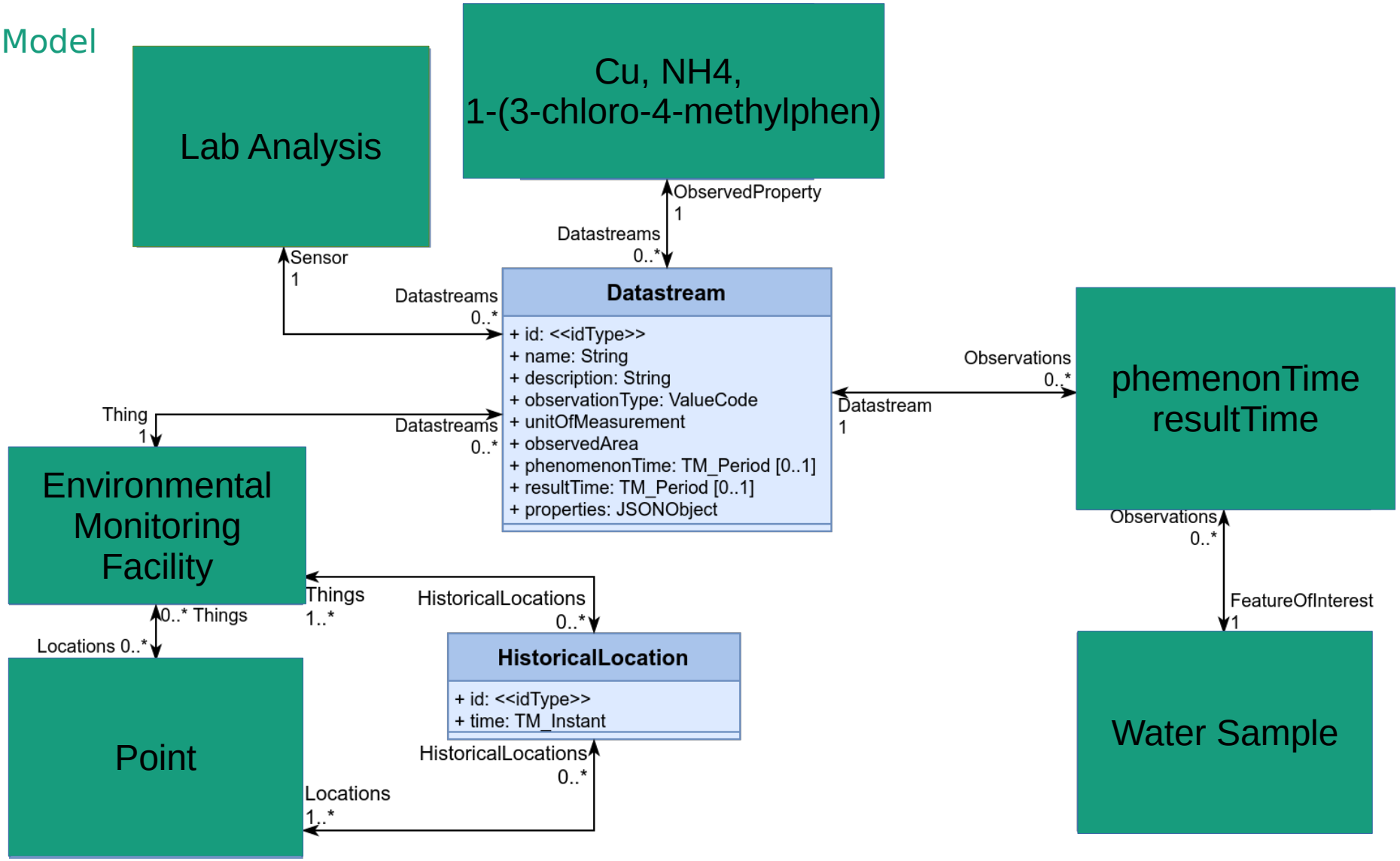
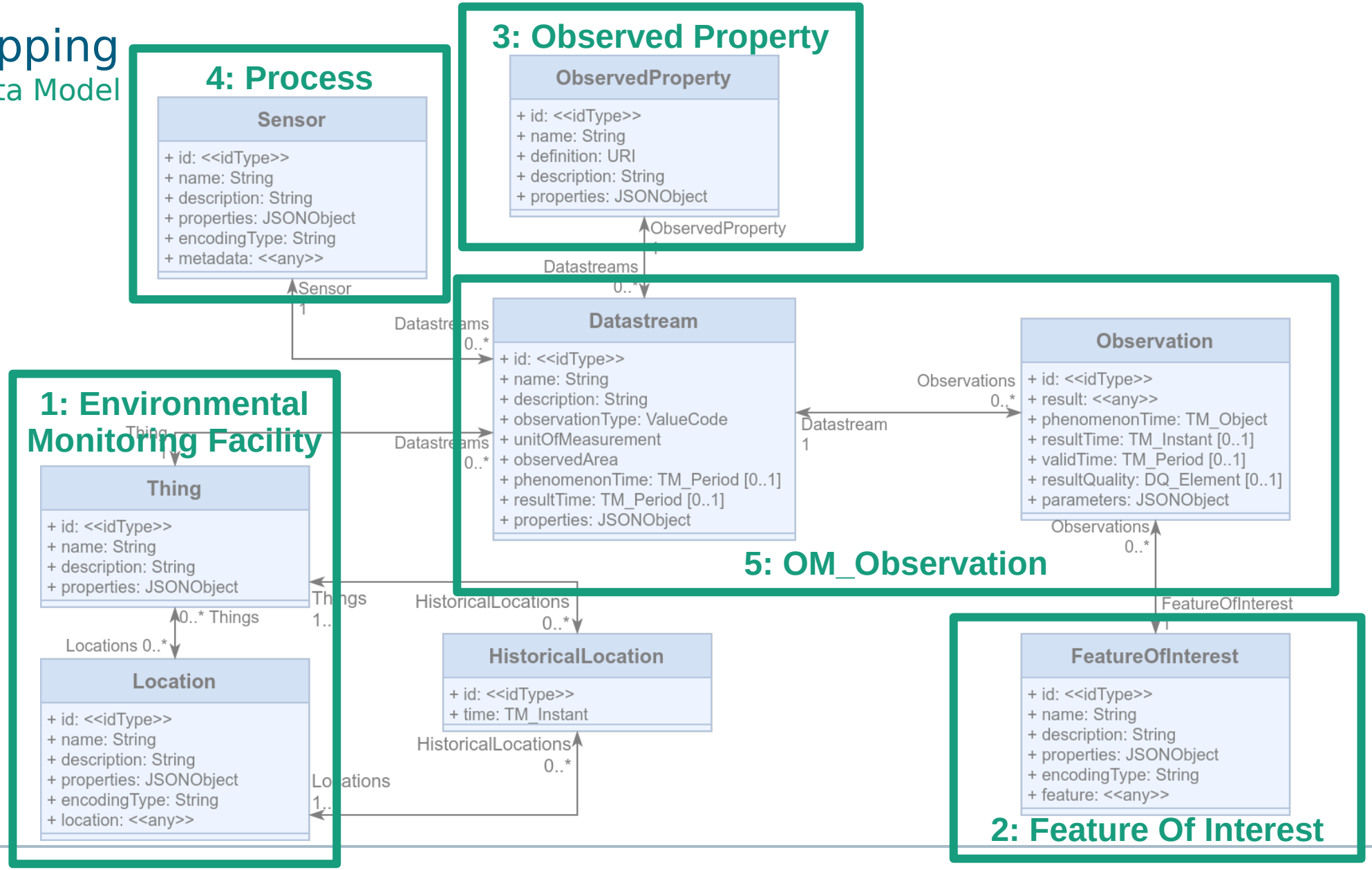
BRGM

Water Quality Data Model



INSPIRE Mapping

Water Quality Data Model



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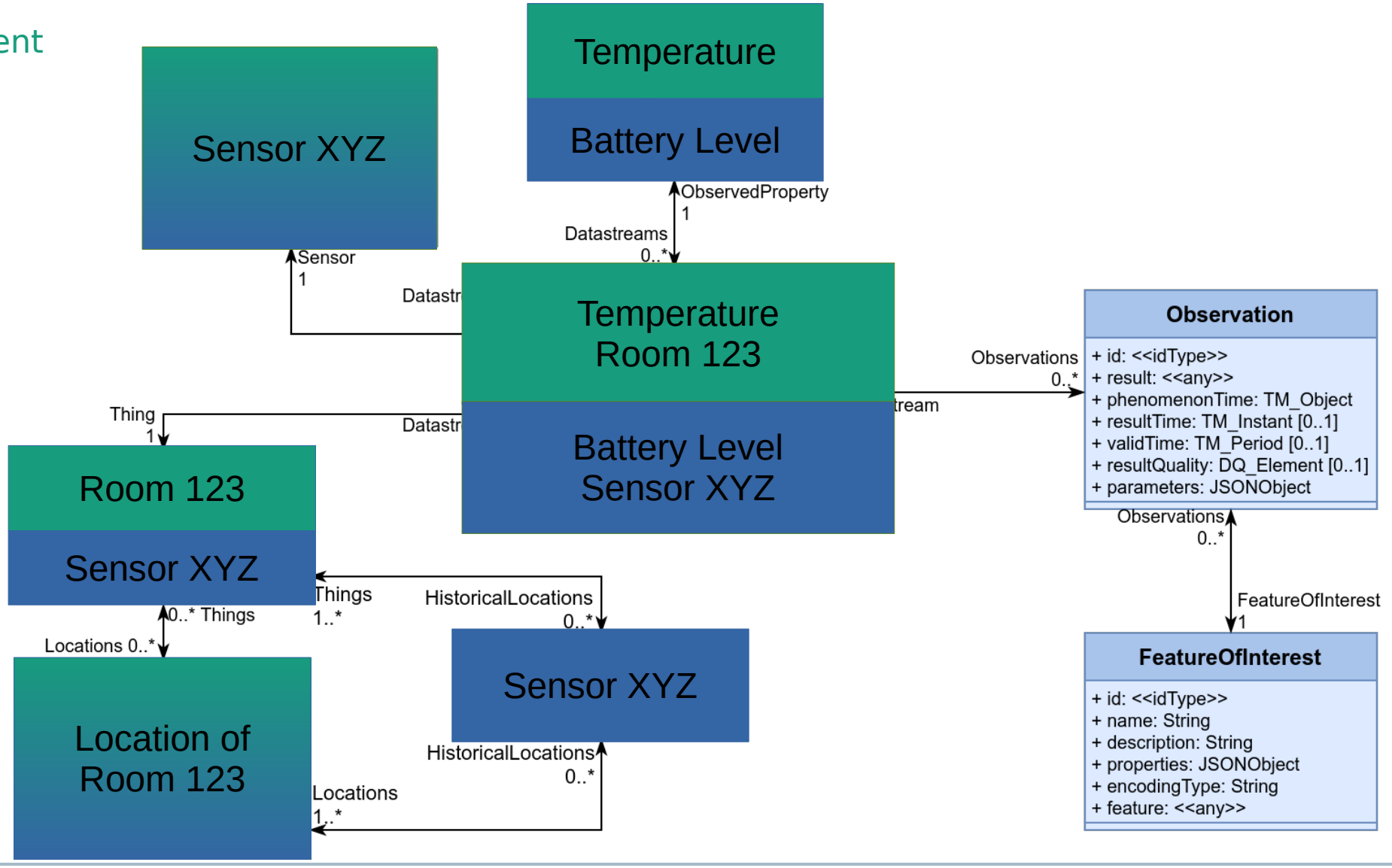
IOSB
Building Management

- LoRa Sensors measure
  - Room-Related properties (Temperature, Humidity)
  - Sensor-Related properties (Battery level, RSSI)
- Sensors are occasionally moved
  - Room-Related Observations flow in different Datastreams
  - Sensor-Related Observations keep the same Datastream
- Multiple sensors can be in the same room
  - At the same time
  - At different times
- Sensors are identified by their LoRa-ID

IOSB
Building Management



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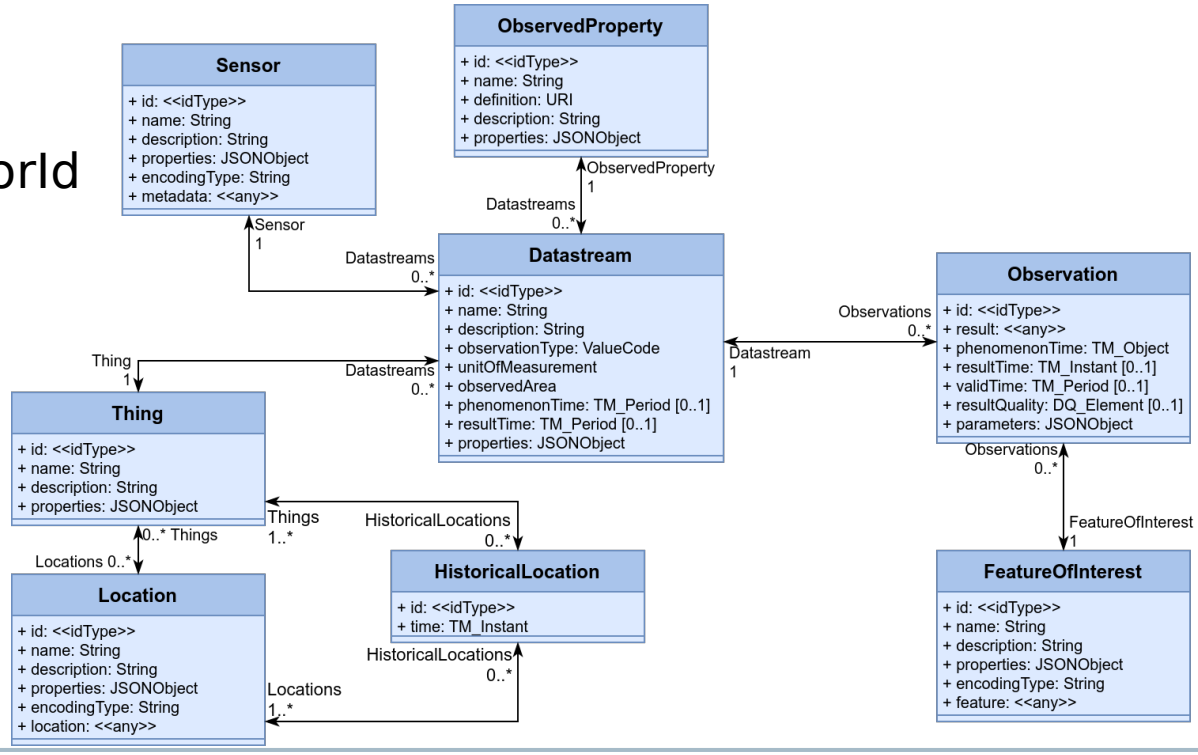
Finding the right Datastream

Building Management

- Get the current Datastream for Sensor XYZ and Property ABC?

```
v1.0/Datastreams?$filter=
        Sensor/properties/sensorId eq 'XYZ'
        and ObservedProperty/name eq 'ABC'
        and Thing/Locations/Things/properties/sensorId
              eq Sensor/properties/sensorId
```



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