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## Embedding of I-ADOPT in W3C OGC standards

Sylvain Grellet, Barbara Magagna, Katharina Schleidt, Hylke van Der Schaaf,  
Hélène Bressan

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# Embedding of I-ADOPT in W3C/OGC standards

22/05/2024

RDA VP 22 - Embeddings of I-ADOPT in existing standards



Sylvain Grellet - BRGM  
Barbara Magagna - Go Fair Foundation  
Katharina Schleidt - DataCove  
Hylke van der Schaaf - Fraunhofer  
Hélène Bressan - BRGM

# Big Picture : W3C / OGC cooperation

## W3C / OGC MoU:

- That allows us to participate in joint activities and to some degree, in non-joint work.
- Organizations that are members of OGC can freely participate in the W3C Spatial Data on the Web effort or a future specific, joint group. Getting into other groups is a little more difficult, but possible.
- The MOU also allows to jointly publish Standards created by our joint group.

W3C Spatial Data on the Web charter: <https://www.w3.org/2021/10/sdw-charter.html>

## Mirror groups between both

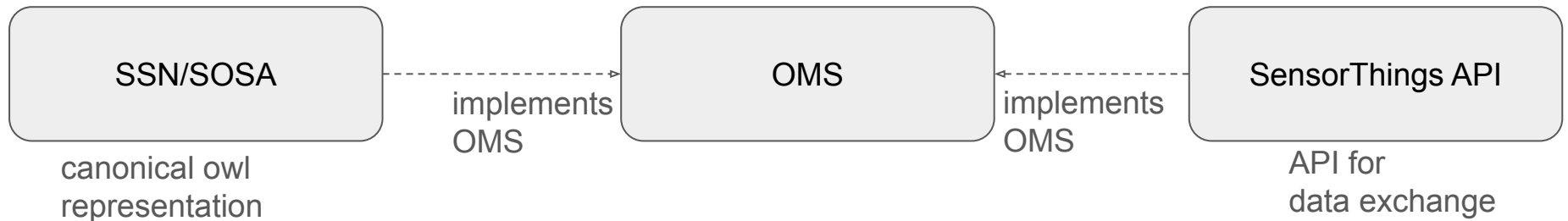
- W3C - SDW Spatial Data On The Web
  - <https://www.w3.org/2021/10/sdw-charter.html> (Charter currently being updated)
  - <https://www.w3.org/TR/sdw-bp/>
  - SSN/SOSA
  - GeoSPARQL
  - etc...
- OGC: Geosemantics, then other groups of interest (ex : Observations & Measurements, ...)

# Big Picture : which W3C / OGC standards in this context ?

- OGC / ISO 19156:2023 Observations, Measurements and Samples (OMS)
- W3C SSN/SOSA
- OGC SensorThings API
- Etc... and some other initiatives (ex: OGC building blocks, ...)

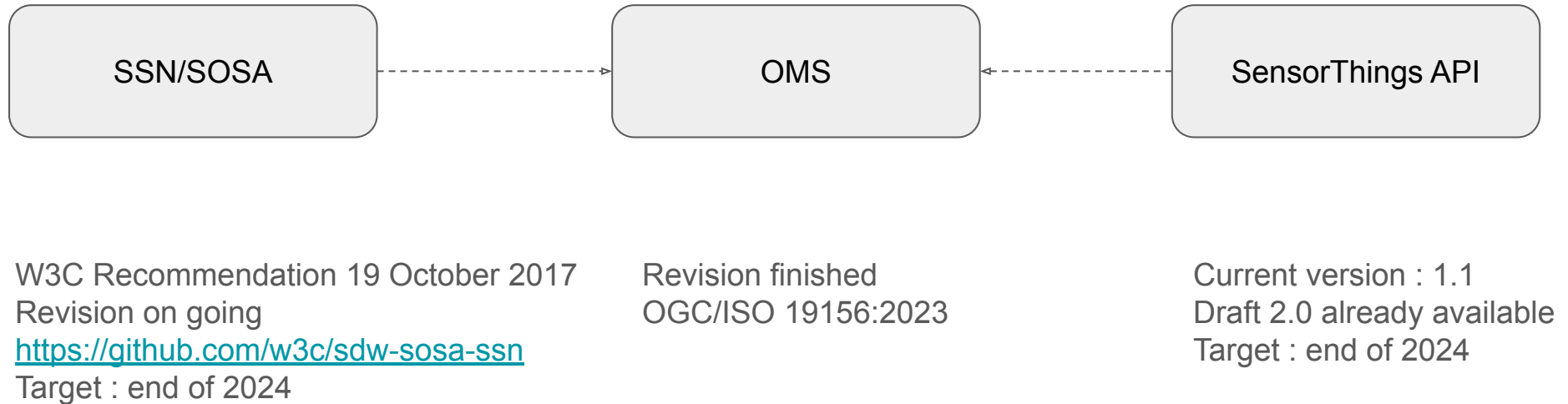
# W3C / OGC observations & samples related standards

How are they linked



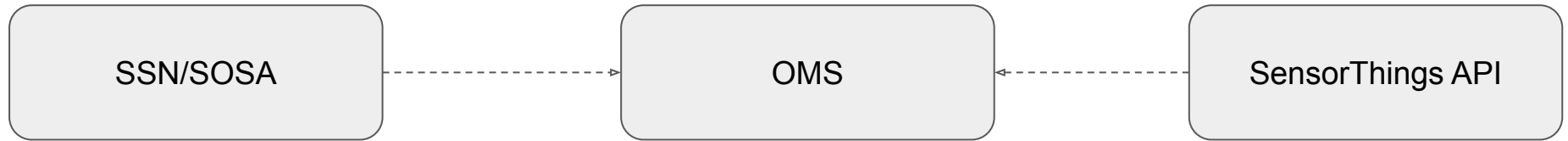
# W3C / OGC observations & samples related standards

## Versions status



# W3C / OGC observations & samples related standards

## Link with I-ADOPT



Discussed in the group

- Core VS extension
- Linked issue [#47](#),  
ObservingProcedure

- link ObservableProperty

Already discussed in the group  
Need formal testing with  
OMS logical model

SensorThings API - with  
I-Adopt already drafted

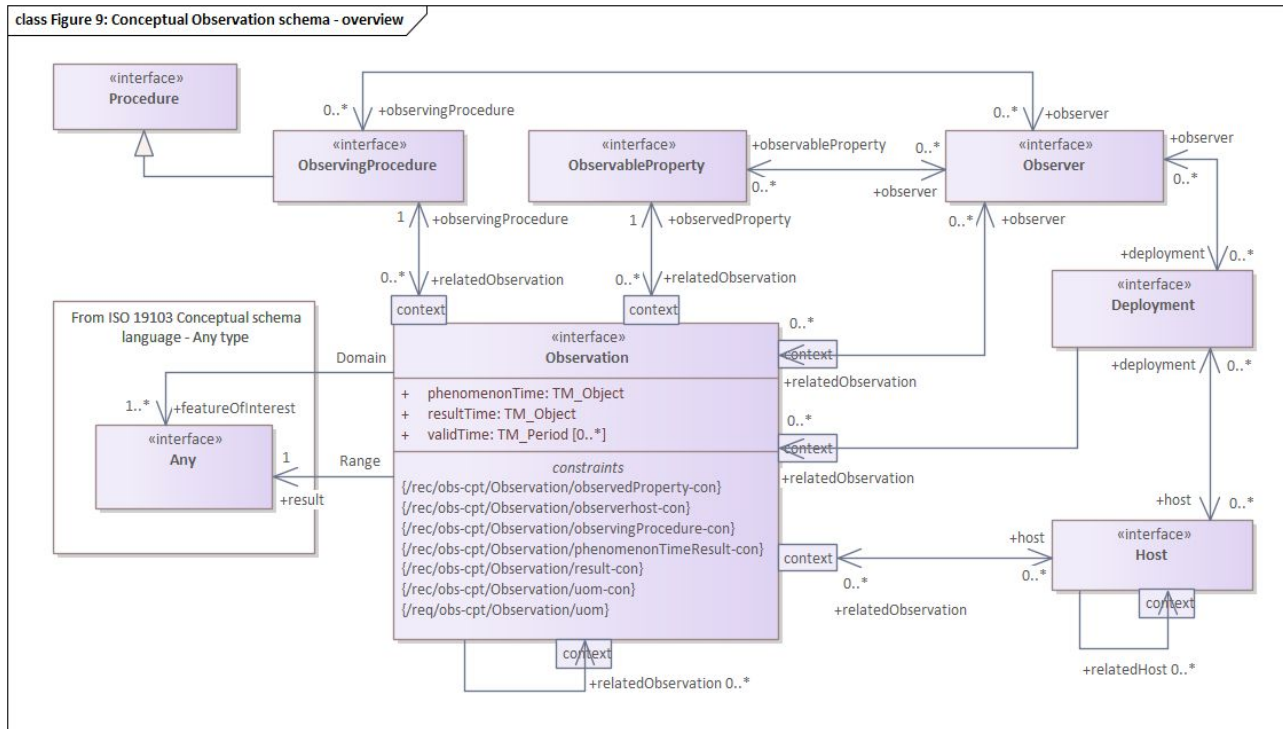
SSN/SOSA

OMS

SensorThings  
API

# Observations, measurements and samples (OMS)

An observation is an act carried out by an **Observer** to determine the value of an **ObservableProperty** of an object (**featureOfInterest**) by using a **Procedure**; the value is provided as the **result**.





SSN/SOSA

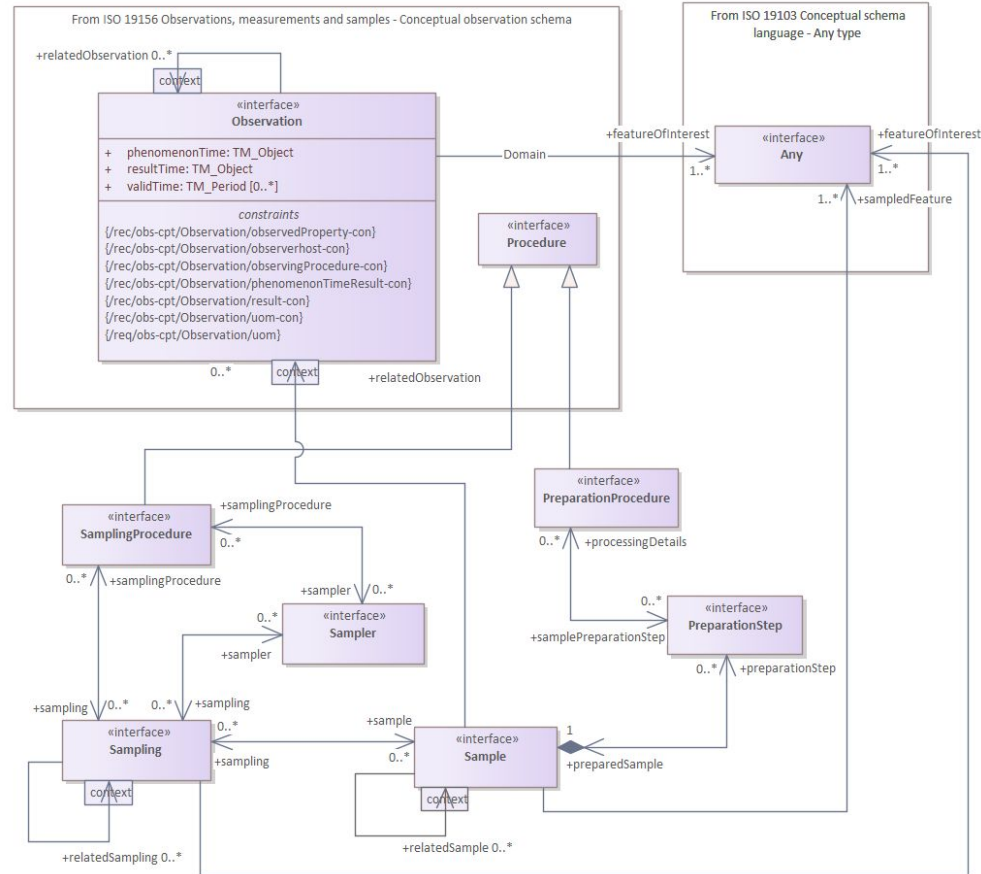
OMS

SensorThings  
API

# Observations, measurements and samples (OMS)

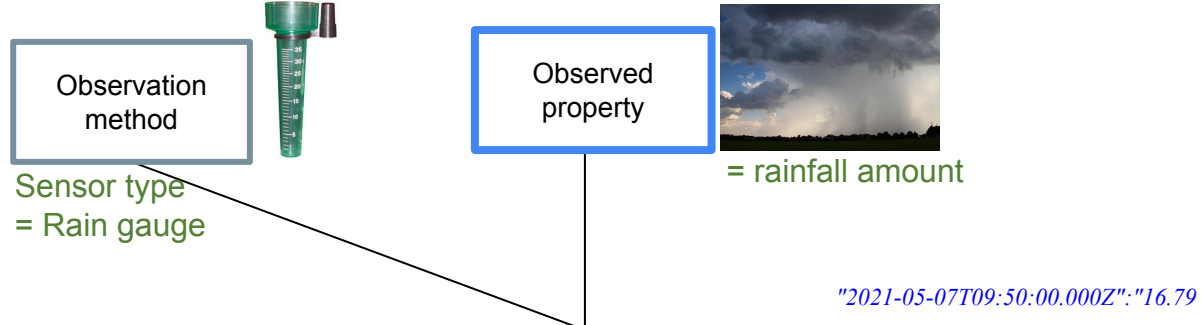
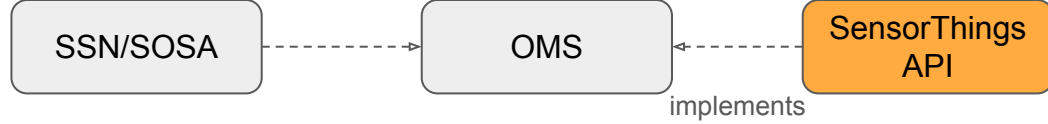
Observation can involve **Samples**, **Sampling**, **Sampler** and their related procedures/steps

class Figure 25: Conceptual Sample schema - overview



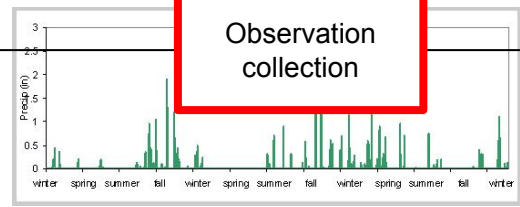
# OGC SensorThings API

Layman's terms



Sensor instance = The Strasbourg meteo station

Observer /  
Sensor /  
Station

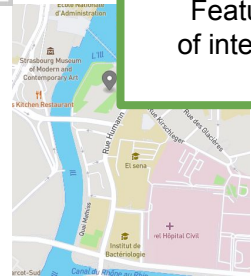


Observation  
collection

Observation

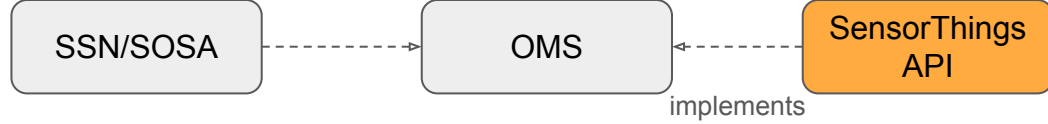
"2021-05-07T09:50:00.000Z": "16.79"

Feature  
of interest

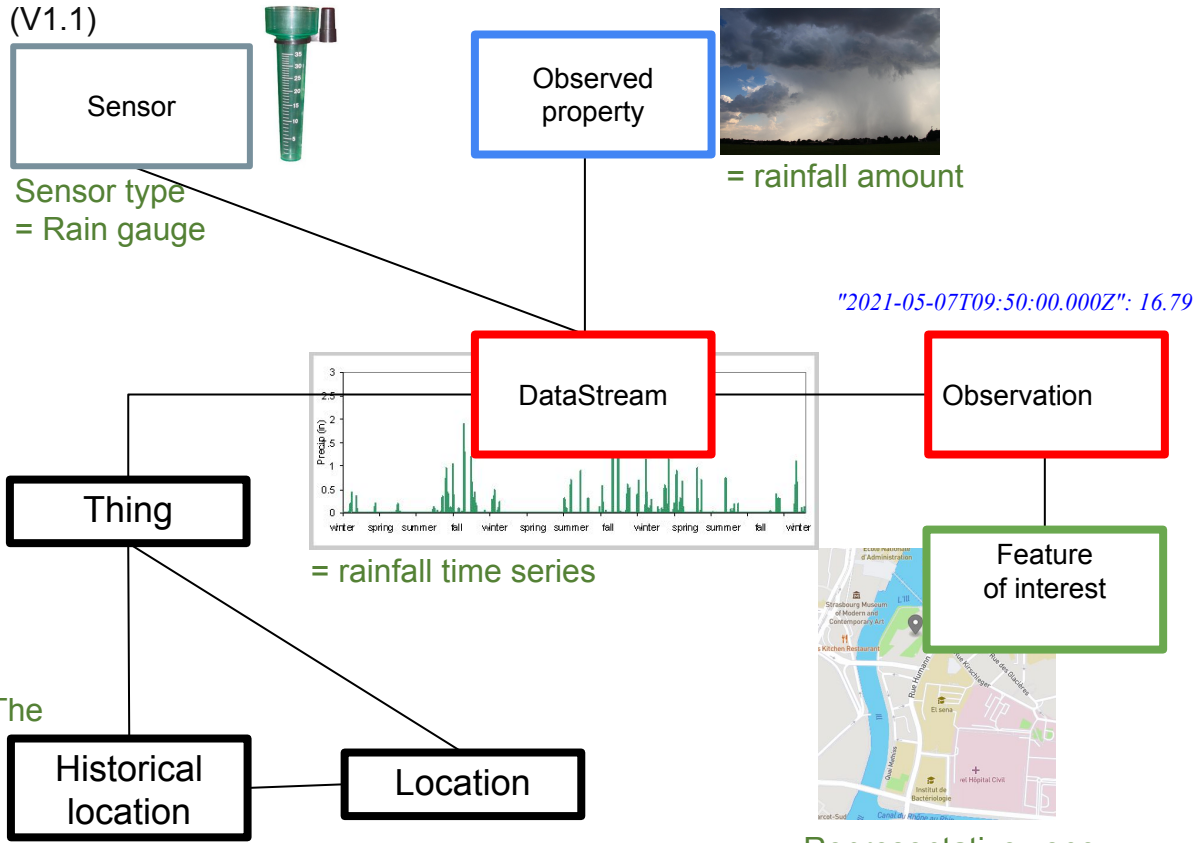


= Representative zone around the station

# OGC SensorThings API



Terms from the standard (V1.1)



Sensor



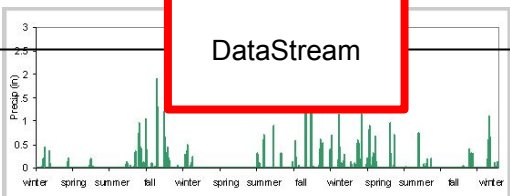
Sensor type  
= Rain gauge

Observed property



= rainfall amount

DataStream

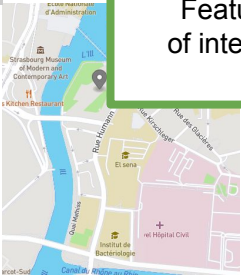


= rainfall time series

Observation

"2021-05-07T09:50:00.000Z": 16.79

Feature of interest



= Representative zone around the station

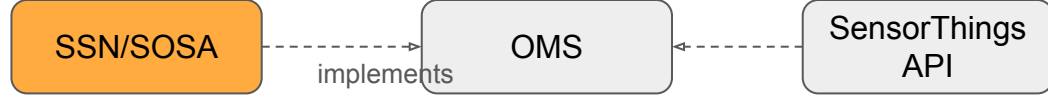


Sensor instance = The Strasbourg meteo station

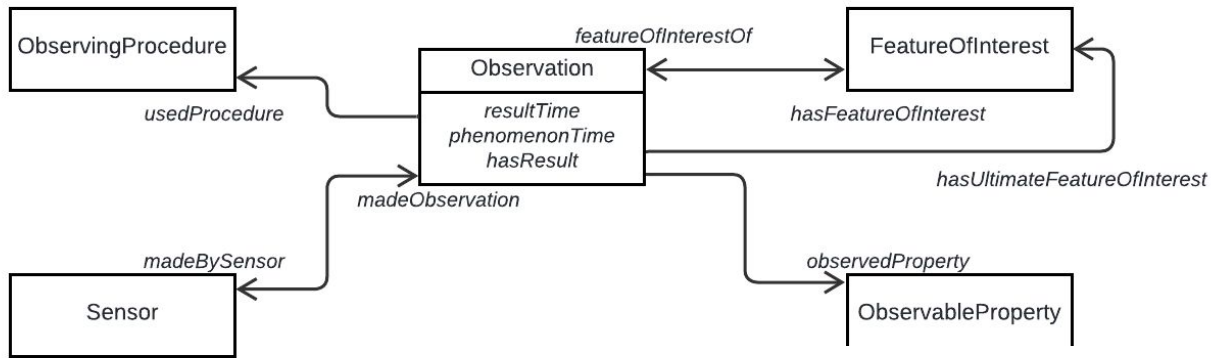
Thing

Historical location

Location

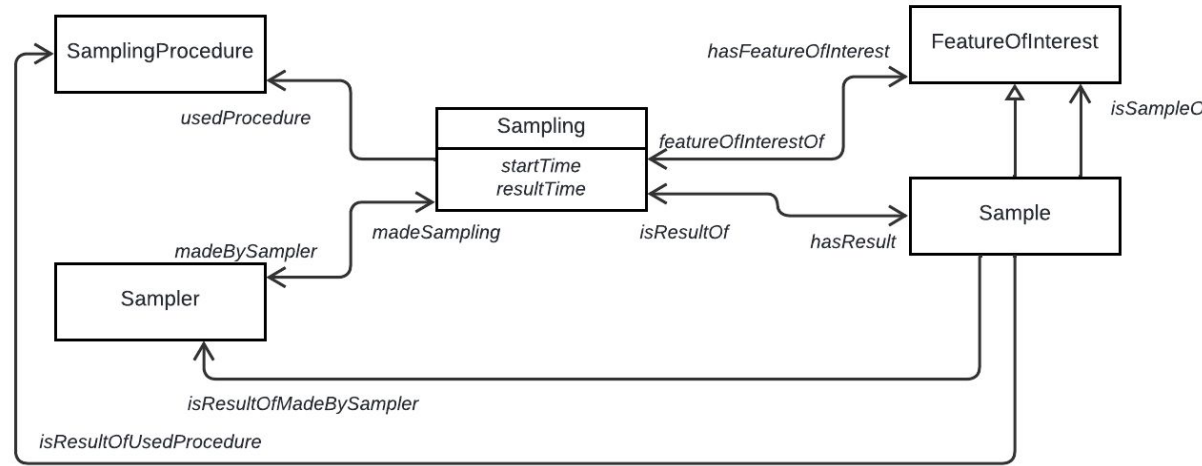


# SSN/SOSA



WIP : Snapshots from current work:  
issue #47 and PR #213

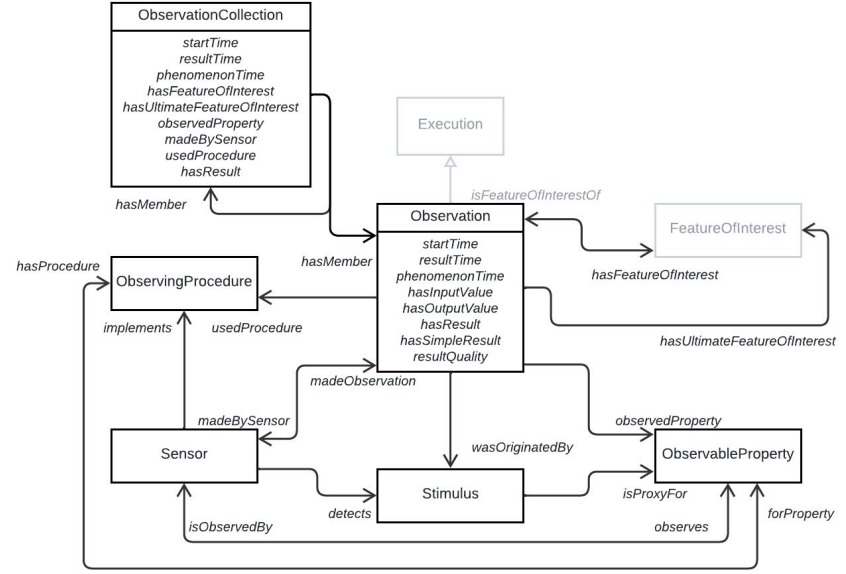
Overview of the key classes and properties (observation perspective)



Overview of the key classes and properties (sampling perspective)

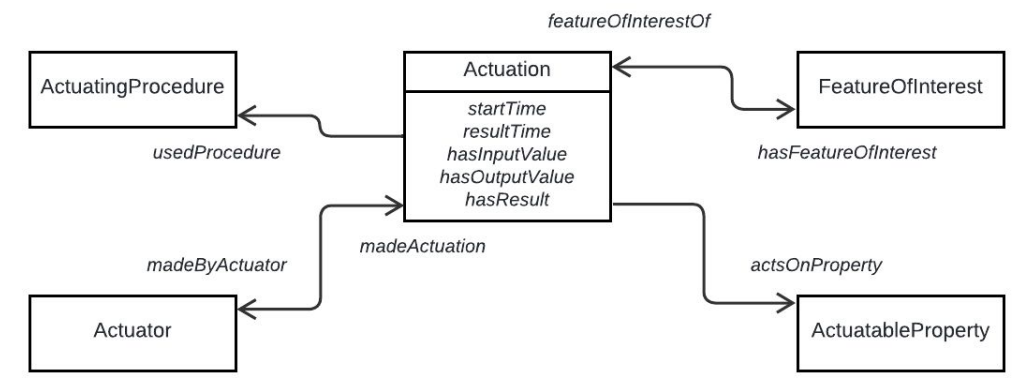


# SSN/SOSA



On-going discussion on linking Observable Property and Observing Procedure (issue #47)

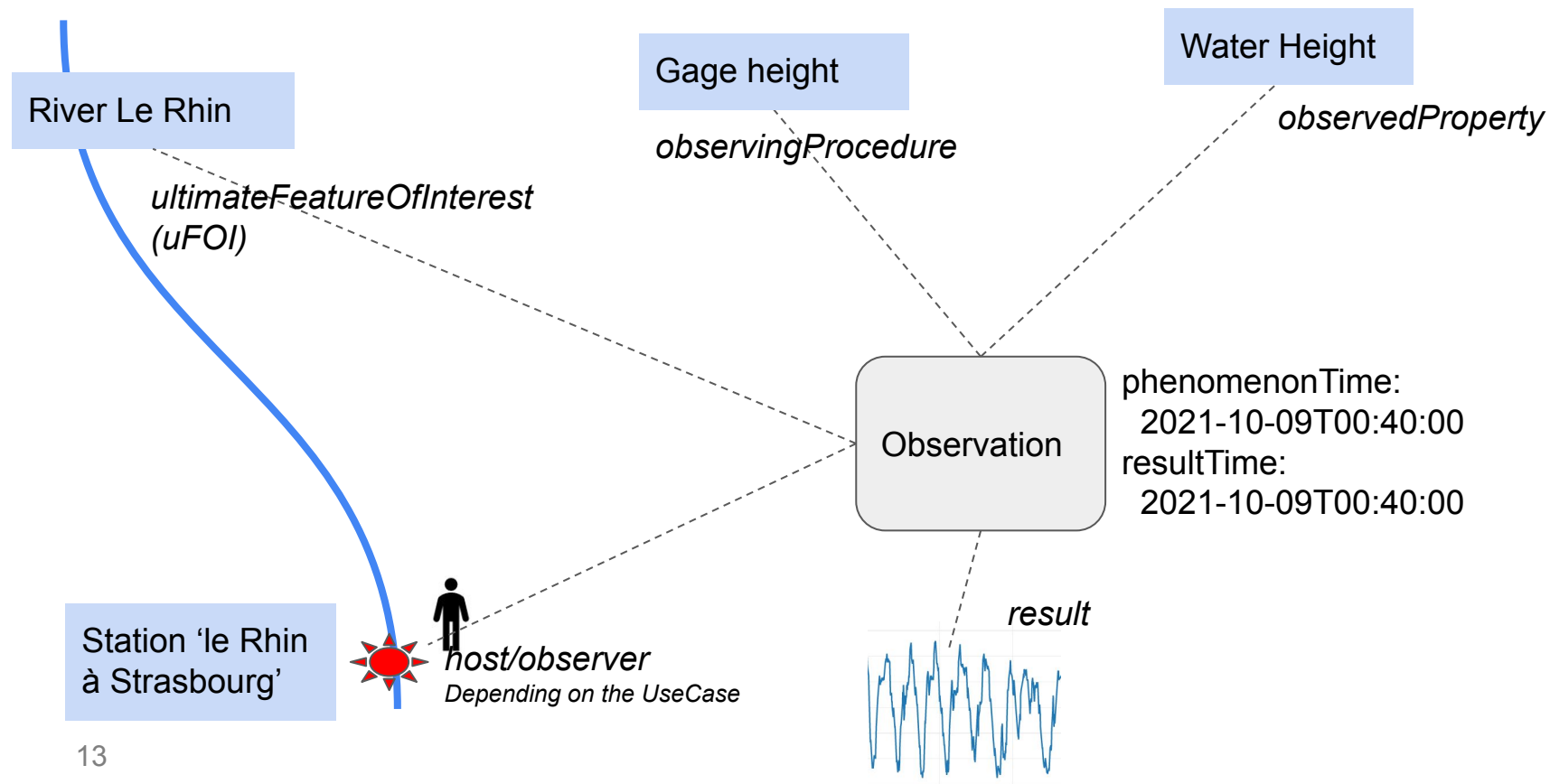
WIP : Snapshots from current work:  
issue #47 and PR #213



Overview of the key classes and properties (actuation perspective)

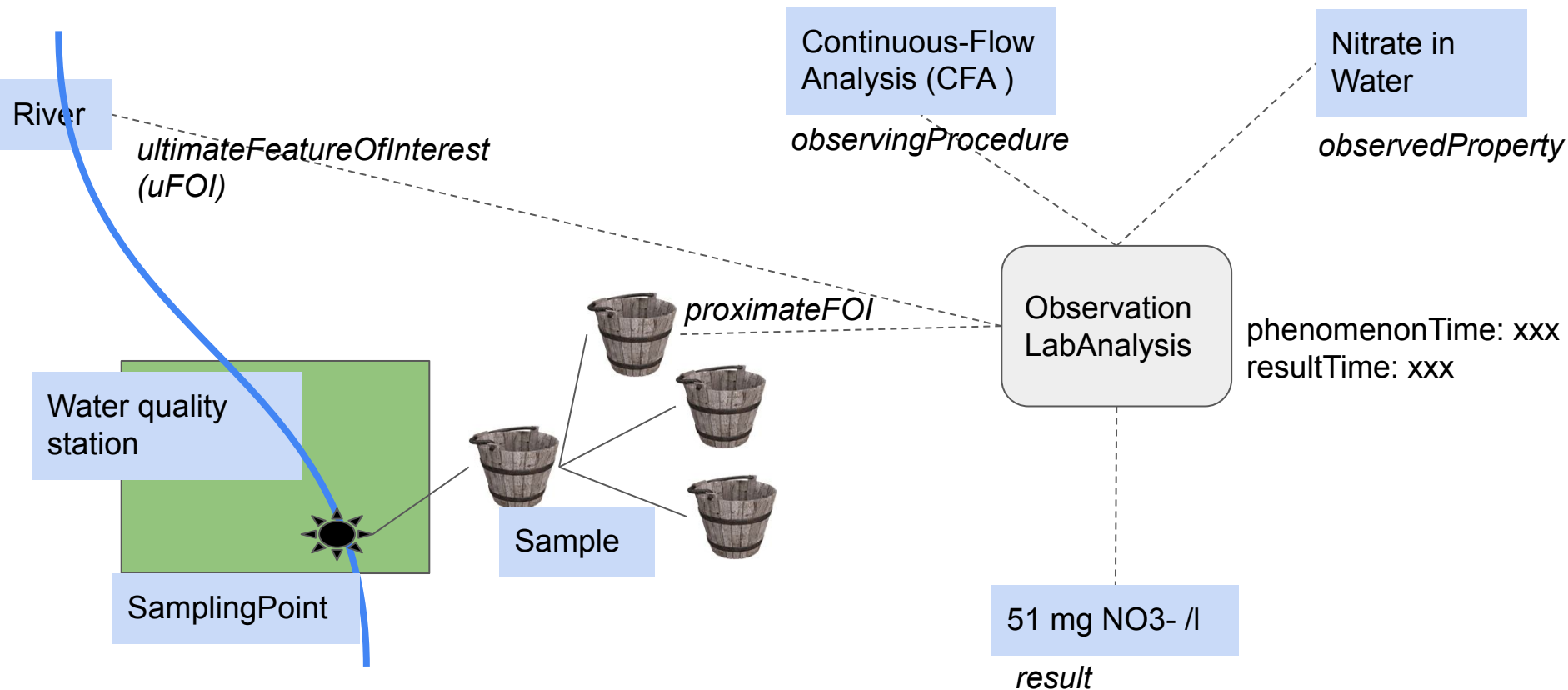
# How do OMS & I-ADOPT work together ?

OMS level 1 example : surface water quantity (height gage)



# How do OMS & I-ADOPT work together ?

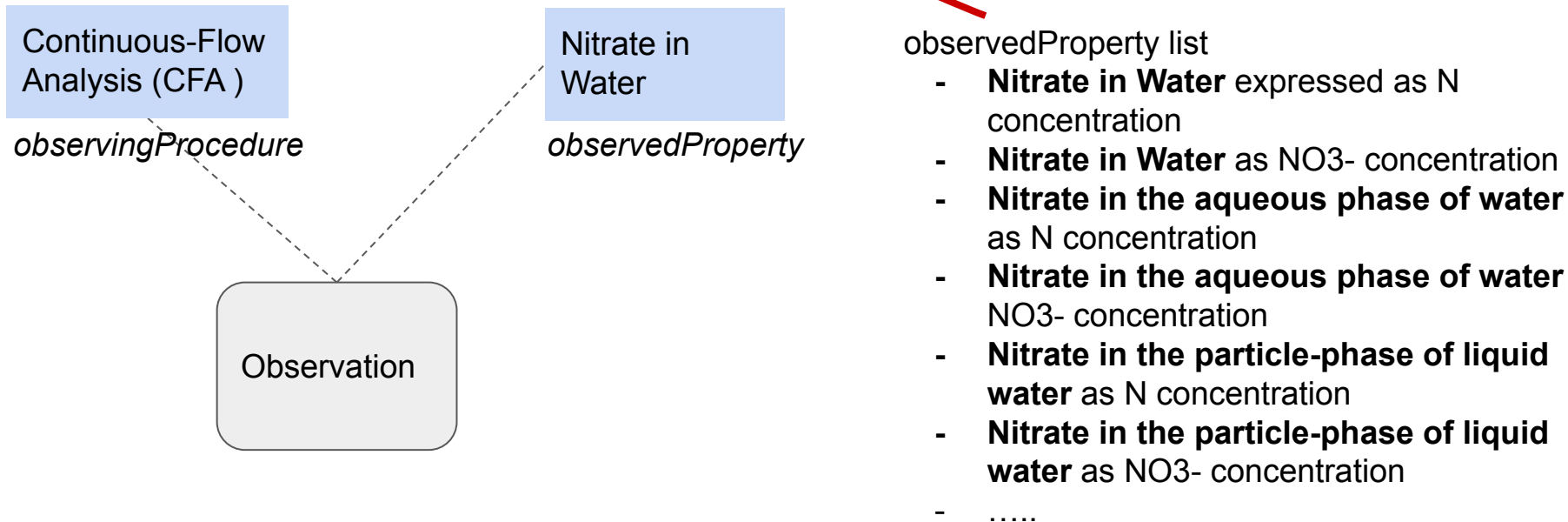
OMS level 2 example : surface water quality (samples)



# How do OMS & I-ADOPT work together ?

## Limits of Observable properties in OMS

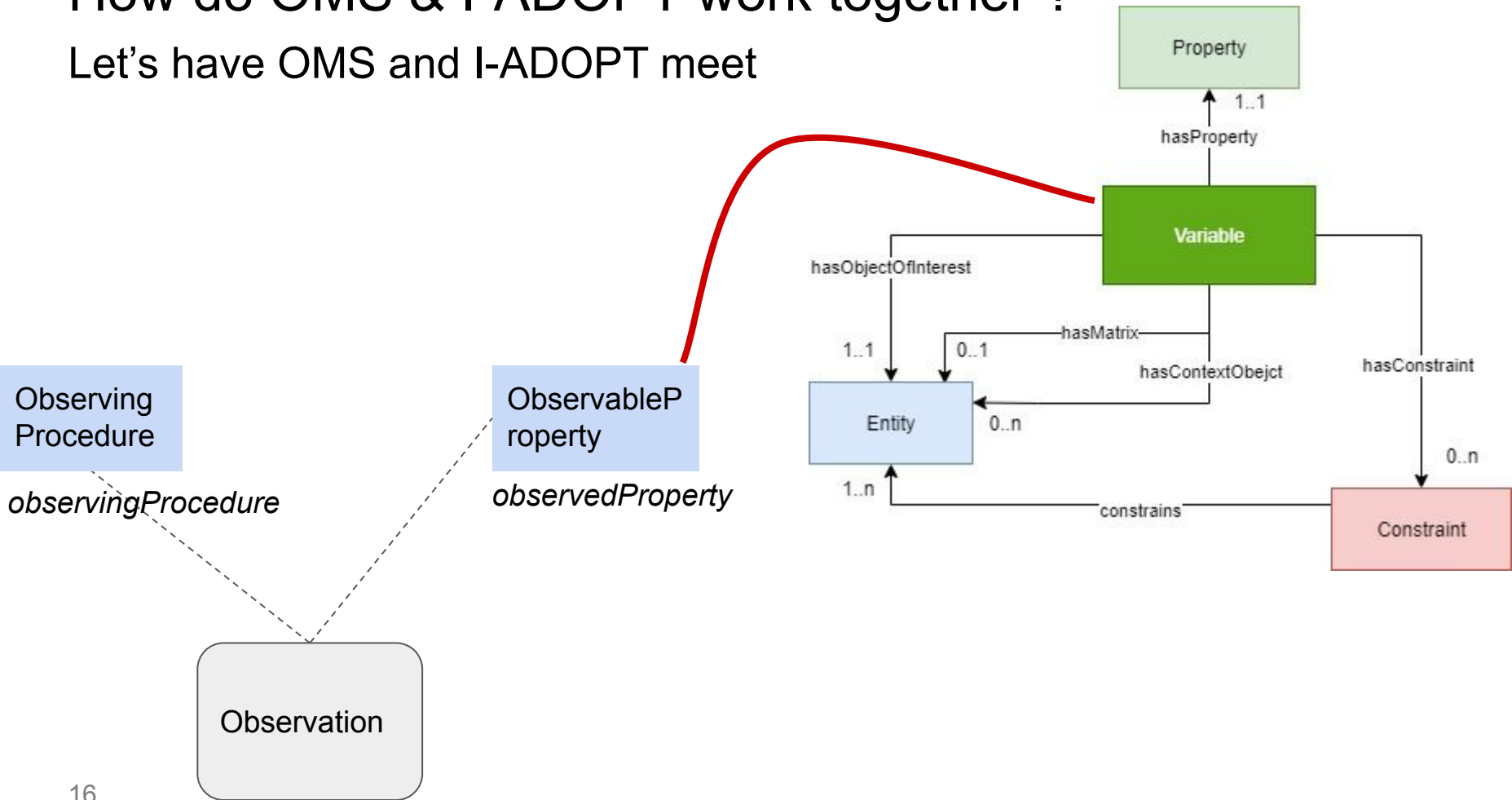
We are limited to a 'flat list'





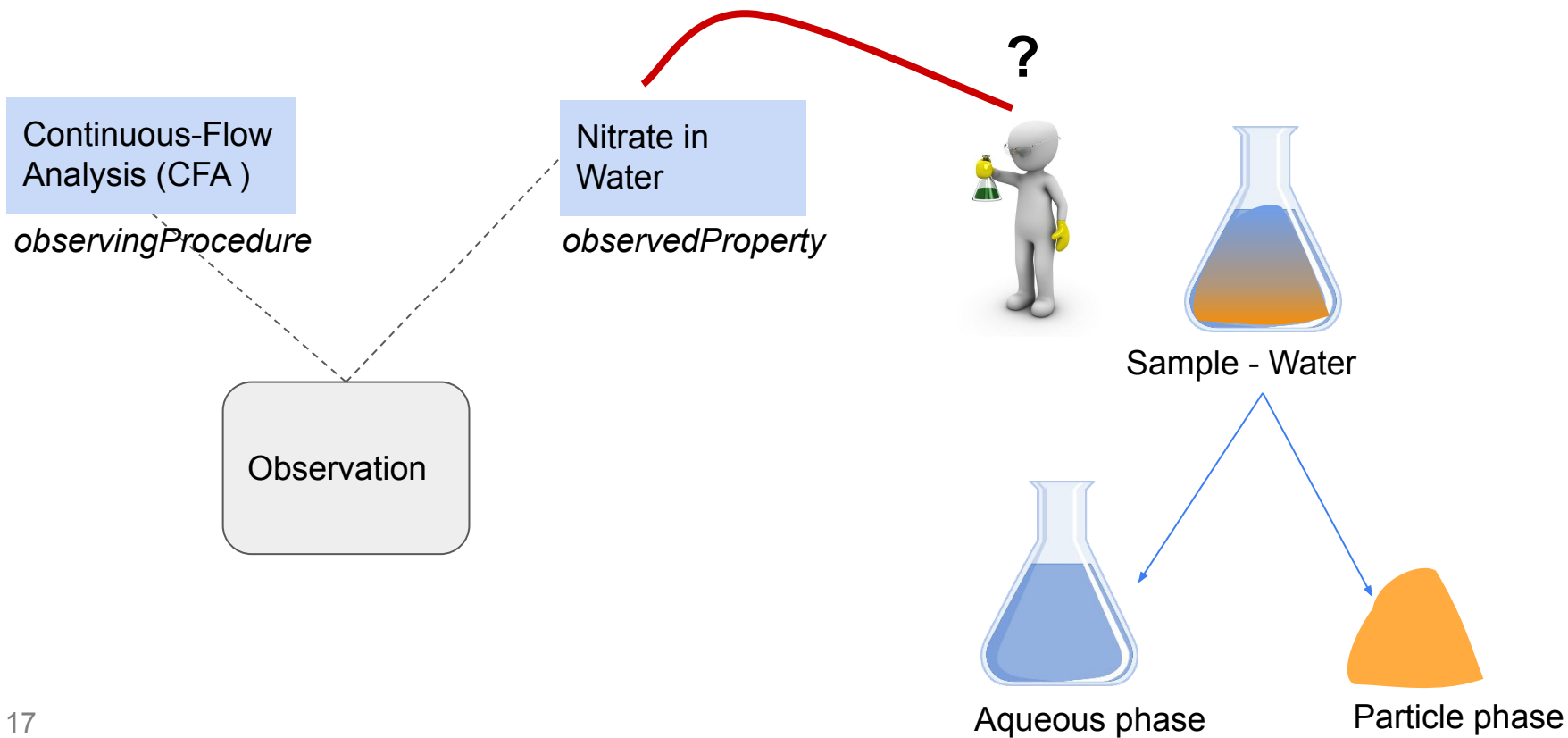
# How do OMS & I-ADOPT work together ?

Let's have OMS and I-ADOPT meet



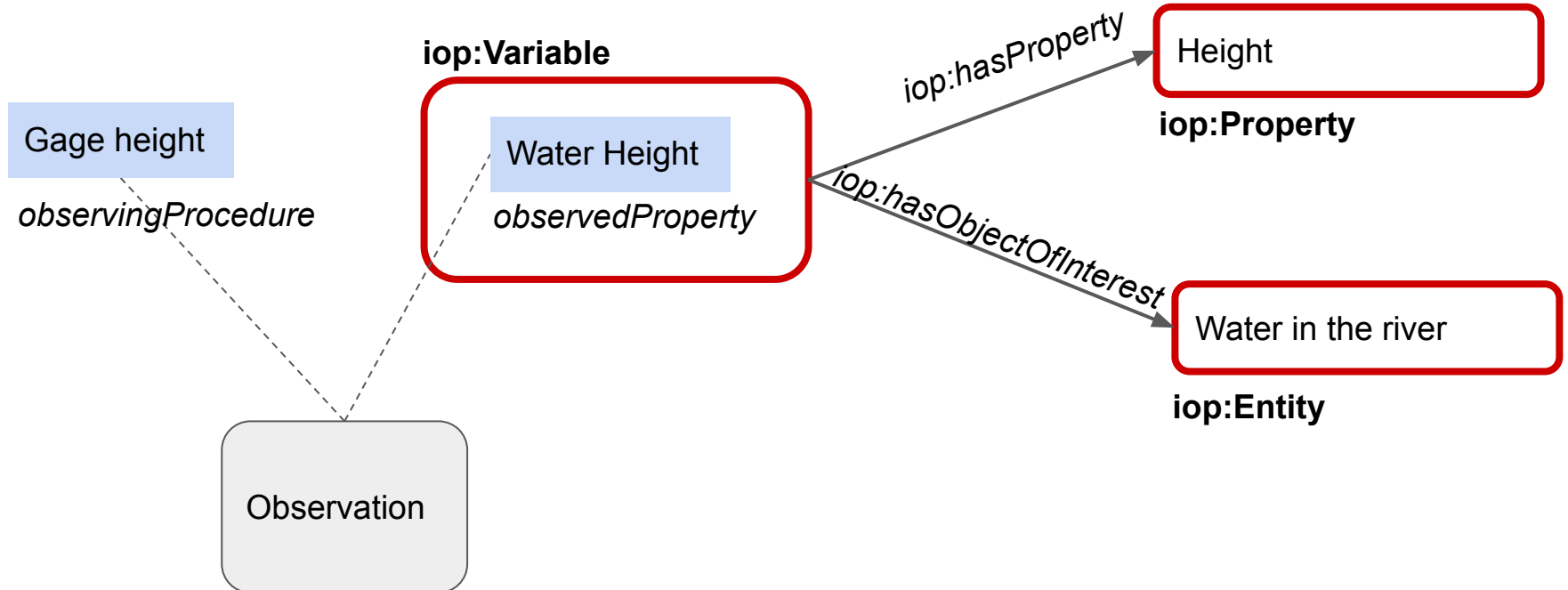
# How do OMS & I-ADOPT work together ?

## Limits of Observable properties in OMS



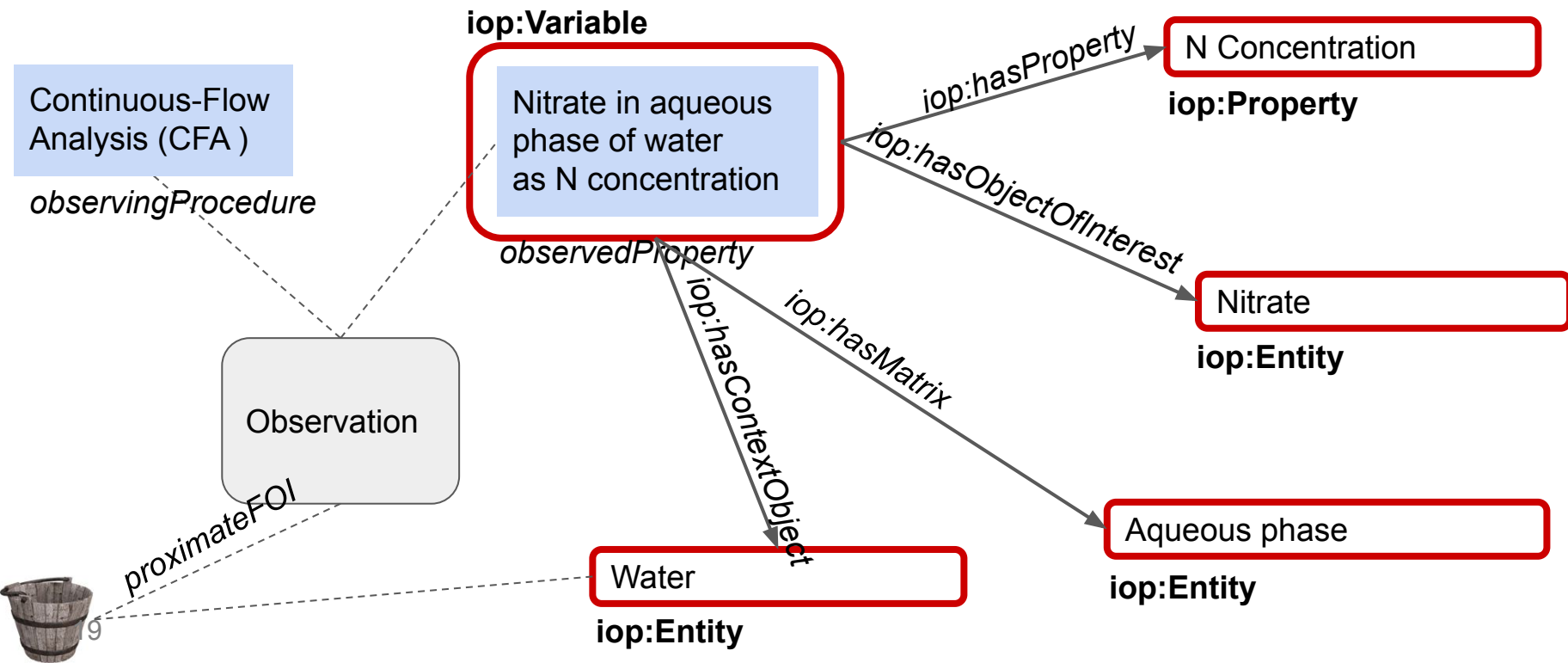
# How do OMS & I-ADOPT work together ?

## OMS + I-ADOPT level 1 example



# How do OMS & I-ADOPT work together ?

## OMS + I-ADOPT level 2 example



# How do OMS & I-ADOPT work together ?

I-ADOPT covered what we had as an issue when starting OMS revision years ago (thanks).

<https://github.com/opengeospatial/om-swg/issues/21>

Observing Procedure

*observingProcedure*

Observation

Observable Property

*observedProperty*

Variable

[Red box]

[Red box]

[Red box]

[Red box]

*iop:hasProperty*

*iop:hasMatrix*

*iop:hasObjectOfInterest*

*iop:hasContextObject*

*works well*

# Embedding of I-ADOPT in W3C/OGC standards

## Approach proposal

2 parallel activities that will cross fertilize (several people are in both groups)

- A°/ OGC OM standard working group
  - 1°/ OMS ObservableProperty model
    - To be included with OMS Logical model
  - 2°/ Then ST API extension
- B°/ W3C SSN/SOSA
  - SSN/SOSA observableProperty extension
- Bottom line
  - Target : Not having different model in A1°/ and B°/
  - Note : through the process, the original I-ADOPT model may be adjusted (still respecting the vision)
    - Ex : OMS : Host/Deployment/Observer and SSN/SOSA : Platform/Deployment/Sensor

*To be discussed in further  
details in separate  
meetings*



Geosciences pour une terre durable

**brgm**

THANK YOU

Sylvain Grellet - BRGM - [s.grellet@brgm.fr](mailto:s.grellet@brgm.fr)

Barbara Magagna - Go Fair Foundation - [barbara@gofair.foundation](mailto:barbara@gofair.foundation)

Katharina Schleidt - DataCove - [kathi@datacove.eu](mailto:kathi@datacove.eu)

Hylke van der Schaaf - Fraunhofer IOSB - [hylke.vanderschaaf@iosb.fraunhofer.de](mailto:hylke.vanderschaaf@iosb.fraunhofer.de)

Hélène Bressan - BRGM - [h.bressan@brgm.fr](mailto:h.bressan@brgm.fr)