



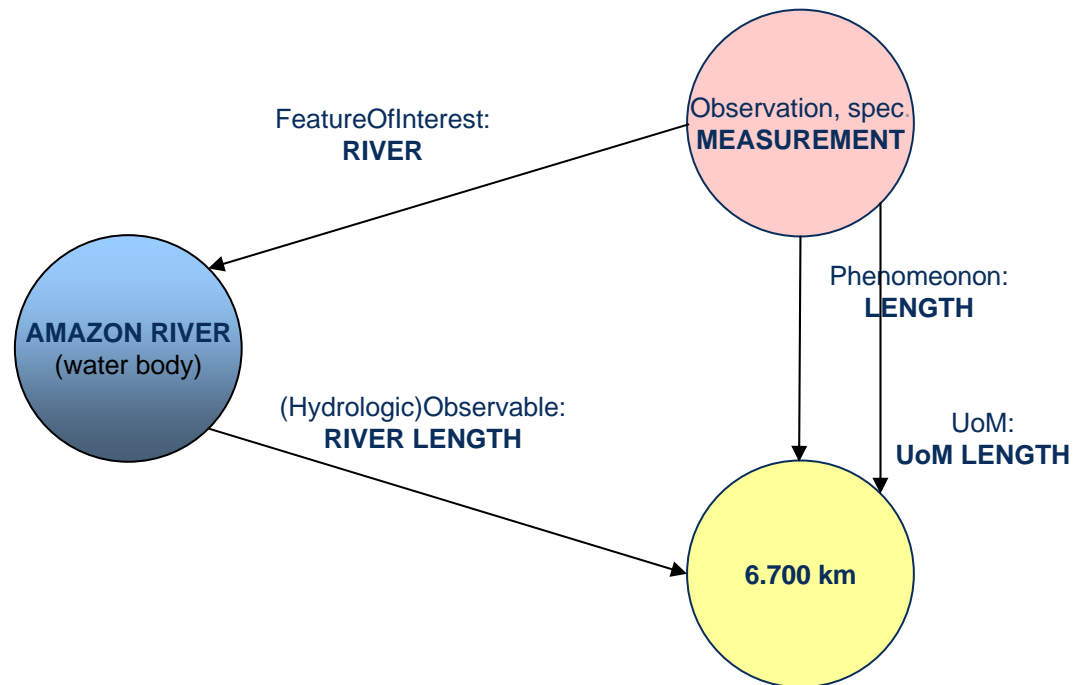
Observable Properties of Hydrologic Features

Hydrology Domain Working Group
at the OGC/TC Meeting, Austin, 2012, Mar 19-23
Irina Dornblut, Global Runoff Data Centre of WMO

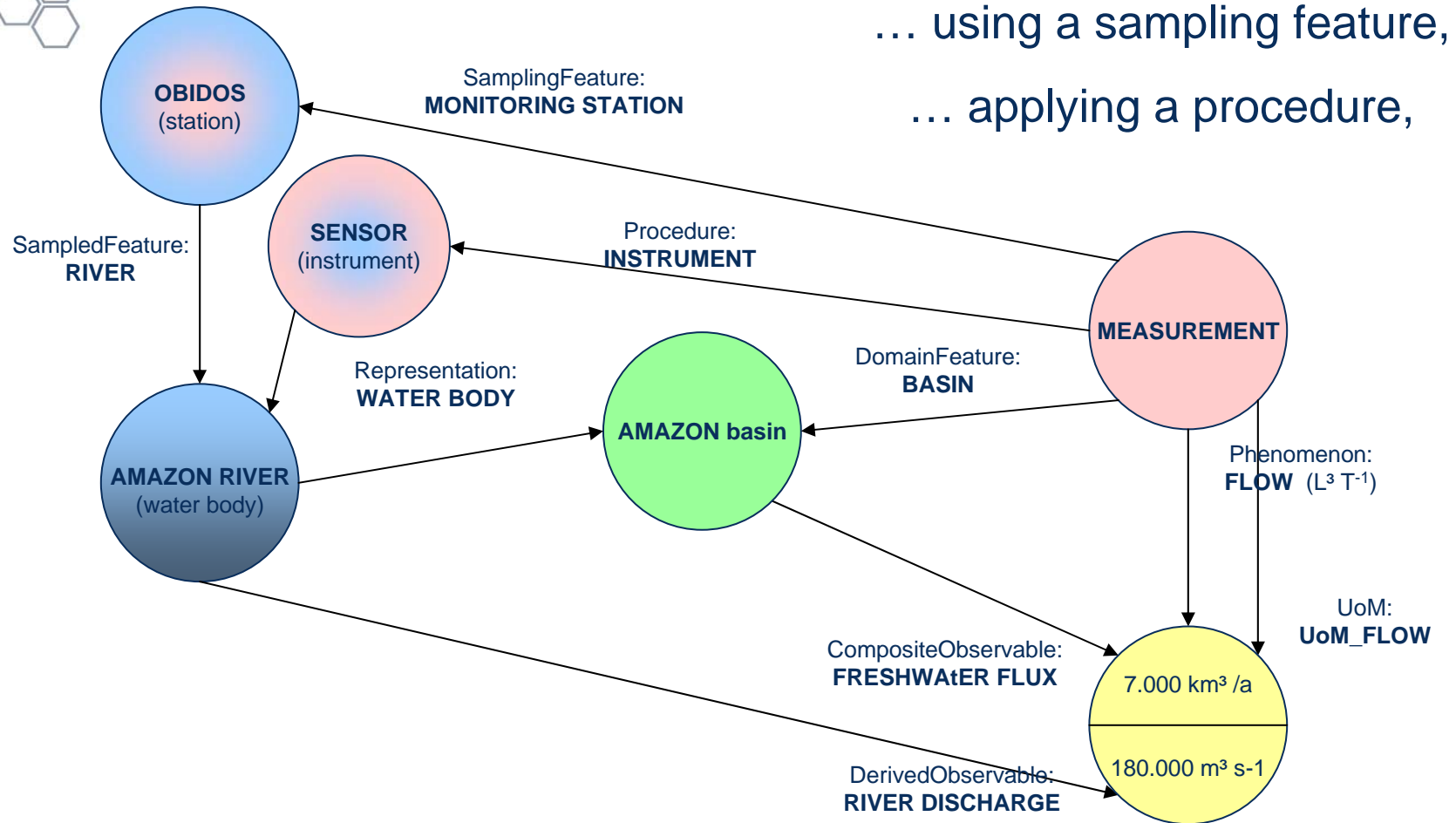
Hydrologic Observation



event, e.g. measurement, where the value of a property of a particular feature of interest is determined ...

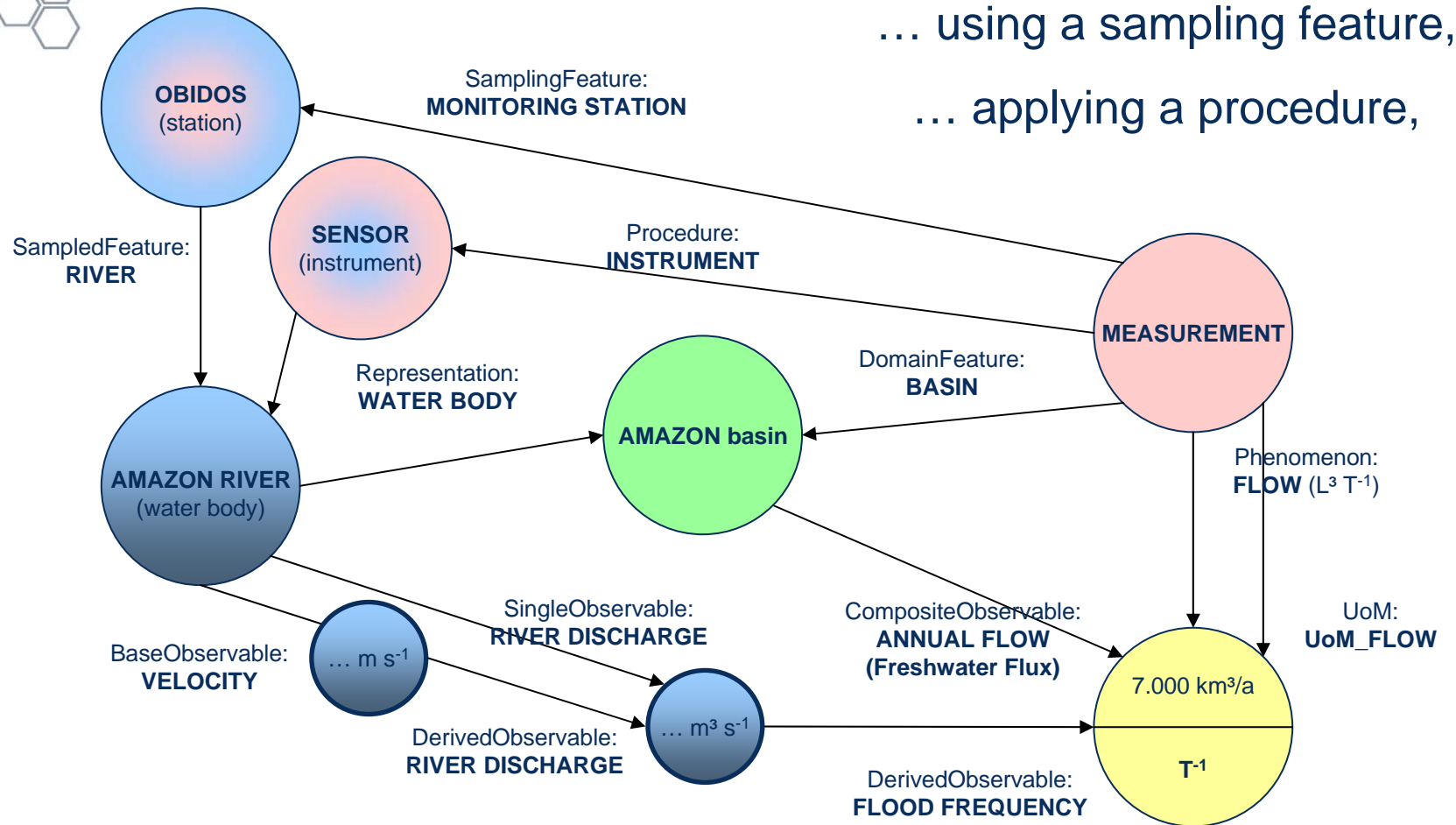


Hydrologic Observation determines the value of a property of a particular hydrologic feature of interest ...



... in place of a property of the „ultimate subject of observation“ (O&M).

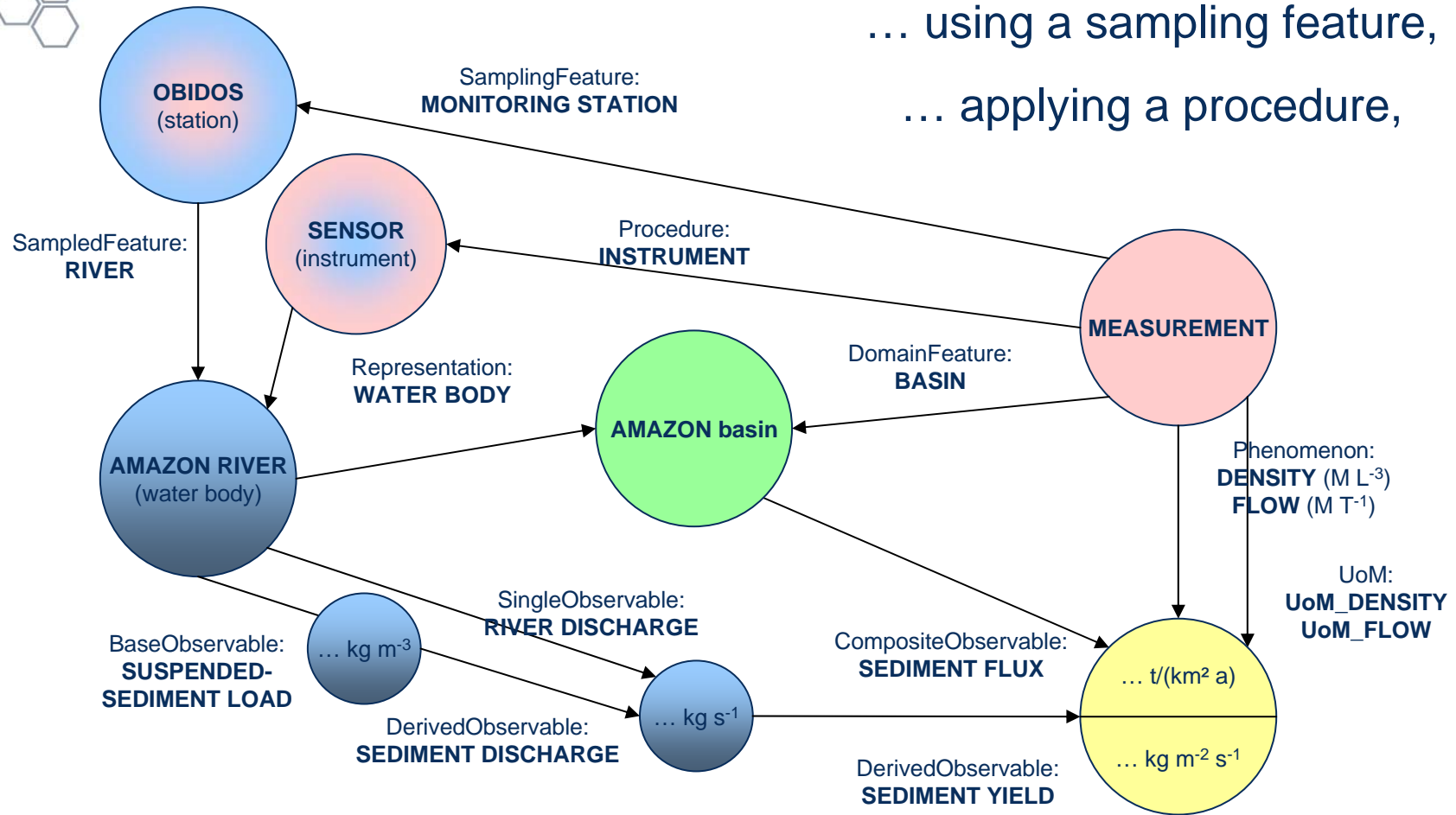
Hydrologic Observation determines the value of a property of a particular hydrologic feature of interest ...



... using a sampling feature,
... applying a procedure,

... in place of a property of the „ultimate subject of observation“ (O&M),
... by combining appropriate base phenomena or component properties.

Hydrologic Observation determines the value of a property of a particular hydrologic feature of interest ...



... in place of a property of the „ultimate subject of observation“ (O&M),
... by combining appropriate base phenomena or component properties.

Hydrologic Observable - Concept



1. No hydrology-specific concept required!
2. Common, cross-domain applicable, patterns to identify and describe observable properties
 - Carried by a hydrologic feature,
 - Independent of their possible values,
 - Having specific names and accepted references,
3. Some basic ideas on a concept of observable ps

Hydrologic Observable - Concept



- **Observable:** Property of a body or substance,
 - Identifiable by name / symbol / code and a reference such as a material, procedure, property, rf value, rf dataset, uom.
 - Symbols specified by the applied concept, e.g. using subscripts,
 - Exist independently of observation, but “fit to be observed” using an appropriate procedure.
- **Hydrologic observable:**
 - Carried by a water body above, on and below the land surface, or by the water accumulated therein,
 - Names and references may be specified for use in hydrology

Hydrologic Observable - Concept



1. Quantity

JCGM 200:2012_International vocabulary of metrology -- Basic and general concepts and associated terms (VIM3).

whose values are expressed as a numbers and rf

- Physical, chemical, biological quantities,
- Ratio between quantities of same dimension, e.g. fraction,
- Number of entitites, e.g. number of taxa,
- Ordinal quantity, e.g. high water, peak flow,
quantity whose values may be arranged on a ordering scale, but for which
no algebraic operation exist
- Derived quantity, e.g. discharge,
quantity whose values are not directly determined, but derived from the
values of one or more base quantities, i.e. defined in terms of base quantities
and can be expressed as a product of powers of these.

Hydrologic Observable - Concept



2. Nominal property,

whose values are expressed in words or using codes

- e.g. colour, odour, turbidity, bed material.

3. Immaterial property (of no material substance),

whose values cannot be ‚sensed‘, but expressed in words

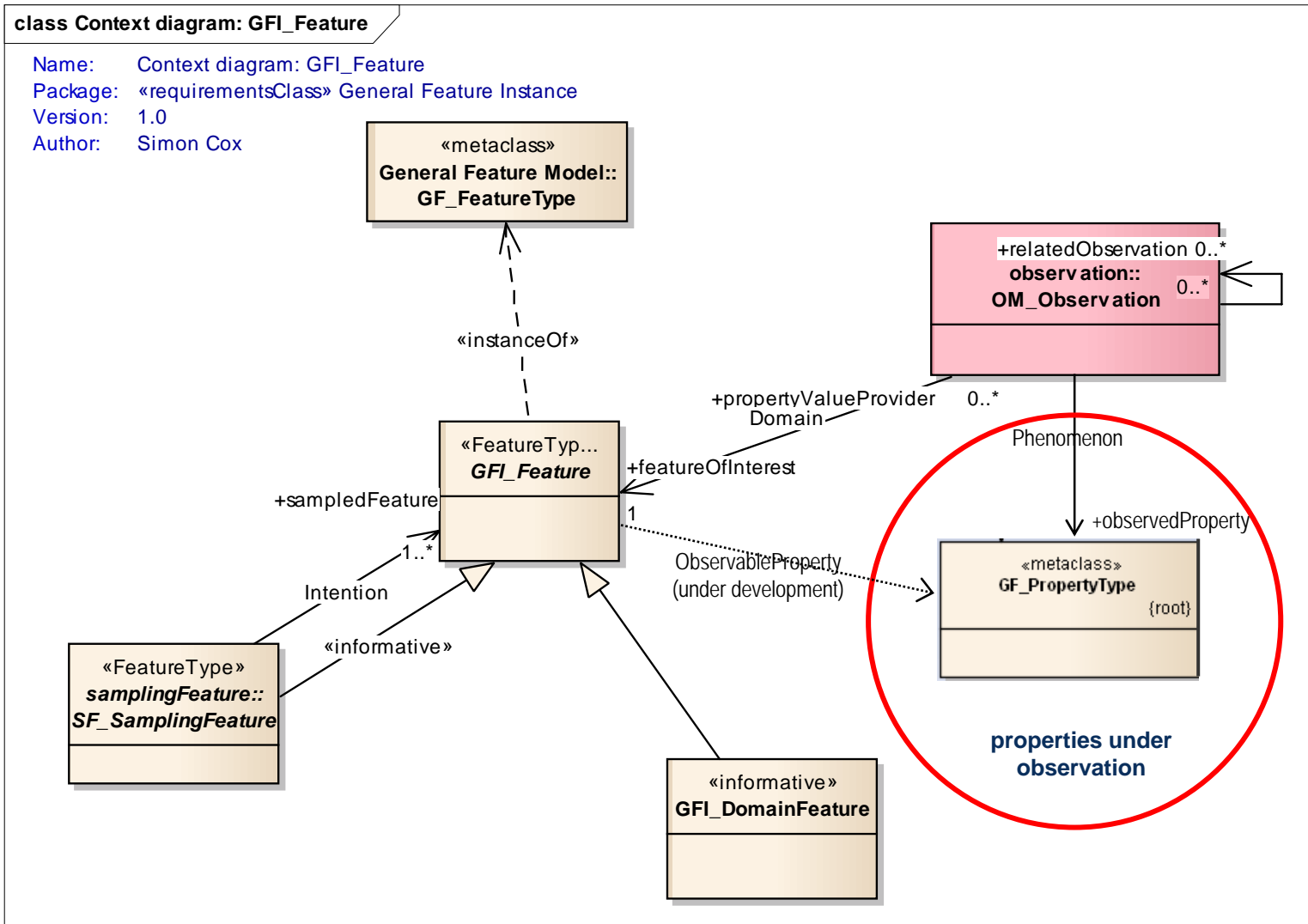
- e.g. significance, potential, costs.
- Example: „ecological potential“ with a value of „MEP“ (EU-WFD);
Example: criteria of the UNESCO World Heritage Convention.

Hydrologic Observable - Concept

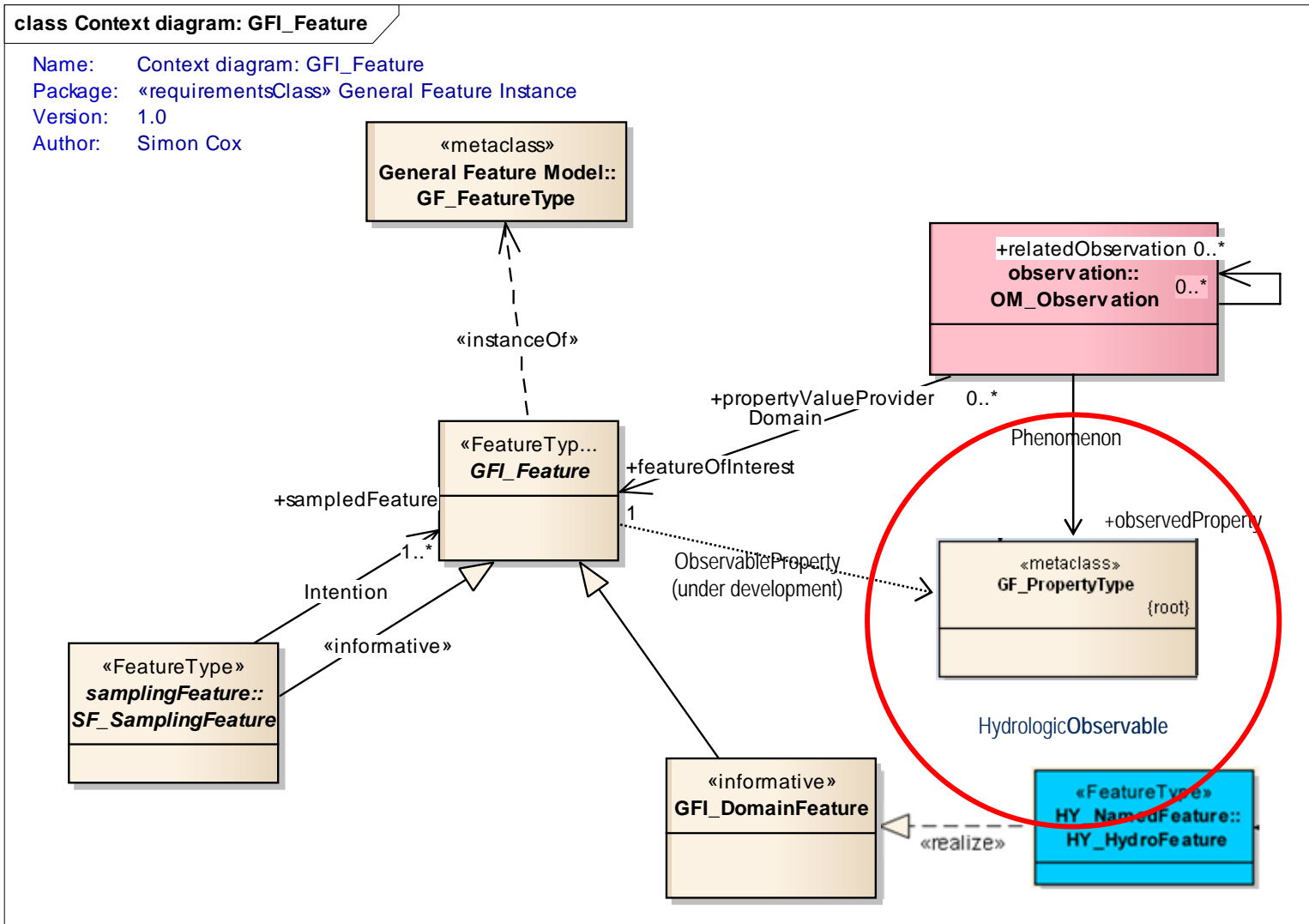


- Composite property
 - Created from combination of one or more
 - Properties of any type and category,
 - Quantities of different dimension,
 - Quantities of same dimension but different kind of quantity
 - Quantities of same dimension and same kind of quantity
 - Join or summation of properties in respect to the feature of interest, e.g. hydrologic (domain) feature.
 - Not to be confused with a derived quantity expressible in terms of base quantities. A component may be a derived quantity.

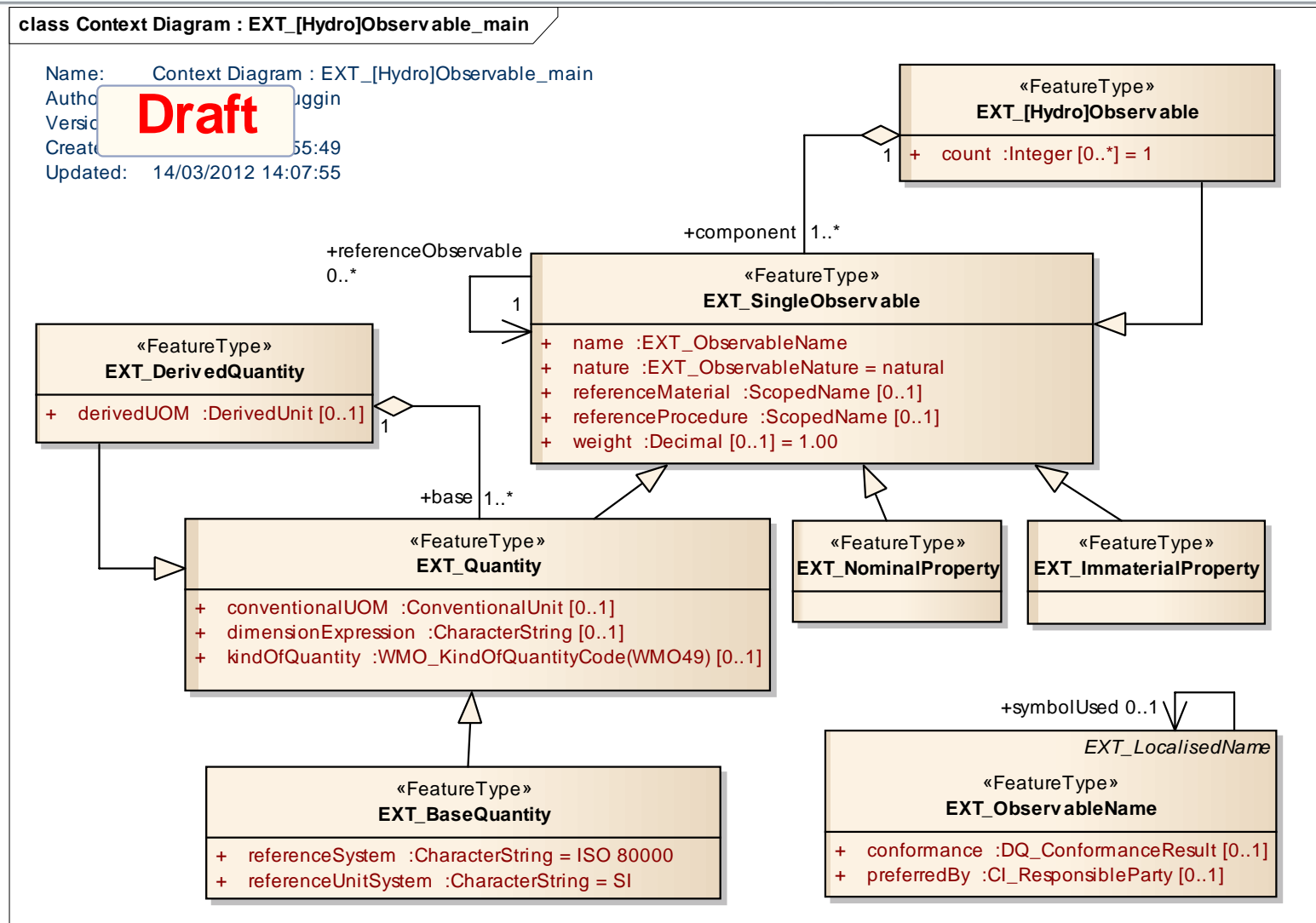
Phenomenon (ISO 19159:2011, O&M)



Hydrologic Observable - Concept



Hydrologic Observable may look like this



EXT-prefix indicates cross-domain relevance beyond the hydrology domain

Hydrologic **Observable** – Next steps



- Consolidation of cross-domain concepts (June 2012)
 - Alignment to an overall concept of *observableProperty* (under development) in the context of *O&M*
 - Alignment to the concept of *phenomenon* of *WaterML2*
 - Alignment to the overall concept of *UOM (ISO19136:GML)*

- Integration in WIGOS Metadata concept (end 2013)

Contributions welcome! Thank you for attention!