



The sampled feature of hydrologic observation

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

SampledFeature of hydrologic observation

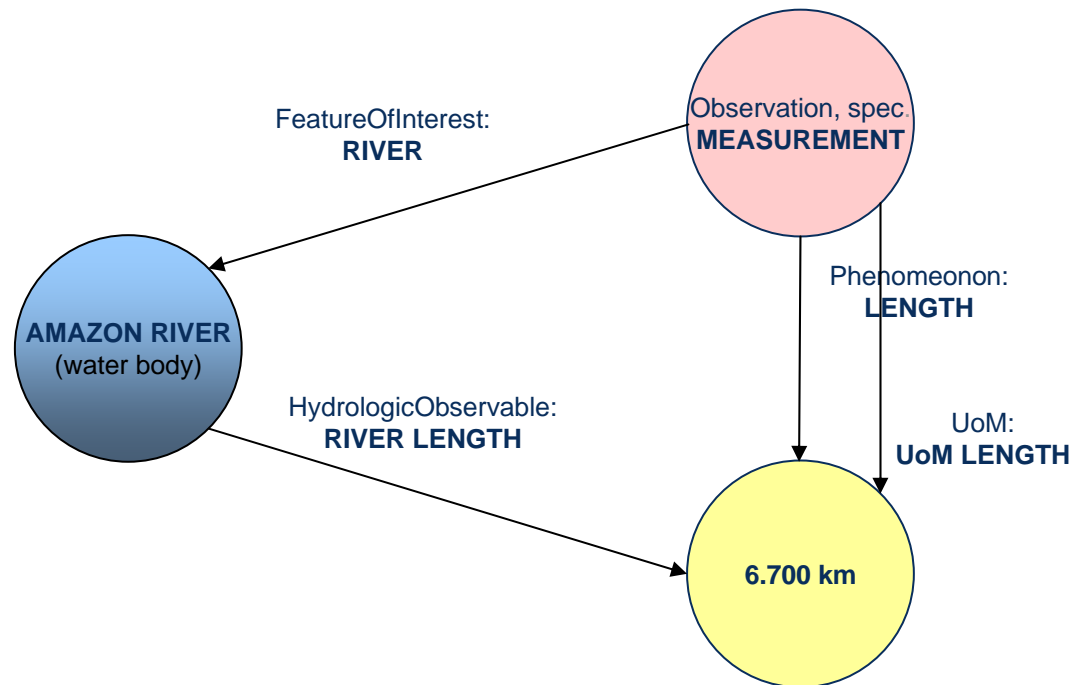


1. Observation relationships (outline)
2. Examples of domain-specific *featureOfInterest*
3. Identification of hydrologic features (*HY_Features*)
4. OGC 11-039r2 Discussion paper:
« *HY_Features: a Common Hydrologic Feature Model* »

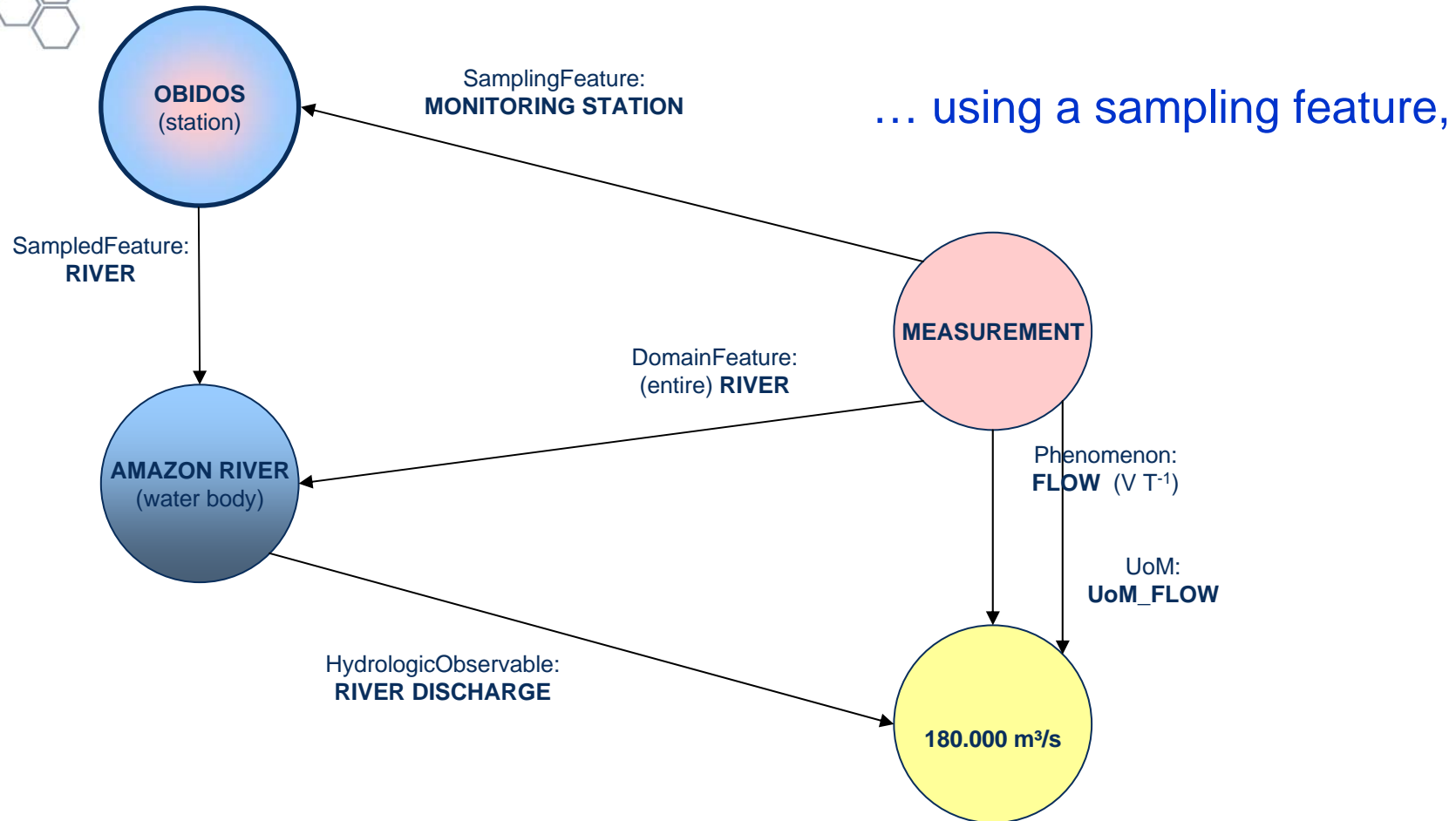
Hydrologic Observation



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



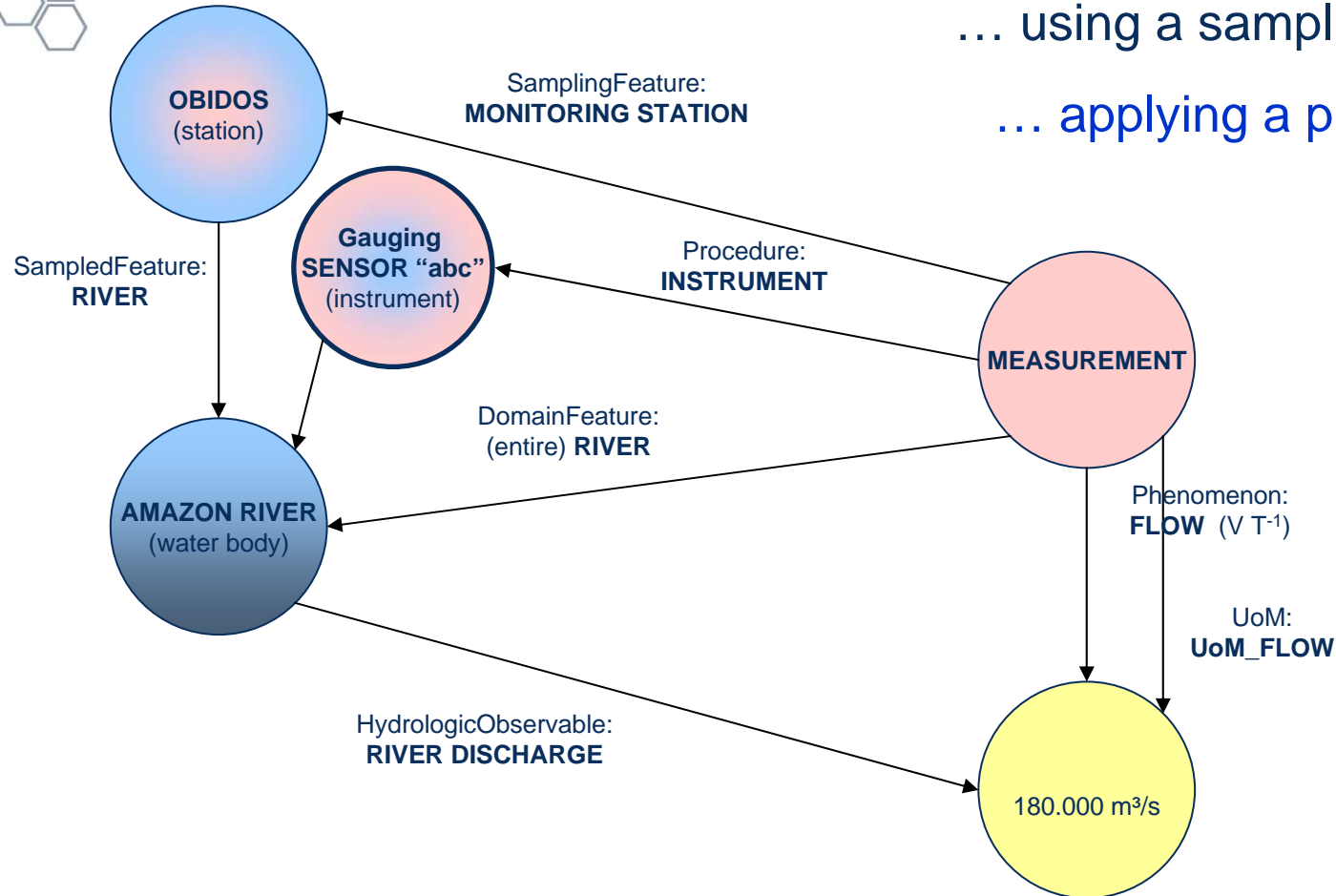
Hydrologic Observation determines the value of a property of a particular hydrologic feature of interest ...



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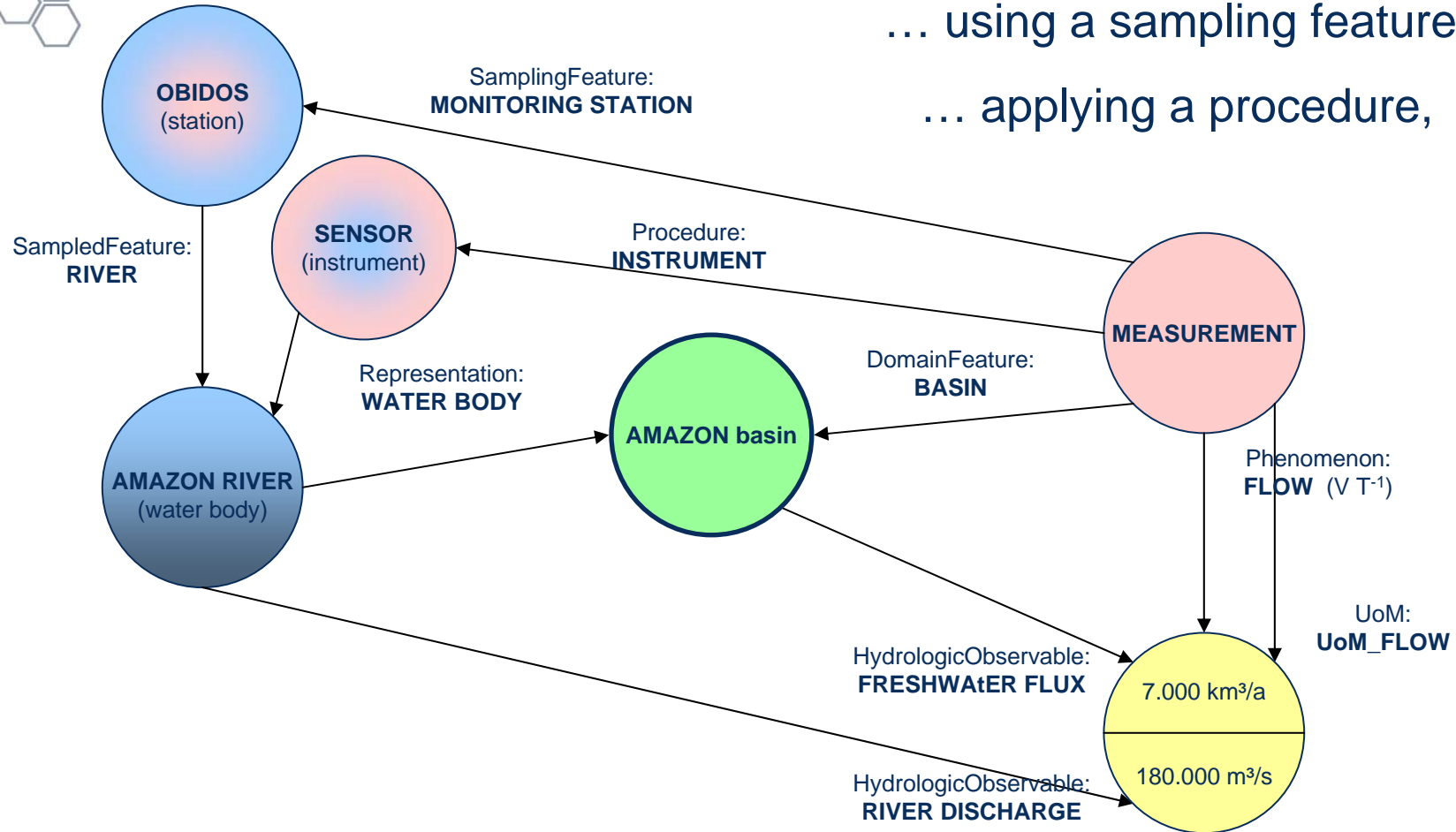
... using a sampling feature,
... applying a procedure,



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

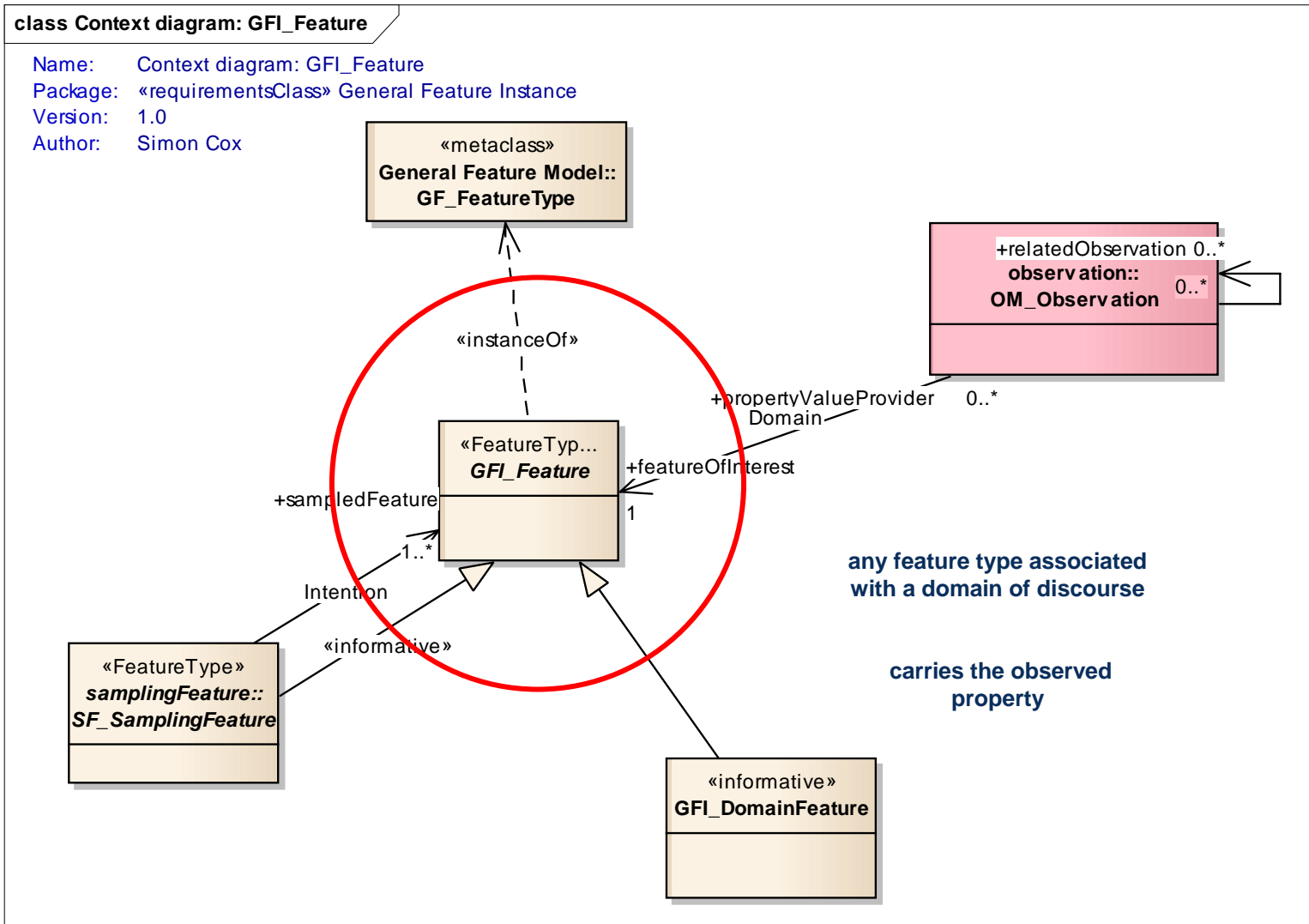


... using a sampling feature,
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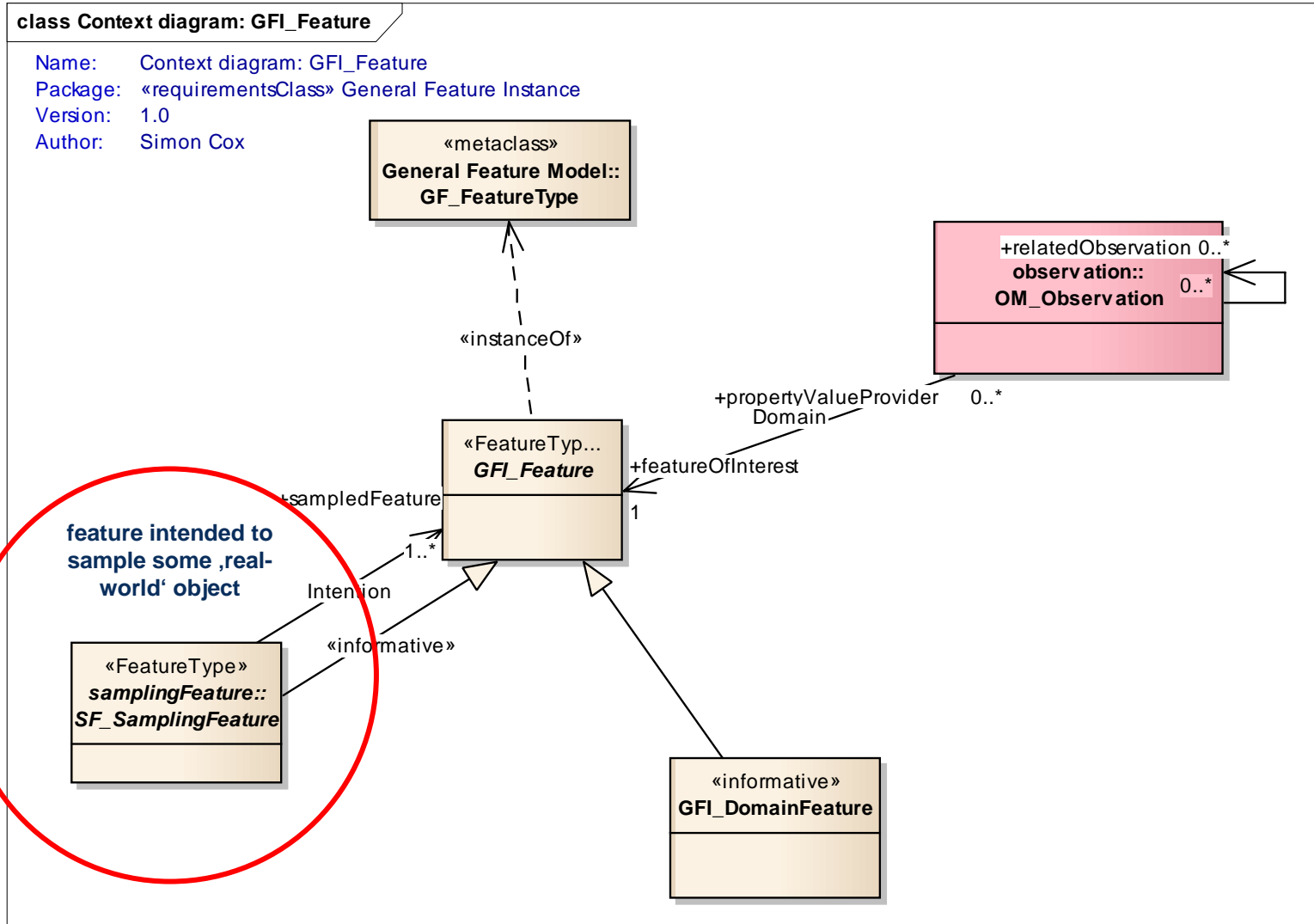


... in place of a property of the „ultimate subject of observation“ (O&M).

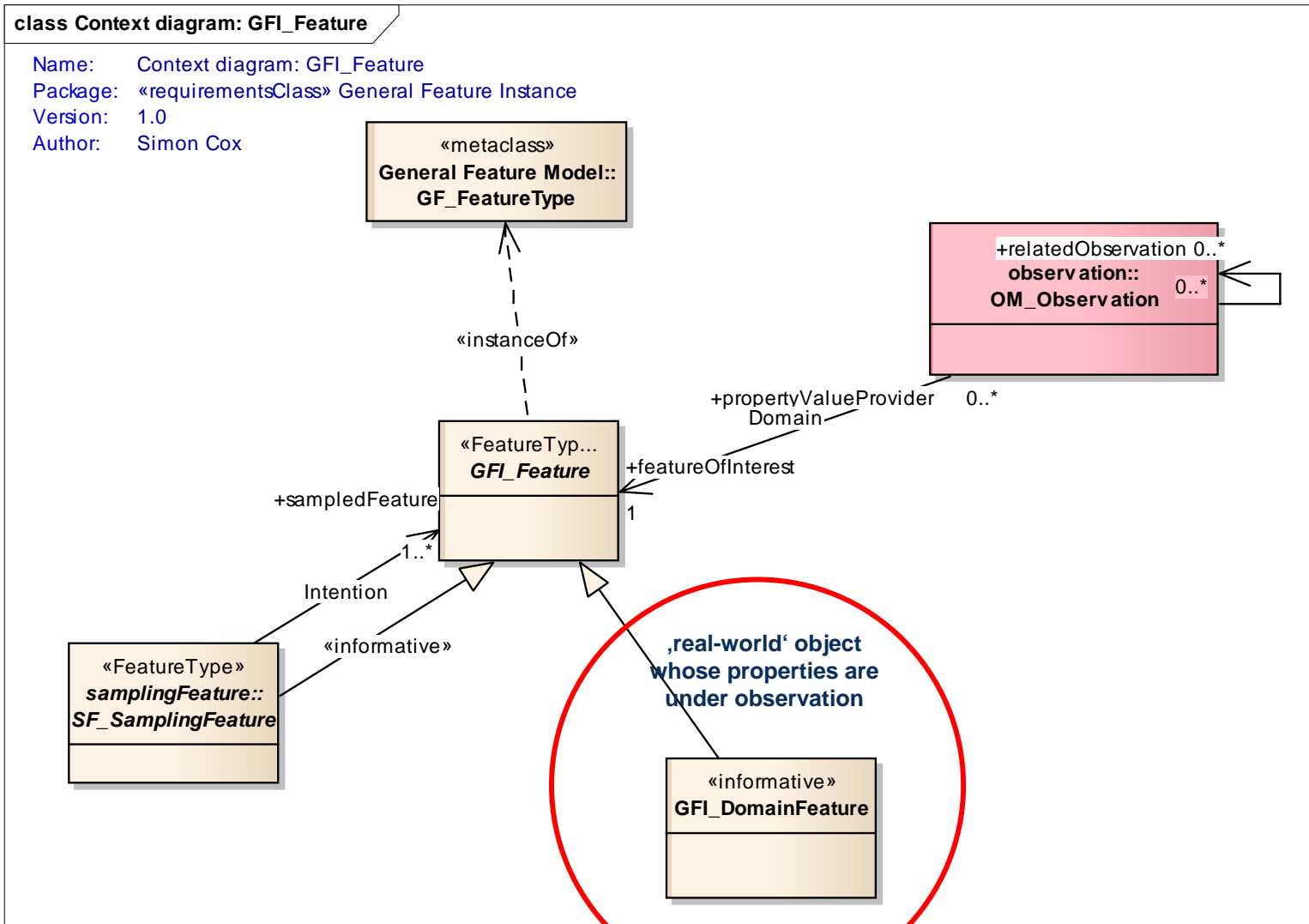
GFI_Feature (ISO 19159:2011, O&M)



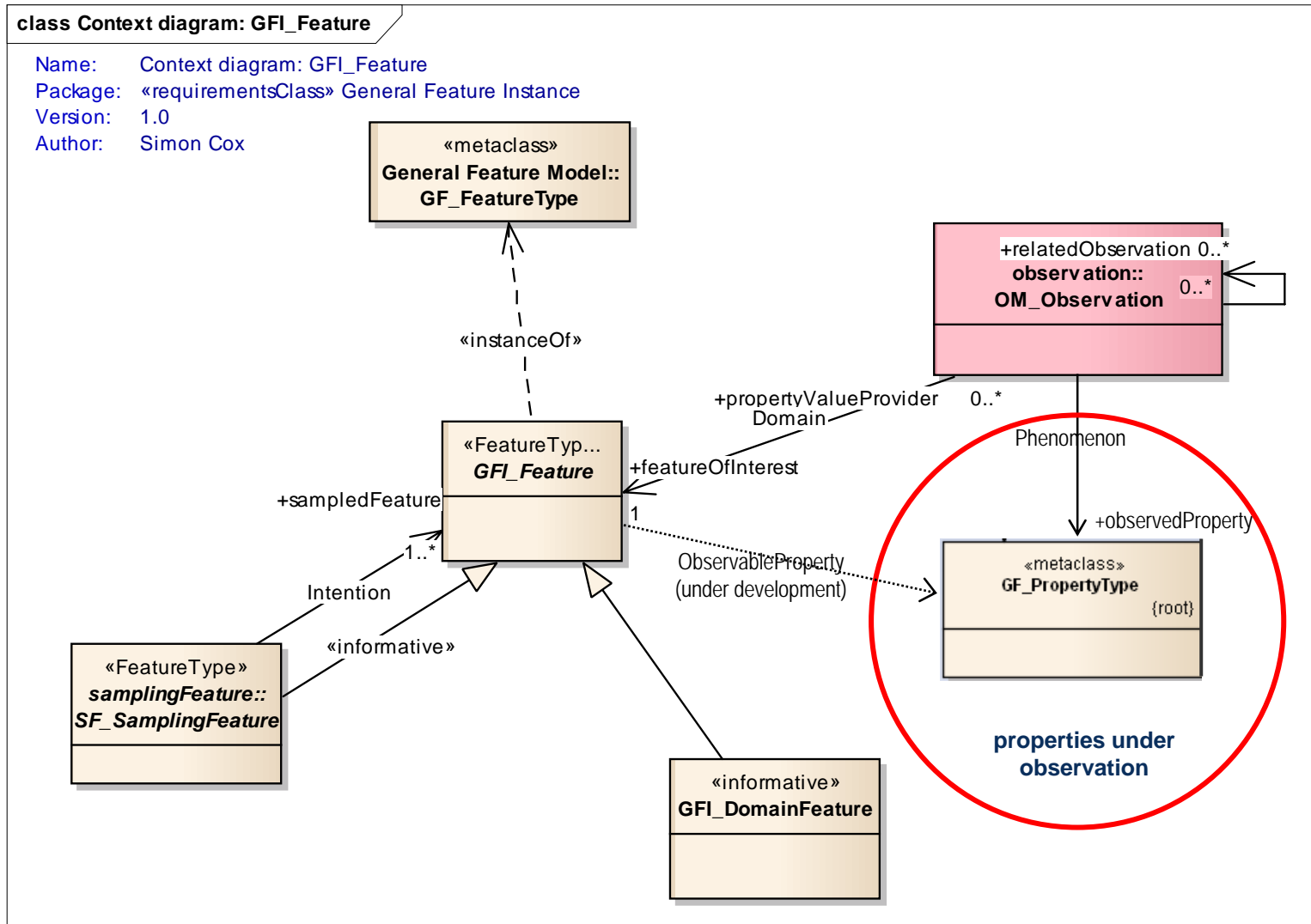
SF_SamplingFeature (ISO 19159:2011, O&M)



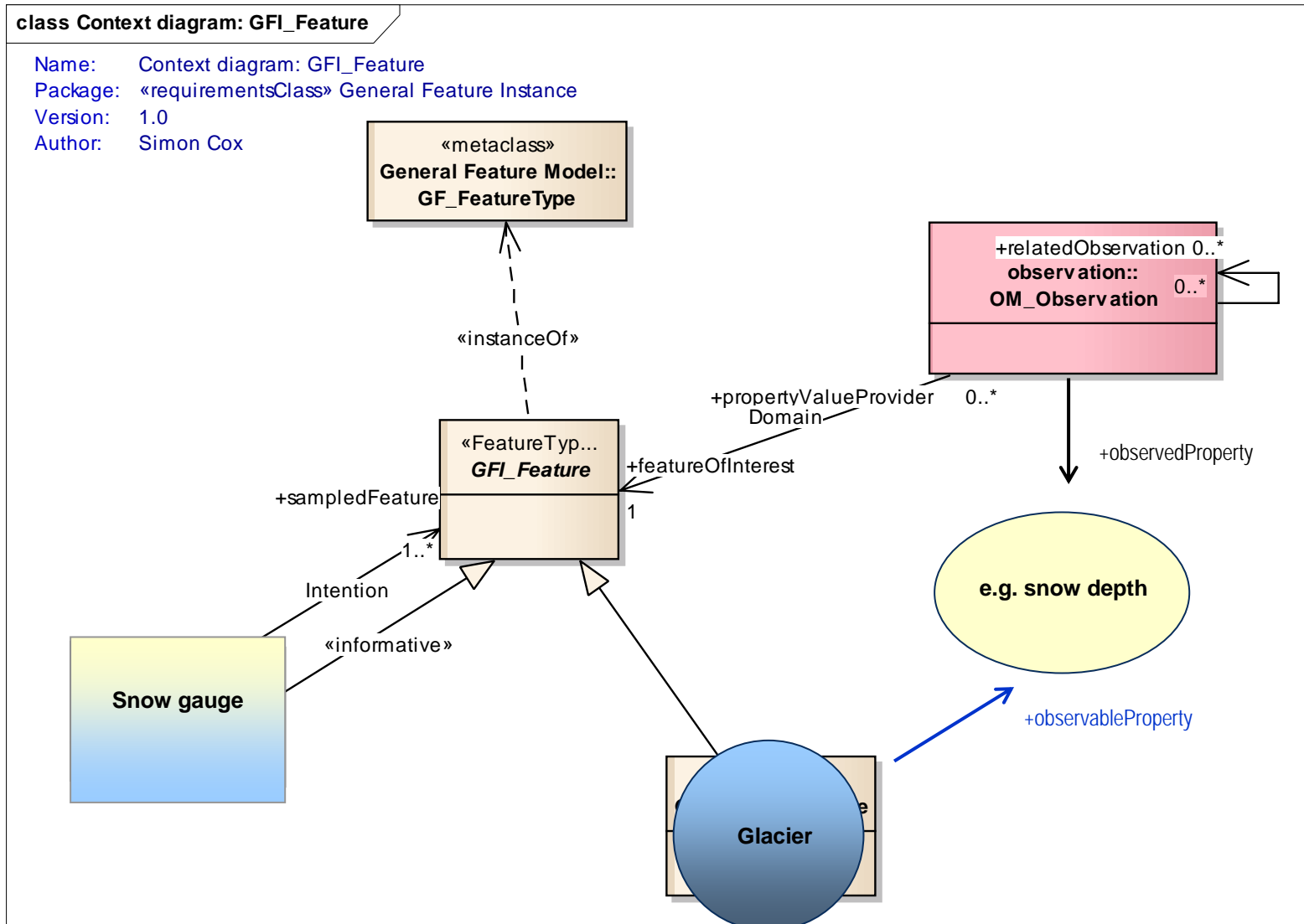
GFI_DomainFeature (ISO 19159:2011, O&M)



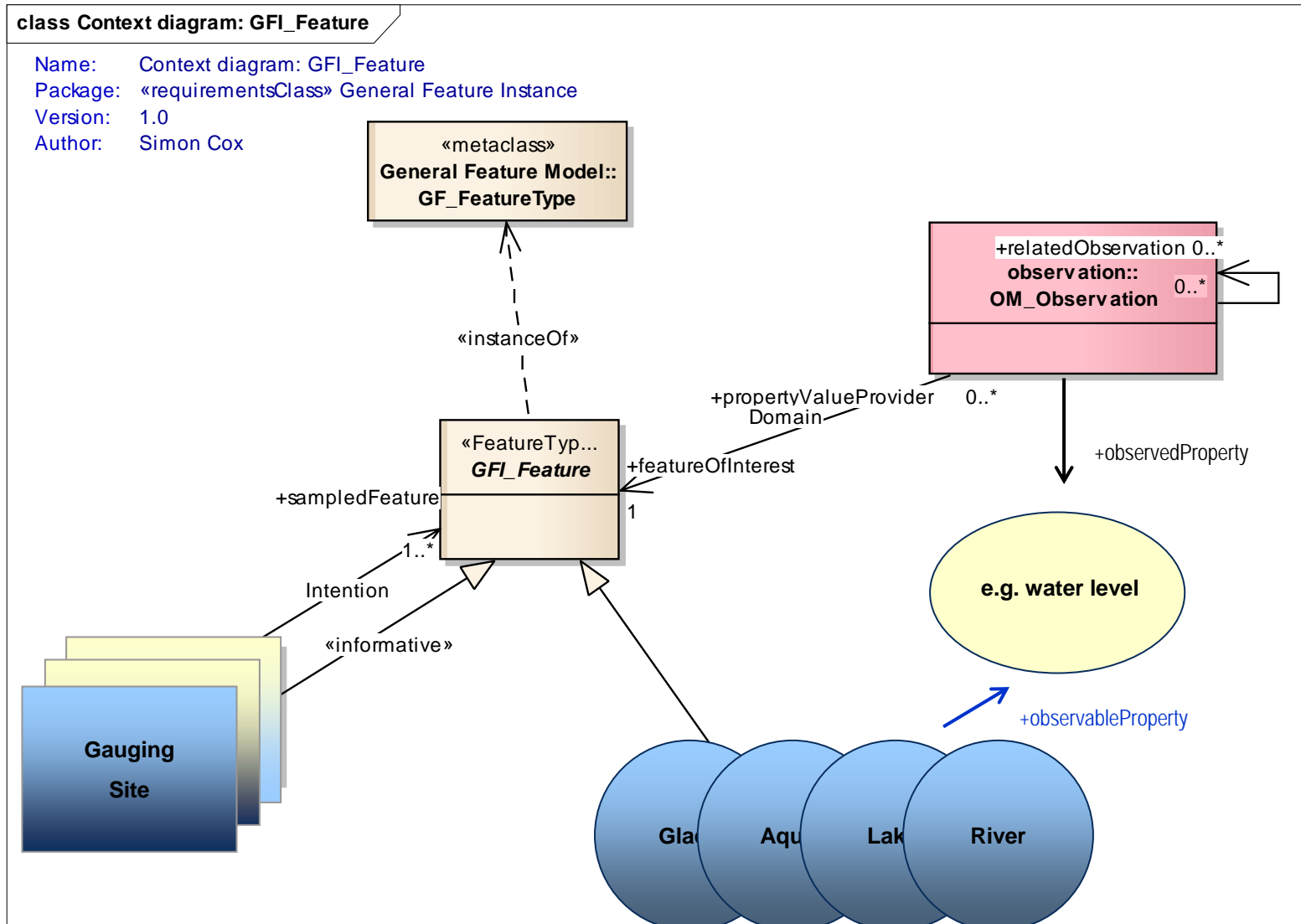
Phenomenon (ISO 19159:2011, O&M)



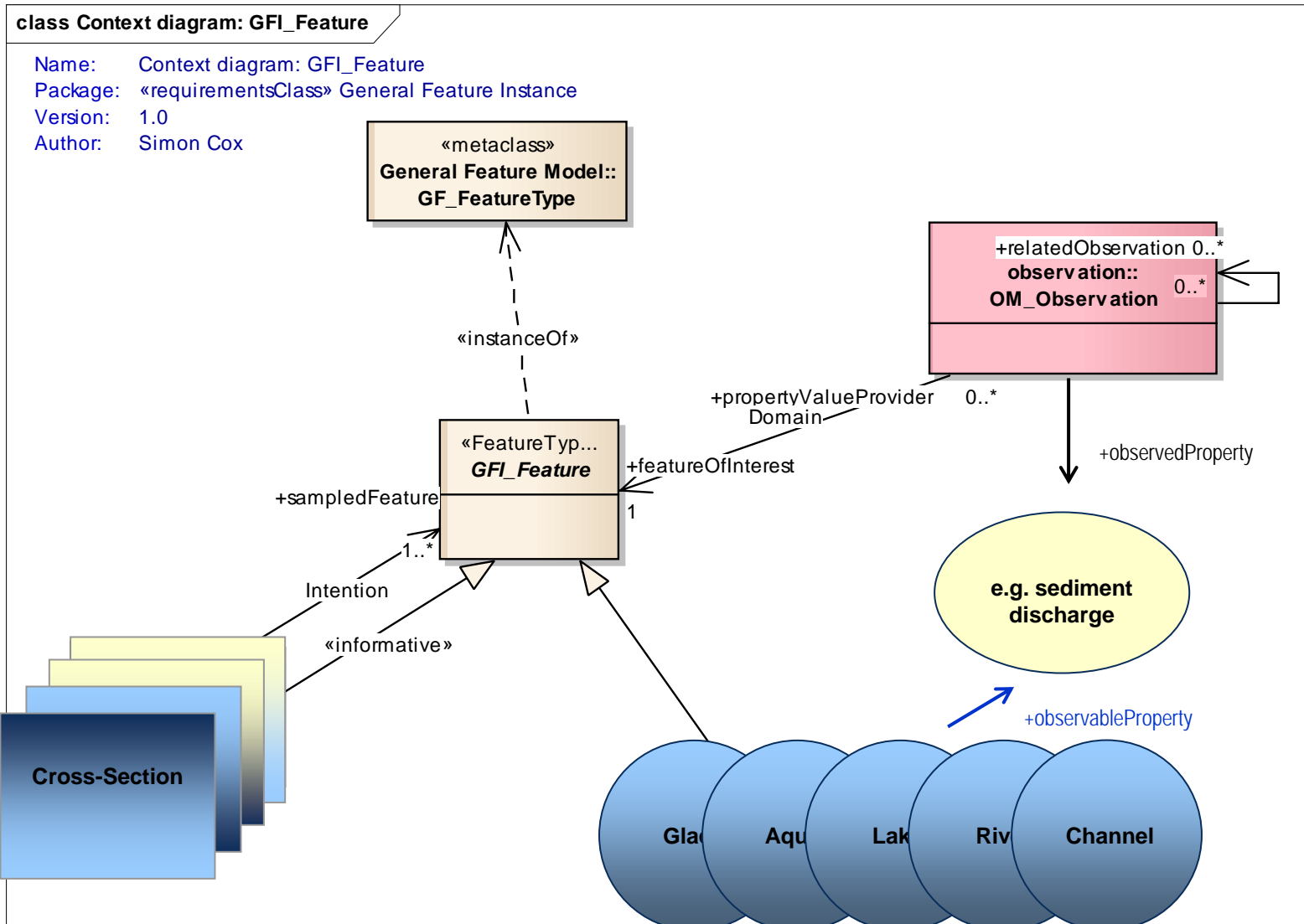
featureOfInterest – hydrologic examples



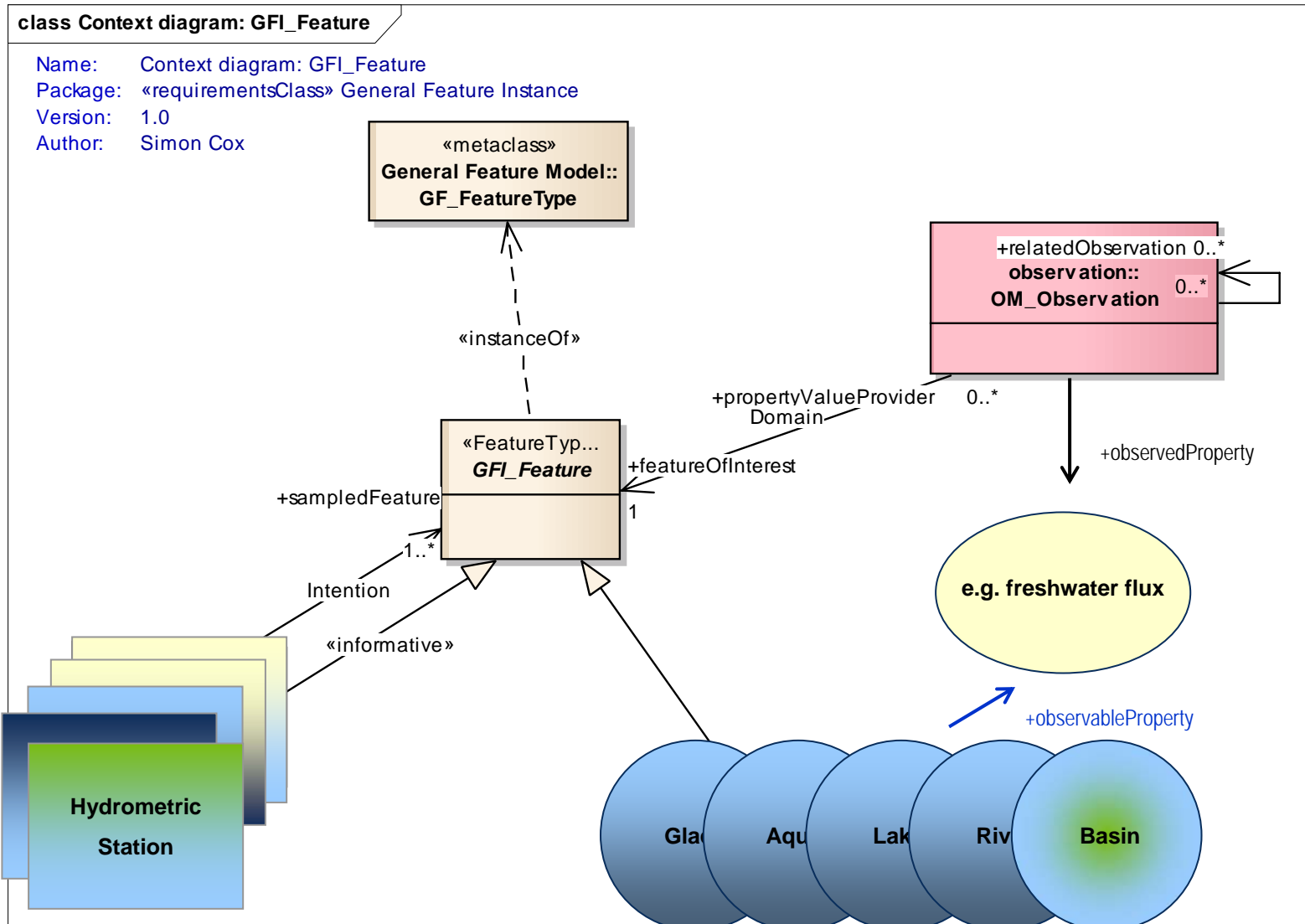
featureOfInterest – hydrologic examples



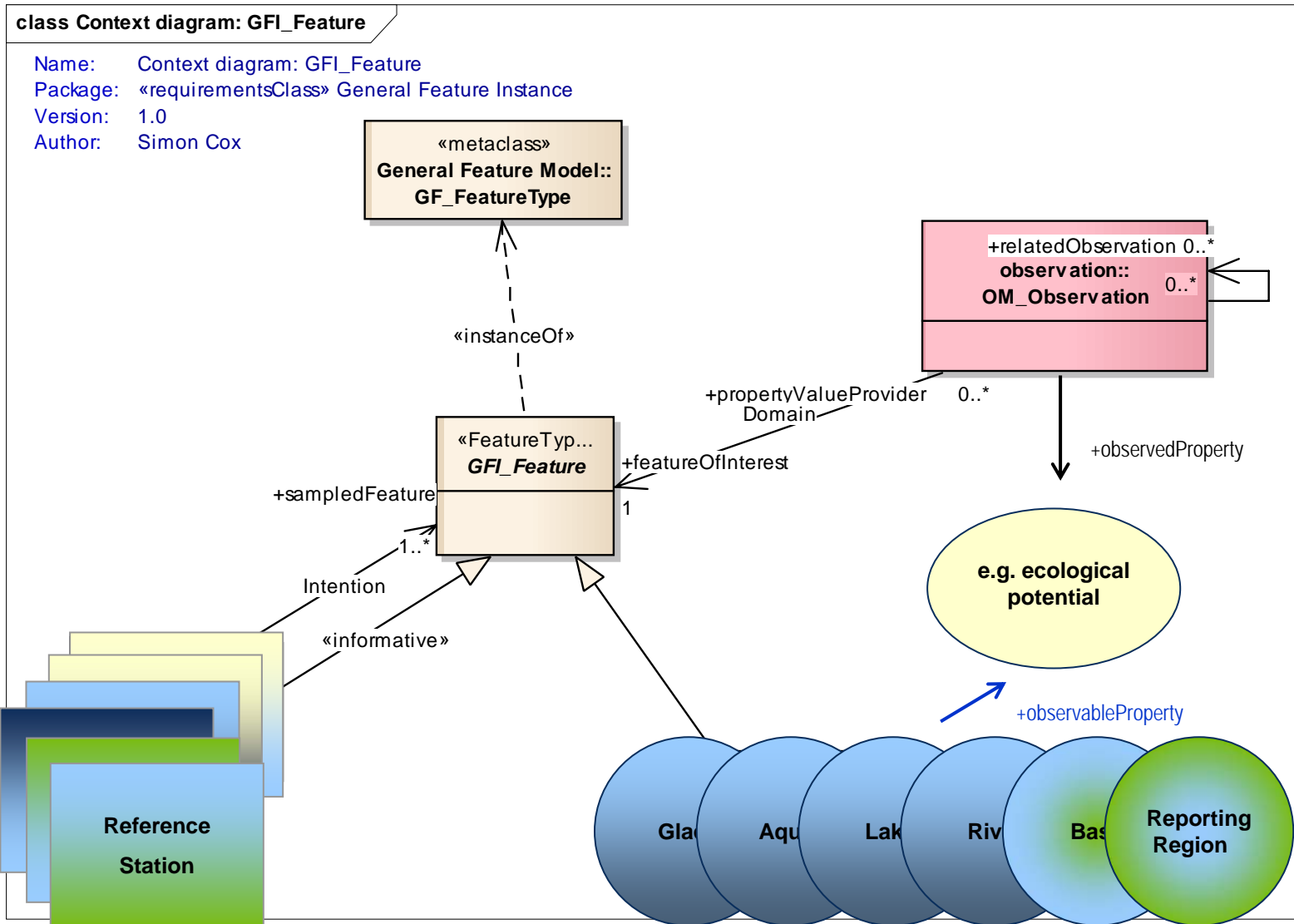
featureOfInterest – hydrologic examples



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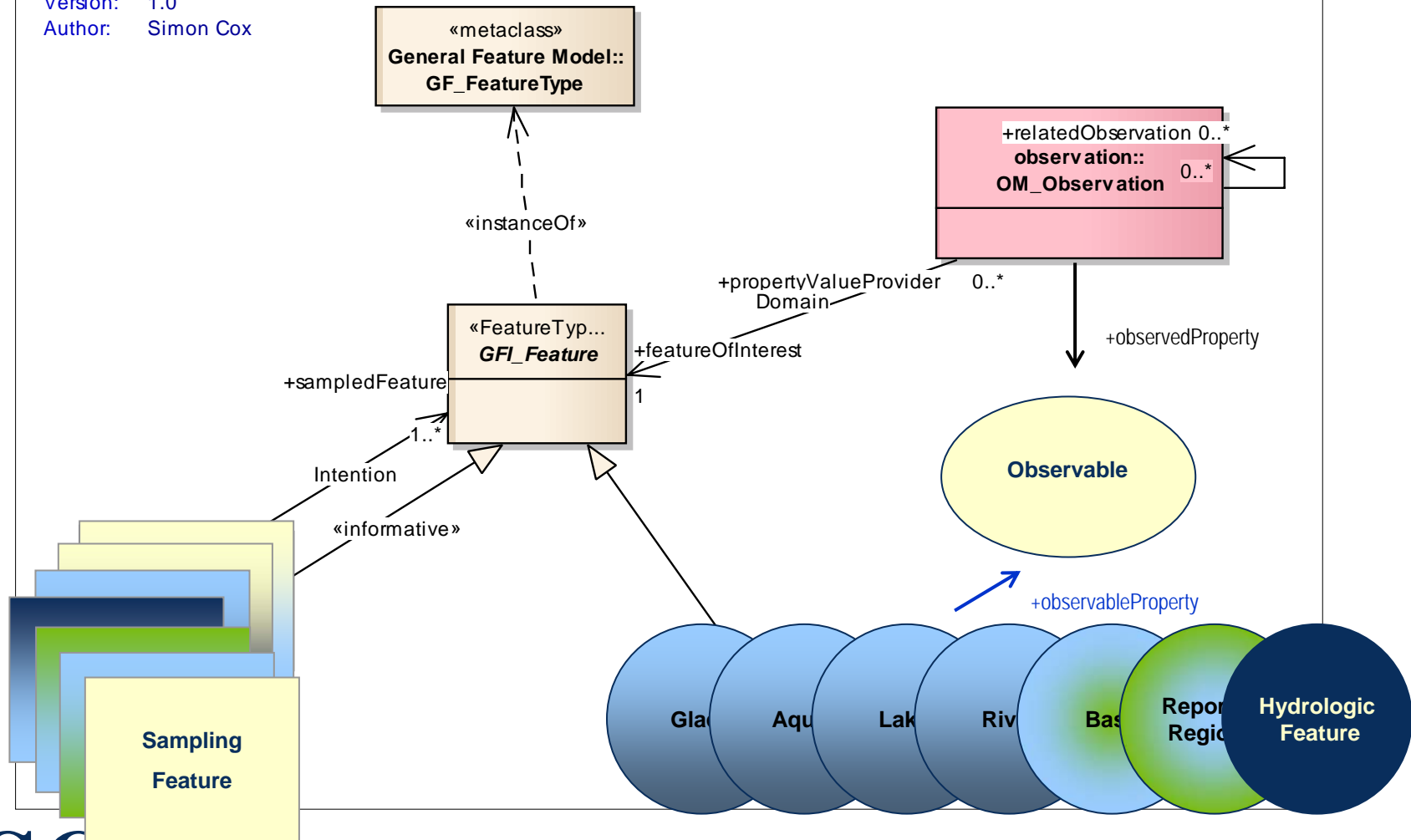


featureOfInterest – hydrologic examples



class Context diagram: GFI_Feature

Name: Context diagram: GFI_Feature
 Package: «requirementsClass» General Feature Instance
 Version: 1.0
 Author: Simon Cox



Sampling Feature (Hydrology)



OGC® WaterML 2.0: Part 1- Timeseries

- Candidate OGC® standard (OGC 10-126r2)
- Definition of one special type of a spatial sampling feature, a *MonitoringPoint*,
- Description of an in-situ point of observation (e.g. gauging station).

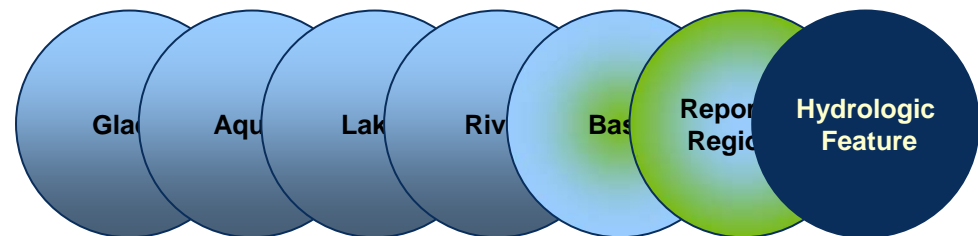


Sampled Feature (Hydrology)

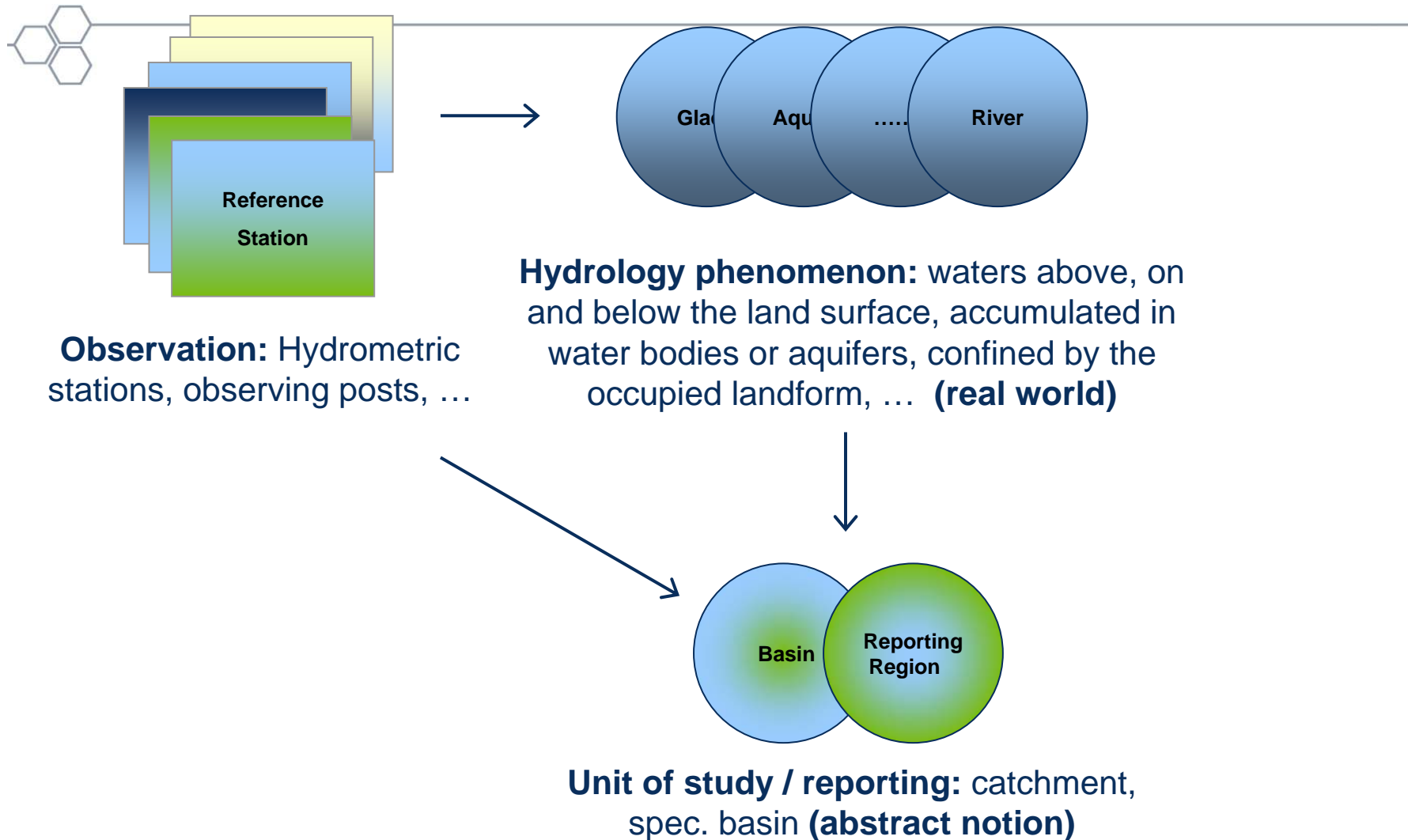


HY_Features (OGC 11-039r2)

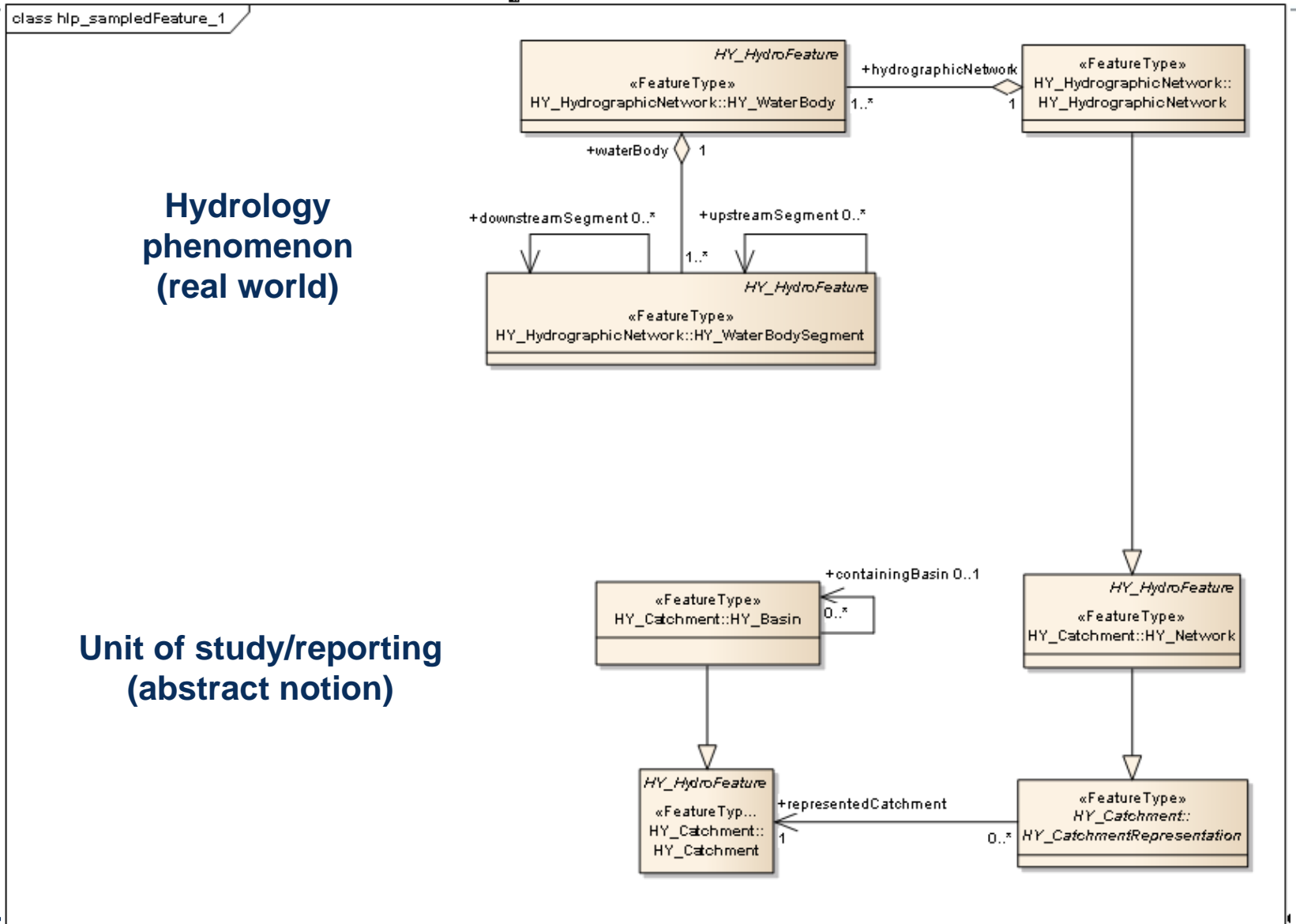
- Semantic relationships of features that are objects of study and reporting in hydrology,
- Identification of these features independent from scales,
- Link the multiple concepts of the hydrology phenomenon to the shared unit of study or reporting



Hydrologic Feature Model (*HY_Features*)



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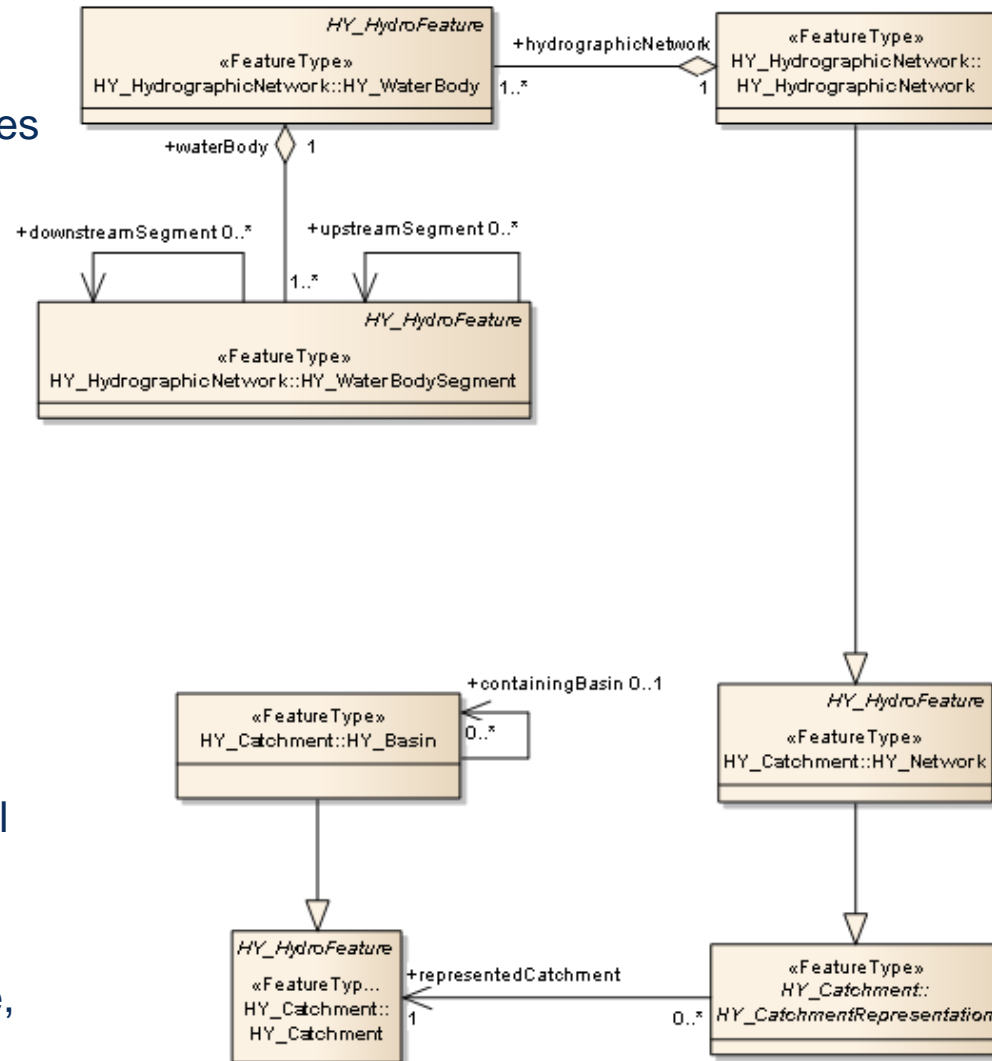
class hlp_sampledFeature_1

Waters

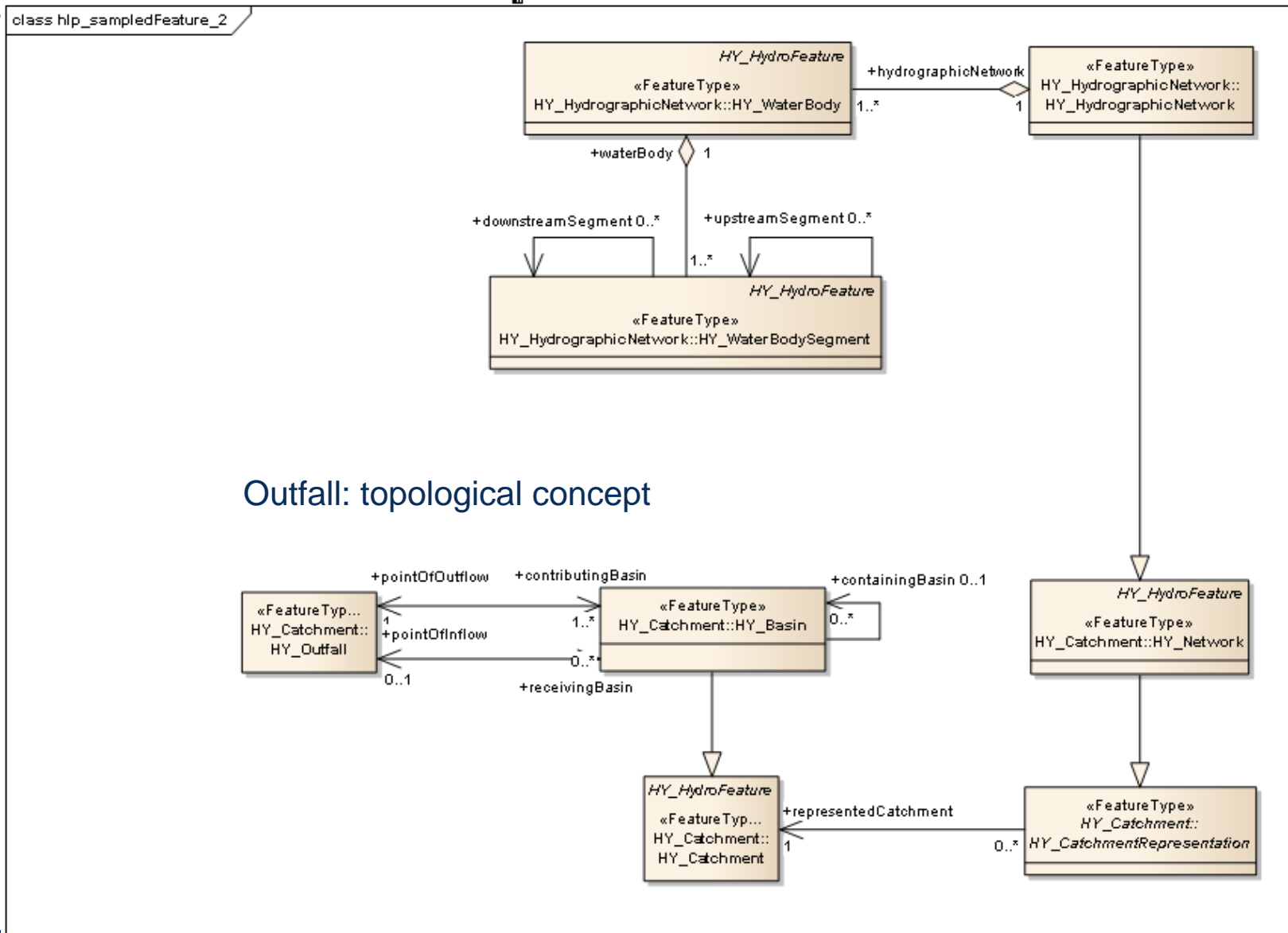
- Accumulated in water bodies and bearing aquifers
- Aggregated in a hydrographic network
- Confined by the occupied landforms
- Observed using sampling features

Represent

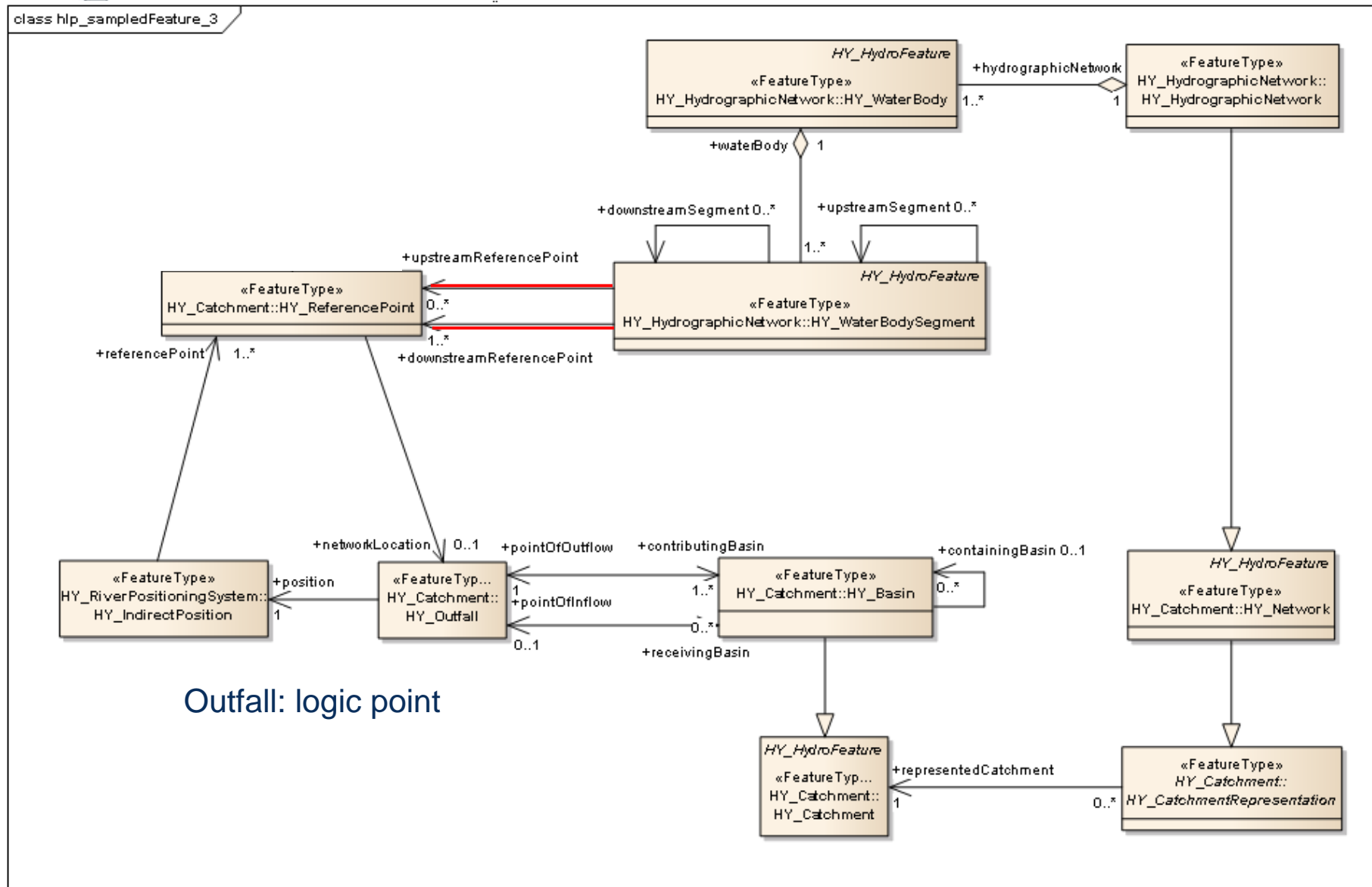
- Basin: Physiographic unit determined by a common outlet (*outfall*) into which all waters flow
- Catchment: Reporting unit, that may be, or may not be, hydrologically determined



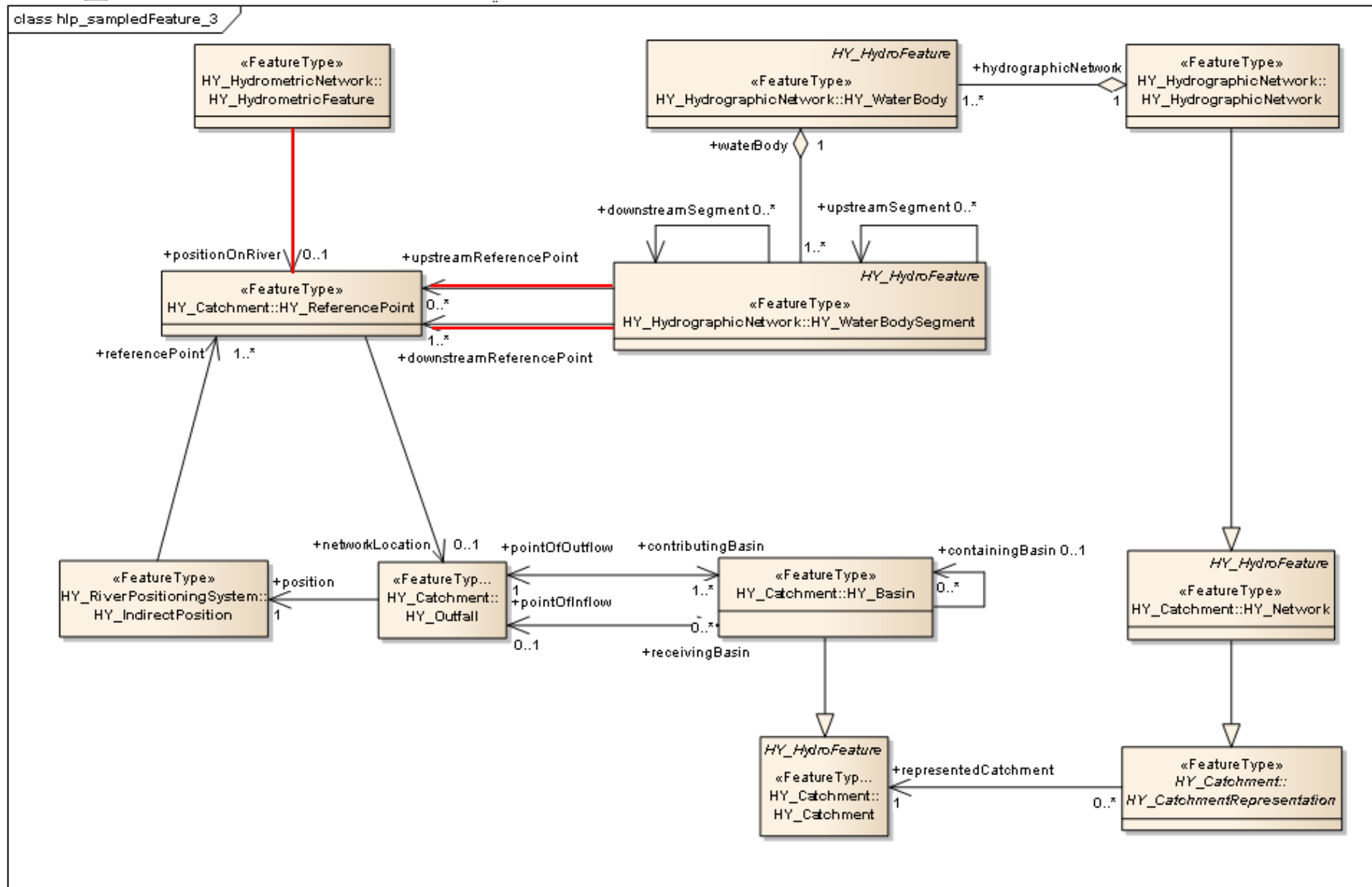
Hydrologic Feature Model (*HY_Features*)



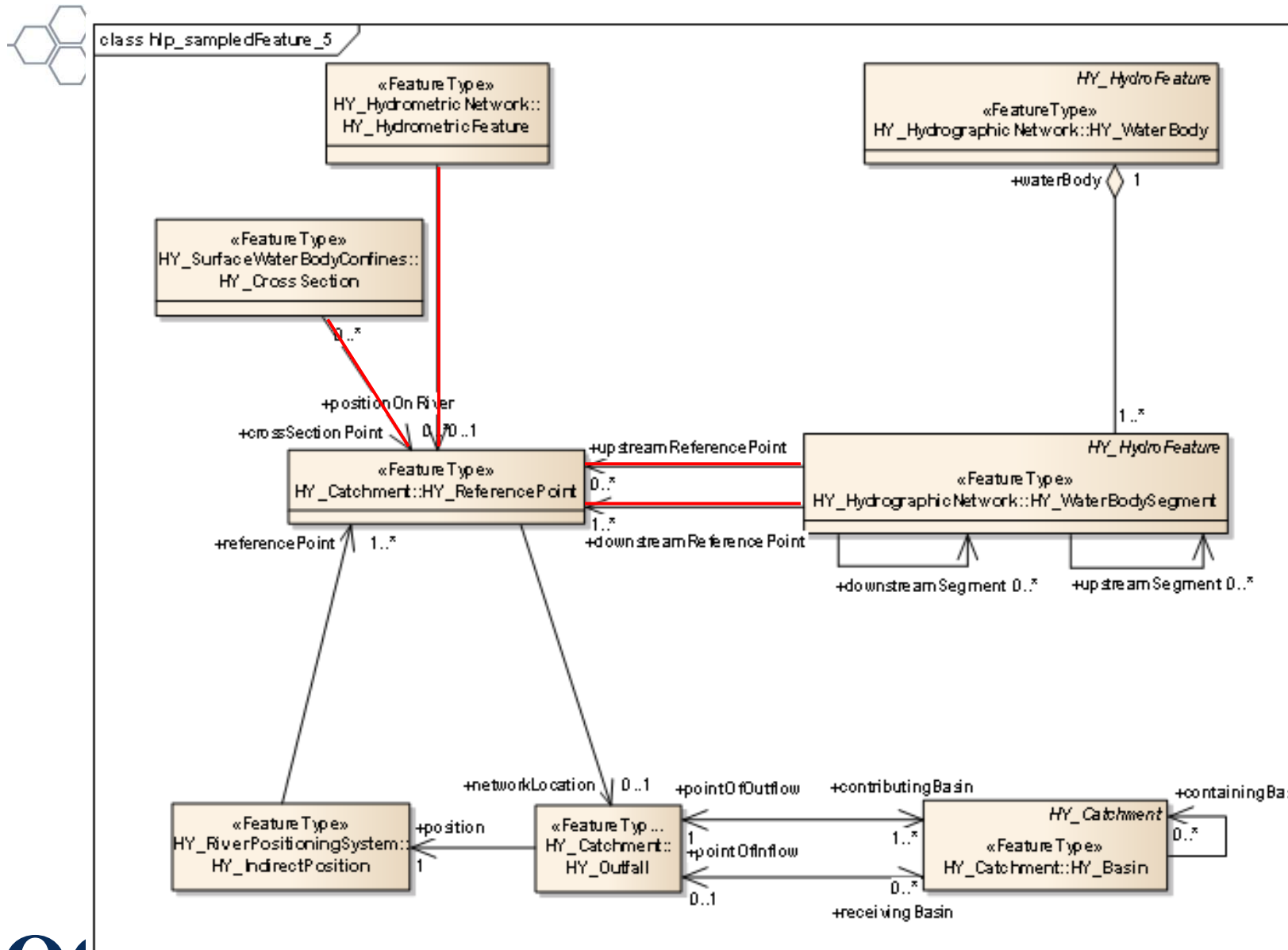
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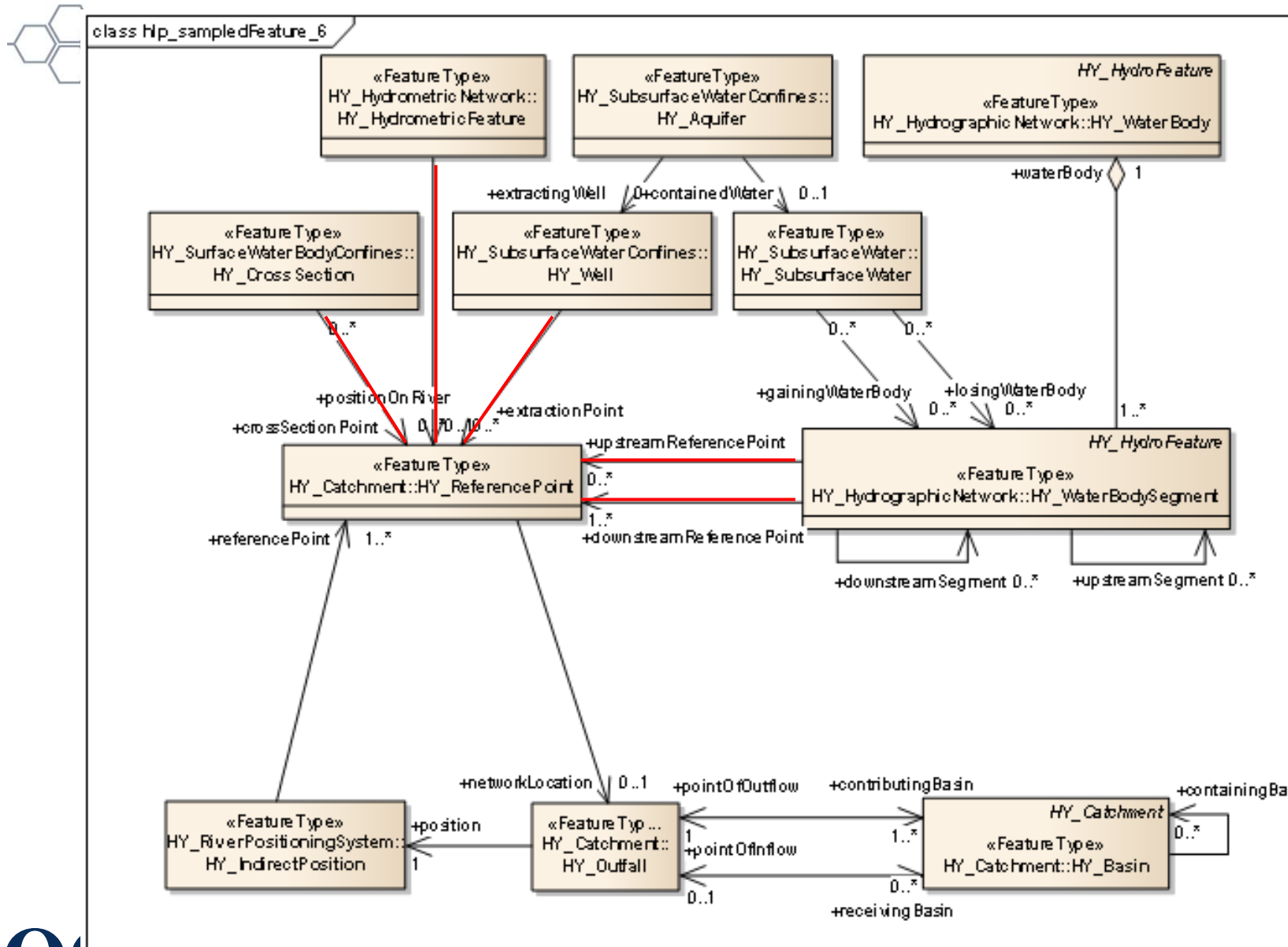
Hydrologic Feature Model (*HY_Features*)



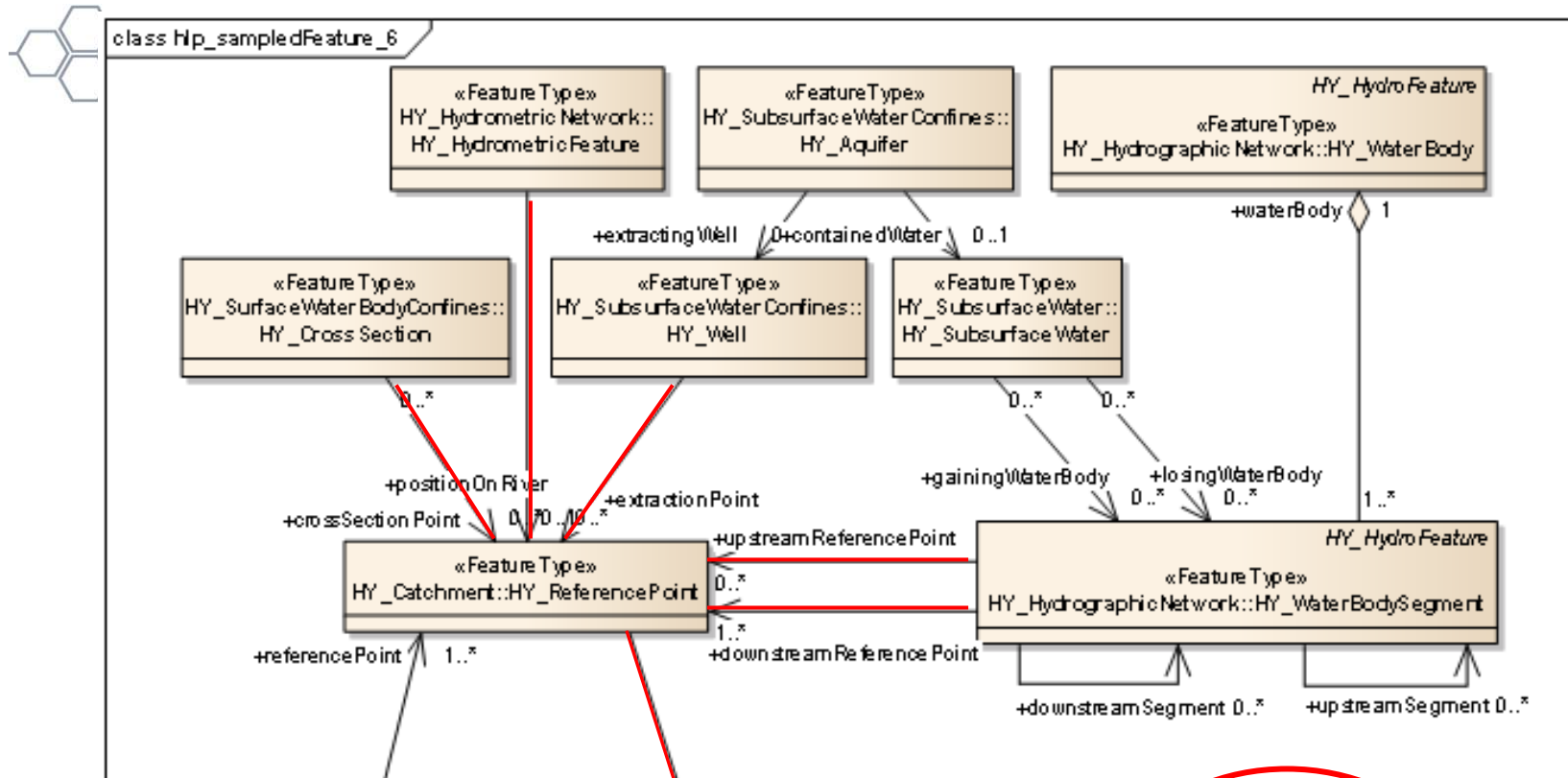
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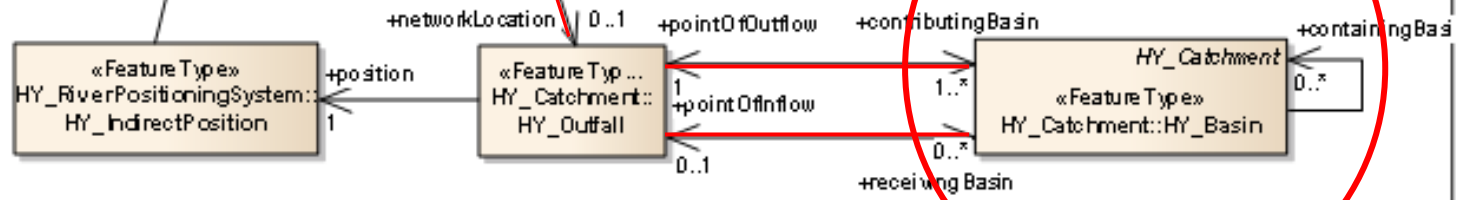
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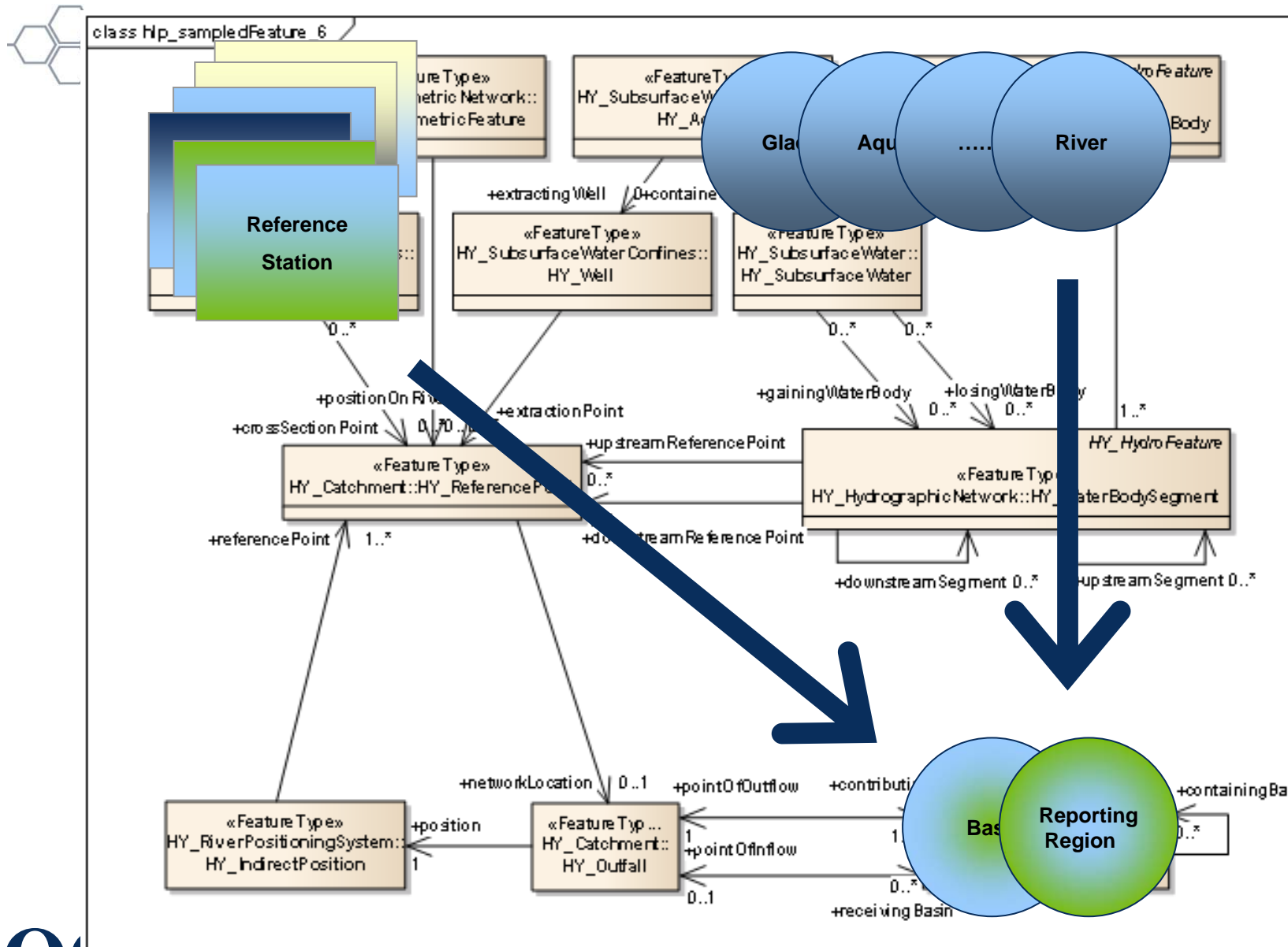
Hydrologic Feature Model (*HY_Features*)



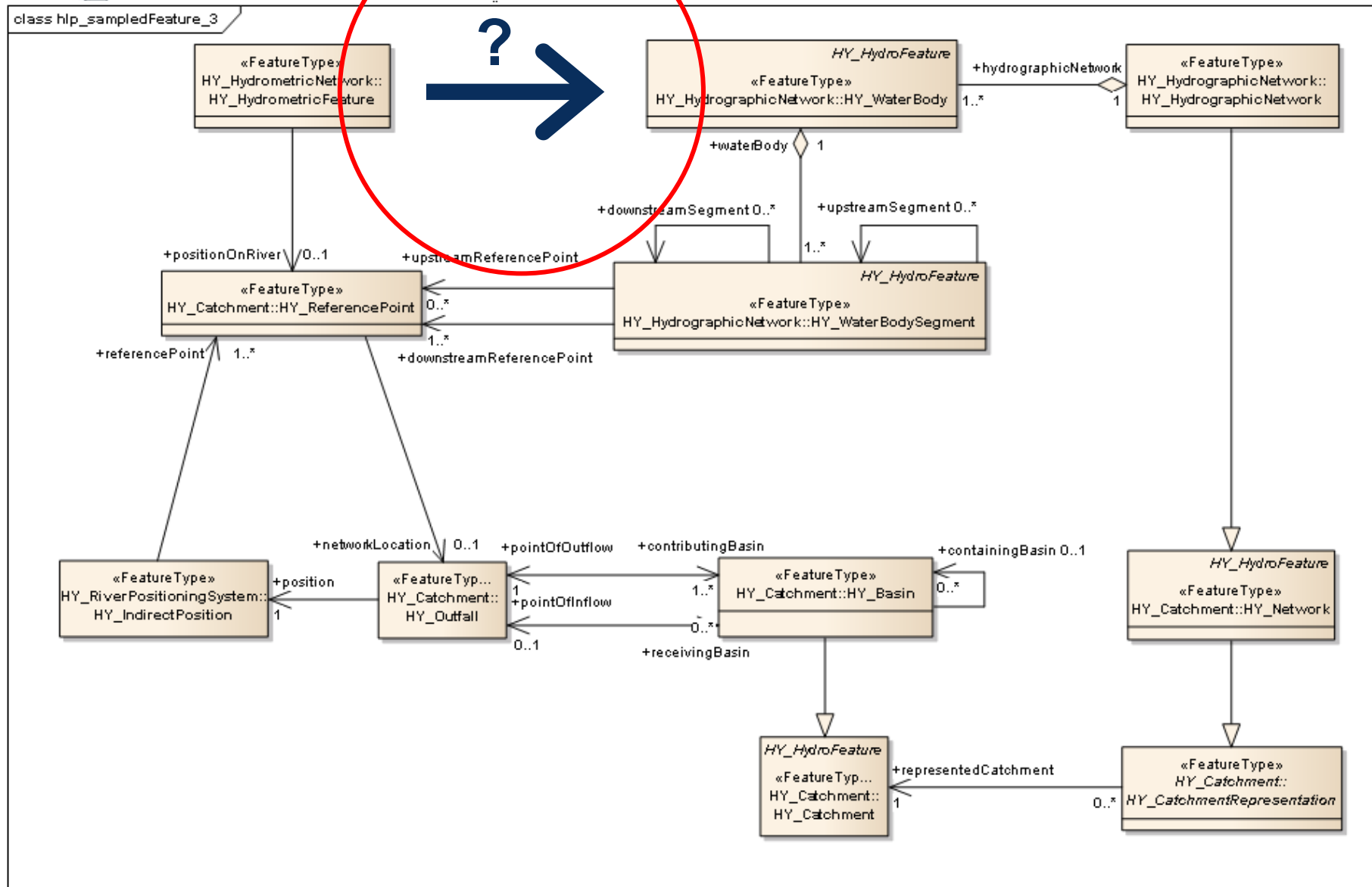
Application-specific - Independent from scales - Across sub-disciplines



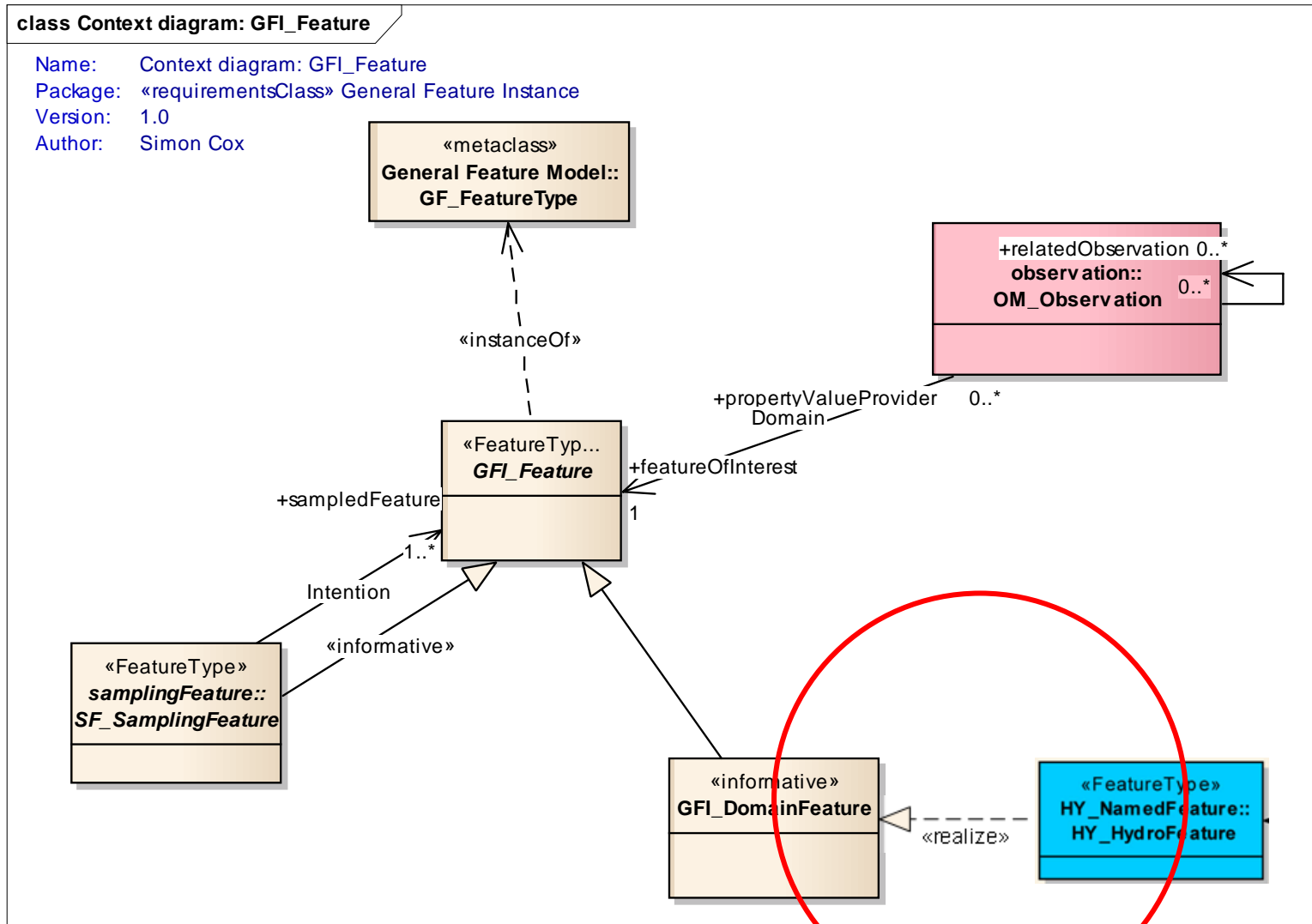
Hydrologic Feature Model (HY_Features)



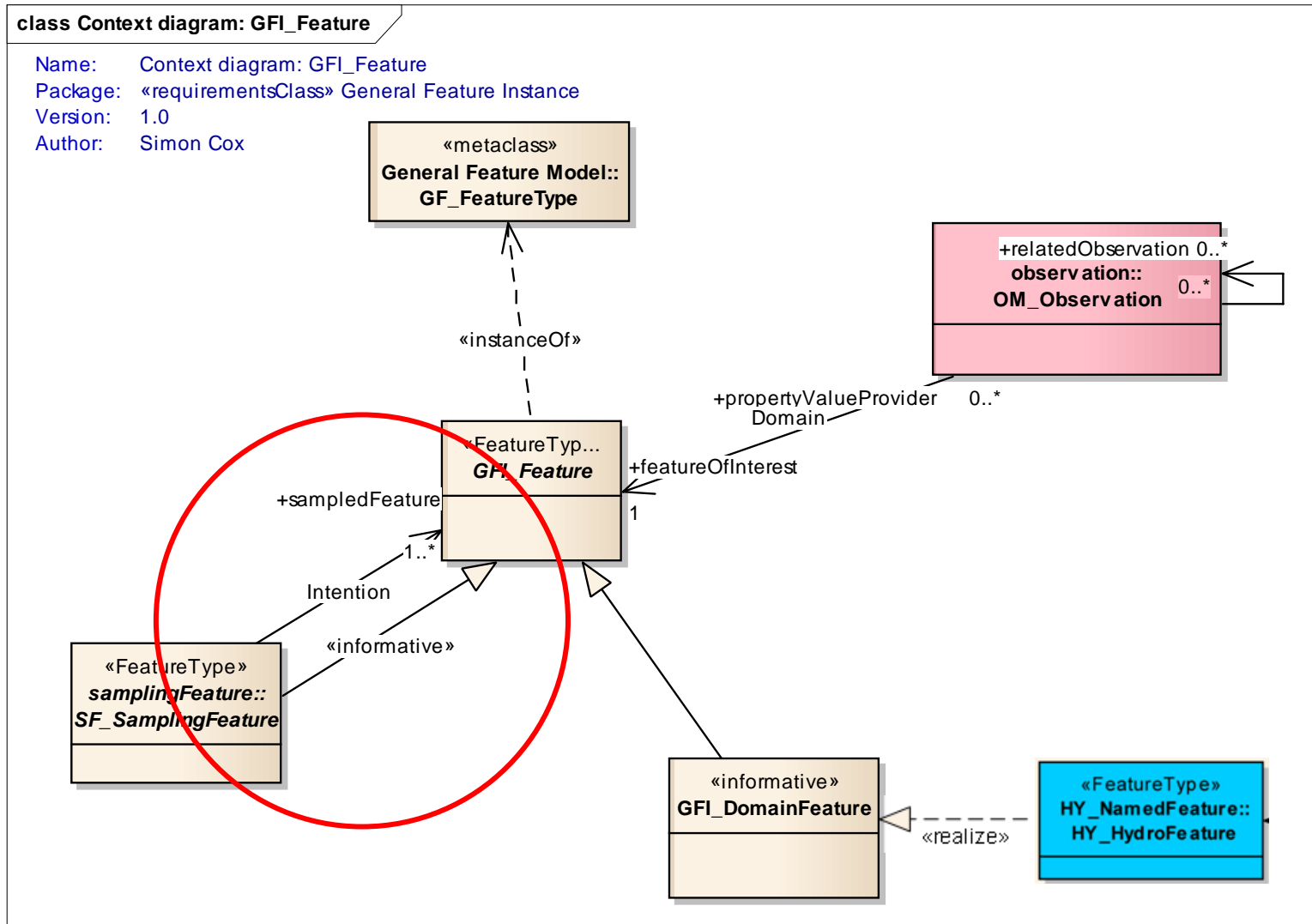
sampledFeature of hydrologic observation



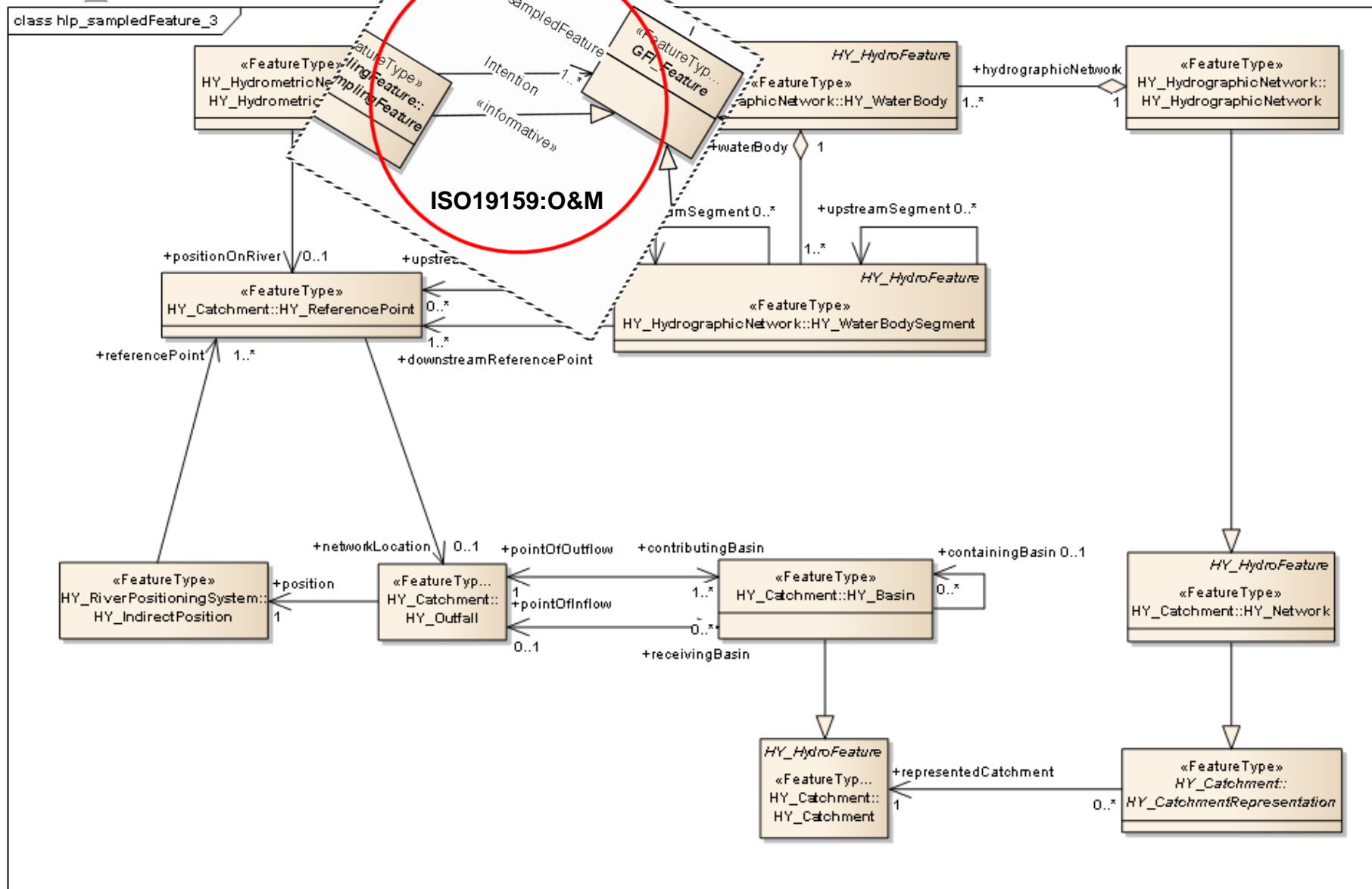
domainFeature of hydrologic observation



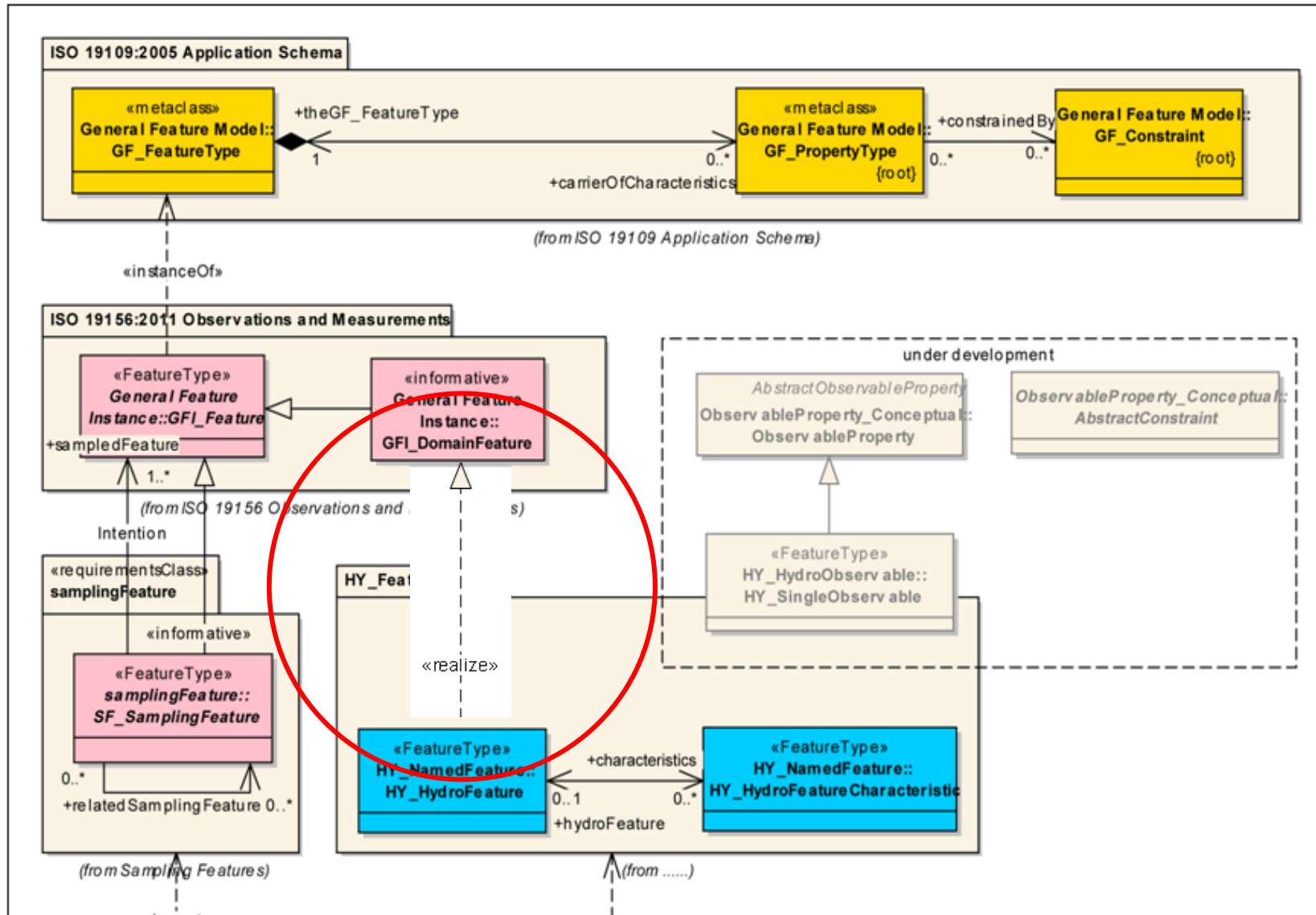
domainFeature of hydrologic observation



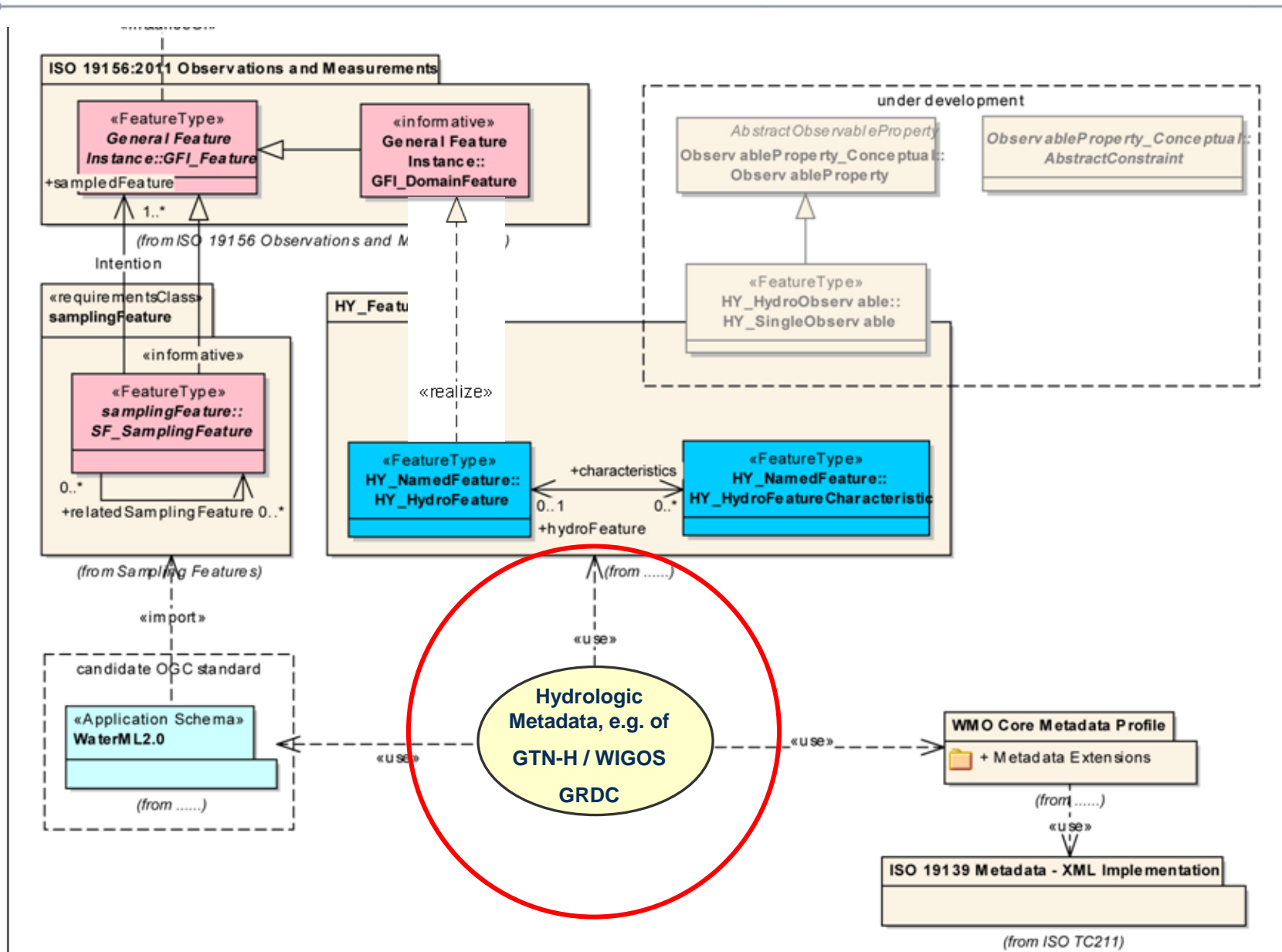
sampledFeature of hydrologic observation



Domain-specific instance of *GF_FeatureType*



required component of *Hydrologic Metadata*



Discussion paper OGC 11-039r2



HY_Features: a Common Hydrologic Feature Model

- 1 Scope
- 2 Conformance
- 3 Normative references
- 4 Terms and definitions
- 5 Conventions
- 6 Requirements for a Common Hydrologic Feature Model
- 7 Common Hydrologic Feature Model - *HY_Features*
- 8 Further work
- 9 References

HY_Features - future work



Alignment of concepts

- *HY_RiverPositioningSystem* and ISO19111, ISO19133
- *HY_HydrometricNetwork* and *WaterML2*
- *HY_SubsurfaceWater* and *GroundwaterML*
- *HY_HydroObservable* and *Phenomenon (O&M)*

Integration in the OGC Feature landscape

Integration in the WIGOS Metadata concept

HY_Features – where available ?



- Discussion Paper (OGC 11-039r2, 24 Feb 2012)
- HTML documentation (OGC 12-021, 23 Feb 2012)
- XML schema definitions at SVN repository at SDSC (<https://svn.sdsc.edu/repo/WaterML/GRDC/trunk>)
- XML schema definitions at OGC schema repository (<http://schemas.opengis.net/hydrology/>) – asap

- Atkinson, R., I. Dornblut and D. Smith, *An international standard conceptual model for sharing references to hydrologic features*. **Journal of Hydrology**, 2012, 424-425(2012): p.24-36

Thank you for attention!

Discussion paper OGC 11-039r2



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