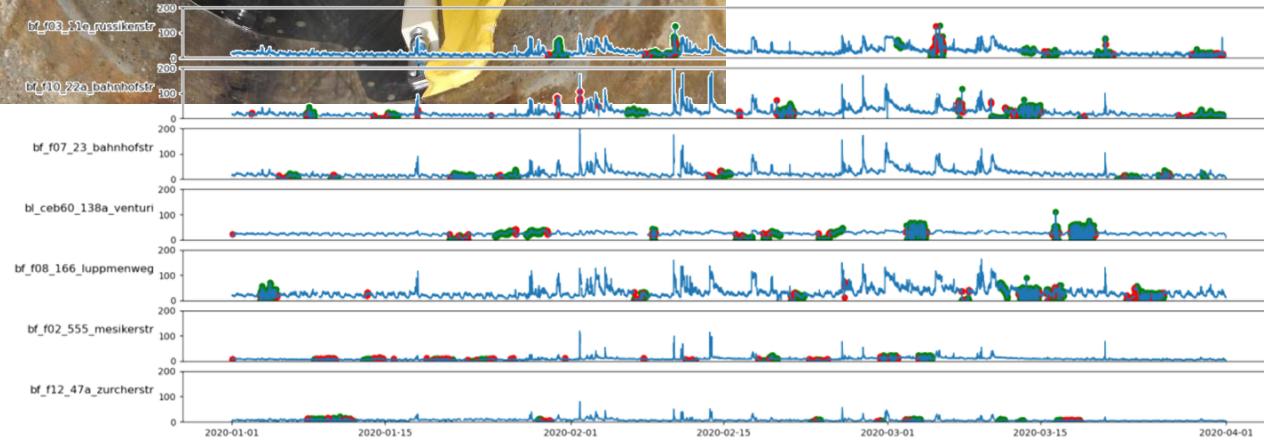




Co-UDlabs

Eawag
Swiss Federal Institute of Aquatic
Science and Technology

eawag
aquatic research ooo



Workshop

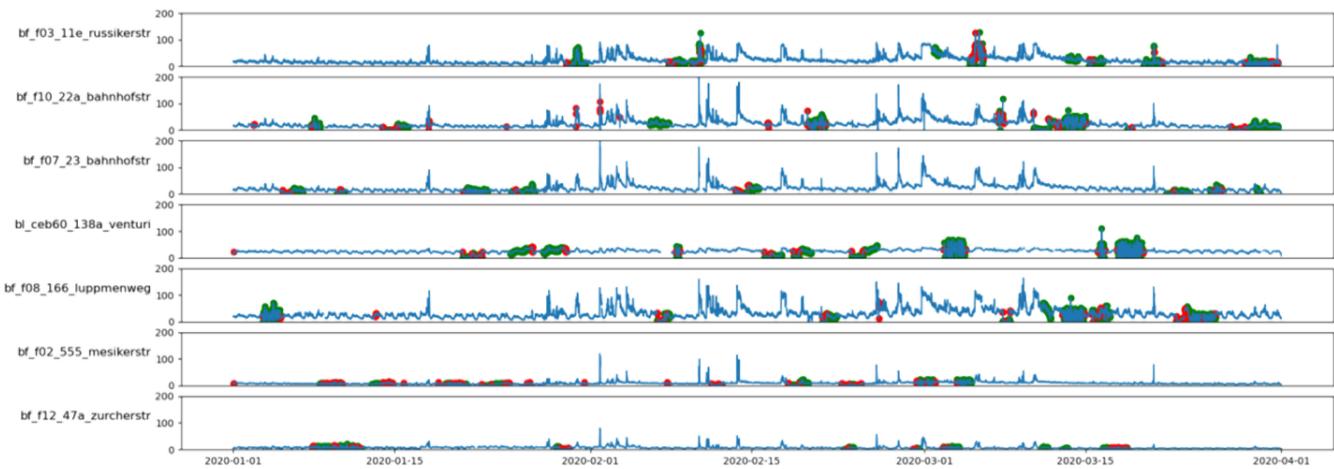
Sharing Flow and water level data

Jörg Rieckermann (Eawag)

Science that matters

Why?

- Re-use data
- Use case: Machine learning
 - Anomaly detection
 - Data-driven rainfall-runoff modeling?
 - Catchment attributes
 - Rainfall
 - ...



GWSW (The Urban Water Data Dictionary, NL)

← → ⌂ ⌂ 🔒 data.gsws.nl/?menu_item=classes&item=..../def/1.6.1/Basis/Debietmeter

The screenshot shows the GWSW web application interface. At the top, there's a navigation bar with icons for back, forward, search, and other functions. The URL is data.gsws.nl/?menu_item=classes&item=..../def/1.6.1/Basis/Debietmeter. Below the navigation is a header with the GWSW logo and links for Species, Compound, and Collections. On the left, a sidebar titled 'Species' lists various categories with icons: Thing (partial model Basic), Activity, Physical object (with sub-items Connection, Equipment, Electrical box, Main post, Air injection unit, Measuring instrument (Flow meter, Pressure gauge, Quality sensor, Overflow meter, Level tube, Rain gauge, Water level meter), Pigging installation, Building, Construction part, Cable, Pipe, Surface water, Put, System, Information carrier, Feature, Life form, Matter, Room, and Topological element). In the center, the 'Flow meter' entity is detailed with its name, URI, definition, date start/change, has representation, function (Measuring capacity of the volume flow, +Measure (function), +Measure, regulate, check and maintain), has characteristic (Equipment orientation, Start date, End date, Measuring point, Theoretical lifespan), is export of (Manufacturer, Supplier), is input of (Owner, Data Manager, Sewerage manager), has part (Sensor), is part of (Measuring device, Control device, System), has connection (Electrical box, Frequency converter, Main post, PLC), has supertype (Measuring instrument), model details (Cof_BAS), and author information (Finy Teitsma (Orange Forest), Wouter van Riel, Johan Post). To the right, a search bar shows 'debiet' and a search result for 'Text "flow rate" - Number found: 11'. The result 'Flow ratemeter' is highlighted with a red circle. Other results include Lateralfow rate, Lateralfow rateDWA, Lateralfow rateHWA, Dischargesflow rate, Overflowsflow rate, and Sym_Flow ratemeter. Below this is a section for 'Found in distinguishing features' with entries for Pass: gsws:Function= Restrictflow rate and Sewer pipe: gsws:Function = Regulating theflow rateto utilise the s.

debiet

Text "flow rate" - Number found: 11

Found in names:

- Flow ratemeter
- Lateralfow rate
- Lateralfow rateDWA
- Lateralfow rateHWA
- Dischargesflow rate
- Overflowsflow rate
- Arranging theflow rateto utilise the storage capacity of the upstream
- Sym_Flow ratemeter

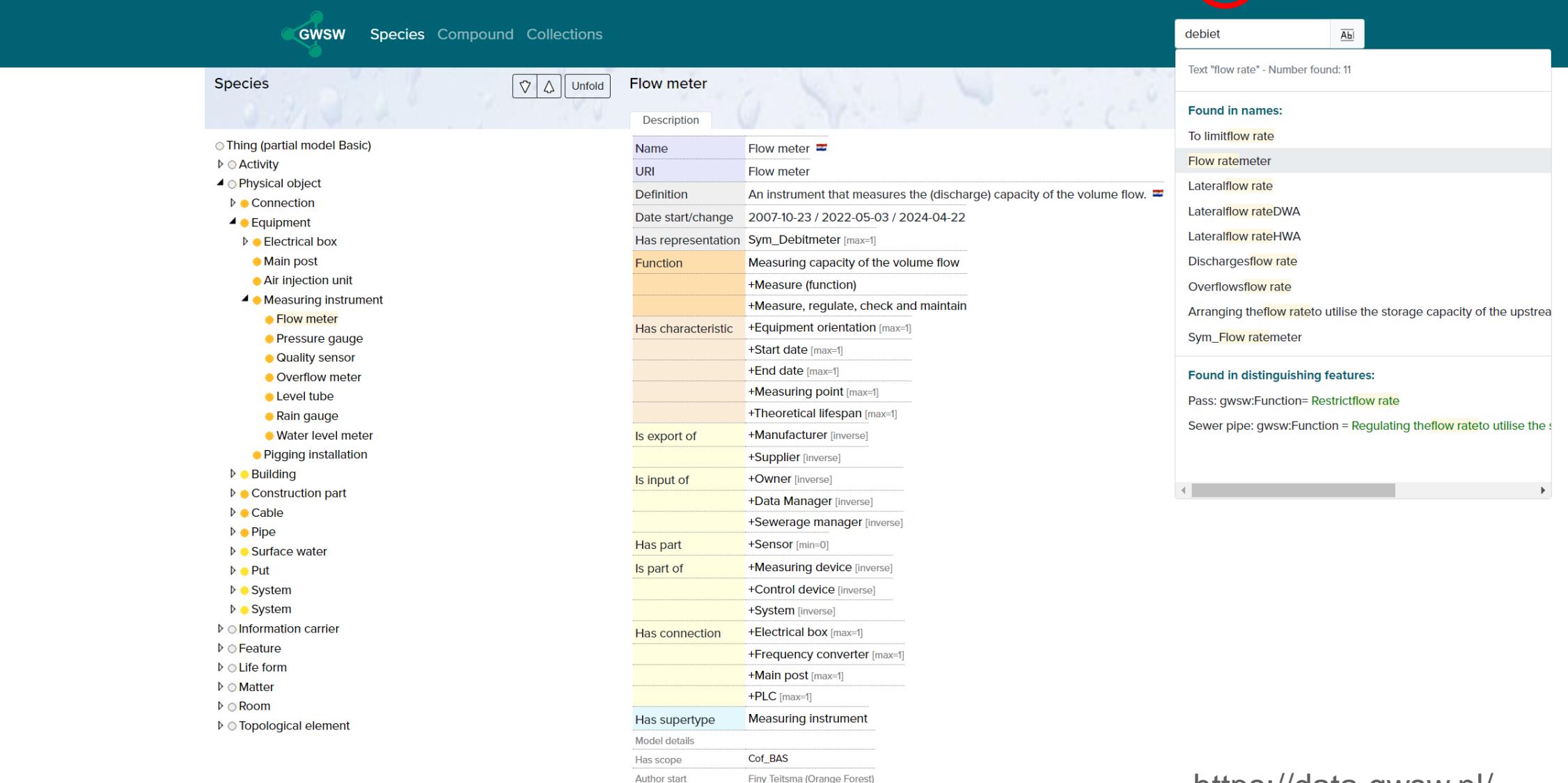
Found in distinguishing features:

- Pass: gsws:Function= Restrictflow rate
- Sewer pipe: gsws:Function = Regulating theflow rateto utilise the s.

<https://data.gsws.nl/>

GWSW (The Urban Water Data Dictionary, NL)

← → ⌂ ⌂ data.gsws.nl/?menu_item=classes&item=..../def/1.6.1/Basis/Debietmeter



Species Species Compound Collections

Flow meter

Description

Name	Flow meter
URI	Flow meter
Definition	An instrument that measures the (discharge) capacity of the volume flow.
Date start/change	2007-10-23 / 2022-05-03 / 2024-04-22
Has representation	Sym_Debietmeter [max=1]
Function	Measuring capacity of the volume flow
	+Measure (function)
	+Measure, regulate, check and maintain
Has characteristic	+Equipment orientation [max=1]
	+Start date [max=1]
	+End date [max=1]
	+Measuring point [max=1]
	+Theoretical lifespan [max=1]
Is export of	+Manufacturer [inverse]
	+Supplier [inverse]
Is input of	+Owner [inverse]
	+Data Manager [inverse]
	+Sewerage manager [inverse]
Has part	+Sensor [min=0]
Is part of	+Measuring device [inverse]
	+Control device [inverse]
	+System [inverse]
Has connection	+Electrical box [max=1]
	+Frequency converter [max=1]
	+Main post [max=1]
	+PLC [max=1]
Has supertype	Measuring instrument
Model details	
Has scope	Cof_BAS
Author start	Finy Teitsma (Orange Forest)
Author adjustment	Wouter van Riel, Johan Post

debiet

Text "flow rate" - Number found: 11

Found in names:

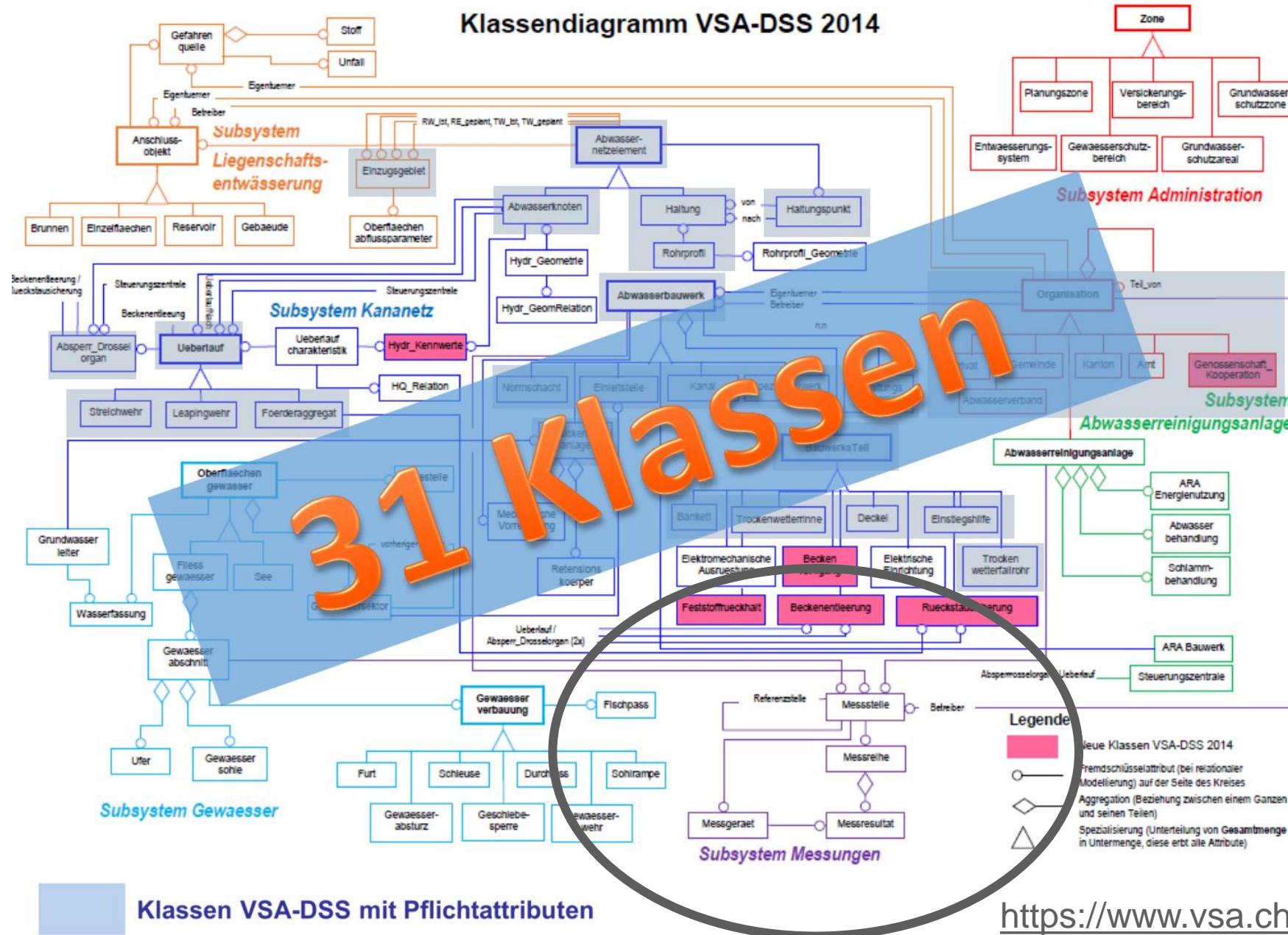
- To limitflow rate
- Flow ratemeter
- Lateralflow rate
- Lateralflow rateDWA
- Lateralflow rateHWA
- Dischargesflow rate
- Overflowsflow rate
- Arranging theflow rateto utilise the storage capacity of the upstrea
- Sym_Flow ratemeter

Found in distinguishing features:

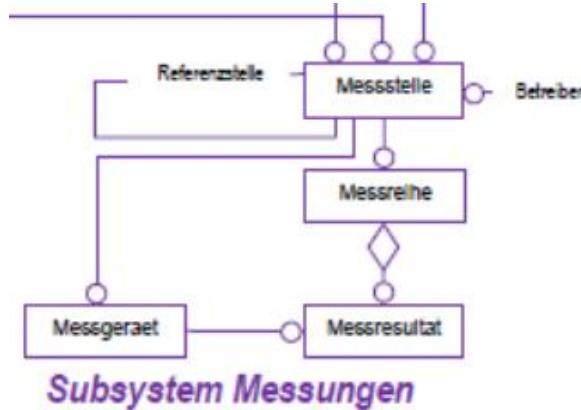
- Pass: gsws:Function= Restrictflow rate
- Sewer pipe: gsws:Function = Regulating theflow rateto utilise the s

<https://data.gsws.nl/>

VSA-DSS (data structure Urban drainage, CH)



VSA-DSS (data structure Urban drainage, CH)



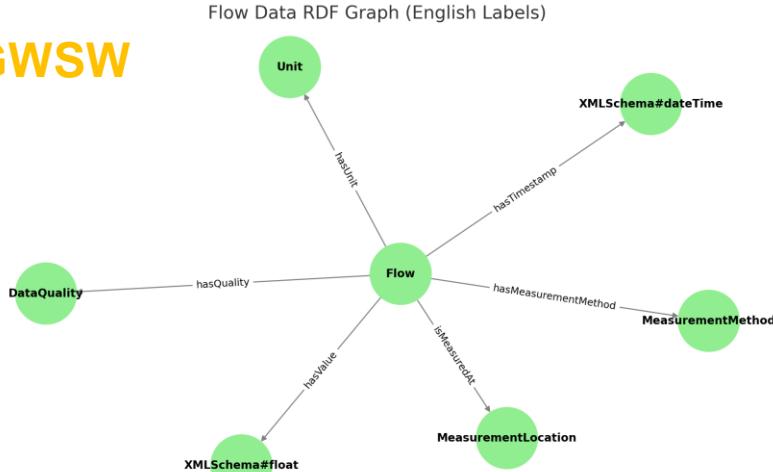
- **Messreihe** = the time series container.
- **Messart** = Durchfluss = defines what is being measured.
- **Messgeraet_Durchfluss** = the physical instrument generating the data.
- **Messstelle** = the spatial context (where).
- **Messresultat** = the individual value entries in the series.

https://www.vsa.ch/models/2020_1/VSA_DSS_2020_1_2_d_LV95-20231018.ili

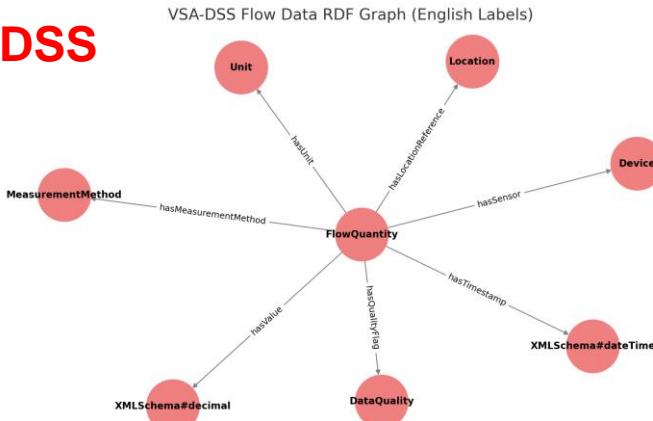
German, French, Italian

Current status: common attributes

GWSW



VSA DSS



Concept	GWSW	VSA-DSS
Measurement Value	debit	Wert (in Messresultat)
Unit of Measurement	debitEenheid	Dimension (in Messreihe) / Einheit (implicit in Wert)
Timestamp	(in Meetgegevens)	Zeit (in Messresultat)
Measuring Point	meetpunt	Messstelle
Measurement Type	debitType	Messart (Durchfluss)
Equipment Orientation	equipmentOrientation	Art (in Messgeraet) + orientation inferred
Start Date	startdatum	-
End Date	einddatum	-
Theoretical Lifespan	theoretischeLevensduur	-
Device Type	(Debietmeter class)	Art (in Messgeraet)
Manufacturer	(not in Debietmeter)	Fabrikat (in Messgeraet)
Serial Number	(not in Debietmeter)	Seriennummer (in Messgeraet)
Measurement Series	-	Messreihe with Art + Dimension
Location Coordinates	(in Meetpunt)	Lage (in Messstelle)
Purpose of Measurement	(not specified)	Zweck (in Messstelle)
Hydraulic Structure	(not specified)	Staukoerper (in Messstelle)
Diameter	implicit	implicit
Slope	implicit	implicit
Hydr. Roughness	implicit	implicit