WaterML2 O&M profile usage and issues with GML

78th OGC Technical Committee
Boulder, Colorado (USA)
I-Lin Kuo, Dave Valentine & Pete Taylor
September 19th, 2011
Goal

- Define a profile of Observations & Measurements 2.0 to support exchange of hydrological observations

- Initial focus is in-situ monitoring producing timeseries:
  - Use cases: hydrological monitoring programs, operations (dams, supply), disaster management, national reporting, public dissemination etc.
  - This is WaterML2 part 1
    - Generic timeseries classes
    - Specific implementations using hydrologic requirements
  - Ex-situ out of scope. Will be a future document

- Participating organisations: CSIRO, SDSC (CUAHSI), USGS, Australian Bureau of Meteorology, KISTERS, NOAA, Deltares, German Institute of Hydrology plus others.
What are we utilizing

• Defined a conceptual model based on
  – Observations & Measurements 2.0
  – ISO19123 – Coverages

• An XML encoding using
  – OMXML 2.0
  – GML 3.2
  – SWE Common 2.0
1. When to use GML vs. SWE common base types
2. What type of encoding: SWE common style or ‘traditional XML’
3. Harmonising model and encoding with coverages (ISO19123 and GML coverage)
4. Issues with GML types
5. Vocabularies and techniques for referencing them
WaterML2 & GML

• WaterML2 uses
  – GML geometry elements
  – GML time elements

• GML Plumbing
  – GML id
  – GML referencing using xlink
GML Geometry

• No problems
• Relative displacement??
GML time

• Implied Precision
  – Would like simple precision mechanism
  – Simple precision might not be enough?
GML ids

• Problems
  – Lots of mandatory ids to be managed
  – Would like to inline abbreviated representations of features and possibly other entities
  – Inline the first and reference the rest doesn’t fit the needs (and is difficult to implement)
GML Referencing

- GML uses Xlink (simple)
- Xlink paradigms come from human-browser interaction model
- WaterML2 would like a machine-machine interaction
- Not enough link context for machine
- Fitting enough link context using Xlink leads to extremely complex best practice rules.
Some referencing requirements

• Maintain original source ontology as well as community ontology
• Concise referencing
• Abbreviated referencing
• Decrease use of link resolution