Agenda

- GWML2 History
- GWML2 Recent Progress
- GWML2 Next Steps
- GWML2 Contents
- Wrap-up
GWML2: History

• **2009-2011: GW1IE** (OGC HDWG)
  Test GW data interoperability using OGC standards and GWML1

• **2012-2015: GW2IE** (OGC HDWG)
  
  **Objectives**: develop and test draft GWML2
  
  **Participants**: 13 agencies; N. America, EU, AU/NZ
  
  **Activities**: 50 meetings since June 2012 Kick-off (Reading, UK)

  **Results**: GWML2 Eng Report (15-082)
  
  » completed Sept 2015, approved Nov 2015, released Apr 2016
  
  14 web services (WMS, WFS, SOS, WPS)
GWML2: Recent Progress

• 2015-2016: GW SWG

  Sept 2015: charter submitted (OGC 15-110)
  Feb 2016: GW SWG approved/initiated
  Mar 2016: GWML2 standard submitted (OGC 16-032)
  Apr 2016: OAB review
  May 2016: GWML2 standard revised (OGC 16-032r1)
    • Conceptual model made normative (+ reqs & conf classes)
    • Clarifications re: linked data principles, association classes
  May 2016: OGC-NA review
  June 02 2016: GWML2 standard revised (OGC 16-032r2)
    • URL template revision
    • Empty req & conf classes: due to inheritance → change request pending
  June 17 2016: Public review ends: no changes requested
  June 23 2016: OGC vote to begin final vote @ Dublin TC closing plenary
GWML2: Next Steps

• 2016: GW SWG
  OGC e-vote to ratify GWML2r2
  public release of GWML2r2
  SWG meetings as required (maintenance, changes)
  initiate WMO approval process (Silvano Pecora champion)
GWML2: Content Overview

• 5 Use-cases

• Conceptual Model (CM: text + UML)
  – technology-neutral, domain-specific
  – narrative defs (vocabulary) → UML

• Logical Model (LM: UML)
  – technology-specific implementation of CM (e.g. GML abstract model)
  – Packages (6): Main, Fluid Bodies, Constituent, Flow, Well, Well Construction, Aquifer Test
  – Features (9): e.g. GW_HydrogeoUnit (Aquifer), GW_Well, …
  – Extends (3): GeoSciML4, O&M, Interleaved Coverage

• Physical Model (GML-XML schema)
  – for the syntactical encoding of logical model

• GML-XML instance examples
  – syntactical encoding examples
GWML2: Use-cases

1. **Commercial** - find water wells, estimate water well cost

2. **Policy** - meet EU Water Framework Directive needs

3. **Environmental** - risks to gw dependent ecosystems

4. **Scientific** - groundwater flow modeling

5. **Technologic** – map GWML2 to existing info models
GWML2: GML-XML Schemas

- Publically available from SVN
  - Schemas: https://xp-dev.com/svn/gwml2/schemas/
  - Constraints: https://xp-dev.com/svn/gwml2/Documents/schematron/

- To be migrated to OGC repository upon approval
  - URL pending

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GWML2: GML-XML instance examples

- **Complete coverage**: all parts of **GWML2**
- **Publically available**: via SVN
  
  https://xp-dev.com/svn/gwml2/Documents/instance/

- **Public web services**: URLs forthcoming
GWML2: Wrap-up

Since HDWG Workshop 2015 (Orleans)

- GW2IE completed
- GW SWG started
- **GWML2** submitted to OGC

Next Steps

- OGC ratification
- WMO standard initiation
• Questions?
• Comments?