



Open Water Data Initiative

Presentation to SOGW

September 17, 2014

Nate Booth, USGS

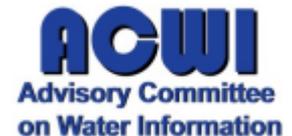
Open Water Data Vision

- ◆ Foundational **National** Data Sets with **Data Services** to support a wide variety of water user applications
- ◆ A water data and tools **community** on the Federal Geospatial Platform
- ◆ Access to integrated **real-time monitoring data**
- ◆ Data Assimilation for a **National Modeling** capability
- ◆ Water Maps and other **Derivative Products** that integrate geospatial & water observations
 - Such as: current conditions, precipitation estimates, reservoir storage
- ◆ **Innovation Marketplace of open source applications** (models, data visualizations, etc.) built upon **Open Water Web Services**



Background and Motivation

"Foundational to [meeting the global water challenge] is the need to **improve access to and exchange of water data and information**, including better modeling of the hydrologic cycle, to include the impact of human-use decisions." – John Holdren



Open Data Access Policy - Background



- White House Strategy – May 2012
 - Digital Government: “Building a 21st Century Platform to Better Serve the American People”
- OSTP Memorandum – February 2013
 - “Increasing Access to the Results of Federally Funded Scientific Research”
- Executive Order – May 2013
 - “Making Open and Machine Readable the New Default for Government Information”
- OMB Memorandum – May 2013
 - Open Data Policy– “Managing Information as an Asset”
- Big Earth Data Initiative – 2014 President’s Budget
- improve the *Discoverability, Accessibility* and *Usability* of Earth science data

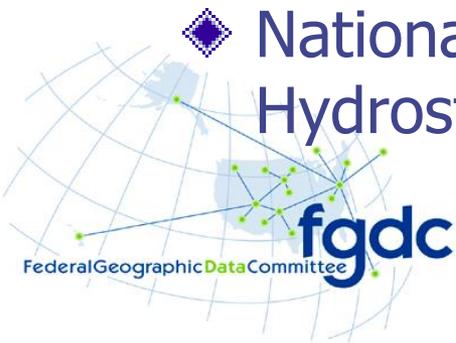
Assistant Secretary Castle: Proposal and Charge

- ◆ Integrate currently fragmented water information into a connected, national water data framework
- ◆ Capitalize on cross-government interest in big data, IT innovation, Open Data, Data.gov, etc.
- ◆ Build on the work of a number of related activities: ACWI, FGDC, OGC, IWRSS, CUAHSI, and others.



Foundational Water Data Sets

- ◆ Streamflow
- ◆ Groundwater levels
- ◆ Aquifers
- ◆ Water quality
- ◆ Reservoir storage
- ◆ Elevation
- ◆ Hydrography – NHD/WBD
- ◆ National Aquifers and Hydrostratigraphy (?)
- ◆ Landscape Variables
- ◆ Climate/Weather/ET
- ◆ Soil moisture
- ◆ Human water use
 - Withdrawals
 - Return flows
 - Diversions
 - Losses



We have much to build from...

ACWI – Advisory Committee on Water Information

WICP Water Information Coordination Program
ACWI Advisory Committee on Water Information

Advisory Committee on Water Information

[▶ About Us](#) ▶ [Members](#) ▶ [Meetings](#) ▶ [Contacts](#) ▶ [Products](#) ▶ [Old Features](#)

Features:
Mark your calendars

9th National Monitoring Conference

April 28 - May 2, 2014

Location:
Cincinnati



Water Information Coordination Program
The WICP ensures collaborative efforts among Federal Agencies to improve water information for decisionmaking about natural resources management and environmental protection.

Advisory Committee on Water Information
The ACWI represents the interests of water-information users and professionals in advising the Federal Government on Federal water-information programs and their effectiveness in meeting the Nation's water-information needs. ([ACWI Fact Sheet](#))

NGWMN NETWORKS

Water level: ?

Subnetwork: **All**

- Background
- Suspected Changes
- Known Changes

Monitoring Category: **All**

- Surveillance
- Trend
- Special

Water quality: ?

Subnetwork: **All**

- Background
- Suspected Changes
- Known Changes

Monitoring Category: **All**

- Surveillance
- Trend
- Special

FILTER MAP DATA

- Principal Aquifer
- Available Data

Water Level **Water Quality** **Well Log**

TIPPECANOE 17 (TC 17)

SUMMARY WELL LOG WATER LEVELS WATER QUALITY

Agency: U.S. Geological Survey (National Water Information System)
 Site Name: TIPPECANOE 17 (TC 17)
 Site #: 402734087033401
 Lat/Long(WGS84): 40.4595, -87.0595
 Well Depth: 212.54 ft.
 Local Aquifer Name: Outwash
 National Aquifer Name: Sand and gravel aquifers (glaciated regions)
 Water Level Network: Surveillance - Background

INDIANA DEPARTMENT OF NATURAL RESOURCES

SELECT FOR DOWNLOAD

BIG SPRING FISH HATCHERY - WELL FWPL 06

SUMMARY WELL LOG WATER LEVELS

Depth of water level, feet below land surface

Month/Year

SELECT FOR DOWNLOAD

SMITH AL

SUMMARY WELL LOG WATER LEVELS

Longitude: 47.3237
 Latitude: -106.9149
 Elevation: 2638.00 ft.
 Well Depth: 145.00 ft.

Depth From (ft)	Depth To (ft)	Lithology	Description
140.00	145.00	CLAY	CLAY
110.00	140.00	SAND	SAND
20.00	110.00	SHALE	SHALE
15.00	20.00	COAL	COAL
12.00	15.00	ROCK	ROCK
0.00	12.00	SAND	SAND

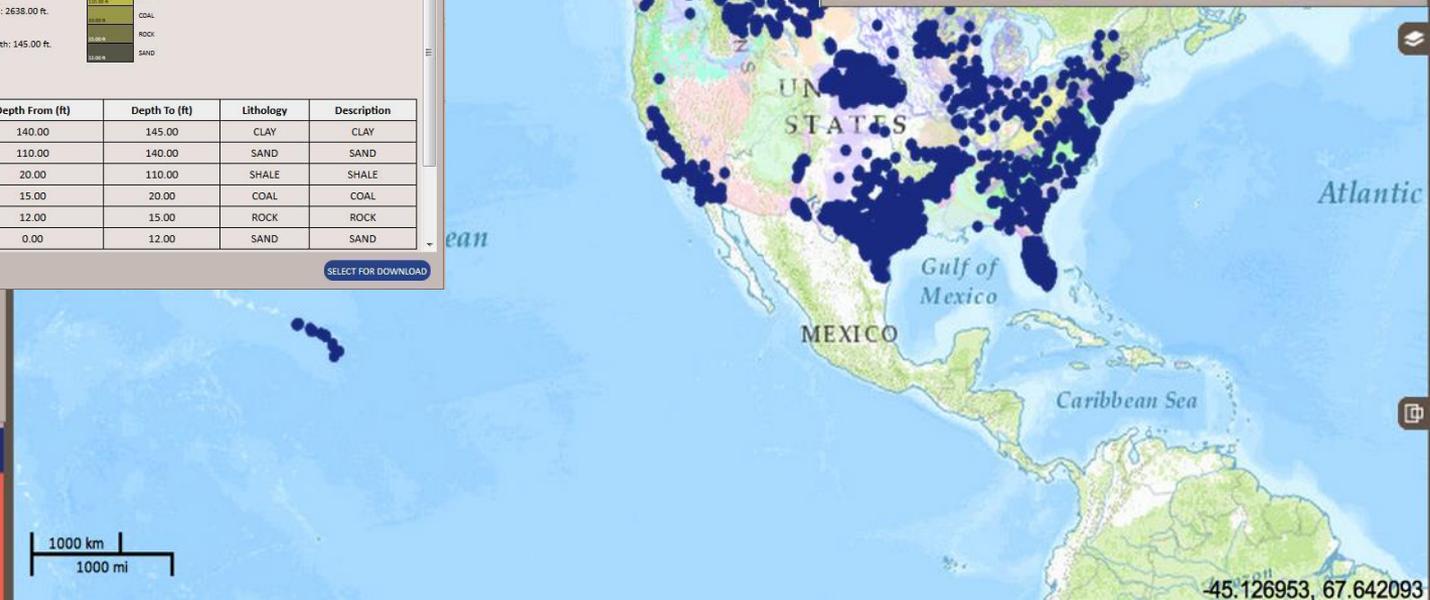
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Site Selection

Site Name	Agency	WL	WQ	Log
GREAT NORTHERN RAILWAY COMPA...	MBMG	●	●	●
PIA-2000A Cisco	ISWS	●	●	●
TWDB-7764401	TWDB	●	●	●
250790-- lmaystown MW1	USGS	●	●	●
GRANT 10 (GT 10)	USGS	●	●	●
66018	MN DNR	●	●	●
MPCA Ambient Network Site 1152	MPCA	●	●	●

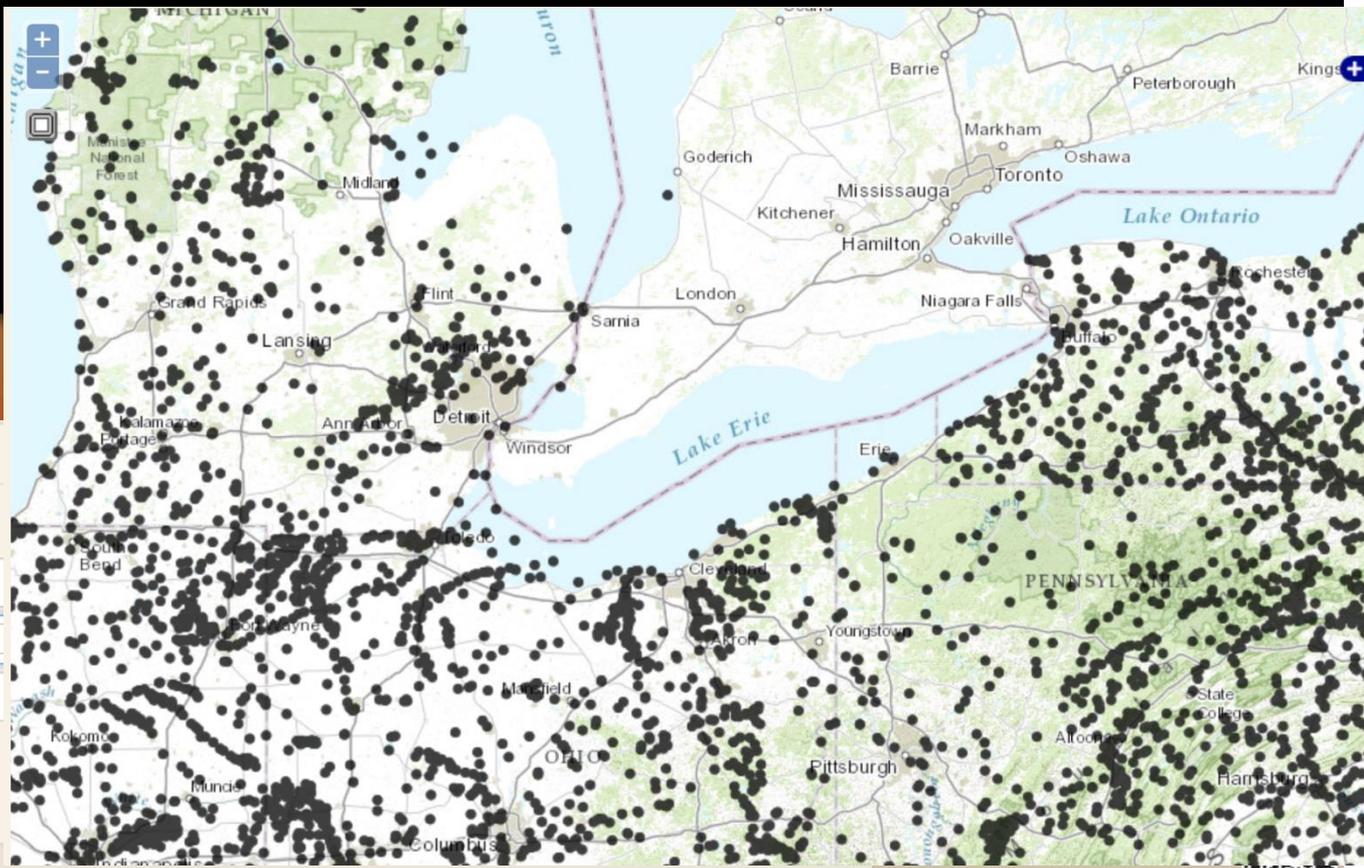
7 sites selected.

REMOVE SELECTED DOWNLOAD



CURRENT STATUS

3022 Sites mapped
 2806 Water-level network wells



LOCATION

Place:

Country:

State:

County:

SITE PARAMETERS

Site Type: ?

Organization ID: ?

Site ID: ?

HUC: ?

SAMPLING PARAMETERS

Sample Media: ?

Characteristic Group: ?

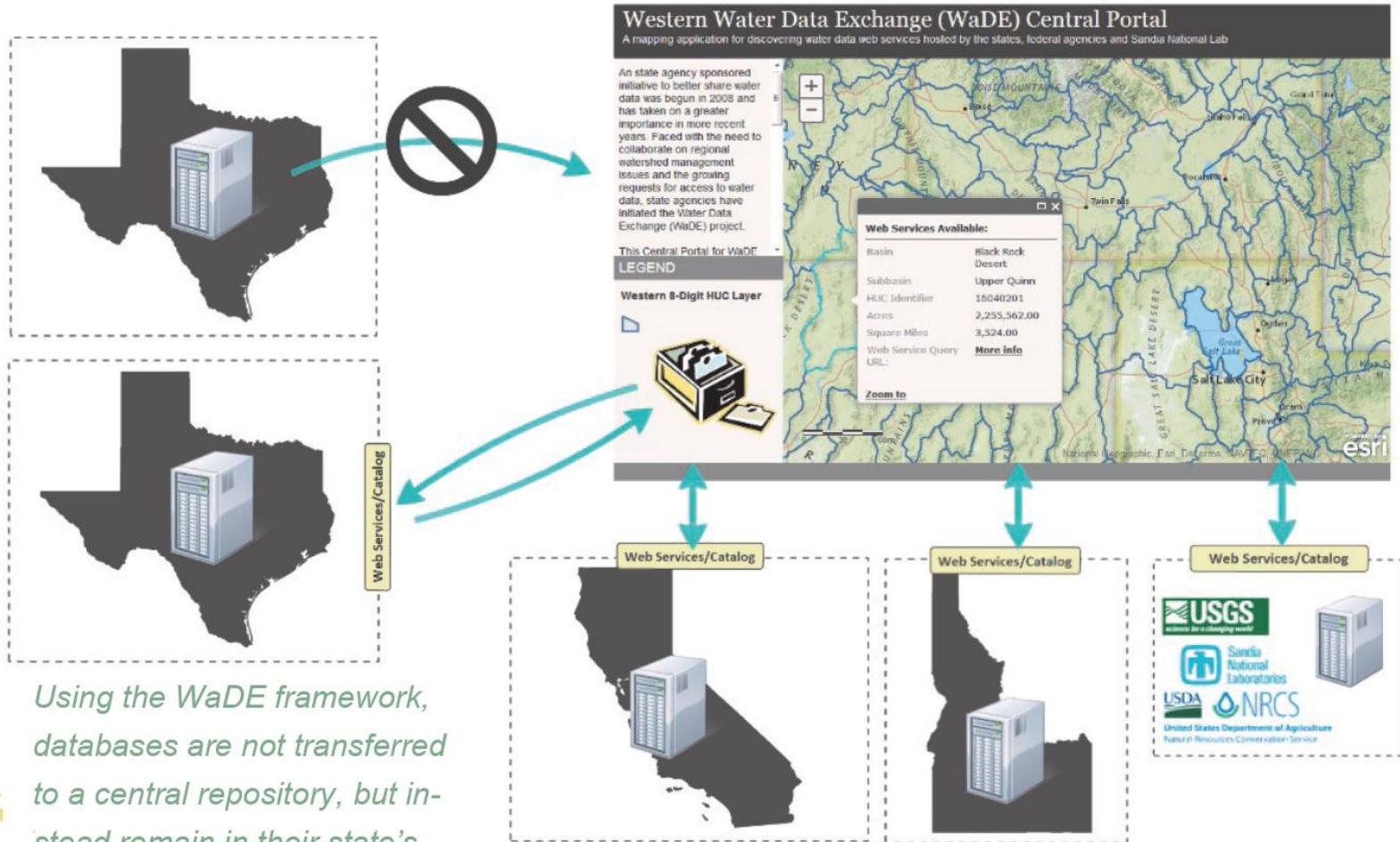
Characteristics: ?

Parameter Code: ?
(NWIS ONLY)

Date range - from: to:

Quality data
USEPA,

Western Water Data Exchange (WaDE)



Using the WaDE framework, databases are not transferred to a central repository, but instead remain in their state's

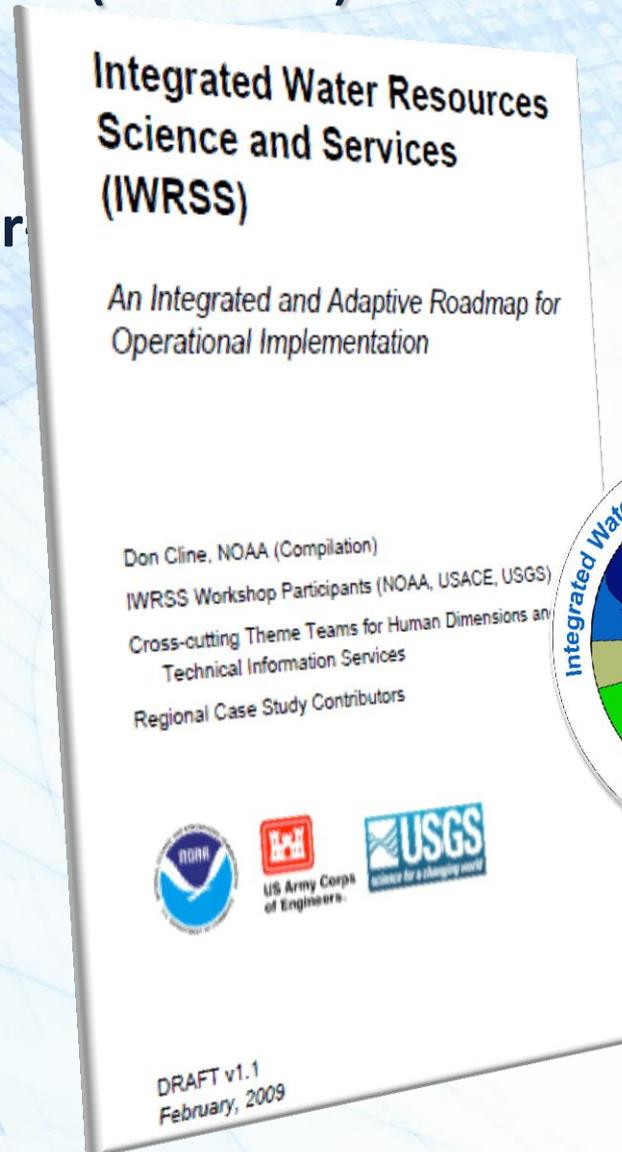
home IT environment. A listing of the data housed by each state is provided via a "Central Catalog." Once the desired data are found, they are accessed using web services, which looks like a web browser address: <http://www.state.gov/water/webservices/GetCatalog>.

Integrated Water Resources Science and Services (IWRSS)

Aligns multiple agencies with complimentary water related missions to:

- Integrate services and service delivery
- Improve river and flood forecasts
- Provide new summit-to-sea water resources analyses and forecasts
- Enable more effective use of resources

**Roadmap Document
(February 2009)**



OGC/WMO Hydrology Domain Working Group

4-Year International Effort – WaterML

A time series for one variable at one location

WaterML2

Hydrology Domain Working Group formed
OGC observer at CHy-13

November 2009

*MEMORANDUM OF UNDERSTANDING
BETWEEN
THE WORLD METEOROLOGICAL
ORGANIZATION
AND
THE OPEN GEOSPATIAL CONSORTIUM, INC.*

Technical Meetings Every 3 Months
Three Interoperability Experiments
(surface water, groundwater, forecasting)
Annual week-long workshops
Involvement by many countries

Acknowledgements: OGC, WMO, GRDC, NWS, CUAHSI,
BoM/CSIRO, USGS, GSC, Kisters,

2008

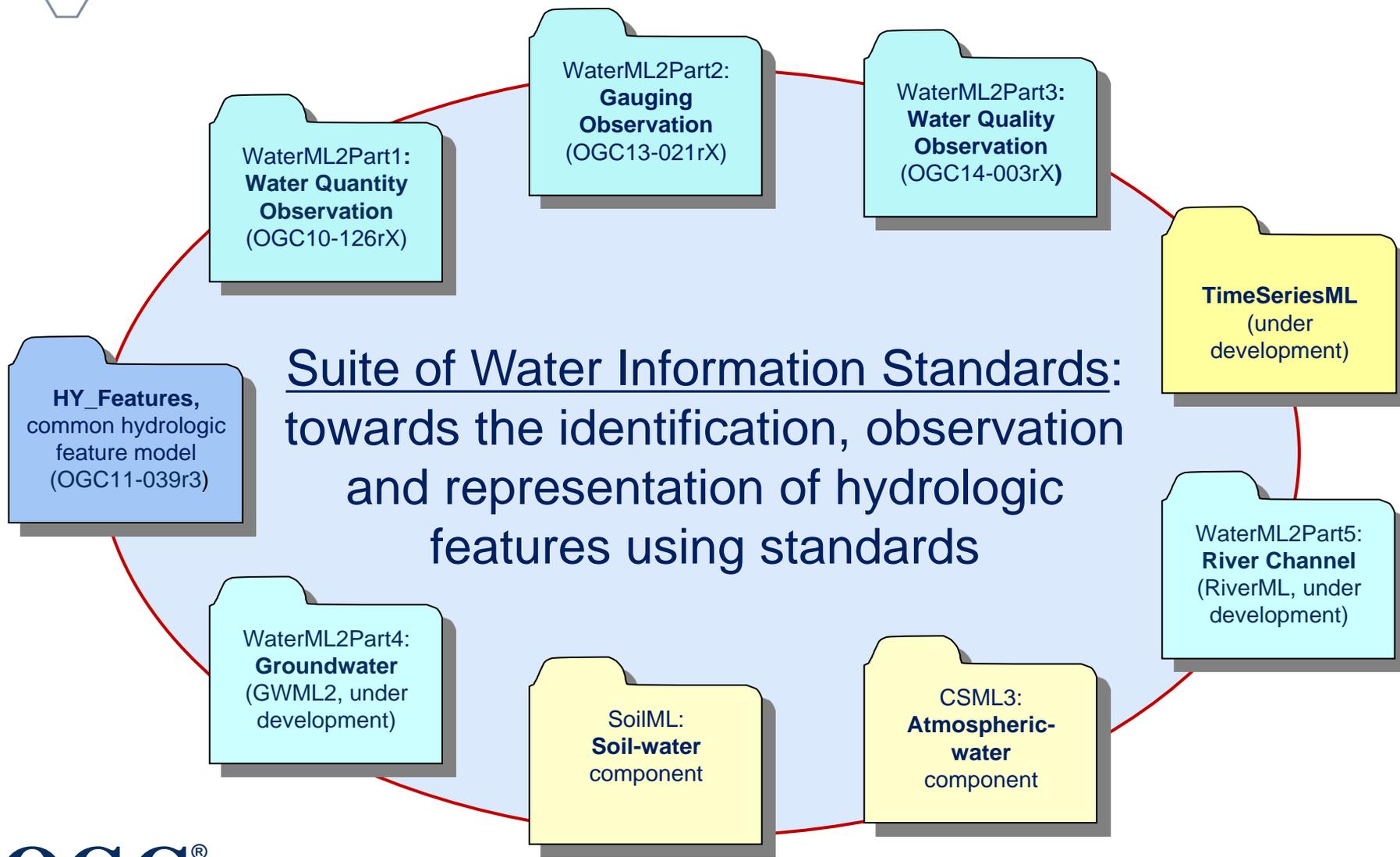
2009

2010

2011

2012

Suite of Water Information Standards

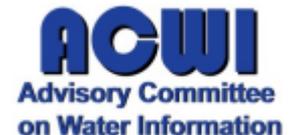


ACWI Meeting—August 19

ACWI voted unanimously to revitalize and charge the Subcommittee on Spatial Water Data to scope and design a national Open Water Data Infrastructure



Subcommittee on Spatial Water Data



Subcommittee on Spatial Water Data (SSWD)

- ◆ Co-chaired by Al Rea (USGS) and Ed Clark (NOAA NWS)
- ◆ Chartered jointly between FGDC & ACWI
- ◆ Kicked off on 8/28/14 with 40 attendees
- ◆ Will organize around use cases to refine requirements for OWDI



Initial Use-case Proposals

- ◆ National Flood Interoperability Experiment (flood forecasting)
- ◆ Integrated Water Portfolio (water availability)
- ◆ Chemical Spill Response (event driven water quality information needs)



Subcommittee on Spatial Water Data



Questions?

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