

ACWI
Streamflow Information Collaborative (SIC)
Tuesday, December 11, 2018
10:30am Central

Phone: 1-855-547-8255 (toll free), Access Code 74449#
1-703-648-4848, Access Code 74449#

WEBEX: <https://global.gotomeeting.com/join/882470341>

Call Purpose:

- Presentation:
*Federated Data Systems in the Information Age:
The future of multi-agency streamflow data delivery*
- Update on streamflow related activities

Agenda:

- Approval of agenda – additions/deletions
- Approval of previous minutes
- Solicit nominations for a replacement for Ryan Mueller as Co-Chair
- Discuss potentially moving the date/time of Collaborative calls
- Federated Data Systems in the Information Age presentation
- Info exchange – streamflow information related activities

Attendees:

Ryan Mueller (IDNR), Sandy Eberts (USGS), Chad Wagner (USGS), Sue Lowry (ICWP), Will Thomas (Michael Baker International), Amy Shallcross, Kirsten Wallance, Becca Fong, Emily Read, Sara Larsen, Gerardo Armendariz, Richard Rockel, Mike Eberle (US Forest Service), Steven Domber

Business Portion:

Approval of agenda – additions/deletions: Agenda approved

Approval of previous meeting minutes: Minutes from 11/13/2018 were adopted

Nominations for a new non USGS Co-Chair were solicited. Ryan Mueller nominated Sue Lowry. Additional nominees will be sought on the next call and via email. A vote will be held during an upcoming meeting.

Sue Lowry suggested moving the standard meeting time up by ½ hour. Meetings (calls) are currently held on the first Tuesday of the month at 11:30 Eastern. No vote was taken.

Presentation:

Emily Read, Chief, USGS, Water Mission Area, Web Communications Branch,
eread@usgs.gov

Federated Data Systems in the Information Age: The future of multi-agency streamflow data delivery

Abstract

In recent years, hydrologic observational networks-- including for streamflow, water quality, and groundwater-- have expanded at the regional, national and international scales; largely driven by the increasing recognition of the importance of hydrologic resources to food, security, and society. As a result, more hydrologic data are available than ever before, yet data standardization and data dissemination approaches vary widely across hundreds of monitoring organizations. The need for data users to access data in standardized formats to address management, research, and other uses has motivated the development of federated, multi-agency data portals. Examples include the Advisory Committee on Water Information Water Quality Portal, the Western States Water Council Water Data Exchange, and the Consortium of Universities for the Advancement of Hydrologic Science [CUAHSI] Water Data Center. These federated systems integrate and harmonize data from across disparate providers, reducing the burden on users to standardized data prior to use. Various models exist for water quality, groundwater, and water use federated data delivery systems, including different incentive and enforcement structures, granting programs, technical support for providers, and quality assurance protocols. The challenges and opportunities of a multi-agency federated streamflow data portal will be discussed.

Finding relevant water data can be challenging. Practitioners spend 80% of their time finding & bringing together data and only 20% of their time using data for the task at hand. Data from all organizations are needed to meet water resources challenges. The USGS is updating its internal systems to accommodate more and more types of data.

What is a Multi-Agency Federated Data Portal? Data from multiple providers are brought together through a single interface or API. Data providers maintain ownership and control over their own data. Different approaches exist for bringing together data from multiple providers; standards may or may not be enforced.

Summary of successful systems ...

Multi-Agency Data Portals
Compare and contrast

	Standards-driven	Broad adoption	Motivation: Grant Program	Motivation: Hosting / Platform
WQP	✓	✓		✓
NGWMN	✓		✓	✓
CUAHSI HydroShare	✓			✓
WaDE	✓		<i>In development:</i> USGS grant program	✓

 Additional motivation: Regulatory / enforcement, e.g., EPA enforcement of Clean Water Act

Questions that were raised or points that were made by the speaker:

Should the SIC's vision be a 'continuous water information delivery system' rather than strictly a 'streamflow information system'? Any new system should be developed in collaboration with existing groups and built off existing water data delivery systems. It would be beneficial to hear from Dwane Young regarding EPA's Interoperable Watershed Network Pilot. It also would be beneficial to hear from the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI) regarding its data access, analysis and collaboration tools. CUAHSI already has hundreds of participants who share data using their tools. What is the sweet spot for CUAHSI and ACWI in this space?

Challenges for a multi-agency streamflow delivery system include:

- very high volume of data due to the great spatial coverage and high frequency of the data
- representation of uncertainty and data quality
- lack of consensus standards for some continuous streamgauge data (e.g. water quality data); consensus standards do exist for streamflow data

Q&A Following Presentation:

Question: Sue Lowry asked if any thought has been given to how to bring attributes of the Western States Water Council's, Water Data Exchange (WaDE) to other states. [WaDE does not handle continuous data. It provides more of a derived data product, but it does handle time steps and therefore could handle monthly information.] Answer: Such conversations are in the very early stages. WaDE technology works and is being used by western states and we should always take a look at what is already working.

Question: Chad asked about web services. Answer: For streamflow web services (machine to machine) would be essential due to the high volume of data. Most of the USGS data are now accessed through web services. Sara Larsen added that WaDE has web services, which are described on their website under 'How WaDE Works'. Emily noted that all of the existing systems that she mentioned have services, although documentation varies.

Round Robin:

Chad Wagner mentioned a recently published National Academies report that identifies key water resources challenges and corresponding strategic opportunities for the USGS Water Mission Area (WMA) over the next 25 years. <https://www.nap.edu/catalog/25134/future-water-priorities-for-the-nation-directions-for-the-us>

The following recommendation in the National Academies report has relevance to the Streamflow Information Collaborative:

“Recommendation 1.2: Coordinate with agencies and organizations on data delivery.

As part of the national effort to deliver water quantity and quality data and information, WMA should coordinate with other agencies and relevant organizations to co-develop accessible, open, and codified data formats, protocols, interoperability, and software tools. This will allow integration across data streams and encourage synthesis of multiple observations in order to detect trends, patterns, and changes in water quantity and quality.”

Next Meeting:

Jan 8, 2019 (postponed due to government shutdown).

The next meeting is now scheduled for February 12, 2019.