Subcommittee on Spatial Water Data

Meeting Details:

Special in-person meeting
September 2, 2015, 11:00 - 1:00 Eastern.

Place: North Penthouse
Main Interior Building
1849 C Street NW
Washington, DC 20240

Teleconference: (New!): 703-648-4848
From non-DOI locations, dial toll free 855-547-8255
Conference code 1712-0464#

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Meeting number: 718 320 269

Shared document space:
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Agenda:

All Times Eastern Time Zone
11:00 - 11:15 Introductions for new attendees
11:15 - 11:30 OWDI One Year On -- Al Rea
11:30 - 12:10 Work Group Reports
12:10 - 12:25 Terminology Discussion
12:25 - 12:55 Wiki/Issues/Repository; Open Discussion on next steps
12:55 - 1:00 Adjourn

New (did not attend 8/28/14 or later meeting)

Andrea Ostroff, USGS, aostroff@usgs.gov
Darci Ferrer, American Cleaning Institute, dferrer@cleaninginstitute.org

Returning (attended 8/28/14 or later meeting)

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11:00 - 11:15 Introductions for new attendees

11:15 - 11:30 OWDI One Year On -- Al Rea

The first meeting of this subcommittee was one year ago (Aug 28, 2014). This meeting is to give us an opportunity to review where we've been and where we are today.

Slides are available here.

Water Data Catalog -- we decided early that we weren't going to duplicate items that have gone into the Climate Data Initiative water theme; that is already plugged in to data.gov, and there's no need to duplicate it. We need to develop a separate landing page since the current catalog takes users to the Climate Data Initiative water theme; we need one for OWDI. We still need to make progress in the near future on a linked data catalog (federated data model; data discovery using upstream/downstream navigation). Data quality issues and issues related to machine readable ontologies also need attention.

Water Data as a Service -- The NFIE effort helped make NWS forecasts and NWIS data available as WML2; this is a huge step toward the integration and interoperability that are goals of OWDI. Lessons learned so far include (1) robust serving capacity is needed and (2) slow services don't get used; if we want our water data infrastructure to be used, it must be both

robust and fast. Repackaged seamless NHDPlus data for download is a useful variation. We need to measure service usage, to help determine whether the service is useful to customers.

Enriching Water Data -- linking data to a standardized geospatial framework such as NHDPlus is critical. We now have sites with observations and measurements referenced to NHDPlus. Modeling parameters for catchments also are referenced to NHDPlus now. We can still do more work on making the data discoverable. Better integration of geospatial layers could be done (WBD linked to NHDPlus, etc).

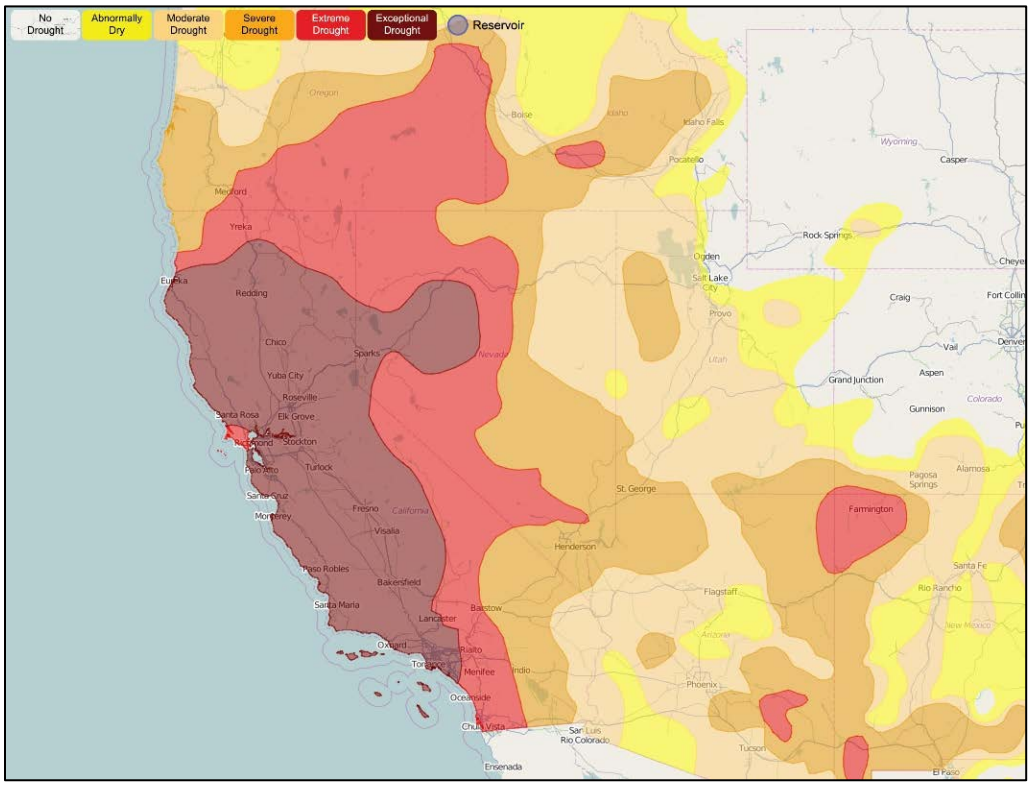
Water Data and Tools Marketplace (Community) -- We've had great community dialogue thus far (SSWD, AWRA, many other participants). We need even more engagement across a wider community. Additional web presence may help this process; a wiki might be a good place to start. Code and tool open source repositories such as GitHub are a topic we should discuss in the near future, but we won't focus on that today.

Do we need to be working toward explicitly common methods and protocols? What do the other Federal agencies think? Ed Clark may convene a smaller group to consider this question, so we can discuss it at the October meeting. EPA has two demonstration projects on sharing sensor data, and part of the statement-of-work language is to support services just like the ones we're discussing for OWDI (i.e., responding to upstream/downstream requests). We need more information from other Federal agencies and the private sector on what types of technology are available for this purpose. Encourage EPA to put their results from this demonstration project in a public repository so we can all access it.

11:30 - 12:10 Work Group Reports

NFIE

- NFIE and Summer Institute were completed in July 2015. Over 44 students leveraged the investments made by the OWDI community in data services and critical data sets.
- For NOAA and NWS this was a profoundly successful experiment, which was designed to close the gap between national flood forecasting and emergency response activities.
- David Maidment's slides related to the NFIE work group were not shown during the meeting, but they are available online here.



Drought

- The Drought Use Case Team is led by Bureau of Reclamation, with representatives from USGS, Western States Water Council, USEPA, and NASA.
- Team efforts kicked off in autumn 2014; in November 2014, the USGS Center for Integrated Data Analytics (CIDA) rolled out a California drought visualization (see graphic, above: California Drought, visualized with Open Data, http://cida.usgs.gov/ca_drought/).
- Use Cases are using the "lean methodology" – with a focus on getting deliverables out for public review/feedback, then iterating to maximize utility.
- The group discussed a concept to extend the California drought visualization to include the lower Colorado River Basin (Basin). The Basin has experienced 16 years of drought. Reclamation and USGS, among others, collect and manage abundant datasets relating to operations and water supply in the Basin.
- Drought Use Case team approached USGS CIDA about the project; CIDA was able to partner in the project.
- A scoping meeting was held in February 2015 to identify possible themes/storylines for a visualization related to drought in the lower Colorado River basin. Since then, a multi-agency group including USGS, Reclamation, NASA, and EPA has worked on developing a web app using datasets from organizations – USGS, Reclamation, and University of Arizona, among others.
- USGS is developing code and building the app/visualization, with help from Reclamation, NASA, and EPA.
    - *A high school student is helping with the app, which connects with and supports the Secretary's Youth Initiative.*

- The app/visualization is currently undergoing peer reviews and will next be vetted through various stakeholder groups, to help generate the most useful initial product. Launch is planned for December 2015.
- *Recent Powerpoint: Open Water Data Initiative:* Drought Use Case Study, http://www.usgs.gov/solutions/ppt/2015/15july31_adams.pptx

Spill Response

- Slides from Bill Samuels (Leidos) are available here.
- Goal was to identify data sets, tools, and parameters to enable web-based predictive modeling of spills as they travel downstream.
- Elk River spill in WV last year was a motivator for this study, and the more recent spill at the Gold King Mine has emphasized the need for this type of tool.
- Initial workgroup interaction has been to describe and demonstrate existing apps that addressed modeling and simulation, web services, GIS mapping, hydrology, emergency response, etc.
- Priority datasets include NHDPlus, real-time streamgage data, forecast data from NWS River Forecast centers, list of diversion points below the spill, locations of highway bridge crossings and other infrastructure, discharge points, properties of chem/bio/radiological agents, and residence times for reservoirs.
- Applications and capabilities explored include ICWater, StreamStats, Drinking Water Mapping Application for Protecting Source Waters (from EPA's Office of Groundwater and Drinking Water), chemical spill tool kit, an Ohio Mapping Project emergency response flexviewer, and others.
- Many organizations (especially river basin commissions) deal with spill response activities, including River Basin Commissions for the Upper Mississippi, Potomac, Susquehanna, and Delaware Rivers, the Great Lakes Commission, and the Ohio River Valley Water Sanitation Commission.
- Recent spill events: Gold King Mine spill, Elk River spill.
- Question: How is this use case getting at the issue of data interoperability and data sharing? Are the features you have shared available in an open database that makes them interoperable so that this activity can be stood up quickly without gathering all that information quickly? Answer: Yes, the NHDPlus, EPA Waters tool, and the DWMaps applications are both available nationally and can be used as a stand-alone and in a web environment. These web tools need to be more fully developed on operational servers that can provide the speed/responsiveness that people need.
- Question: Is it possible to convert this into a service? Answer: Yes, we're trying to make that happen, but so far we have just gotten to the prototype stage.
- The importance of historical water-quality monitoring data -- has this issue arisen? It has certainly been an issue in the Gold King Mine spill, in which three Tribes and three States were doing water-quality monitoring without any way to share the data they were collecting. Answer: That kind of multi-agency monitoring is common in spill situations, and yes, historical data is very important in situations like the Gold King Mine spill.
- Question: Were the models you showed in the slides being used in real time, and/or used to predict the transport of the contaminants? Answer: Yes, in both cases they were used.
- Question: What were key roadblocks you ran into, in monitoring these spills? Answer: One of the key problems with a lot of these spills is getting a good handle on the source of the contaminant: how much was released, when was it released, for what period of time was it released? Initial reports are often wrong, overestimating or underestimating volume.

Technology

- Technology group spent lots of time trying to document the processes and information flows in our use cases. There is a *JAWRA* draft article about this that provides a good overview of technical details and how all the various pieces fit together.
- The group also discussed what kind of materials/guidance they can provide that could help inform the use cases.

NHDPlus Data

- We've received some feedback from other workgroups on flattened NHDPlus content and welcome additional feedback. We intend to coordinate with Ed Clark on collecting comments from the NFIE summer institute participants.
- With respect to the prototype ESRI and OGC web services that have been implemented, we've made some refinements to the mapping services based on user feedback to date and hope to improve performance for the analytical services, such as the up/downstream search for data linked to the stream network..
- Question: Is it possible to have upstream/downstream queries about dams and reservoirs? Answer: We can usually find the dams, but not reservoirs. Some information about reservoirs and dams can't be shared for security reasons; but we might want to consider sharing some of this sensitive information for internal use only, within the water community.

Water Use

Goals for the group are to catalog and identify characteristics of larger water use datasets that are available, and which ones are published on an ongoing basis, which ones are published using "open" data formats. Looking for a way to share the catalog and dataset characteristics (period of record, timestep, spatial extent, etc.) in a more compelling way. Started out with an ArcGIS map application and then migrated the dataset listing to Sciencebase. (Q: Is there an OWDI community in Sciencebase now?) Have quite a few listings for Federal agencies, eastern and western water use datasets, but didn't have a comprehensive survey of State-level data for eastern States. Contacted some eastern groups (Delaware River, Susquehanna, Great Lakes, etc.) and the Interstate Council on Water Policy (ICWP) on this issue.

The new Water Use Data Research (WUDR) financial assistance program provides many opportunities for States to work on development of water use data programs. Part of the WUDR rollout is to have three stakeholder meetings that will help all the States contribute their thoughts to the grant guidelines and process. ICWP is hosting the meetings and has agreed to include the water use survey that WSWC developed for western States on their agenda. If the participants answer the survey in a comprehensive way, a much more complete picture of what the States are doing for this category of water data will be available. We will also have a chance to talk to eastern State folks about open data sharing concepts.

Next steps… continue to add water use data providers to the catalog, encourage those who do have water use datasets to share these "openly", not just in static reports or spreadsheets, and put together a short report on our findings and recommendations. Use the ICWP survey results to help with WUDR guideline development so that State water use datasets will be more comparable across State boundaries and easier to process and use by USGS NWUIP program. Also, once available openly, review how might these datasets be incorporated into OWDI and the use cases where applicable.

Question: Is there an OWDI community in USGS's Sciencebase? Answer: Not currently, but there is one for NHD.

If anyone knows of other water use datasets that may be available, please let the workgroup know.

12:10 - 12:25 Terminology Discussion

- Open Water Web, National Water Data Infrastructure, ~~Open Water Data Infrastructure~~
- Geofabric, Hydrofabric, Geospatial framework, Hydro network, Stream network
- Community, Marketplace
- As the OWDI effort expands, it's crucial that we use standard, consistent terminology that everyone understands to have a common meaning.
- The most complete term may be "geospatial surface water framework." Does that go far enough? It doesn't reference groundwater, and that could be important in the future, when we have coupled gw/sw models. Perhaps "geospatial water resources framework" or "geospatial hydro framework"? **"Geospatial hydrologic framework" is the winner!** We will try to use this terminology consistently from now on.
- In the future, let's also try to use National Water Data Initiative instead of National Water Data Infrastructure.

12:25 - 12:55 Wiki/Issues/Repository; Open Discussion on next steps

Who would set up a wiki and maintain it? What's the best platform for it? Al Rea has created a place in our shared workspace for developing ideas for a wiki:

https://docs.google.com/document/d/15TrkIUj3fr_FnL2VU06tL4CwPFNWnUxRnVTfLJTjsB4/edit?usp=sharing

ACTION - ALL: Please take a look at the above link and provide feedback. Volunteers who want to edit this information should let Al Rea, Ed Clark, and Wendy Norton know by September 11 (their email addresses are on the attendees list, above).

The group discussed possible platforms for hosting a wiki, including GitHub, the ACWI/SSWD website, and geoplatform.gov. Some of the platforms discussed present access problems for some portion of our membership, so we will continue searching for a platform that can be used by *anyone.*

The group also needs to eventually discuss who would administer and police the wiki, especially if it's open for anybody to make additions or changes.

We can help by linking a lot of these resources to the SSWD website (acwi.gov/spatial and acwi.gov/spatial/owdi).

There is one example on the Homeland Security Information Network that might be useful to look at this link.

ACTION: Al Rea and Ed Clark will pursue this with Geoplatform, to see if we can get a place established for hosting a wiki.

12:55 - 1:00 Adjourn

Of interest:
http://acwi.gov/spatial/owdi/newsfeed.html#nutrientViz

https://usopendata.org/

Next meeting: September 25 at 1:00 p.m. Eastern Time.