



## **CGIA Community Forum Presents: 3D Hydrography for California**

### **Agenda and Notes**

February 12, 2026 - 12:00 Noon to 1:30 PM

Questions about this event may be directed to [jane.schafer-kramer@water.ca.gov](mailto:jane.schafer-kramer@water.ca.gov). This event is presented by the **California Geographic Information Association (CGIA)**.

Website: <https://cgia.org>

Discover recordings of previous CGIA webinars and Community Forum events on CGIA's YouTube channel: <https://www.youtube.com/@calcgia>

#### **MEETING TOPIC:**

**Development of Statewide Elevation-Derived Hydrography Data for California:  
A Federal-State-Regional-Local-Public-Private Community Effort**

#### **AGENDA**

**12:00 – 12:05 PM: Welcome and Opening Announcements** – Tracy Tober, CGIA Chair, and Jane Schafer-Kramer, CGIA Community Forum Chair

- Feel free to use the chat feature during the presentations for questions, answers, and comments. Open Q&A will happen after all presentations.
- Please stay on mute and keep your camera off unless you are speaking.

***Tracy introduced CGIA's mission to facilitate coordination and collaboration in California's geospatial community. She thanked the sustaining members:***

***California Tribal GIS*** <https://catribalgis.org/>

***Dewberry*** <https://www.dewberry.com/>

***Parcel Quest*** <https://www.parcelquest.com/>

***Quartic Solutions*** <https://quarticsolutions.com/>

***Redefined Horizons*** <https://rh-survey.com>

***Shasta College GIS*** <https://shastacollege.edu>

**UC Santa Barbara Geography** <https://www.geog.ucsb.edu/>

**USA (Underground Service Alert) North 811** <https://usanorth811.org/>

**DigAlert – Underground Service Alert of Southern CA** <https://www.digalert.org/>

**USC Dornsife Spatial Sciences Institute** <https://dornsife.usc.edu/spatial/>

**12:05 – 12:10 PM**

### **Hydrography Data Stewardship for California**

**Jane Schafer-Kramer, Lead Hydrography Data Steward, CA Department of Water Resources**

*(Jane's speaking notes are included in the slides.)*

*California's Department of Water Resources (DWR) is leading efforts to modernize the state's hydrography data by transitioning from the traditional National Hydrography Dataset (NHD) to the USGS 3D Hydrography Program (3DHP). This initiative began during the 2014 drought emergency under the California Water Action Plan and aims to improve accuracy and integration of water data with elevation models for better resource management and climate resilience. Working with partners such as CSU Chico, CSU Northridge, and multiple state and federal agencies, DWR has launched pilot projects to develop Elevation Derived Hydrography (EDH) tools that meet USGS standards. Current projects include the Feather River Headwaters, North Bay Regional Hydrography Program, and Santa Cruz Mountain Stewardship Network, with additional proposals and planning underway for major watersheds across the state. These efforts, supported by USGS cost-share agreements, represent a significant step toward creating a comprehensive 3D topographic model that enhances water flow modeling and decision-making statewide*

**12:10 – 12:20 PM**

### **US Geological Survey's Role in the National Hydrography Dataset and the 3D Hydrography Program**

**Cynthia Ritmiller, USGS National Map Liaison for CA, HI, AZ, CO, NM, NV, UT**

*(Cynthia's speaking notes are included in the slides.)*

*The U.S. Geological Survey (USGS) plays a central role in providing national topographic information through its National Geospatial Program, which supports science, government decision-making, and public access to reliable data. A key component of this effort is the National Hydrography Dataset (NHD) and its evolution into the 3D Hydrography Program (3DHP). The 3DHP aims to replace older, inconsistent hydrography with high-accuracy data aligned with the 3D Elevation Program (3DEP), following best practices for governance and acquisition. This integration enables better accounting of the hydrologic cycle, interoperability with other datasets, and improved modeling for water-related applications.*

*The 3DHP data lifecycle includes collection, quality assurance, ingestion into the 3DHP database, and distribution through platforms such as The National Map, ScienceBase, and dedicated services like [3dhp.nationalmap.gov](https://3dhp.nationalmap.gov). USGS engages partners through the Data Collaboration Announcement (DCA) process, which provides funding opportunities and timelines for project*

proposals, with agreements required prior to project initiation. Future plans involve developing a fully integrated 3D National Topography Model (3DNTM) that combines hydrography, elevation, inland bathymetry, and other geospatial data, creating an ecosystem for data sharing under the Internet of Water framework. These efforts ensure continual improvement, new quality levels, and refresh cycles to meet evolving user need

**12:20 – 12:40 PM**

### **What's So Special About 3D Hydrography Program Data?**

**David Blodgett**, USGS Hydro Informatics Specialist, Acting Chief of the Geo-Intelligence Branch

*(Dave's speaking notes are included in his slides)*

Notebook and Links from David Blodgett's Presentation

[nhdplusTools/docs/cgia\\_demo.qmd at main · DOI-USGS/nhdplusTools](#) (Notebook)

[Water Mission Area / nhgf / Reference Fabric / hydro\\_snap · GitLab](#)

[NHDPlus Tools • nhdplusTools](#)

[Hydroclimate Data Retriever](#)

[TopoRivBlender - Create custom 3D images of Topography and Hydrography | Water Data For The Nation Blog](#)

*Dave Blodgett, an acting branch chief in the USGS Water Mission Area, discussed the significance of 3DHP (3D Hydrography Project) data. He highlighted that 3DHP is elevation-integrated, breaking out of traditional geodatabase constraints, and supports advanced analytics from the ground up. Dave explained the historical context and evolution of hydrography data, emphasizing the importance of a hydrologic basis for the new system. He also touched on the progress of data acquisitions and the challenges faced, noting the momentum in producing and publishing datasets despite headwinds. Dave concluded by discussing the services-first approach to data releases, balancing the need for both up-to-date and stable datasets.*

*David demonstrated the Explorer.geoConnex.us application, which serves as a digital object identifier infrastructure for the Internet of Water, allowing users to track unique identifiers for environmental data. He showcased how to search for and retrieve information about rivers, such as the Stanislaus River, using these identifiers. David also demonstrated web services that enable the retrieval of 3DHP data, including flow lines, drainage basins, and other attributes, using R and Python packages. He highlighted the ability to interoperate between datasets and the potential to create subset datasets on the fly for various mapping and analysis projects. David demonstrated new features of 3DHP data, including network-aware operations, catchment analysis, and stream visualization. He shared links to visualization tools and hydrologic indexing tools for the audience to explore.*

**12:40 – 12:50 PM**

**The Role of CSU Chico and CSU Northridge in 3D Hydrography Data Development for CA**  
**Erik Fintel, Project Manager, North State Planning and Development Collective, CSU Chico**  
**Joel Osuna-Williams, Project Manager, Center for Geospatial Science and Technology, CSU Northridge**

*Erik and Joel from CSU presented their roles in 3D hydro development in California, highlighting their collaboration with DWR and their work on EDH and 3DHP data production. They discussed their workflow processes and tools for hydrography data creation, emphasizing automation and simplification. Erik also mentioned their involvement in helping DWR with DCA planning and submissions, including a successful proposal for the Upper Feather River Watershed.*

*Joel discussed the team's involvement in data production, tool development, and outreach efforts, particularly in California. He highlighted their role in providing technical assistance, education, and engagement with stakeholders to ensure compliance with USGS specifications for elevation-derived hydrography. Joel also mentioned upcoming events, including the AWRA Geospatial Water Technology Conference and the ESRI UC Annual Conference, where they plan to present proposals and connect with other attendees.*

**12:50 – 1:00 PM**

**Building a Regional Collaborative for 3DHP Data Acquisition**

**Colleen McNally-Murphy**, Project Manager, San Mateo Resource Conservation District and the Santa Cruz Mountain Stewardship Network

*(Colleen's speaking notes are included in the slides.)*

*Colleen presented on a hydrographic data mapping project for the Santa Cruz Mountain Stewardship Network, covering Santa Cruz, Santa Clara, and San Mateo counties. She explained that the project, managed by the San Mateo Resource Conservation District, aims to improve land stewardship decision-making by updating existing hydrographic data. Colleen highlighted the importance of regional coordination and partnership, noting that the project involves multiple organizations including California State Parks, Peninsula Open Space Trust, and others. She also discussed the broader context of the project, including its connection to the Pacific Veg Map and its role in a larger effort to map the state and nation.*

**1:00 to 1:20 PM**

Questions & Answers, Open Discussion

*Cynthia demonstrated how to access and use the 3DHP service, noting its nationwide coverage and fast performance. Participants discussed the challenges and progress of the 3DHP, with Erik and Mischa emphasizing the importance of human interpretation despite technological advancements. The conversation ended with Jane thanking attendees and announcing future webinars and community forums.*

**Sign up for the CGIA email list at <https://cgia.org/wp-login.php?action=register>**  
**Join CGIA! <https://cgia.org/about-cgia/membership-options/join-cgia/>**

## **Thank You to Our Sustaining Members!**

California Tribal GIS <https://catribalgis.org/>

Dewberry <https://www.dewberry.com/>

Parcel Quest <https://www.parcelquest.com/>

Quartic Solutions <https://quarticsolutions.com/>

Redefined Horizons <https://rh-survey.com>

Shasta College GIS <https://shastacollege.edu>

UC Santa Barbara Geography <https://www.geog.ucsb.edu/>

USA (Underground Service Alert) North 811 <https://usanorth811.org/>

DigAlert – Underground Service Alert of Southern CA <https://www.digalert.org/>

USC Dornsife Spatial Sciences Institute <https://dornsife.usc.edu/spatial/>

