



Colorado Scientific Society – Earth Sciences since 1882
The oldest scientific society in the Rocky Mountain region

Founded in 1882, the objective of the Society is to promote the knowledge and understanding of Earth science, and its application to human needs. Samuel Franklin Emmons, 1841-1911, was “Geologist in Charge” of the Colorado Division of the U.S. Geological Survey when it was established in 1879 and was the first president of the Society. We focus primarily on earth science, welcoming members with interests in all fields of science. [Learn more.](#)

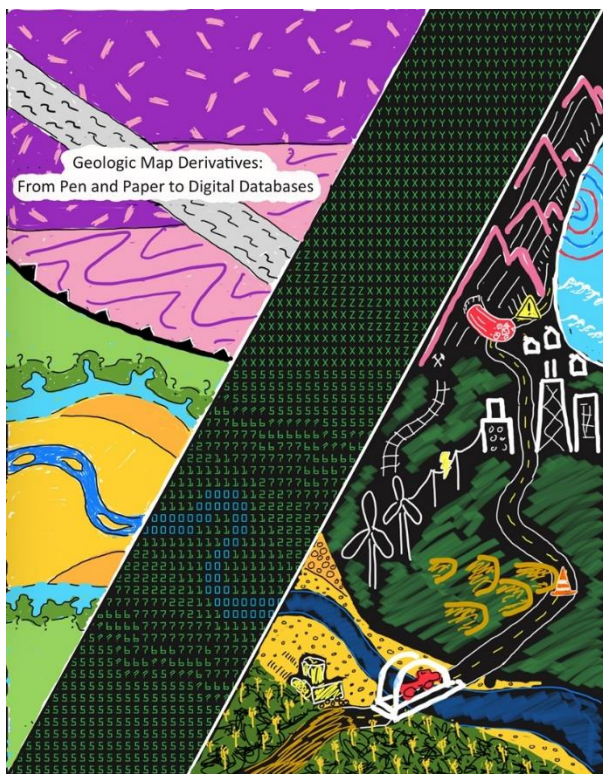
January 2025 Colorado Scientific Society Newsletter

CSS January Meeting
Thursday, January 16, 2024 at 7:00 p.m.

Geologic Map Derivatives: From Pen and Paper to Digital Databases

Michael Frothingham, U.S. Geological Survey.
 Geosciences and Environmental Change Science Center.

All are welcome – no admission charge



6:30 pm – Social time begins at Golden Calvary Episcopal Church. Enter off 14th St.

6:45 pm – Join Zoom meeting, if attending remotely

7:00 PM – Meeting starts.

Please arrive early. Church doors are locked, and **no one** will be at the door to let you in after 7:00 pm.

Geologic Map Derivatives: From Pen and Paper to Digital Databases

Abstract: Geologic maps are venerable hallmarks of earth science. While traditional pen and paper maps have impressively withstood the test of time, they are currently undergoing a revolution as maps are compiled into integrated databases. These new digital databases are becoming increasingly accessible and user friendly, with queryable data that enables new scientific applications and analysis. I present three examples of derivative geologic maps, generated from geologic map data

compiled in the Seamless Integrated Geologic Mapping extension to the Geologic Map Schema (SIGMa GeMS). Using attribute queries and spatial intersections in a geographic information system, derivative maps are created from 1:100,000-scale geologic map compilations within the footprints of Cortez, Durango, Trinidad, and Aztec 1×2 degree quadrangles in Utah, Colorado, and New Mexico. The derivative maps include: (1) an aggregate and infrastructure map, (2) a sand dune/sheet and infrastructure map, and (3) a surficial mass wasting deposits versus bedrock geology map. These maps illustrate where aggregate resources (e.g., unconsolidated gravel and sand) occur relative to civil infrastructure, identify areas where mobile landforms (e.g., sand dunes or sand sheets) pose potential future risks to roads, and explore correlations between surficial mass wasting deposits (e.g., landslides, rockfalls, debris flows, etc.) and the underlying bedrock geology. These examples demonstrate the utility of modern geologic map databases, highlight opportunities for improving subsequent mapping, and inspire the development of future derivative maps to address pressing geological problems and societal needs.

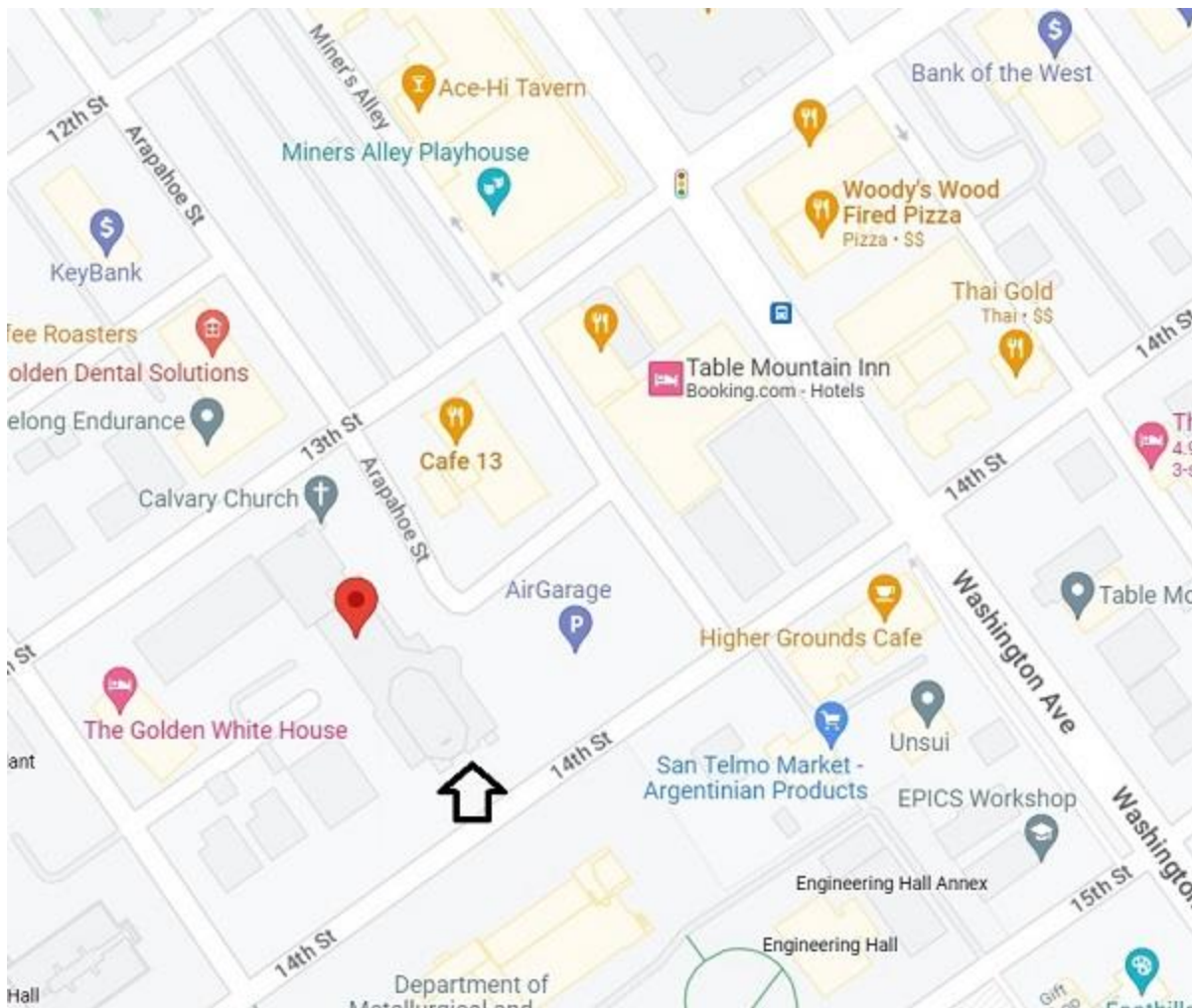


Michael Frothingham

In-person Meeting at Golden Calvary Episcopal Church

See more information about the meeting below, and for more about the meeting including how to attend by Zoom, and more about the CSS, please visit our website,

<https://coloscisoc.org/>



Calvary Church in Golden. Enter at arrow on map.

[1320 Arapahoe St, Golden, CO 80401](#)

Click on link to open a Google map.

Enter off 14th St., going in via the main glass doors on 14th St.

Do **not** enter the old church above 13th St.

Go through building following the CSS signs to the Community Rooms 1 and 2, where we meet.

The church doors must stay locked, and we will have a person to let you in at the doors off 14th st.

They want to see the presentation too, so **please arrive before 7:00 pm.**

There will be a phone number that you can text to be let in if you arrive late.

Parking On street parking is available close by, west of Washington Ave in downtown Golden.

The AirGarage parking structure, which can be entered from Arapahoe St., is \$3.00 for three hours.

Copies of ***The Geology of Boulder County*** by Raymond Bridge (2004) will be available for \$20 at the meeting.

Schedule of coming CSS meetings:

CSS February Meeting: Colorado River resources management between upper- and lower-basin states: upcoming changes mandated by the federal government

Thursday, February 20, 2025

Joe Casola, U. S. Geological Survey

CSS March Meeting – Title TBD

Thursday, March 20, 2025

Harrison Gray, U. S. Geological Survey

CSS April Meeting and Emmons Lecture – Title TBD

Thursday, April 17, 2025

Lauren Heerschamp, Brunton Company

CSS May Meeting – OPEN

Thursday, May 15, 2025

September: Past Presidents' Dinner

Tarryall Valley: Gold, Glaciers, and Giants

Thursday, September 18, 2025

Mark Hanson

Mark Hanson is a geologist, historian, and author of the upcoming book ***Tarryall Gold: From Rush to Hush***. He profiles the miners, mines, cabins, and their resulting patina on today's Tarryall Valley. A resident and owner of several patented gold claims, Mark peels back 160 years of rust and reforestation to reveal a time capsule showcasing yesterday's rush, and today's hush.

CSS October Meeting – OPEN

Thursday, October 16, 2025

CSS November Meeting – Posters(?)

Thursday, November 20, 2025

CSS December Potluck, Annual Business Meeting, and Past President's Address:

Whiskeytown boulder sampling to elucidate wildfire history and role in debris flows using luminescence

early December

Shannon Mahan, U. S. Geological Survey

Field Trips and “No Moss” short field trips: *To Be Announced*



Click to Join or Renew your
Colorado Scientific Society
Membership

Please pay your CSS dues for 2025!

You may pay dues online or print out a PDF of the membership form and mail it to us with a check. Continuing your membership in CSS will enable us to continue all our ongoing programs, including our field trips, virtual meetings, Student Research Grants, and more.

See [Membership and Donations](#) for the CSS membership PDF and our online membership payment form.

Regular CSS Membership is \$25;

Student Membership, \$5;

Life Membership, \$395.

Send your membership payment, if not done through [our online membership payment form](#), to Colorado Scientific Society P.O. Box 150495 Lakewood, CO 80215-0495.

Thank you!

New and renewal memberships in November and December are also good for the next year.

[Read past Colorado Scientific Society Newsletters](#)

Start or renew your membership with the [Online CSS Membership Form](#)

Or print and mail in the [Colorado Scientific Society Membership Form \(PDF\)](#)

[Archive of Past Colo. Scientific Society Meetings](#)

Election of 2025 officers took place at our Dec. 3 Annual Meeting. The final slate of our 2025 officers and Councilors is:

President – **Shannon Mahon**

Secretary – **Patrick Sullivan**

Treasurer – **Jim Paces**

Past President – **Jeff Pigati**

President-elect (to become president in 2026) – position was open*

Councilors: 2023-2025: **Michael Frothingham**

2023-2025: **Kassandra Lindsey**

2024-2026: **Nate Rogers**

2024-2026: **Susan Slomski**

2025-2027: **Lisa Rukstales**

2025-2027: **Adam Hudson**

***Amy Atwater**, Director of Paleontology at Dinosaur Ridge, Morrison, CO, has been nominated and volunteered to serve as President-elect of the CSS.