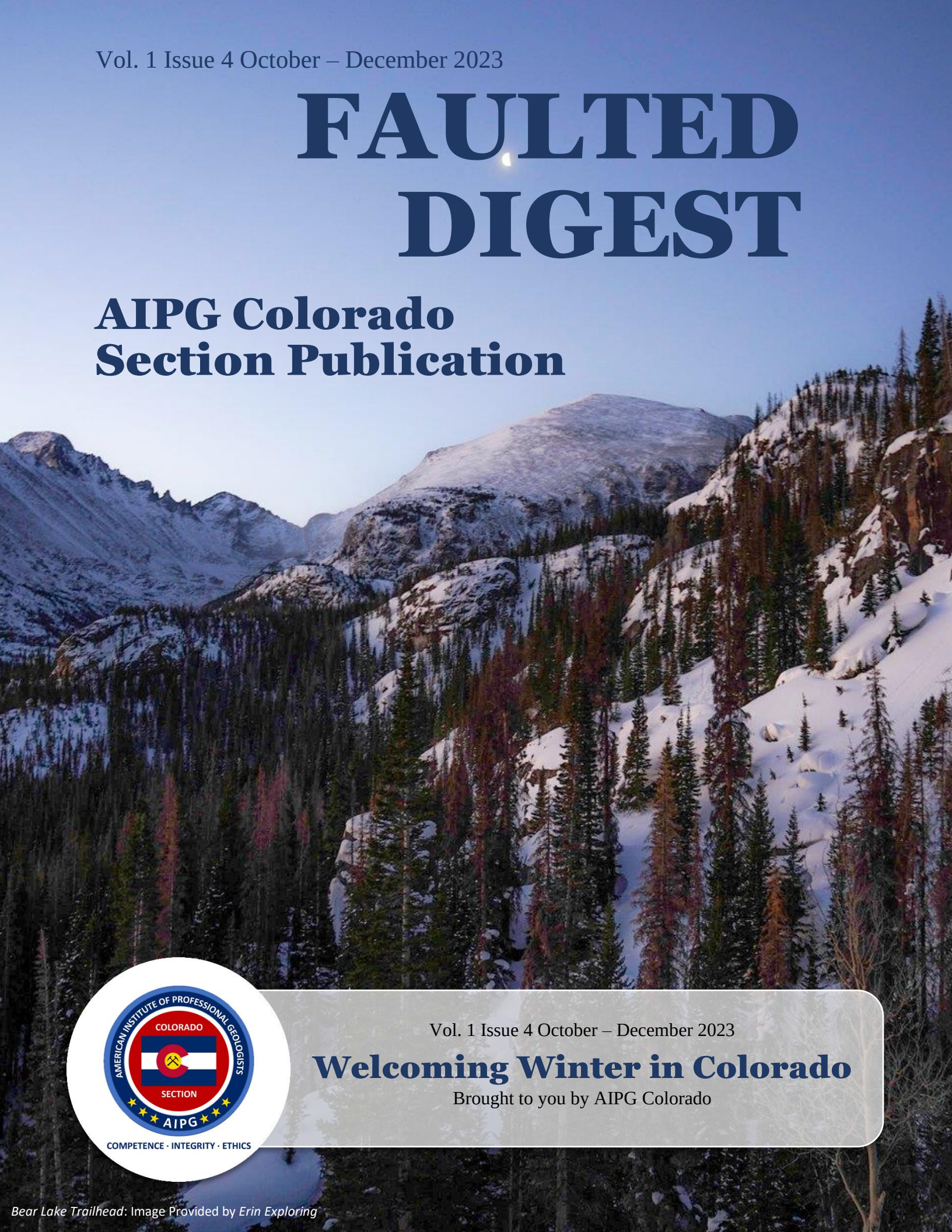
Vol. 1 Issue 4 October – December 2023

FAULTED DIGEST

AIPG Colorado Section Publication



Vol. 1 Issue 4 October – December 2023

Welcoming Winter in Colorado

Brought to you by AIPG Colorado

Bear Lake Trailhead: Image Provided by *Erin Exploring*

The President's Message

December 2023

Welcome to 2024! I am very excited to see what the new year brings. I am honored to have been elected president of the Colorado Section of the AIPG. Living in Grand Junction, I hope to bring a "Western Slope" perspective to the section. In talking with geologic colleagues, I am getting a sense that business is getting busier in the broad profession of geology. This is a good thing! But I hope that it won't cut into our AIPG time. We have a few activities planned for 2024, not the least of which is the AIPG National Meeting in our own backyard- Durango, Colorado. Needless to say, I am very excited about that. It will be August 10-13. Please put it on your calendar now!

I look forward to spending another year getting to know more of you and learning more about the fascinating things you are doing.

Take care and be safe.

Joe Brinton

2024 Colorado Section President

Happy New Year!

I want to thank each one of you for your continued support of AIPG and our wonderful Colorado Section!

As we step into 2024, I want to take a moment to recognize all of the hard work our 2023 CO Section ExCom put into furthering the mission of AIPG. We had some fun activities, but also dug in and accomplished some large tasks as well.

I also want to recognize our incoming 2024 ExCom members:

President:	Joe Brinton
President-Elect:	Jessica Davey
Treasurer:	Kyle Reamer
Secretary:	Nick Coscarella
Newsletter Editor:	Christina Tiggemann
Legislative/Regulatory Committee Chair:	Michael Bowers
Advisory Board Members:	Deb Gomez
	Amanda Irons
	Frank Sims
	Tim Thompson

We have several events coming up that we're busy planning, most importantly, the Annual Dinner and Mentoring Event. This will take place on Friday, April 12 at 5:50 pm at the SpringHill Suites by Marriott on Auraria Campus in Denver. We will be hosting a fun networking and mentoring happy hour featuring mentors from the various disciplines within the geosciences, along with representatives from grad school programs. Following the happy hour will be our annual dinner. I look forward to seeing you there!

**I am incredibly passionate about AIPG and am very proud of the wonderful network of members we have here in Colorado. I invite you to reach out to me if you have any thoughts or questions about the Colorado Section or if you would like to get involved in any way. My phone number is 720-394-4270, and my email address is davey.jessica7@gmail.com. I look forward to meeting you if I haven't already!

Please keep an eye on your email or our Section's website (https://aipg-cosection.org/) for notices and more information as we coordinate activities and add dates to our calendar. The Colorado Section switched to a Star Chapter-hosted website last year, which centralized all of our communications and event hosting. If you are not receiving our emails, please check your spam folder and save our email addresses as contacts or send me an email at davey.jessica7@gmail.com to ensure you don't miss out on any of our upcoming opportunities or events.

Thank you for being involved in our amazing organization, and I look forward to seeing you at an upcoming event!

Jessica Davey

2024 Colorado Section President-Elect

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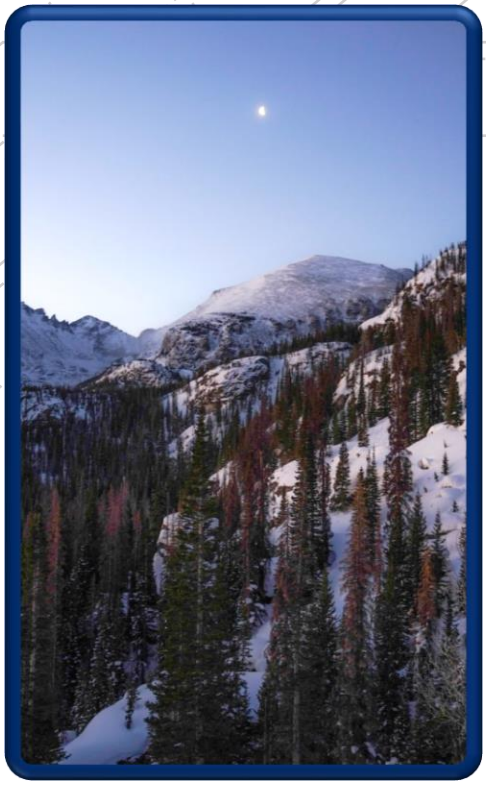

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Warmest of greetings to everyone as we hop into the holidays and dive into winter!

Changes approach us as we move into 2024, but lest we forget 2023. We had several successful events, outings, fundraisers, and more, and we are looking forward to the new year!

A few items to note: as usual, we welcome all articles and media to publish in our newsletter. This could include current findings, research, publications, and more. As a reminder, this newsletter is shared nationally, which means more endorsements for yourselves. Along with your work, please share any geology photos from Colorado; please make sure these are clear quality and more prominent in size. For more information on accepted formats and where to submit, see below.

Next, we are also taking Early Career Spotlight Submissions. This section highlights members in their early careers and emphasizes skills in their new positions in the field. If anyone at all knows of someone who is:

- An active AIPG Member
- Recent Bachelors/Masters Graduate
- Started/Currently in a new/recurring position in the field

Please pass this information along to me so I may highlight them in our quarterly newsletter. We usually have two positions open every quarter and have yet to fill these spots this quarter. I have a form for them to fill out, and we can get them in the following newsletter.

Additionally, I'm sure many have noticed our jobs section. Are you looking to fill a position at your office or on-site? We usually get our job postings from AIPG National, which includes postings from all over the states. But many are also looking at the state level here in Colorado, and I know several of you may have more insight into this information directly. Could you email me this information so we can post it in this newsletter? That would be fantastic!

Lastly, our sponsorship section needs some filling up. We are taking on new sponsors all the time. This is a moment for you to advertise your company/business while supporting our AIPG Section here in Colorado. We want to thank our current sponsors, *Davey* and *Vista GeoScience*, for their continued support at this current moment. If you would like more info and pricing on how to advertise your business, please follow this link: https://aipg-cosection.org/form.php?form_id=21

Thank you to all our members who help make AIPG Colorado the best organization we all know and love and for what it has grown to today. Happy Holidays, stay warm and happy exploring!

Christina Tiggemann
AIPG Colorado Newsletter Editor

EDITOR'S NOTE

Faulted Digest is published four times a year. This newsletter is distributed free to members. **Paid Subscriptions:** $1 million. Please send check or money order to Christina's home address along with a baby t-rex.

A copy of our newsletter will also be available https://aipg-cosection.org/content.php?page=news.

Submission Information: Pictures, letters, announcements, etc… must be received by the editor the 2nd to last week of the following months: March, June, September & December**. Email preferred to:** christina.tiggemann@gmail.com. **Formats Accepted:** .doc, .docx, .pdf, .png, .jpeg, .jpg.

Advertising Information: https://aipg-cosection.org/form.php?form_id=21.

Contact Information:
1333 W. 120th Avenue, Suite 211, Westminster, CO 80234
303.412.6205

The opinions expressed are those of the authors and not the Colorado Section officers unless clearly stated otherwise.

Great Sand Dunes National Park: Image Provided by Vince Matthews and *Colorado Geological Survey*

2024 Executive Committee

Joe Brinton has over 20 years of experience in domestic and international mining and drilling. Drilling experience includes international greenfield mineral exploration, domestic coal exploration drilling, coalbed methane evaluation, and directional drilling exploration drilling, coalbed methane evaluation, and directional drilling for mine degasification and mine dewatering. Mining experience includes mine pillar stability analyses, mine ventilation analyses, mine planning, due diligence reviews, resource Mr. Brinton is fluent in both English and Spanish and is a certified professional geologist with the American Institute of Professional Geologists and is a Qualified Person per SK-1300 mineral reporting standards.

President

Joe Brinton

President - Elect

Jessica Davey

Jessica Davey is President of Davey Consulting Corp, a company dedicated to providing business operations and geologic support primarily to energy companies. She received her undergraduate degree in Applied Geology from MSU Denver and her graduate degree in Global Energy Management from the University of Colorado Denver. Jessica possesses geological field experience in Ireland, Germany, and the United States and has provided geologic, land, and regulatory support on projects in Australia, Europe, Africa, South America, and throughout the oil and gas basins of the United States and Canada, and professional experience in mining, oil and gas, helium, environmental geology, and geologic hazards. Jessica is passionate about well-rounded economic and feasibility studies in oil and gas and minerals development projects and has presented at several conferences, including AIPG Annual Conferences on topics including resource evaluation, environmental studies, and business and professional ethics.

Nick Coscarella recently graduated from MSU Denver in the summer of 2023 with a BS in Applied Geology and he possesses over 10 weeks of geological field experience throughout the European Alps, the Colorado Plateau, the Colorado Front Range, and has spent ample time researching and exploring the volcanoes/volcanic features within the western U.S.

Nick is currently working on creating 360° geologic virtual tours from all over the world and has ample experience with virtual tour software. One of these tours was showcased during an AIPG lunch talk, and Nick presented his research recently pertaining to preserving the stratigraphy and analyzing the karst leakage potential at a dam currently being built in Laporte, CO at the 2023 60th Annual AIPG Conference.

Nick is a devoted geologist and is thrilled to be a part of AIPG and the incredible community of geologists that it brings together. Aside from serving as secretary for the Colorado section in 2024, Nick will pursue a master's degree and continue to expand upon his passion for geology.

Secretary

Nick Coscarella

Treasurer
Kyle Reamer

Kyle C. Reamer (ECP-0901) is an Environmental Geologist for Geosyntec Consultants with over 3 years of environmental industry and consulting experience aiding and overseeing environmental site assessments and investigations, environmental due diligence, environmental and regulatory compliance, subsurface soil investigations, environmental litigation, geologic hazard studies, geo-environmental landslide susceptibility, commercial and residential development, residential wastewater systems, drilling, and contracting. Kyle has experience supporting projects for sites regulated under CERCLA, RCRA, state-led cleanup programs, The City of Colorado Springs, El Paso County, United States Environmental Protection Agency (USEPA), United States Army Corp of Engineers (USACE), The United States Air Force (USAF), Department of Defense (DoD), United States Space Force (USSF), Colorado Department of Public Health and Environment (CDPHE), Colorado Department of Labor and Employment-Division of Oil and Public Safety (CDLE-OPS) Kansas Department of Health and Environment (KDHE), Wyoming Department of Environmental Quality (WDEQ), and Oklahoma Department of Environmental Quality (OKDEQ).

Kyle earned his Bachelor's degree in Geoscience, Earth and Environmental Science from the University of Tulsa in Tulsa, Oklahoma. Kyle was involved in the University of Tulsa AIPG student chapter as an undergraduate and has been involved with the Colorado Section since 2021 as an Early Career Professional, now currently serving as the Colorado Section Treasurer for 2024.

Christina Tiggemann is a recent graduate from MSU Denver. She has earned her Bachelor of Science degree in Applied Geology and certification in Water Studies.

Some note-worthy projects she has completed are *Analytical Assessment of the Paleo Depositional Environments for the Springdale and Wingate Sandstones Using Heavy Mineral Separation, Recycled Water Systems in Denver, Ocean Desalination & Climate Change, and San Rafael Swell Geology & Resources*.

Christina currently works as a PLM Analyst observing and verifying the presence of asbestos minerals in various materials for Eurofins Reservoirs.

Christina plans on continuing her academic career at University of Kansas beginning August 2024. Her goal is to attain a master's degree in geology while exploring hydrogeology as well.

Christina is a proud member of AIPG and NSLS.

Newsletter
Christina Tiggemann

Leg/Reg Officer

Mike Bowers

Michael Bowers is an Environmental Geologist/ Utility Project Manager with a Monterrey, California based firm, Gaucher & Associates, Inc. with a BS in Applied Geology from MSU Denver. He has been involved with the Colorado Section of AIPG since 2016 and has served as the Legislative and Regulatory Officer since 2022.

Michael possesses Geologic field experience in both the US and Germany, and has provided geological, environmental, legislative, regulatory, and sustainability support and expertise throughout the United States, Canada, and Europe. He is passionate about diversified energy portfolios and creative research-based solutions to future energy demands and concerns.

Deb Gomez was born and raised in the Chicago area. She got her BS in Geology at the University of Southern California and a MS in Geology at Northern Arizona University. Deb fell in love with Geology her sophomore year at USC when she changed her major from biology to geology and never turned back. Deb's geologic career has been split evenly between oil and gas and environmental geology. She has enjoyed the mix of working in the field looking at the rocks and bringing that information back to the office for interpretation. In the last several years she has enjoyed international oil and gas exploration projects which has taken her on some awesome experiences both in the field and in the venture capital arena. Currently semi-retired, does some geologic consulting and volunteers at the Denver Museum of Nature and Science and considers Colorado home.

Advisor

Deb Gomez

Advisor
Amanda Irons

Amanda Irons is a Geologist/Engineer with over 10 years of experience in the geoscience sector.

She earned a bachelor's degree in Geological Engineering in 2013 from Colorado School of Mines, and a master's degree in Mineral Exploration with a minor in Mineral & Energy Economics in 2018 also from CSM.

Throughout her career, Amanda has held roles as a field geologist, business development geologist, and a resource geologist. She has provided technical assistance and expertise in the areas of geology, engineering, economic analysis, marketing & negotiation agreements. Amanda is highly experienced in 3-dimensional geological modeling in Leapfrog, as well as in mineral resource estimation, domain analysis, and statistical quality control of geological data. She is English-Spanish bilingual.

Welcome All

Advisor
Frank Sims

Advisor
Tim Thompson

Lobbyist
Brett Moore

Thank You for your Commitment

Images & Info sourced from *mindat.org* and *Smithsonian Nature Guide*

"Named in 1793 after the Swedish meteorologist Torbern Olaf Bergmann, torbernite is a uranium-bearing mineral and a minor ore of uranium. Torbernite forms thin to thick tabular crystals that are commonly square in outline, foliated micalike masses, sheaflike crystal groups, or scaly coatings. Specimens are bright mid-green, emerald green, leek green, or grass green in color. Torbernite is chemically unstable, and with increased hydration it transforms to metatorbernite. In fact, all specimens are probably metatorbernite. It is also radioactive and needs to be handled with appropriate care.Torbernite is found as a secondary mineral formed in the oxidation zones of deposits containing uranium and copper and is associated with other phosphate minerals. It forms as an alteration product of uraninite or other uranium-bearing minerals. Torbernite is also associated with uraninite, autunite, and carnotite. Fine specimens occur in Cornwall, England, in the Flinders range of Australia and elsewhere.

Phosphates

Torbernite

$Cu(UO_2)_2(PO_4)_2 \cdot 8\text{-}12H_2O$

Physical Properties of Torbernite

Luster:	Sub-Adamantine, Vitreous, Waxy, Pearly
Transparency:	Transparent, Translucent
Color:	Emerald-green, grass-green. leek green, siskin green, apple green
Streak:	Pale green
Hardness:	2 - 2½ on Mohs scale
Tenacity:	Brittle
Cleavage:	Perfect Perfect on {001}, micaceous, indistinct on {100}
Density:	3.22 g/cm^3 (Measured)

National EVENTS

Bedrock Mapping of Sedimentary Rocks in Wild and Wonderful West Virginia
January 10, 2024
https://aipg.org/events/EventDetails.aspx?id=1764316&group=

February 2024

8th-9th: 10th Conference On: Innovative Environmental Assessment and Remediation Technoology
https://aipg.org/events/EventDetails.aspx?id=1754978&group=

26th: AIPG Lunch During the SME Conference
https://aipg.org/events/EventDetails.aspx?id=1764891&group=

April 2024

9th-13th: USA Annual National Women in Mining Conference
https://aipg.org/events/EventDetails.aspx?id=1750404&group=

Grand Geological Tour of Scotland
May 19-30, 2024
https://aipg.org/events/EventDetails.aspx?id=1736011&group=

All Images Courtesy of: mindat.org

National EVENTS

June 2024

11th-12th: Michigan Section 13th Environmental Risk Management Workshop Call for Abstracts
https://aipg.org/events/EventDetails.aspx?id=1809950&group=

Colorado EVENTS

January

17th: CSM Geophysics Department Heiland Lecture
https://mines.zoom.us/j/95432461641

17th & 23rd: AAPG Distinguished Lecture "Estimating, Benchmarking, and Managing Subsurface Uncertainty: Principles and Examples"
https://aapg.zoom.us/webinar/register/WN_dsERIwTpRj6iIwT2BprAdQ#/registration

18th: AAPG Academy Webinar Geochemistry of the Anadarko Basin
https://aapg.zoom.us/meeting/register/tZAlc-igrTksEtzhdmbQOvJPPI8c6jeo6Ttr#/registration

AIPG National Annual Conference
August 10-13, 2024
https://aipg.org/events/EventDetails.aspx?id=1805908&group=

Earth Science Week
October 13-19, 2024
https://aipg.org/events/EventDetails.aspx?id=1815311&group=

Colorado EVENTS Continued

Jan 18th

FCGS December Meeting
https://fortlewis.zoom.us/j/98861339571?pwd=MnhiRXJrK3pNajYwSzhmbHBRTUVsZz09 **Passcode is** 840730

CSS January Meeting
https://www.usgs.gov/programs/earthquake-hazards/hazards

19th: MMSA Webinar Nickel and the Energy Transition
https://www.eventbrite.com/e/webinar-nickel-and-the-energy-transition-tickets-790437789707?aff=odeccpebemailcampaigns&utm_source=eventbrite&utm_medium=ebcampaigns&utm_campaign=230099999&utm_term=ctabutton&mipa=ABIdvVvf9Qp3cHbErfQPyZP1ZoqEWjppByF5ffUaNx8cb_BfXT3P5s0IInqeumJcZNk92OFUxySx2AfJjgvQcBn7ZxUtXIMhbg7TkKycLYwWzLTk9fUauIsoa0GJwt5RhkHSjDGYWOx0B9JlFkXpKBC3PO_fA1HVr1gvWbuEbaXo7YiXFrowEVGmbWRi9QXtmlZXuVBLlt2OVzdCwMa8axw3srk3vQXSg7MLJM1Yqa_VldHC7oxo1dBK-Bt6ldy_XdiAlXXIe14ZHyfAVXoLPR_BYxfdpqUTxQ

22nd & 30th: Denver Museum of Nature and Science January 2024 Earth Sciences Colloquia
https://www.rmag.org/index.php?src=events&submenu=Events&srctype=detail&category=Social%20Events&refno=311

25th: Focused Remediation Seminars (FRS) Virtual Webinar
https://focusedremediationseminars.com/?event=focused-remediation-seminars-frs-virtual-webinar-january-25-2024&event_date=2024-01-25

June 11th-14: 10th Annual International Course on Geotechnical and Structural Monitoring (IcGSM)
https://www.geotechnicalmonitoring.com/

All Images Courtesy of: mindat.org

EMPLOYMENT

Associate Geotechnical Engineer
Terraphase Engineering Inc.
Tacoma, WA (On-Site)
https://recruiting.paylocity.com/Recruiting/Jobs/Apply/2094994

Planner (Interdisciplinary)
U.S. Army Corps of Engineers
Detroit, MI (On-Site)
https://www.usajobs.gov/job/767688500

Staff Environmental Scientist/Geologist/Engineer
BCA Environmental Consultants, LLC
Indianapolis, IN (Hybrid)
https://aipg-jobs.careerwebsite.com/job/apply/71549648/

Research Scientist
CNA
Arlington, VA (On-Site)
https://us232.dayforcehcm.com/CandidatePortal/en-US/cna/Posting/View/3901

Scientific Assistant
Elson S. Floyd College of Medicine
Spokane, WA(On-Site)
https://wsu.wd5.myworkdayjobs.com/en-US/WSU_Jobs/job/Scientific-Assistant_R-10556-1

Sr. Hydrogeologist
KPRG and Associates, Inc.
Westmont, IL (On-Site)
https://kprginc.com/

Director Office of National Geodetic Survey
National Oceanic and Atmospheric Administration
Silver Spring, MD (On-Site)
https://www.usajobs.gov/job/761219300

For ALL career opportunities please visit: https://aipg-jobs.careerwebsite.com/

FUN & PUZZLES

Vol. 1 Iss. 4

Word Sudoku

Word sudoku is much like number sudoku, only there are no numbers in the puzzle, but words. The rules are still the same as the normal sudoku puzzles. Working with words provides a little extra challenge but can still be fun just the same. Good luck!

WORDS LIST:

Ash	Basalt	Calcite
Delta	Erosion	Fold
Granite	Ice	Joint

	Delta				Joint		Fold	
		Calcite		Ice		Erosion	Joint	
				Fold		Granite	Delta	
Basalt	Ice	Ash			Erosion			
Delta		Granite			Calcite			
	Calcite		Ash	Delta			Basalt	
Calcite	Erosion	Delta				Fold		
	Ash	Fold	Basalt					Erosion
	Granite		Fold		Ice		Ash	

Geology Word Search: A thru C Geology Words

A	C	C	L	A	Y	C	O	A	R	S	E	I	D	D	E	S	A
C	L	E	V	L	N	E	N	T	I	C	A	L	C	I	T	E	L
K	B	I	M	A	V	C	Q	B	B	K	G	E	R	X	V	W	L
P	E	V	G	E	B	A	A	B	E	A	M	C	Y	E	U	S	U
G	A	S	G	N	N	Y	N	R	O	D	T	B	H	A	R	G	V
P	C	E	A	X	M	T	S	D	B	U	L	H	A	A	S	O	I
D	H	S	L	T	H	E	A	S	E	O	L	O	O	S	L	H	A
A	B	R	A	S	I	O	N	T	A	S	N	D	A	L	A	K	L
B	A	N	G	U	L	A	R	T	I	L	I	A	E	D	I	L	J
I	M	I	B	E	D	D	I	N	G	O	G	T	T	R	I	T	T
F	C	O	L	U	M	N	A	R	I	I	N	M	E	E	K	N	H
P	C	O	A	L	C	O	M	P	A	C	T	I	O	N	L	J	H

WORDS LIST:

Abrasion	Abyssal
Alignment	Alluvial
Andesite	Angular
Ash	Basalt
Batholith	Beach
Bedding	Bedload
Boulder	Calcite
Carbonate	Cementation
Chalk	Clay
Coal	Coarse
Columnar	Compaction

Answers will appear on the following issue of Faulted Digest

AIPG Purposes

The purposes of the Institute shall include:

- advance the geological sciences and the profession of geology;
- establish qualifications for professional geologists;
- certify the qualifications of specific individual Member geologists to the public;
- promote high standards of ethical conduct among its Members and Adjuncts, and within the profession of geology; and
- represent, and advocate for, the geological profession before government and the general public.

What AIPG does . . .

- Professional Certification - Certifies geologists based on their Competence, Integrity, and Ethics.
- Categories of Membership - Certified Professional Geologist, Professional, Early Career Professional, Associate, and Student.
- Ombudsman - Intervenes with regulatory boards and agencies on behalf of individual geologists, at the geologist's request. Information also is disseminated in cooperation with the Association of State Boards of Geologists.
- Lobbying - Presents testimony and position papers to Federal and State legislators and agencies on matters affecting geologists and geologists' employment opportunities. Exhibits at the National Conference of State Legislators.
- Liability Insurance - Provides access to insurance for errors and omissions, designed specifically for geologists.
- Continuing Education - Through online learning, publications, seminars, short courses, and field trips, provides educational opportunities for geologists, other scientists, engineers, and the general public.
- Supplemental, Life, and Accident Insurance - Provides access to a full line of supplemental, life, and accident insurance.
- International Comity - Through agreements with professional societies in other countries, provides access for its Members to professional registration, certification, or chartered status in those countries.
- State and Section Activities - State and regional sections work on local political issues and the professional status of geologists in their geographic areas. The Institute's sections around the country hold regular meetings, featuring educational programs covering important subjects of interest to professional geologists. One of the most worthwhile benefits of AIPG Membership is the opportunity to make personal contact at the local and State level; to meet fellow geologists; and to learn from them.

Image Courtesty of: Conrad Earnest– *Visit Grand Junction*– Colorado National Monument

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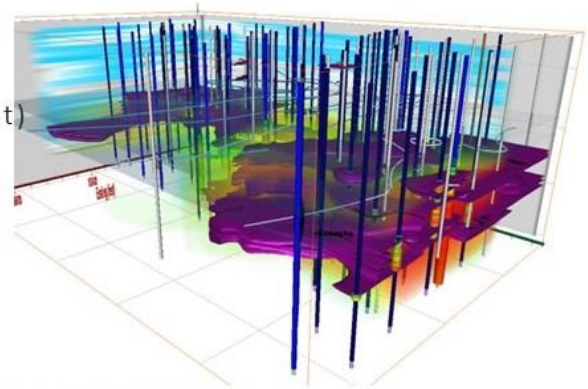
https://aipg-cosection.org/form.php?form_id=21

Diamond Sponsors

SITE CHARACTERIZATION

Membrane Interface Probe (MIP, MiHpt)
Optical Image Profiler (OIP-UV, OIP-G, OiHpt)
Hydraulic Profile Tool (HPT)
3D Data Visualization & Modeling
Ground Water Profiler (HPT-GWP)



REMEDIATION

Clean-Inject In-Situ Injection Systems
Unique Top-Down Lateral Injection Tooling
Hydraulic Emplacement of Sand/ZVI
Permeability Enhancement for AS/SVE
ISCO, ISCR, ISBR

GEOTECHNICAL & ENVIRONMENTAL DRILLING

Direct-Push & Auger
Geoprobe Dual Technology Rigs
Dual-Tube Coring Systems
Discrete Ground Water Sampling
Monitor Wells, Piezometers

SOIL GAS - VAPOR INTRUSION

Active & Passive Soil Gas, Sub-Slab
Soil Gas Sampling/Monitoring
Tier-2 Landfill NMOC Surveys
Stray Gas Migration