In this issue of CPG:

- Articles on AIPG Anchorage Meeting
- August and September Exec. Comm. Meetings
- Announcements for Annual Dinner and Leg. Reception
- The Value of Professional Internships
- Water Well Rulemaking Schedule
The Board normally meets the first Tuesday of each month at 7:00 a.m.; all members are invited to attend. Please contact a Board Member to confirm time and location.

Letters, articles, announcements, ads, etc. must be received by the Editor by the end of the third full week of the month preceding publication. The CPG normally goes to print the last week of the quarter. Letters, articles, ads, announcements, etc. accepted on a space available basis. Submission of articles, etc. via e-mail is the preferred method; copy can be accepted in most PC formats, but DOC or DOCX are preferred. Call or e-mail Doug Peters for details on submission of copy or advertising at 303-278-1540, dcpeters@tuveraexploration.com.

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Anchorage Annual Meeting – A Wonderful Time

David Abbott

When I first started participating in Colorado Section Activities, Ed Warren would come back from the AIPG annual meeting raving about how wonderful they were: the people, the field trips, the talks, etc. At that point in my career I was seldom able attend the annual meeting, although I did manage to attend a few. In more recent years, I’ve been able to attend regularly and Ed was right, AIPG’s annual meetings are great. They are attended by people worth getting to know, people of all ages from around the country and from all parts of the profession. And the meetings are small enough that you can meet pretty much everyone. The core of regular attendees forms a group of old friends you look forward to meeting every year.

The 2015 Annual Meeting in Anchorage was excellent for all the usual reasons and for some specific reasons as well. In particular, I was impressed by the number of students from around the country who actively participated in a variety of ways. The biggest single student contingent came from our own Metro State University Student Chapter. President Jessica Davey, Tom Goldman, Lauren Henderson, Timothy Olson, and Allison Richards gave papers or presented posters or both. Timothy Olson won the undergraduate poster contest and Jessica Davey was second. MSU faculty advisor, Uwe Kackstaetter, presented several papers on how MSU provides for a solid geoscience education to non-traditional students. In addition, students from several southeastern schools attended recognizing the opportunities for networking provided by an AIPG annual meeting. The Student Section at the University of Alaska Anchorage organized a networking session for all students prior to the Icebreaker on Sunday. All are looking forward towards being active in their home AIPG sections and to participating in future annual meetings beginning with next year’s meeting in Santa Fe. These students are already planning a mass field trip to and from Santa Fe for next year’s meeting. The Colorado Section was also represented by President-elect Susan Wager, National Secretary Jim Burnell and wife, Barbara, and David and Sue Abbott.

Field trips are a big part of any annual meeting. In fact, some regular attendees never go to a talk because they are on field trips every day.
UPCOMING EVENT
2016 Legislative Reception
Plans are underway for the next Legislative Reception to be held at the University Club in Denver to serve as a way for geoscientists to remind or introduce our state legislators that we are a source of information on topics that are in process or will be coming up as legislative items now and in the future. More details to follow in the Winter newsletter.
Matanuska Glacier Field Trip  
Sunday 20 Sep 2015  
Jim Burnell, CPG 11609

The field trip to the Matanuska Glacier entertained two busloads of geologic tourists on Sunday. The glacier is one of the largest valley glaciers in South-Central Alaska. It flows North from the central Chugach Mountains, draining the highest parts of the range. Near its terminus, the Glenn Highway skirts the glacier and the Matanuska River flows eastward toward the Cook Inlet, along the Castle Mountain Fault.

The trip was populated with a broad selection of geologists and spouses, ready for a day on ice. We encountered a range of weather. The buses stopped for a break along a roadside rest/view area that provided a scenic panorama of the glacier. Whereas the skies had been partly cloudy, at that moment, the clouds rolled over, the cold wind whipped up and the snow started to fall. Even the Coloradans looked at each other with some apprehension, as the prospect of climbing around on a glacier in such conditions concerned many. The views of the blue ice of the glacier from the stop were spectacular when lit by the sun.

We proceeded on to the glacier access, a popular commercial attraction. The staff broke out lunch near the edge of the glacier and we enjoyed that in the cool breeze. Crampons and ski poles were provided and the large group snaked off onto the glacier. For many of us it was a first. Even fifty years as a geologist had not prepared many of us for the reality of a glacier. Unlike the idealized smooth, glassy surface of an ice block, the surface was actually quite varied. Nearly everywhere it was pock-marked, jagged and crunchy under foot from the repeated freeze-thaw it experiences. In places the ice surface was completely covered with rock and sediment.

Clouds gathered over the glacier view as we approached our destination.
Matanuska Glacier Field Trip (continued)

The sun re-emerged and we ended up trekking under beautiful conditions. As the sun melted more ice, we could hear the water cascading down through surface crevasses so we enjoyed imagining the birth of eskers right beneath our feet. The runoff had increased notably by the time we straggled back to the buses for the return trip. Everyone I talked to thought that this trip was one of the true highlights of the Alaska meeting.

Field trippers gather at the glacier’s terminus as the clouds begin to clear.

The group treks across the glacier.
The Matanuska Glacier is the largest glacier in Alaska that can be reached by vehicle. It is approximately 26 miles long and 4 miles wide at its terminus. It is classified as a valley glacier; a body of solid ice that flows like a river under its own weight through an existing valley. About 10,000 years ago it began its retreat to its present day location, and it has not seen any significant change in mass for almost two decades. Because the Matanuska Glacier is a weather hole, cold air from the glacier forces warm air upward towards the mountain peaks. This results in sunny skies and more favorable weather than its surrounding areas. Two hours north east of Anchorage by way of the Glenn Highway, the Matanuska Glacier can be seen for miles before reaching some of its ideal viewing locations.

http://www.matanuska-glacier.com/
http://www.alaska.org/guide/matanuska-glacier-scenic-drive

GPS track of the field trip.

Braided Stream near Palmer
The group heads out onto the glacier. The grey surface is actually a part of the glacier, but hikers are allowed to go up onto the higher portions of the ice. (I don’t know why someone hauled a picnic table out there, but they did.)

Moraine deposit
SAVE THE DATE
AIPG Colorado Section Annual Dinner
Friday, January 8, 2016

At the White Fence Farm, 6263 West Jewell Avenue, Lakewood, CO 80232

For map and directions, go to http://wff-co.net/co/index-home.php

Gather at 6:30 pm, Sit at 7:00 pm for Dinner

Menu Choices:
White Fence Farm Chicken
Jumbo Deep Fried Shrimp
Broiled Filet of White Fish
Roasted Turkey Breast

Cost: $30.00 per person
Standard beverages, tax, and tip included; Alcoholic beverages and dessert available for an additional charge.

RSVP with your dinner choice to Colorado-aipg@outlook.com or call 303.726.6431 by December 21, 2015.

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Attn: President J. Foster Sawyer

Reply to AIPG Section Leader Award
July 12, 2015, sent via email

Dear Dr. Sawyer:

Thank you for your letter of June 30 and your preceding telephone call Wed., June 24, announcing the AIPG Section Leadership Award. I greatly appreciate receiving this award and ask that you help me in thanking all those involved in my nomination and selection.

Unfortunately, I will not be able to attend the 2015 Annual Meeting due to a prior commitment, but certainly would like to acknowledge the intent of the award, paraphrased from your description, “to recognize contributions at the section level.” I have been very fortunate to live in a state whose section has many dedicated volunteers on many different levels. Several of the Colorado Section members who have been instrumental in the health and vigor of the section over the last several decades who also deserve recognition and acknowledgement of their recent ‘re-upping’ at Colorado Section level are Mr. Larry Cerrillo, Dr. Steve Sonnenberg, Mr. David Abbott and Mr. Doug Peters, each of whom has also been active in the affairs of our national AIPG office and/or leadership positions with other professional societies as well.

Each volunteer who has shared their time, effort and expertise can appreciate the dedication these members have to step up to the plate and, by some’s analogy, ‘take a turn in the bucket,’ (referring to those necessary but somewhat unpleasant tasks) time after time, year after year. It is clearly what keeps the organization at the level of engagement that it has achieved to date and helps plan for a future that must be picked up by the volunteer efforts of those who we can convince to carry the torch for a few more years – until they find their own replacements.

I’m a firm believer in the organizational structure of AIPG (as I believe it exists), with the state sections able to focus on the issues that most affect their state membership, but also to share amongst our other state chapters the strategies that have been attempted, implemented, adjusted and reinforced to help us all, as a profession, provide the public service our by-laws direct us toward. Since so many of the laws, rules and regulations that impact and direct our professional practice are set at the state level, our advocacy, particularly to the decision-makers, needs to include a means to interface with those decision-makers and also the process of public policy decision-making.

No question it requires plenty of effort – initially, just to learn ‘the rules,’ but soon thereafter, to learn to interact with ‘the powers-that-be’ to educate and influence the outcomes of public policy. My personal experience has shown me that the involvement with other geoscientists who share these same, or at least similar, interests is rewarding beyond the initial ‘deliverables’

Continued on page 13
I am a Colorado native; so lucky to grow up in this beautiful state full of amazing exposed geology. I grew up wanting to be a paleontologist and geologist. My childhood was full of camping, spending time outdoors, trips to the Denver Museum of Natural History (now Denver Museum of Nature and Science), and drives up to Dinosaur Ridge. Instead of following my dreams, I decided to go into medicine in my first college experience. I bounced around from major to major several times before I decided to take business management courses. Business management was familiar to me, from the age of twelve I worked for my parents cashiering, bookkeeping, and overseeing their several small businesses in the Denver area. After a ten year career in business administration and management, I decided it was time to finally pursue my happiness, so I went back to school for geology.

I am currently a senior in the Applied Geology program at Metropolitan State University of Denver. I have completed two research projects so far, which I presented at the AIPG 2015 National Conference. The first one is a survey and assessment of the geological impact of the 2013 flood in Boulder along with an estimation of maximum flow through a drainage area, the second one involving potential future oil and gas production from an older oil and gas field in Western Colorado. I was also lucky enough to attend a field course in Ireland this past summer where I studied under lecturers from the National University of Ireland-Galway, learning about turbidites, cyclothems, karst systems and micropaleontology.

I am also in my second term as the President of the MSU Denver AIPG Student Chapter. During the past year I have organized two public events, “The Science Behind Fracing” featured two guest speakers from Anadarko, and “Mining in Colorado” featured a speaker from Cripple Creek/Victor Gold Mine and a speaker from Henderson Molybdenum Mine. In addition to our monthly meetings and regular outings I arranged a field trip to the historic Hidee Mine in Central City. The field trip was paid for by MSU being awarded the first annual, “Student Chapter Grant,” provided by the AIPG Colorado Section.

Currently, I am in the process of applying for graduate school. I am interested in learning more about petroleum geology, sedimentology, and paleontology.
Member Biographies Wanted

The Colorado Section is looking for member biographies to run in the newsletter, similar to the ones included in previous issues for members of the current Executive Committee and other active Section members. We want the members to know about other members whom they may not have met. This will be an ongoing item for the newsletter, so please feel free to send in your short biography (preferably no more than 350 words) and we will run them as we get them and space is available. A photo would also be nice to include, if you have one available. Thank you in advance for participating in this part of the newsletter!
Susan Wager points out that one of the things that separates AIPG from other organizations is our legal ability to advocate.

Betsy Murray — the morning’s Denver Post had oil and gas and gold mining on the front page. Besty Murray needs dates choices for the legislative reception, Logan MacMillan will contact the U Club and come up with some.

MSU Student Chapter Report: Jessica Davies, not present.

UNC Student Chapter: Alice Heesacker, not present.

Business Items:

  17 people showed up to the picnic
  Voting for 2016 board will be in October
  David Abbott willing to stay on as Treasurer or be Editor
  Logan willing to stay on as needed; Susan will be talking to Tom about possible positions
  David Abbott suggests running somebody for the National Advisory position. Nominee would have to be in Alaska for the National Meeting. Susan Wager going and willing to be delegate, needs letter from Stephanie Jarvis to Headquarters.
  Jessica Davies and other MSU students will be going to Alaska
  Lunch talks: section email address can be used for RSVPs if needed. Betsy Murray suggests webinar style lunches to increase participation, but Logan MacMillan says that would depend on if the speakers allowed their talk to be shared.
  We need to starting thinking about timing for Annual Dinner — January

Meeting adjourned at 8:17 AM. Next meeting is September 1, 2015.

which require appropriate research and historical understanding – the start of the ‘heavy-lifting.’ But it’s only the start.

Our state, Colorado, has a proud history of mineral exploration, production and development, and breathtaking landscapes and scenic vistas. But we’re told we are a battleground for fracking and face the likelihood of citizen initiatives to have the electorate vote on fracking use state-wide. With that a likelihood in 2016, the question of Colorado’s position in the extractive industries’ history is of much less concern than what its FUTURE might be. With state-wide referenda, the challenges of educating ‘the decision-makers’ changes, literally, from perhaps a thousand to millions. Contrast the sheer numbers of legislators and bureaucrats, who combined might number several hundred, perhaps up to a thousand, compared to the voting population of several million. That’s a lot different than hiring a lobbyist to help gain access to ‘the powers-that-be’ in a relatively stable governmental structure. But that’s what it looks like we’re facing for the next year-and-a-half ‘round here – and maybe in several other states whose resource potential teeters in the balance of evolving social licenses to operate.

There’s a lot to be said for continuity and historical, institutional memory, but there is even more to be said for energy, enthusiasm and young blood. Bringing in a ‘new member’ - whether it is a younger member or just a new person to the team or committee you are volunteering with can also provide its own challenges. I try to remember that that person could be my replacement – so I need to train them well. I will try to share my enthusiasm with them hoping to feel their energy and confidence build as they learn the ropes for themselves. I’m also aware I need to step out of the way as their experience grows but I will not hesitate to re-engage if the direction becomes wayward. Communication with our co-workers, team- and AIPG-members - about our practice of geology and experience remains elusive but just as important as ever. I plan to do better - and have fun doing what we geologists do.

Sincerely, Logan MacMillan, CPG # 4560
Meeting called to order by Susan Wager at 7:14 AM

People attending by phone were unable to call-in until the latter part of the meeting due to a problem with Accutel’s teleconference system.

President’s Report: Dave Glater was out for surgery

Secretary’s Report: the August minutes accepted and approved

Treasurer’s Report: 
Treasurer’s report accepted and approved
David Abbott noted that Betsy Murray’s October payment was moved forward to September in consideration of the quarterly estimated tax date of September 15th.
Lobbyist contract—David Abbott has amended the 2015 contract to move the October payment to September. He will send a copy of the proposed contract around for comments so that any adjustments can be made prior to the need to approve it in December.

Newsletter Report: none due to teleconference problem

Leg-Reg Report:
Logan MacMillan has been in contact with Ron Pritchett and Tricia Beaver regarding assistance with next year’s Legislative Reception and is reviewing other organizations’ schedules for potentially conflicting dates.
The Legislative Reception will be at the University Club, preferably on a Tuesday, Wednesday, or Thursday night in late January or early February.

MSU Student Chapter Report: Jessica Davies, not present.

UNC Student Chapter: Alice Heesacker reported that the UNC Student Chapter will be meeting twice a month and hopes to have a monthly field trip.

Old Business Items:
2016 Executive Committee—Susan Wager’s preliminary candidate list was discussed and the following are final: Susan Wager, President; Tom Van Arsdale, President-elect; Logan MacMillan, Vice President and Leg-Reg Chair; Stephanie Jarvis, Secretary; Treasurer, Susan has asked Jim Burnell; Editor, David Abbott; Advisors, Dave Glater, Ed Baltzer, and Joe Brinton. The Treasurer and one Advisor slot are still open. Alice Heesaker will ask Bill Hoyt if he is interested in an Advisor position.
Susan Wager submitted the form to run for National ExCom advisor and Stephanie Jarvis, with help from David Abbott, submitted the Section’s annual report to the National Advisory Board.
Regular Section Meetings
Tom Van Arsdale has talked to some other sections about how they hold meetings. One section has quarterly meetings devoted to discussions of a particular issue—there are
four 30-minute presentations, one on geology, one on engineering issues, one on environmental and regulatory issues, and one from an involved legislator. These meetings are held in the late afternoon or early evening.

Logan MacMillan expressed his preference for downtown meetings due to mass transit access. The Wynkoop is across from the Union Station RTD bus and train terminal.

David Abbott suggested discussing joint meetings with the Denver Mining Club, which is always looking for speakers.

Section email—there has been no email sent to the Section’s address. David Abbott will monitor and will send login and password information to Susan, Stephanie, Logan, and Tom.

New Business Items:

Annual Dinner in January—Susan has talked with the White Fence Farm and the cost of having our dinner there in a private room would be around $30 per head (drinks extra). We need to identify a good speaker. Logan MacMillan suggested Scott Tinker, Texas State Geologist, who has lots of Colorado connections.

Meeting adjourned at 8:06. Next meeting is October 6th.

THE VALUE OF PROFESSIONAL INTERNSHIPS

William H. Hoyt, Ph D, Certified Professional Geologist #7015, Chair, Department of Earth and Atmospheric Sciences, University of Northern Colorado
Michael J. Urban, Ph D, AIPG MEM #1910, Chair, Department of Professional Education, Bemidji State University (Minnesota)

Why Internships?

Reflecting on the careers of many students we have seen over several decades, it has become clear to us that many (if not most) of our highly successful students completed a professional internship with some outside agency, field camp, company, school, or organization. In fact, it could be argued that our own positions as Department Chairs had their roots in undergraduate and graduate internship experiences of various types. Informal surveys of colleagues in mid-to-late career stages reveal that almost all count internship experiences as foundational to their success and professional development.

Though some programs of study require internships (for example, field geology camps or student teaching), many degree programs do not require them. However, as time goes on and the competition for good jobs intensifies, the need for undergraduate and graduate students to undertake internships is increasing. There is even a new kind of master’s degree (Professional Science Masters-PSM) that the Council of Graduate Schools started several years ago that requires a professional internship as an integral part of the graduate degree. The University of Northern Colorado plans to offer an Environmental Sciences PSM starting in 2015-16. Our interest in starting such a degree was spurred by some of our geology graduates coming back and telling us that it took as long as 25 years to become CEO of their companies simply because they lacked the professional skills and habits of mind they needed to get there quicker.

Tangible Benefits You can Bank on

Is there something about student internship experiences that universally benefits students in their career development and greatly increases their promise of career success? We contend that there is,
and that ALL undergraduate students should actively seek internships. A variety of stakeholders have recently weighed in on the importance and value of internships (Smith, 2014 in Forbes Magazine; McGuire, 2014; Big Future-College Board, 2014; College Parents of America, 2014; and About.com, 2014). Among the valuable outcomes of getting an internship that are documented by these studies are:

- Learning how to apply for a job and representing yourself in an interview (writing a cover letter, making a resume, networking, expressing what kinds of work you are good at, clarifying and expressing your personal values);
- Getting on-the-job experience (many jobs REQUIRE that you have prior experience, and a successful internship can demonstrate that you are a person with some experience);
- Getting a permanent job with the internship provider itself, or closely-related work;
- Learning how to behave and how to interact in a professional setting—showing up to work on time, with a positive attitude, and with ideas to make the outcomes of your work better;
- Networking with professional colleagues and in professional societies—finding mentors and learning from them;
- If the internship provides pay, you can get PAID!;
- When you come back to the classroom from an internship, you will typically find new passions to pursue, and newfound motivation to do well in school;
- Accomplishing a major project from your internship that documents your accomplishments and proves your ability to work with a team; and
- Obtaining a good reference for future job applications from your internship provider.

How to Find an Internship

Though there are lots of resources available to help you find an appropriate internship, typically you will have to take the initiative to get the process started. And plan on many months—even up to a year—to find the right internship for you. Some college advisors, department heads, or college internship offices can be of great help, but you will need to try various people and various strategies in order to research what is available. Many colleges have regularly-scheduled job and internship fairs on campus, and most professional geoscience organizations have formal or informal events at meetings. Use the information and links in Table 1 below to get going. Once you have some ideas, go to your advisor or department head to see what has worked well for students in the past. Some things that look good on paper might not be as good as they appear; others might be wonderful, but only one student in the U.S. will win the internship. That one student could be you, but don’t count on it: HAVE a PLAN B, a PLAN C, etc.

Rules for Internships—Don’t Miss This!!

Colleges and universities have their own rules and requirements that must be met before you do the internship if you need to have course credit for an internship appear on your college transcript. In order to take an internship for credit at your home college or university, be sure you understand and follow the rules and requirements to allow you to do so. Typically, your school and the agency/company/organization will need to execute an internship agreement, which typically specifies whether or not you will be paid, who the contacts are at the agency and your school, schedules of
reporting and feedback on the student intern, and who will be covering your “workers compensation insurance.”

Speaking of pay, some internship providers will insist on paying the student, others can never pay a student, and others haven’t decided whether to pay a particular student. Some organizations charge tuition for the programs they offer and may provide college credit through an accredited college (which might transfer to your school to meet requirements of your degree program). Negotiations for pay are typically between you and the internship provider — your advisor or department head rarely get involved in pay negotiations. Even if you don’t get paid, all is not lost — if you do a good job without pay, internship providers may offer you a job and/or write you a good reference letter. Some departments or colleges have policies that prohibit students from getting BOTH pay and college credit for an internship; others allow both pay and college credit.

**Parting Thoughts**

It is not easy to set up an internship — you have to take the lead more often than not. The reason that agencies and companies want student interns is that you may have new ideas, novel ways of approaching problems, and different strategies even in the questions you ask. The companies and agencies are able to approach problems with fresh perspectives because you are there. If the internship provider offers you a job — that’s great! But if not, you often will have many contacts with associated industries and agencies that get to know you in a professional setting. Compared to your classmates who did not take the extra effort to get internships, you are way ahead.

What happens if your internship bombs, your supervisor is less than professional in your treatment, or the work does not meet your expectations? Well, aren’t you fortunate to have learned about those things before you land a full-time job or go on to graduate school? Some settings suit you, others might not. In our experience, it is rare that an internship fails to work out well for both the student AND the company. It is to everybody’s advantage that internships work out well. Sure it is a risk to go out and do internships — but not as much of a risk as being ill-prepared for your first job!

**THINK IT OVER — AND THEN ACT!**

**References**


**Reprinted in part from the Jan.-Feb.-March 2015 issue of The Professional Geologist with permission of AIPG.**
### TABLE 1. Types and Descriptions of Internships.

<table>
<thead>
<tr>
<th>TYPE OF INTERNSHIP</th>
<th>DESCRIPTION</th>
<th>CONTACT INFO.</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVERNMENT AGENCY (Various Federal, State, County, and Municipal)</td>
<td>Work for Earth Sciences agency such as geological survey, natural resources office, or GIS technical mapping office; geological hazards or resource assessment work typical</td>
<td>Check with your advisor and your college internship office; Look in your local yellow pages or search online</td>
<td>Federal and State Internships highly competitive; county and municipal internships more available; usually NO pay at government internships—you will often be a “volunteer”; security background check almost always required [See Figure 1 for an example of a publicly-funded internship experience]</td>
</tr>
<tr>
<td>CORPORATE/COMPANY</td>
<td>Mostly natural resource-extraction companies finding water, hydrocarbons, or minerals</td>
<td>Check with your advisor and your college internship office</td>
<td>If getting paid for internship is necessary, companies might be the best place to look</td>
</tr>
<tr>
<td>CONSULTING FIRM</td>
<td>Usually a multi-office environmental engineering firm, or energy sector firm or, water-engineering firm</td>
<td>Check with your advisor and your college internship office</td>
<td>Typically large firm with many divisions and offices around the country. Some are multinational.</td>
</tr>
<tr>
<td>EXPERIENTIAL ORGANIZATIONS (Examples: Geology Field Camps; Sea Education Association; and Student Conservation Association)</td>
<td>Non-profit organizations that focus on groups of people working together to accomplish tasks</td>
<td><a href="http://www.sea.edu/">http://www.sea.edu/</a> <a href="http://www.thesca.org/gad-landing/?gclid=CMrFgsnlMMECFsYCMgodpSsAFA">http://www.thesca.org/gad-landing/?gclid=CMrFgsnlMMECFsYCMgodpSsAFA</a></td>
<td>Generally very good for team-building and for overcoming substantial field challenges; travel to site may cost you just to get there [See Figure 2 for an example of an experiential-type internship at sea]</td>
</tr>
<tr>
<td>INDIVIDUAL PROPRIETOR</td>
<td>Typically one person (or a few people) runs things</td>
<td>Look in your local yellow pages or search online</td>
<td>As a single proprietor, there might not be continuous stream of work opportunities; check to see if the proprietor has a good track record working with interns</td>
</tr>
<tr>
<td>PROFESSIONAL RESEARCH</td>
<td>Exploratory experiences in your major that place you with experts in the field</td>
<td>Check with your advisor and your college internship office</td>
<td>You may work with a university faculty member on research at your university or in a professional laboratory</td>
</tr>
<tr>
<td>RESEARCH EXPERIENCE FOR UNDERGRADUATES</td>
<td>Funded by National Science Foundation; work on highly-specialized research</td>
<td><a href="http://www.nsf.gov/crssprgm/reu/reu_search.jsp">http://www.nsf.gov/crssprgm/reu/reu_search.jsp</a></td>
<td>Highly competitive and research focused; often in a university or college laboratory for the summer; stipend and travel allowance provided</td>
</tr>
<tr>
<td>TEACHER/EDUCATOR LICENSURE or CERTIFICATION PROGRAMS</td>
<td>Often called “student teaching”; companies want gifted educators for a variety of training programs</td>
<td>Varies by state; departments of education typically run these</td>
<td>There are one- and two-year post-baccalaureate programs designed to prepare degree-holding individuals to become certified teachers for K-12; private schools often do not require teacher licensure or certification</td>
</tr>
</tbody>
</table>
2015 Educational Sponsorship Effort
Tom Van Arsdale, CPG 11073

For the first time in a number of years, the Colorado Section undertook an effort to raise funds for our educational endeavors by offering company/individual advertising within the CPG to those providing financial support. The CO-Section educational sponsorship effort provides funds for a number of deserving programs, including: Annual Student Scholarships; Annual Student Chapter Grants; and Public Outreach Programs, such as; Dinosaur Ridge events, the Annual Colorado Science and Engineering Fair, and the Annual CO-AIPG Legislative Reception.

The CO-Section Board would like to thank the following companies/individuals for their much needed support: Anadarko Petroleum Corporation, Pershing Gold Corporation, Condor Consulting Incorporated, Peters Geosciences, and David M. Abbott, Jr.

Furthermore, the entire CO-Section Executive Committee would like to remind its members to support our Section sponsors. Consider working with these companies, and when you speak with their representatives, let them know that you appreciate their sponsorship of our Section.

Development of a Competitive Undergraduate Geoscience Degree Program by a Teaching Institution of Higher Education with Limited Resources
Uwe Kackstaetter, Ph.D. (Presenter) and Barbara Echohawk, Ph.D.
Metropolitan State University of Denver, Department of Earth & Atmospheric Science, Campus Box 22, P.O.Box 173362, Denver, CO 80217

While the interest in geoscience related degrees is high at Metropolitan State University of Denver (MSU Denver), a predominantly liberal arts teaching institution of higher education, until now opportunities were limited to geology concentrations within the Land Use and Environmental Science programs. However, despite of being in the shadow of two major research institutions with strong geology degree offerings and resources, MSU Denver is currently executing a successful geology incubator degree program which is slated to become a fully fledged geology degree in the near future. The challenge was to develop a course of study that would not copy existing programs at neighboring R1 institutions, but would be unique in providing students with marketable skills, workforce and graduate school readiness without compromising the core education of the discipline. Thus a degree offering in “Applied Geology” was developed where coursework from multiple departments are combined with a core of geology courses. Unique to the program are the incorporation of research and real life skills into most of the geoscience offerings, coupled with ample opportunities for national and international field work, meaningful undergraduate research projects and industry related internships all leading to a Bachelor of Science (B.S.) degree in Applied Geology. The mission of the applied geology program is to prepare students for active entry into geoscience careers or graduate programs by providing access to critical content knowledge, applicable skill and modes of thought. The objective of the program is to integrate a strong background in geology with applicable hands-on training in laboratory and fieldwork, interpretive data assessment, and critical thinking skills.
MSU Denver hopes that this program will become a successful model for other institutions of higher education wanting to offer geology degrees in strong alignment with the expectations of industry and academia. We would like to solicit feedback from academia and industry concerning needs, wants, and desires for this new and emerging geoscience program. Since the degree is still under development, input / discussion as well as feedback given on the accompanying questionnaire will be considered for incorporation. Please mail or email the completed survey to

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or take the survey electronically at https://eSurv.org?u=MSU_Geoprogram_Survey

NOTE: This paper was presented at the 2015 AIPG Annual Meeting in Anchorage, Alaska. Reprinted from the meeting program with permission from AIIPG.

- This is an anonymous survey. Providing contact information is optional -

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<tr>
<th>Industry Skills</th>
<th>Academic Skills</th>
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<td>Which 3 most important objectives / skills should be taught in Undergraduate Geoscience Education to prepare graduates for employment in geology?</td>
<td>Which 3 most important objectives / skills should be taught in Undergraduate Geoscience Education to prepare graduates for a continuing education in graduate school?</td>
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Additional Comments:

Contact Info (optional):
Mesozoic Arc Transect Field Trip  
Sunday, 21 Sep 2015  
Jim Burnell, CPG 11609

Every conference needs at least one hard-core geology field trip. For the Alaska AIPG conference, this was it. And a fantastic trip it was. Led by Sue Karl, a USGS geologist from Anchorage, the trip description from the guidebook states that the trip is “a traverse of a multi-generation Mesozoic magmatic arc and subduction-accretion complex … with a complicated history of magmatic activity with variations in composition and deformation style. Formed at an unknown latitude to the south, the arc was accreted to North America…” I certainly could not say it any better myself.

The subject matter of the trip was too complex and deep to summarize effectively (e.g. 15 pages of references in the guidebook.) So I will mention highlights. To this correspondent, personal highlights started on Turnagain Arm – a fjord off Cook Inlet – at an outcrop at Indian Point of a greywacke in the accretionary wedge. It consisted of interbedded (ca. 6 inches thick) sandstone and shale, with a pronounced foliation in the shale strongly oblique to the bedding. Later we saw a beautiful painting of this very outcrop later in a restaurant in Anchorage.

Later in the trip, a highlight was an outcrop of pristine pyroxenite representing mantle material in the upthrust plate of the Eklutna Complex. The last stop was also a highlight. On Hatcher Pass we viewed and discussed the Independence gold mine while the wind gusted and the snow flew.

Geologically, this was one of the best excursions I’ve attended for a long time. Arc-basin-wedge features I’ve viewed piecemeal on the west coast and in the Appalachians were visited in order, one after the other, in one day. To top it off, our leader, who has been working in the area for twenty years, said that 90% of her visits to the beach at Turnagain Arm have been in the cold rain and wind. We experience beautiful weather and a memorable trip.

This is the interbedded sandstone-shale greywacke mentioned in the text. (Note: The painting in the restaurant was not covered with assorted geologists as we see here.)

Pillow lava along Turnagain Arm beach.
The Board of Examiners have set a date for the Rulemaking Hearing. The hearing will take place Tuesday March 15, 2016, 9:00 am at a location to be determined. Please review the below timeline for other important dates. The timeline is still subject to change, but the hearing date is firm. The timeline is also published on the Rulemaking webpage, http://water.state.co.us/groundwater/BOE/Pages/BOERules.aspx

Please feel free to contact me or Doug Stephenson with any questions or concerns. We look forward to seeing you at the next stakeholders meeting and the CWWCA Annual Conference in January.

Kevin Donegan Senior Hydrogeologist Hydrogeological Services Group
P 303-866-3581 x8221; F 303-866-3589
1313 Sherman Street, Suite 818 Denver, CO 80203; Kevin.Donegan@state.co.us; water.state.co.us

2015-2016 BOE Rulemaking Timeline (Subject to Change)
Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation, and Monitoring and Observation Hole/Well Construction (Water Well Construction Rules)
2 CCR 402-2
The following timeline is intended to guide Staff of the Board of Examiners, and participating stakeholders, in the drafting and deliberation process prior to completion of a final draft of proposed revisions, additions, and deletions to the Boards Construction Rules.

December 23, 2015
o Staff completes and provides notice to stakeholders of 3rd draft of proposed rules with prehearing statement of basis and purpose

January 5, 2016: Board of Examiners Meeting, 10:00am-2:00pm
o Room 318, Centennial Building, 1313 Sherman Street Denver, CO 80203
o Board will discuss Staffs current draft of proposed rules

January 5, 2016: Stakeholder Meeting, 3:00pm-5:00pm
o Room 318, Centennial Building, 1313 Sherman Street Denver, CO 80203
o Staff and stakeholders will review current draft of proposed Rules, discuss procedures for hearing, accept comments from stakeholders

January 8, 2016 CWWCA Annual Meeting, 9:00am
o Crowne Plaza Denver Airport Convention Center, 15500 E. 40th Ave, Denver 80239
o Draft Rules presentation and discussion by BOE Staff

January 15, 2016: Deadline for final comments on draft proposed Rules

January 29, 2016: Staff will file Notice of proposed rules in Colorado Register

February 10, 2016: Notice of proposed rules published in Colorado Register

March 15, 2016, at 9:00am
o Board of Examiners holds public rulemaking hearing on proposed Construction Rules.

On or after May 15, 2016: Depending on date of Board’s adoption of new rules, any new rules will take effect on or after May 15, 2016.
Call for 2016 GSA Field Trip Proposals
Deadline: Dec. 1, 2015

We are the field trip co-chairs for the Geological Society of America 2016 Annual Meeting and Exposition, to be held next September 25-28 in Denver. We’re taking this opportunity to remind you that the deadline for submitting field trip proposals for GSA 2016 is December 1. We would be grateful if AIPG members could contribute field trips to GSA 2016. For pre- and post-meeting field trips we are looking for 1-4 day trips beginning and/or ending in Denver, half-day trips that could be conducted during the conference, and K-12 educator trips either pre- or post-conference. We are on a compressed schedule because next year the conference takes place in late September, a month sooner than this year’s recent meeting (GSA 2015, Baltimore). We would request that potential field trip leaders submit their proposals as soon as possible.

To submit a proposal, search on GSA 2016 to find the site, 2016 GSA Annual Meeting - Geological Society of America. The Scientific Field Trips paragraph will be at the top of the page when the site is opened, and at the bottom of the paragraph select Submit a Scientific Field Trip Proposal for instructions. The proposals are submitted directly online to GSA (not to the field trip co-chairs).

We would offer encouragement, in that the function description portion of the proposal is only a short summary, limited to 250 words. Only after proposals are accepted are the field trip leaders contacted by GSA to provided logistics and budget information.

Please also pass this invitation around to any interested parties you may know. We hope that you will be able to submit a proposal, and that you let us know by email so that we can continue to stay in touch with you as we build the portfolio for this conference. Please contact us if there are questions.

Steve Keller (skeller@prodigy.net) and Matt Morgan (mmorgan@mines.edu)
Colorado Geological Survey, Golden, CO
Field Trip Co-Chairs, GSA 2016

GeoEvent
(comp. by P. Modreski, USGS-Denver, pmodreski@usgs.gov)

Wed., Nov. 25, 7:00-8:30 p.m., “Non-Dinosaur Reptiles” at the Dinosaur Ridge Visitor Center (16831 W. Alameda Parkway, Morrison, C-470 and Alameda Parkway). A free evening lecture on critters that often times get mixed up and called dinosaurs, even though they aren’t. Learn about flying and swimming reptiles, crocodilians and their relatives, and how these animals certainly aren’t dinosaurs even though they were alive at the same time. Come on over this evening to see a presentation done by Erin LaCount on dinosaur cousins and other non-dinosaurian reptiles! Recommended for adults only (12 years and older).
Consider contributing to the Rex Monahan Geological Scholarship Fund. Why? The Colorado Section’s Scholarship Fund is growing slowly with other members’ contributions. The Scholarship Fund was established to support one or more undergraduate and/or graduate students in Colorado as they pursue geological degrees. The Section is working to build the fund to a point where it can provide consistent funding for at least one award to one student and eventually sustain itself at the same time. From one award, we expect to expand the fund and award more students.

Please support the students who are the future of the geologic profession.

YES! I wish to support the Scholarship Fund in providing assistance towards tuition or travel to field camps, research and thesis preparation, travel to present the results of thesis work, and recognizing excellence in scholarship and leadership.

Here’s my check made out to AIPG-CO Section, and send to:

David M. Abbott, Jr.
5055 Tamarac Street
Denver CO 80238
dmageol@msn.com
303-394-0321

In the amount of: _____ $25
_____ $50
_____ $100
_____ $500
_____ other

Name: ____________________________

Address: ____________________________  

Telephone: ________________________

E-Mail: ________________________

The Scholarship Fund and Future Geologists Thank You!
“Colorado Professional Geologist” Sponsorships - Proceeds to Benefit Educational Outreach Efforts, the Rex Monahan Geological Scholarship Fund, and the College/University Student Chapter Grant Program

The Colorado Section of the American Institute of Professional Geologists needs EDUCATIONAL SPONSORS. Our members also need to be aware of the excellent products and services provided by YOUR FIRM. Sponsorship advertisements within the quarterly “Colorado Professional Geologist” newsletter provides an avenue for both of these goals.

The Colorado Section - AIPG has well over 450 members employed in numerous industries, the government sector, and academia, and over 160 student members as well. The varied industries include mining, environmental, hydrology, oil and gas, and engineering geology, among others. Our members can accomplish their work by utilizing your company’s expertise, products, and services. Our student members and educational outreach efforts will benefit from your financial support.

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or 7” wide x 2 1/2” high
Members & their employers: $240/yr
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**Half Page:** 7” wide x 5” high
Member & their employers: $440/yr
Non-members: $520/yr

**Full Page:** 7” wide x 9 1/2” high
Member & their employers: $800/yr
Non-members: $960/yr

**YOUR BUSINESS CARD COULD BE HERE!!**

David M. Abbott, Jr.
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dmageol@msn.com

We NEED Your Current Email Address!

Those members who have been receiving our informational e-mail mailings already know how useful they are in keeping up with the numerous, and often short-notice, geoscience activities and events! Our mailings include information on other non-Colorado events and short-notice items on Colorado legislative issues, job postings, and other information we feel may be of interest to CO-AIPG members. Many of these items are sufficiently short on timing that they cannot be included in the quarterly newsletter; therefore, the items can not come to the notice of members for whom we do not have an up-to-date e-mail address. This is why we NEED your e-mail address — to keep you well informed on such timely events and notices.

Please keep us updated on any changes to your email address. Send to: Doug Peters, dcpeters@tuveraexploration.com.
Receive Your Newsletter by E-mail
To receive the CPG by email, send your request to:
dmageol@msn.com

Call for Articles
The Colorado Section of AIPG newsletter welcomes submission of technical or informational articles for publication. Articles may be submitted via e-mail to the editor at: dcpeters@tuveraexploration.com (Microsoft Word format is preferred.)

Doug Peters
825 Raptor Point Rd, Golden CO 80403

Contact Doug at 303-278-1540 for additional information.

Please Visit Our Website: http://www.aipg.org/StaticContent/anonymous/sections/CO/COaipg.htm

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