TPG

Volume 50, Number 4 THE PROFESSIONAL GEOLOGIST JULY/AUG 2013

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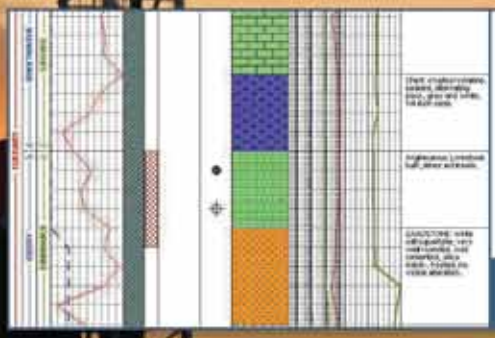

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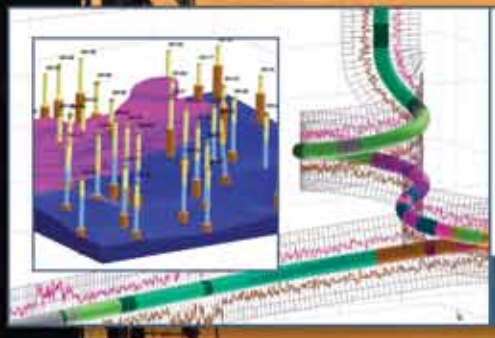

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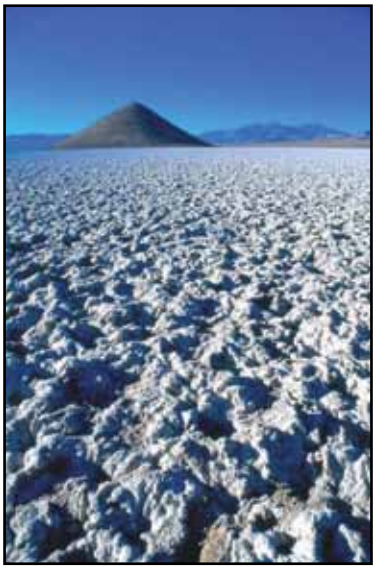

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FEATURES

AIPG History can be found throughout this publication.

On the cover: Garden of the Gods with Pikes Peak in the background. Photo compliments of Ron Ruhoff and Visit Denver.

DEPARTMENTS

AIPG Publication Policy, October 4, 2010. AIPG encourages submission of articles and editorials for publication in *TPG* on topics related to the science and profession of geology. Submittals shall be of interest to the members of AIPG, other professional geologists, and others interested in the earth sciences. Articles and editorials may be noted as follows at the discretion of the Editor, "The opinions, positions and conclusions presented herein are those of the author and do not necessarily reflect the opinions, positions or conclusions of the American Institute of Professional Geologists." All materials submitted for publication, including author opinions contained therein, shall include accurate and appropriate references. The Editor has the authority to solicit, edit, accept, or reject articles and editorials and other written material for publication. The Executive Committee has the authority if it so chooses to act on any particular case to support or overrule actions of the Editor regarding the solicitation, editing, acceptance, or rejection of any particular article, editorial, or other written material for publication.

American Institute of Professional Geologists (AIPG) is the only national organization that certifies the competence and ethical conduct of geological scientists in all branches of the science. It adheres to the principles of professional responsibility and public service, and is the ombudsman for the geological profession. It was founded in 1963 to promote the profession of geology and to provide certification for geologists to establish a standard of excellence for the profession. Since then, more than 10,000 individuals have demonstrated their commitment to the highest levels of competence and ethical conduct and been certified by AIPG.

The mission of the American Institute of Professional Geologists (AIPG) is to be an effective advocate for the profession of geology and to serve its members through activities and programs that support continuing professional development and promote high standards of ethical conduct.

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For AIPG news and activities go to www.aipg.org.

EXCOM MEETS IN ALASKA


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1. Trying to stay warm.

2. Anchorage to Seward.

3. Seward boat ride.

4. ExCom meeting.

5. Martin Buser, Iditarod musher

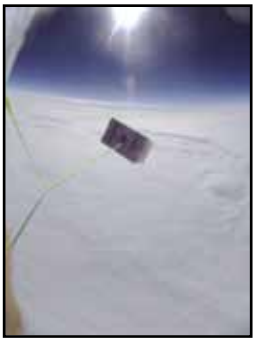
6. Iditarod dog.

7. AIPG Alaska section meeting.

8. Entrance to the Happy Trails Kennel.

9. USS Anchorage.

Fostering STEM Interest with High Altitude Ballooning



Michael J. Urban, MEM-1910

Ten years ago while I was an intern at AIPG Headquarters in Denver I wrote my first article for T*he Professional Geologist* titled "Kids, Balloons, and a Minor in Earth Science: The Making of a Well-Rounded Geologist" (Volume 40, Number 1). In it – among other things – I discussed my experiences working for a private weather company as a meteorological technician, where my duties included launching weather balloons at one of just two sites in Minnesota responsible for collecting upper air data for the National Weather Service. When I left that job, I never thought I'd have the opportunity to work with weather balloons again; however, as fate and fortune would have it, in the summer of 2010, a colleague of mine at Bemidji State University (Minnesota), Dr. Tim Kroeger, Professor of Geology, asked me if I'd be interested in attending a workshop on high altitude ballooning with him. Tim explained that the idea behind high altitude ballooning was to get college students more involved in STEM by enabling them to build weather payloads (consisting of sensor suites) and design experiments. I eagerly agreed to partner with him!

Today, we have expanded our group of collaborators at the university and successfully completed five balloon launches and recoveries (one each semester, including summer, since the Fall of 2010). Throughout the past two years we have given classes of undergraduate science and teaching majors the opportunity to participate in balloon launch and recovery efforts, design and construct payloads, conduct scientific investigations, and analyze data for temperature, humidity, pressure, gas concentrations, and more. We have also invited in-service teachers and their students to participate by developing payloads, and most recently, join the launch and tracking activities. This spring forty middle school science students and two teachers assisted as we filled our weather balloon with helium, attached the payloads, and eventually released the balloon and payloads. They then followed our van of college students in their yellow school bus as we all set off tracking our ascending near-space probe. It was great seeing the kids' excitement as they piled out of the bus at the site where the balloon payloads touched down.

The following sections describe the basic procedures involved in high altitude ballooning and how our students are engaged in STEM-related activities.

Before

In the science teaching methods courses I instruct for education majors at the university, I introduce the idea of high altitude ballooning by describing how the National Weather Service deploys weather balloons with disposable radiosondes twice daily from specific locations across the country in order to collect data for forecasting purposes. Given the sheer number of these launched daily, and their disposable nature, the radiosondes are not typically recovered. However, for our activities, we use expensive equipment that must be retrieved.

We further discuss the components and functions of the balloon, parachute, support tethers, command module, transmitters, and payloads. This is followed by an introduction to the atmosphere and physical science principles (i.e., buoyancy, pressure, etc.). Next students are tasked with creating mini-investigations for studying the types of data we will have available from the balloon flight. Some students come up with their own experiments to test. Students build equipment, put sensors together and secure them within payload packages, and test instruments. The activities are meant to pique student curiosity, foster interest in science and technology, and provide experiences they might consider using in their own classrooms once they become teachers, either by partnering with a university or modeling similar activities on their own. Because the ballooning activities are costly we strive to maximize the effort by involving two or more classes and instructors, and send up several scientific payloads with each launch. The university faculty members oversee payload construction and run wind prediction forecasts to determine a suitable launch site.

During

On the day of the launch, participating students meet at the university and depart via passenger vans to the launch site. If the weather is particularly inclement, the activity is scrubbed and an alternate date selected. We typically end up driving a couple hours west or south of Bemidji, given the prevailing wind direction and also to improve the likelihood that the payloads will come down in an agricultural field rather than in a forest or lake. Once at the site, we pull out all of the equipment and begin inflating the balloon. The setup process takes about an hour. The last step prior to launch, once all equipment is assembled and attached, is to notify the Federal Aviation Administration. After we have been cleared for launch, we typically have a countdown from ten (particularly when we have K-12 students around or with us, or are Skyping remotely with a classroom-based group of kids).

When the sky is clear and the winds calm, we can often follow the balloon with our naked eyes for a long time. After

Balloon as it ascends (approximately 1200 ft/min). Image credit: Josh Tharaldson.

losing sight of the balloon, we pack up our gear and take to the road in order to follow the line-of-sight signals sent from the payload transmitters. With any luck, our balloon will reach an altitude of 100,000 feet or more before bursting and descending. The entire flight time is on the order of about one-and-a-half to two hours, and follows a ground track of perhaps 100 miles.

After

We have been fortunate to find most of our downed payloads quickly and easily (i.e., at least twice the payload has landed on the side of a road), but not always. Occasionally, a component may separate from the payload and be recovered by a farmer or field-owner (who mails back or otherwise returns the equipment). Part of the excitement for the students – even for college students – is tromping through a field to locate and retrieve the materials. After briefly celebrating a successful recovery, we typically pose for a few pictures and then return to campus. The entire launch and recovery endeavor, and travel, takes the better part of a day (e.g., 6:30 AM until 4:00 PM).

Payload landing site in a field. Image credit: Josh Tharaldson.

Over the next several days or weeks, we spend time refining and analyzing the data. Students are charged with writing reports on the findings of their mini-investigations or experiments. One of the biggest highlights for the class is watching the video clips taken by onboard cameras and movies made of the development, launch, and recovery activities eventually posted to YouTube.

Summary

There are many ways to actively engage students in authentic science, and this should be one of our primary goals as science educators. High altitude ballooning is one way to do it. Institutional and external grant monies have been critical to our efforts, and the time put in by faculty members has been extensive. It is worth it, though, because we know that most students are taking away great memories and many students are learning more about science through active engagement. Activities like these are inquiry- or data-driven, and promote process skill and content knowledge acquisition. High altitude ballooning provides a venue for making a variety of interdisciplinary connections within and between the domains of science.

While investigations in the geosciences may seem distant from high altitude ballooning, the peripheral role the atmosphere plays in natural disasters (e.g., volcanic eruptions, flooding, etc.) are obvious, so wind patterns and circulation are useful to learn about and are easily studied by plotting the path of a weather balloon. Other ideas of study include examination of the curvature of the Earth and landform feature identification from the cameras on the balloon taken at altitude. High altitude ballooning is costly to start, but once established, STEM-related activities are easy to utilize in any number of introductory and advanced science content courses in astronomy, meteorology, and even geology.

Featured Resources

For those who may be interested in high altitude ballooning, see the Edge of Space Sciences website at *http://www.eoss.org/* or the StratoStar home page from *http://www.stratostar.net/faq/*

Background image on page 4, taken from the onboard camera. Earth horizon, sun, and payload with tethers captured in the photograph.

Silent Auction

2013 AIPG Annual Meeting

A silent auction to benefit the AIPG Foundation will be held in conjunction with the 2013 Annual Meeting in Broomfield, CO. Please donate any interesting books, specimens, geological memorabilia, etc. to this auction. Donors will be able to deduct the value of the items they donate and purchasers will be able to deduct their purchases because the AIPG Foundation is a 501(c)(3) charitable organization.

An early listing of donations includes:

- The *RMAG Atlas of the Rocky Mountains,* the big red book with all the great graphics.
- The *Bullet In of the Anomolous Association of Prettylean Geophists* from April 1960, a lovely spoof of the AAPG Bulletin containing the words to the Pick and Hammer Club's presentation of *d'Oily Cards in the Last Weeks of the Association for the Advancement of Politics in Geology or Mo-ho-ho and a Barrel of Funds.*
- A chance to stay in a condo in Mexico
- Rock and mineral specimens
- Geojewelry
- A bottle of Colorado whiskey

Donors may to ship their items in advance of the meeting. Doing so will permit advance preparation and will relieve you of the need to haul a bunch of heavy donations on the airplane to Denver.

Silent Auction
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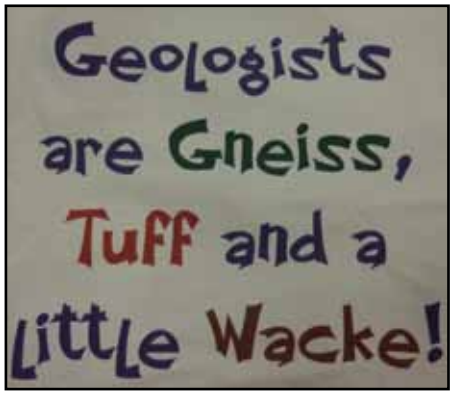

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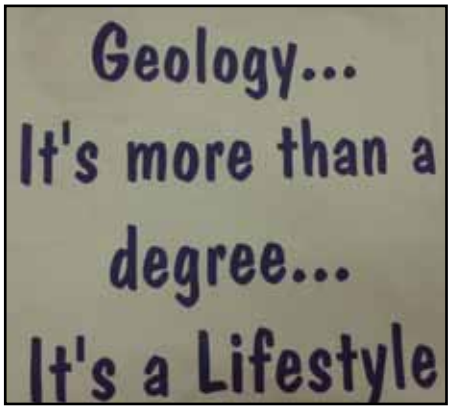

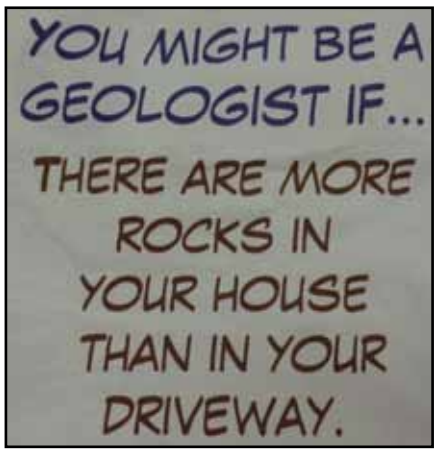

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EMERGENCY CONTACT NAME		EMERGENCY CONTACT PHONE		

FEES AND PAYMENT INFORMATION

ANNUAL MEETING REGISTRATION	Amount	After 9/23/13	Amount
Full Registration AIPG, DREGS, GJGS, or RMAEP Member	$395.00	$420.00	$
Non-Member Full Registration	$445.00	$470.00	$
Daily Registration □Weds □Thurs □Fri □Sat	$210.00	$235.00	$
Spouse/Guest Full Registration (Admission to Welcome Reception, Breakfast, Lunch, Breaks and Exhibits)	$210.00	$235.00	$
Student Full Registration	$20.00	$30.00	$
Daily Student Registration □Weds □Thurs □Fri □Sat	$15.00	$25.00	$
I Would Like to Support Student Registration	$50.00	$50.00	$
FIELD TRIPS (Must be Registered for the Conference)	**Amount**	**After 9/23/13**	**Amount**
Cripple Creek & Victor Open Pit Large Surface Gold Mine Tour (Weds., 10/23, 8:00 am – 6:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
Henderson Molybdenum Underground Mine Tour (Weds., 10/23, 8:00 am – 5:00 pm) (Limited number of participants)	$99.00 (Students $35)	$129.00 (Students $45)	$
Henderson Molybdenum Mill Tour (Weds., 10/23, 8:00 am – 5:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
General Shale Brick Plant and Quarry Tour (Weds., 10/23, 8:00 am – 3:30 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
Front Range Geology and Tectonic Setting (Weds., 10/23, 8:00 am – 5:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
Dinosaurs of the Front Range and Their Geologic Setting - Dinosaur Ridge (Weds., 10/23, 8:45 am – 4:45 pm)	$114.00 (Students $40)	$144.00 (Students $50)	$
Celestial Seasonings Tour, Lunch at Dushanbe Tea House and Shopping in Boulder, CO (Thurs., 10/24, 10:00 am – 4:00 pm)	$45.00 (Students $15)	$65.00 (Students $25)	$
Front Range Foot Hills Tour Including Red Rocks, Lookout Mountain, and Buffalo Bill's Museum and Grave (Thurs., 10/24, 8:30 am – 4:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
Rocky Mountain Arsenal National Wildlife Refuge Tour and Butterfly Pavilion (Fri., 10/25, 8:00 am – 5:00 pm)	35.00 (Students $15)	$55.00 (Students $25)	$
Downtown Denver to Museums Old and New (Fri., 10/25, 9:00 am – 4:00 pm)	$35.00 (Students $15)	$55.00 (Students $25)	$

FIELD TRIPS (Must be Registered for the Conference)	Amount	After 9/23/13	Amount
The Consequences of Living with Geology: A Model Field Trip for the General Public (Sat., 10/26, 8:00 am – 4:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
The Central City-Idaho Springs Au-Ag Mining District (Sat., 10/26, 8:00 am – 5:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
Pleistocene and Recent Floods of the Big Thompson River Drainage, Northern Colorado Front Range (Sat., 10/26, 8:00 am – 5:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
The Geology, Mineralogy, and Mining History of the Leadville District (Sat., 10/26, 8:00 am – 6:00 pm)	$99.00 (Students $35)	$129.00 (Students $45)	$
SHORT COURSE/ SOCIAL EVENTS (Must be Registered for Conference)			**Amount**
Short Course: Site Characterization — The Ground-Water System (Weds., 10/23, 8:00 am – 5:00 pm) ***Earn 0.8 CEU's or 8 PDH's / Contact Hours!***		$495.00	$
Welcome Reception (Weds., 10/23, 6:30 pm – 8:30 pm) (*please circle if attending*)		Included with Registration	
Awards, Dinner and Entertainment (Thurs., 10/24, 6:00 pm – 8:30 pm)		$65.00	$
Make a Donation to the Foundation of the AIPG		$	$
		TOTAL AMOUNT DUE	$

Organization Meetings (see Program for Dates and Times) – Please Indicate if Attending

	Attending		Attending
AIPG National Executive Committee Meeting (10/26)	**yes / no**	**AIPG 2013-2014 Joint Executive/Business Mtg. (10/26)**	**yes / no**
AIPG 2013 Advisory Board Meeting (10/26)	**yes / no**		

Full Member and Non-Member Registration Includes: Welcome Reception, Technical Sessions, Student Poster Sessions, Exhibits, Registration Materials, Continental Breakfast, Lunch, and Breaks on Thursday, Friday, and Saturday.

I understand that by registering for the AIPG 2013 Annual Conference & Exhibition, I release and agree to indemnify The American Institute of Professional Geologists (AIPG), their agents, officers, volunteers and employees from all liability for any loss, damage or injury sustained by me while involved in any way with the Conference and Exhibition except that AIPG is not released from such liability to the extent the same is caused by its actual negligence or willful misconduct. I have read and understand this waiver and release.

I also understand that submission of this registration form gives AIPG the authority to utilize any photograph taken of me at the conference for conference related publicity (e.g., photo gallery on CD, web site, TPG, etc.).

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Refund Policy: A 90% refund of total fees paid (10% withheld to cover administrative costs) will be given upon receipt of a written request until 9/23/2013. Cancellations made by written notification received between 9/24/13 and 10/8/13 will be assessed a charge of 20% (to cover administrative costs) of the total fee paid. NO refunds will be given for cancellations received after 10/9/13 or for no-shows after the meeting. Substitutions welcome. Based on the decision of AIPG field trips and the short course are subject to cancellation due to lack of participation. Notification and a full refund for field trips or the short course will be given in case of required cancellations.

PROGRAM

Wednesday, October 23, 2013	
7:30 am—5:00 pm	Registration — Hotel Lobby
8:00 am—5:00 pm	Short Course - Site Characterization - The Ground-Water System *(Earn CEU's!)*
8:00 am—6:00 pm	Field Trip — Cripple Creek & Victor Open Pit Large Surface Gold Mine Tour
8:00 am—5:00 pm	Field Trip - Henderson Molybdenum Underground Mine Tour (limited number of participants)
8:00 am—5:00 pm	Field Trip - Henderson Molybdenum Mill Tour
8:00 am—3:30 pm	Field Trip - General Shale Brick Plant and Quarry Tour
8:00 am—5:00 pm	Field Trip - Front Range Geology and Tectonic Setting
8:45 am—4:45 pm	Field Trip - Dinosaurs of the Front Range and Their Geologic Setting
6:30 pm—8:30 pm	Welcome Reception — Exhibit Area Open (complimentary for all registrants)
Thursday, October 24, 2013	
7:30 am—5:00 pm	Registration — Hotel Lobby
8:30 am—5:00 pm	Technical Sessions
8:30 am—4:00 pm	Guest Trip — Front Range Foot Hills Tour Including Red Rocks, Lookout Mountain, and Buffalo Bill's Museum and Grave
9:00 am—5:00 pm	Exhibits Open
10:00 am—4:00 pm	Guest Trip — Celestial Seasonings Tour, Lunch at Dushanbe Tea House and Shopping in Boulder, CO (lunch on your own)
11:45 am—1:00 pm	Luncheon with Keynote Speaker *(complimentary to all registrants)*
6:00 pm—8:30 pm	AIPG Awards, Dinner and Entertainment *(AIPG members and non-members welcome with additional fee)*

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Friday, October 25, 2013	
7:30 am—5:00 pm	Registration — Hotel Lobby
8:00 am—5:00 pm	Technical Sessions
8:00 am—5:00 pm	Guest Trip — Rocky Mountain Arsenal National Wildlife Refuge Tour and Butterfly Pavilion (lunch and entrance to the Butterfly Pavilion on your own)
9:00 am—4:00 pm	Guest Trip — Downtown Denver to Museums Old and New (lunch on your own)
9:00 am—3:30 pm	Exhibits Open
11:50 am—1:00 pm	Luncheon with Keynote Speaker *(complimentary to all registrants)*
12:00 noon—2:00 pm	Foundation of the AIPG Meeting
4:45 pm—6:15 pm	Screening of the Feature Length Documentary on Global Energy "SWITCH"
Saturday, October 26, 2013	
7:30 am—9:00 am	Registration — Hotel Lobby
7:00 am—8:00 am	AIPG Executive Committee Breakfast *(complimentary to all registrants)*
8:00 am—12:00 noon	AIPG Executive Committee Meeting *(open to all registrants)*
8:00 am—4:00 pm	Field Trip — The Consequences of Living with Geology: A Model Field Trip for the General Public
8:00 am—5:00 pm	Field Trip — The Central City-Idaho Springs Au-Ag Mining District
8:00 am—5:00 pm	Field Trip — Pleistocene and Recent Floods of the Big Thompson River Drainage, Northern Colorado Front Range
8:00 am—6:00 pm	Field Trip — The Geology, Mineralogy, and Mining History of The Leadville District
12:00 noon-1:00 pm	Luncheon *(complimentary to all registrants)*
1:00 pm—4:30 pm	AIPG Advisory Board Meeting *(open to all registrants)*
4:30 pm—5:00 pm	AIPG 2012-2013 Joint Executive Committee Meeting & Business Meeting *(open to all registrants)*

Section Representation at the AIPG Annual Meeting is Essential to the Health of Your AIPG

John L. Bognar, CPG-08341

One of the most important reasons AIPG is a healthy organization is volunteer contributions from individuals representing opinions emanating from the individual sections, especially when convened at the annual meeting. Attendance and participation in the governance of AIPG at the annual meeting is no doubt the best way a section and its members within can bring its important opinions, concerns, and contributions to the national stage for all of AIPG to share.

Many of the 30 individual sections often send at least one member designated to represent the section as an official "delegate." These delegates report the status of the section and sit in assembly to hear reports, ideas, opinions, and concerns from around the nation and beyond. In this assembly and from this body the four "Advisory Board Members" are elected to serve important roles on the National Executive Committee the following year. Often times these Advisory Board Members eventually become national officers of AIPG.

My personal opinion is that each section has an obligation to be represented at the AIPG annual meeting. However, it is no secret that several sections are more or less hibernating, when it comes to local section activities and participation in the governance of AIPG. Given AIPG has 30 sections and looking at the table showing attendance by section over the last seven years, it is easy to see we have had an average participation of 67%. Not real good in my opinion. But it only takes one person from a section to partake in all the annual meeting has to offer, and it only takes one person to lead the section from sleepiness to vibrancy. If your section does not appear on the table below, that means your section has not participated at all in the last 7 years. If so, I urge you to attend the national annual meeting as an official delegate of your section.

"I don't have the money!" To finance your expenses, it is a perfectly legitimate means to use the section's treasury. If your section is so inactive that you do not know the condition of your own section's treasury or cannot find that information, a phone call to AIPG Headquarters may be able to provide that information.

This is a call to all sections of AIPG. Please send your delegate.

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AIPG 50th Annual meeting

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Geoscience Online Learning Initiative (GOLI) - AGI/AIPG

You, as an AIPG Member, are invited and encouraged to submit a presentation to be given online for the Geoscience Online Learning Initiative (GOLI). AGI and AIPG have teamed up to build a portfolio of online learning opportunities to help support the professional development of prospective and early-career geoscientists as well as addressing topics of interest to the broader geoscience profession. GOLI courses support both synchronous and asynchronous online learning, and count toward continuing education units (CEU's).

A $200 stipend and 10% share of registration fees are provided to the presenters (details on presenters guide).

If you are interested please read the GOLI - AGI/AIPG Presenters Guide and Guidelines and Suggestions for Webinar Presentations on the AIPG National website (*www.aipg.org*).

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Section	2006	2007	2008	2009	2010	2011	2012	Total Meetings the Section Attended Last 7 Years
Alaska	x			x			x	3
Arizona	x	x	x	x	x	x	x	7
California	x	x	x	x	x	x	x	7
Capitol				x				1
Carolinas					x	x	x	3
Colorado	x	x	x	x	x	x	x	7
Florida	x	x	x	x	x	x	x	7
Georgia	x	x	x	x	x	x	x	7
Hawaii	x	x	x					3
IL/IN	x	x	x	x	x	x	x	7
Kentucky	x	x	x	x	x	x	x	7
Louisiana	x	x						2
Michigan	x	x	x	x	x	x	x	7
Minnesota	x	x	x	x		x	x	7
Missouri	x	x	x	x	x	x	x	7
Nevada	x	x	x	x	x			5
New Mexico	x							1
Northeast	x	x	x	x	x	x	x	7
Ohio		x	x	x	x	x	x	7
Oklahoma	x	x	x	x	x	x	x	7
Pennsylvania	x	x	x	x		x	x	7
S. Dakota		x	x	x	x	x	x	7
Tennessee	x	x	x	x	x		x	6
Texas	x	x	x	x			x	5
Virginias	x	x	x	x	x	x	x	7
Wisconsin	x	x	x			x	x	5
Total Delegates	**22**	**22**	**21**	**21**	**17**	**18**	**21**	**Avg. Attendance= 20**

x= section sent official delegate

AIPG Wisconsin Section History

Wisconsin and Minnesota shared a combined chapter until 1984. In 1984, Wisconsin geologists felt it was tine that geologists be registered and certified like engineers. An Ad-hoc committee in Wisconsin led to forming the Wisconsin AIPG chapter. Our next activity was scheduling geology field trips in Wisconsin and then hosting the 2000 AIPG Annual Conference. Since then, the Wisconsin chapter has sponsored Geology Day at the Capitol, additional field trips, work days with the National Ice Age Trail Association, helped establish a training program for the Wisconsin Master Naturalist Association and is now working with University of Wisconsin-Whitewater to sponsor a Earth & Water Student Presentation Day.

Congratulations! 2013 AIPG Student Scholarship Winners!

The AIPG Executive Committee is pleased to announce the awardees for the 2013 Student Scholarships. AIPG has awarded eleven scholarships this year. The recipients are Douglas Mateas, Eastern Illinois University, Charleston, Illinois; Joseph Cleveland, The University of Texas at Austin, Austin, Texas; Lakin Beal, Idaho State University, Pocatello, Idaho; Justin Mauck, Texas A&M University-Kingsville, Kingsville, Texas; Jessica Eicher, University of Alaska Fairbanks, Fairbanks, Alaska; Kristopher Ashton, East Carolina University, Greenville, North Carolina; Kase Knochenhauer, Grand Valley State University, Grand Rapids, Michigan; Lisa Whalen, Virginia Tech, Blackburg, Virginia; Ali Sherman, The University of Utah, Salt Lake City, Utah; Victor Perez, Ohio State University, Columbus, Ohio; and Karl Campbell, Grand Valley State University, Grand Rapids, Michigan.

The scholarships are made possible by the support of the Foundation of the American Institute of Professional Geologists and the AIPG members' voluntary contributions.

Douglas Mateas, SA-4338

Ever since I was a young boy, I have been fascinated with the outdoors. Whether my brother and I were playing with our toy trucks in the meramac gravel of the family garden or inventing wacky new games with the neighborhood kids, I knew that I loved to be outside. I am not going to pretend that I wanted to be a geologist during my childhood by messing around with rocks, soil, and the like; that is not the case. I did not know I wanted to be a geologist until the second semester of my freshman year in college when I took an introductory earth science course. I am forever grateful for that course because, without it, I may have never realized that geology is what I am meant to do.

The reasons I want to be a geologist are three-fold. To describe the first reason, I'll begin with something my brother mentioned to me quite recently. My brother, who is about to complete his accounting major, stated to me, "In your classes, you get to learn about something that is actually real, something that is grounded in fact...the Earth. With accounting, however, I spend all my time learning about a system that has been invented by humans." In saying this, my brother took the words right out of my mouth. The first reason I want to be a geologist is because I love learning about the many processes that dictate the operation of the Earth. To do this, it is necessary to study a wide range of disciplines. For example, when studying the evolution of a river delta over time, a geologist must have knowledge of geomorphology, sedimentology, stratigraphy, hydrology, petrography, biology, and chemistry. For this reason, geological studies reach across the disciplines of, not only geology, but also into other physical and life sciences. It is, in the utmost respect of the term, an intra- and interdisciplinary science. This is why geology appeals to me so much. In order to be a successful geologist, one must also be a successful scientist and intellectual.

I like to look at geology as a mystery; only a limited amount of information is made available to the geologist, and it is his or her duty to analyze it. This emphasis on interpretation is the second reason I want to be a geologist. The concept applies to all aspects of geology; some of which may include: a paleoclimatologist using oxygen and carbon isotopes to *interpret* Pennsylvanian climate, a volcanologist using lithic fragments to *interpret* the extent of an ancient caldera, or a sedimentologist using remote sensing to *interpret* changes in channel characteristics over time. All of these instances demonstrate the vital importance that interpretation plays in geology. This emphasis towards interpretation is something that excites me. Currently, I am doing research on a massive sulfide deposit in the Upper Peninsula of Michigan. The objective of my research is, using petrography, to compare three batches of samples from distinct gold zones, and *interpret* if the mineralization mechanism is the same amongst the zones. This task is a difficult one, but I enjoy the challenges it presents, and therefore I thoroughly enjoy my research and geology.

As I have established, I love geology because it is an intra- and interdisciplinary science and relies heavily on interpretation. No matter how much I love these aspects of geology, it all comes down to being in the outdoors. As I stressed in my introduction, I have loved the outdoors since I was a child. My love of fresh air and nature still exists today. I have no doubt that geology, being a hands-on science with plenty of field work, is the right career path for me. Of course, a substantial amount of geological research is done in laboratories such as petrographic analysis and modeling. However, in most cases, being out in the field is a necessity in order to collect samples, measurements and observations. Next year I will be a hydrogeology graduate student; although I do not yet know which school I will be attending. Whether I am studying groundwater remediation techniques at University of Kansas or wetland restoration at Indiana University, field work will

be an integral part of my research. And in my future plans to become an environmental consultant after I graduate, field work will be an important part of my job. If I knew as a child that I would be getting paid to work outdoors as an adult, my face would light up with an enormous smile. It does not get much better than that. I am glad to be a geologist.

Joseph Cleveland, SA-4247

Upon hearing my 7th grade science teacher announce our class's commencement into the branch of Geology, an onslaught of moans and groans inundated the room with a tone hinting a seemingly unanimous opinion pertaining to the "interest" of the subject. I said "seemingly unanimous" for a reason; I was that child who instead experienced a sudden spark of enthusiasm. You may wonder, "Why would so young a child possibly have any interest in rocks, right?" My love and admiration for this coveted branch of science began in my early education on career day, watching my dad do what he does best- talk about rocks. As my father placed stunning images of amethyst geodes, opal veins, and sapphire on the board, I couldn't help but remain transfixed in a mesmerizing stare at what could most certainly be the most beautiful pieces of matter this earth had to offer. But how could a child not be amazed when looking at a collection of shiny rocks? For the majority of my childhood I understood my father's profession, as a geologist, to be a career that required him to "look" at rocks. As time pressed on, I grew to understand that my father's occupation was more than simply gazing at minerals and gems. He takes part in the process that provides the very fuel that runs our society, as it exists today- the oil industry. I began to realize that yes, minerals and gems indeed fall into the category of geology, but that the application of this science locates, extracts, and provides the very sustenance for the human race on a global scale. My father's occupation as a petroleum geologist ultimately aids in keeping society moving forward. Yet, geology taking part in the oil industry is but a footprint on the countless effects it has on our planet. Whether it is scrutinizing sedimentary strata to unearth hidden truths or using technologically advanced computer systems and ground penetrating radar to study the movement of our Earth's tectonic plates, Geology is most certainly a science that must be associated with paramount importance to the way life was in the past, present, and most undoubtedly will be in the future. I initially commenced college as a Biochemistry major because, although I was strong in biology, chemistry, and math, I was not quite certain on my intended career path at the time. Upon attending my first Geology class that semester, I instantly fell back in love with the subject that had surrounded me since the day I was born. My professor's enthusiasm and passion for the subject helped rekindle my admiration for geology, and for that I gratefully thank him. After the very first lecture, I called my father and told him that I believed I was meant to follow in his footsteps and become a second-generation geologist. I immediately made the choice to change my major to Geology, the best decision I believe I have ever made. I am now enlightened to my desired passion in life and I undoubtedly believe that The American Institute of Professional Geologists Student Scholarship would further aid me in the journey towards attaining my dream profession.

Lakin Beal, SA-4319

When I was a child I rarely wondered how the mountains formed, or why the pebbles in a stream are always smooth and round. I thought that granite counter tops were made for aesthetics of a kitchen. While some rocks shined more than others, most of them were rather dense and hard to carry back home.

I made a decision in high school that I would not work a desk job. I knew that I wanted to be outdoors, exploring the Earth as much as possible. I told my parents that I would go to college and get my degree in environment studies, perhaps I would become an engineer. The summer after graduation I was offered a job at the local gold mine in Elko, Nevada where I would spend the summer working with the environmental engineers before going off to college in Idaho. I asked my coworkers a series of questions; why they chose their studies, if they were happy with their choices, what their job entailed. Ultimately I was not impressed with the answers I received. I spent hours scanning documents, and organizing paperwork. The only outdoors that I experienced was looking through the mine's landfill and making sure everybody was following the EPA's protocol on the waste that was deposited.

I vividly remember the day I became interested in the field of geology. Next door to the environmental department was the exploration department where I spent some time scanning documents. A couple of interns working for the mine were analyzing *core logs* of *limestone* and developing cross sections accordingly. I sat in on the analyses and asked multiple questions. Of course I had heard of limestone before, I had seen it at the coast. I asked the geologists why limestone would be underground, and why would it be in Nevada? After that day, I realized that mountains aren't just large amounts of dirt that have been there since the beginning of time. I wanted to know what type of rocks made up mountains, and what mechanism made the solid rock tall. I couldn't believe that I grew up looking at tall mountains every day, but not looking past the snow and trees on the surface.

I am currently a junior at Idaho State University studying geology. Studying geology has given me the tools to better understand my surroundings. I feel that this field will fill my ultimate goal of travel and exploration as I advance in my education. I am currently exploring a pluton north of Salmon, Idaho in order to create a senior thesis. I am also traveling to Veracruz, Mexico to do water chemistry analyses relative to land use and the surrounding geology. I am excited for my future in geology, and as I choose my discipline I will go on to further my studies and receive a Master's degree.

Justin Mauck, SA-4234

My path to geology has been a strange one. In the summer of 2010 I was spending the afternoon watching the World Cup of Soccer. The revenues had dried up in the marketing company I had started in 2005. I had the insane thought at age 30 that I wanted to play college soccer. Luckily Coastal Bend Community College was nearby and had a soccer program. A few weeks into the season, I realized soccer was only part of the trail, which ultimately would lead me to Geology.

I was taking business and marketing courses, and I began to understand that I needed to go to school for something other than what I was already versed in. The Eagle Ford Shale boom was getting into full swing. So I brainstormed on how I could capitalize on the economic explosion South Texas was seeing. I started looking for Geology or Petroleum Engineering programs. After emailing some of the schools in the immediate area, TAMUK's engineering department wrote me back saying they were initiating a Natural Gas Engineering program in fall of 2012. I applied to the program and got accepted; the first semester I was taking Chemistry, Calculus, Philosophy, and the all-important Physical Geology.

The Physical Geology course really spiked my interest. I enjoyed learning about the Earth and its processes more then any other subject matter that I had previously embarked upon. Shortly into the semester I spoke with my Physical Geology professor, Dr. McGehee, about a minor in geology and he was more then happy to explain what that would entail. Everyday I would sit in class and deep down in my core I kept wondering, should I change my major to Geology? After watching an episode of American Dad, and a particular scene where a geologist walks into the room, and one of the characters proclaimed "Anytime there is a geologist in the room, they are always the most interesting person in the room." My decision was a no-brainer. If I wanted to be the most interesting person in the room, I had to become a geologist.

Since I made my choice to pursue Geology, I could not be more elated. I am making it my mission to put in my 10,000 hours to become proficient in the subject. I spend mornings, afternoons, and evenings reading about Geology, whether it is textbooks or scientific journals. My favorite thing to do when I make it into Corpus Christi is go to Half-Priced Books to see who has sold back my new study material. Even though the section they have for Geology only consists of two isolated shelves, those two shelves have a world of information!

Jessica Eicher, SA-4104

My Inspiration to Become a Geologist

Ever since I was a little child I have been interested in geology. I realized I wanted to pursue a future in science when my parents took me placer gold mining and fossil hunting in the Talkeetna Mountains of Alaska. As a young child, I had no knowledge of rocks or how to actually find gold hidden within them. However, my parents spent many hours researching gold claims and areas that contain fossils then passed their knowledge on to me. On one particular excursion, there was a cliff that had been eroding, creating a huge talus pile at the bottom of the hill. My parents and I rummaged through the pile of rocks and found many fossils of marine organisms. Of course, as a young child, I wanted to take all of them back home. Unfortunately, my father informed me it was not possible for him to pack out that many fossils. This is when I realized that rocks hold an infinite amount of knowledge, surprise, and resources that I wanted to learn about and maybe even one day pack out on my own.

Alaska's economy is strongly dependent on resource extraction. Manufacturing and agriculture will never support the economy as they do elsewhere in the U.S. Consequently, there is tremendous pressure to develop mineral resources. Extracting resources safely and efficiently is essential in sustaining already existing natural resources and the beauty of Alaska. Given its immense size and poor road access, the surficial and subsurficial geology of Alaska is very poorly known relative to the rest of the U.S.

The Pebble Deposit, located in Southwest Alaska on state land designated for mineral exploration, is one of the largest known copper-gold-molybdenum deposits in the world. However, it is located at the headwaters of Bristol Bay, the largest commercial wild sockeye salmon fishery in the world. The Pebble Deposit presents a unique opportunity to help diversify the regional and state economy, but the fishery could be devastated if engineering and environmental plans are not followed. There is every reason to believe that advances in subsurface exploration and non-invasive technology could reveal many mineral deposits just as valuable as Pebble, but located in areas that could be mined without the risk of harming other sustainable resources. There must be hidden mineral resources under all those millions of acres of tundra—but how can they be found?

I would like to conduct research in subsurface exploration and use it to successfully locate mineral deposits in the least intrusive manner. By completing my Bachelor's Degree in Geology at the University of Alaska Fairbanks, I will gain knowledge focused around field mapping techniques that will give me insight into exploration and research opportunities. I am also completing a minor in Arctic skills. This minor will teach me the skills necessary to work in rural Alaska. I will continue on, completing a Master's Degree in Economic Geology that will provide me with the necessary information regarding geological exploration. Once my Masters is complete I am going to pursue a Ph.D. in Economic Geology. I want to use my geological knowledge and skills to present unique opportunities to mining companies, particularly in my home state of Alaska. Every year there are advancements in technology, I want to be able to assist exploration advancements. Once land is disturbed it can never be replaced to its original state. Being able to determine if there are resources beneath the surface before intrusive actions are taken is key to the

success and sustainability of Alaska's natural resources and beauty. I want to be a geologist so I can help maintain the beautiful geology of the earth that I fell in love with so long ago.

Kristopher Ashton, SA-4256

Science! I have always loved it. As a young child, I was intrigued by fire simply because I wanted to know how it worked. I would also take apart everything I could get my hands on, just to see how it all worked; then I would put everything back together, and to my parents' amazement, everything always worked. I would look at rocks under a basic magnifying glass (it was all I had) because I wanted to know why some were hard while I could crumble others in my hand. I wanted to know why they were different colors, and why rocks in a river were smooth and their colors showed better. I saved up my money from doing chores and when I was ten years old, bought a small rock tumbler. I could never get over the fact that it took a whole month for my rocks to be done. At that age, waiting a month was like waiting forever! While I waited that first month, I wrote a paper to my parents explaining how the different grit sizes would gradually grind away at the surface of the rocks until they were polished smooth with the finest grit. As a child, I only knew that I loved exploration and discovery as though they were a part of me to my core. Much later, I learned that my thought process type is called 'Logical Investigative', which simply means my mind is always studying everything and trying to figure out my surroundings through logic.

I earned my first degree in automotive systems technology with a 3.98 GPA, and I quickly realized that although I enjoy building machines as a hobby, I did not enjoy working on them as a career. The work did not challenge me mentally whatsoever. I came to the realization that I needed to work in a science field. That potential for discovery and invention was what my mind craved. I soon went back to school for pre-engineering while I continued to work full time. As I spoke to several engineers, I realized that although I love the work done in engineering, most of their time is spent working with computer models. My need to be active and outdoors had not entered my mind while deciding on a career. After realizing this, I began my search for a career that would be in science as well as allow me some freedom to be active and work outdoors. Geology stuck out in my mind as something I should look into, and as I read more about it and the wide variety of careers available in geology, it just seemed to fit what I want to do and who I am. Fall semester 2012 was my first semester as a geology major, and I am considered a junior because of the number of credits transferred from my previous efforts. The remaining semester of my junior and senior year will be filled with geology courses in order to graduate in spring 2014. I was enrolled in five classes this past fall (four of which were geology), earned a 4.0 GPA for my first semester, and I am dedicated to maintaining that level of work as I continue to finish this degree.

I plan to assist one of my professors beginning late summer 2013, with an ongoing effort to study Archean-Paleoproterozoic banded-iron formations (BIFs) which formed around the time of the great oxidation event. I will be investigating the redox state of the ocean -2.5 billion years ago (Ga) through the examination of rare earth element (Ce and Eu) anomalies within the rock. The scope of this study will include rock samples from a previously unstudied BIF in Uruguay, and I am eager to assist my professor in the initial study of these samples. This will include petrographic analysis of thin sections to determine the mineralogy of the rocks, qualitative estimate of the mineral compositions by scanning electron microscope, electron microprobe analysis to determine the major element chemical composition of the minerals present, and bulk-rock major and trace element chemical analysis. My involvement in this study has the potential to be expanded in the future to include Fe isotopic analysis. This will help determine the role and extent of involvement of Fe-metabolizing organisms in the formation of these Fe-rich precipitates, and the data collected could be used to help determine the presence of past Fe metabolizing life on mars, or other planetary or lunar bodies.

I have loved all my geology classes so far, and I fmd myself energized and excited about going to classes, such as the Environmental Forensics class I am taking this semester. I have become increasingly interested in how we interact with our environment and the affects we have on it. I will be writing my first undergraduate research proposal during my current semester, and look forward to working in my professor's lab to get hands-on experience. I have quickly come to realize how much I will enjoy working in this career. The level at which I enjoy every class I am taking, assures me that I am going into a career that is right for me. I eagerly look forward to progressing human understanding of our surroundings and our interaction therein.

Kase Knochenhauer, SA-3264

It was 109°F in the shade. As I walked into Kofi's home, my eyes came to rest on a sleeping infant with her back on the red dusty floor. The only light in the home cast an unnatural blue hue around the room, giving the infant an even more lifeless appearance. As Kofi proudly presented his home, I could not help but continue looking at the baby. Winneba, one of the villages I was working with, had only one water source used for bathing, drinking and waste disposal. Kofi was my neighbor and friend. He lived with his three brothers, their wives, and numerous children. He earned less than $1 per day and insisted on providing dinner. This is Kofi; a generous man with no clean water.

Last December, I traveled through Ghana, Namibia, and South Africa for five months. The experience totally changed my perception of the future and goals for my life. A year ago I wanted to study volcanism. Today, I am geologist who wants to make a positive impact on the people who need it the most. I returned from Africa in June with a passion for the developing world and promptly got involved with *Water for the World*.

After being asked to head up Water for the World, I decided that taking a year off from academics would be the most rewarding choice. We are currently developing a smart-phone

application to be released in Nicaragua this summer. The program will pair with NGOs, Universities, and Water Institutes already in place while offering virtual clean water education to areas that are difficult to reach in person. Through *Water for the World,* I found my calling.

My geology education began because it challenged my beliefs and way of life. Geology has, and always will, test my faith. But in the opposite way, my faith forces me to unpack a problem and look for geologic solutions from every conceivable angle. For this reason, geology research is thrilling.

Geologists get to answer really hard questions; sometimes seemingly impossible questions. These questions require a liberal education, team work, flexibility and patience. I am an individual who wants to see the entire picture and thrives working in a multi-disciplinary environment. My research in geology and innovation has connected me with unique professionals from various fields of botany, physics, engineering, economics, business, and marketing.

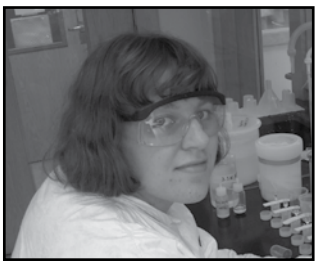
I will be a geologist for lots of reasons. My hiatus from academics has provided great insight to how a geologist can make a real impact. After completing my geology degree (April 2014), I hope to perform continue long-term research in Ghana that might help others like my friend Kofi.

Kofi's unnamed daughter died several days later. In Ghana, it is customary that newborns remain unnamed until the eighth day to minimize parental and community attachment. In 2011, 41 of 1000 infants die at birth because they lack of clean water and improved sanitation.

Geologists can help. AIPG could make a difference.

Lisa Whalen, SA-4275

A Steward of the Earth



I have been on a twenty plus year journey to become a geologist. What exactly do *I* mean by "geologist"? A geologist is many things: scholar, explorer, teacher; but all of these roles share a common impetus for me, which falls under the title of "steward."

From childhood on, nothing has inspired me more than the wonder of my planet. Walking along the shore of the Atlantic Ocean and musing over the intricate processes that formed the barrier island beneath my feet or yearning to find my own path over each and every mountain that I could see from my childhood home -- these are the feelings of a geologist.

To study the Earth is to study oneself and one's place in the universe. In the pursuit of Geology I have found a greater feeling of connectedness with all life and matter, more so than through any spiritual discipline. I don't need any doctrine or philosophy to tell me that everything is interconnected. To see that life and death are two sides of the same coin, I need only look to the rock cycle, where Earth's chemical components are never at rest, but constantly moving through different states. Similarly, the Earth's crust is born at mid-ocean ridges and then returns, through subduction, to be reincorporated into the mantle, and possibly into crust once more. Knowing that I come from the early mammals that thrived when the dinosaurs slowly receded into the fossil record almost allows me to feel all the way down to the Earth's revolving dynamo with each step I take. I belong to the Earth and it belongs to all of us.

As a geologist I want to seek out the delectable mysteries of this planet from the stained glass world of thin sections, to the tantalizing peaks and troughs of spider diagrams, and then back to the stunning vista of the Appalachian Mountains outside my window. But this is not where a geologist stops. This is the beginning. My excitement and enthusiasm is the vehicle for expanding my knowledge: it will take my future students (and perhaps the public) to all of the places I've been, both intellectual and actual, so that they will see what I have seen. And they will see how precious this planet is.

The earth is not something to take for granted - this planet may be one of many, but it is our planet. We are composed of its chemicals; we are fed by its flora and fauna; and we are warmed by its star. No matter what happens with our species in the future, if we venture out into the vast dark ocean of space and continue our pursuit of other foreign "shores," the Earth will always be where we came from. It will forever be "Home."

It will be my duty, as a geologist, not only to learn everything I can about this amazing place, but to communicate that awe to all of the people who call it home and hope that they will collectively decide to cherish it. Only through education and appreciation will our planet and its inhabitants continue their mutual relationship. As a geologist, and as a steward of the Earth, it is my aim to strengthen that bond.

Ali Sherman, SA-2038

Geologic Hazards and Education

Growing up in the mountains creates polar opinions about nature: you adore every rock, bird, and flower or you despise every mud puddle, bug, and weed. I fall under the first category. I began studying geology to learn everything there is to know about mountains, deserts, oceans, and everywhere in between. I remain in geology because I am increasingly more fascinated by just how much there is to learn. One of my goals is to help people around the world to prepare for and survive natural disasters. The two ways I plan to do so are by physically aiding impoverished, vulnerable locations before a disaster occurs and I would like to utilize my English degree to teach people about the earth through writing.

Geology envelops all sciences into one. Chemistry, physics, biology, math, meteorology, and astronomy are all encompassed by geology. The sciences work together in geology to help humans comprehend the planet; understanding the way Earth works is vital to the survival of mankind. The majority of people are disconnected from the planet; they do not know

the process gasoline undergoes to reach the pumps, the origin of the food they eat, or that their home is built on a major fault.

Despite having lived in Salt Lake City their whole lives, many residents do not understand the Wasatch fault. They do not know the magnitude of the earthquake whose rupture is overdue nor how much damage it will do to their lives. They have no emergency plans. Residents simply watch destruction reported on the news and think 'that will never happen here,' but they are severely mistaken. I want to write about extant geologic issues, such as the Wasatch fault, in a way that will effectively communicate the severity of the situation to the public.

Earthquakes, volcanoes, and tsunamis are prevalent issues almost everywhere in the world—even the Great Salt Lake has the potential to be swept up in a tsunami. Without a geologist's understanding of these hazards, they would be exponentially more dangerous to people. I want to study geologic hazards, develop ways for people to be prepared for them, and educate the public so a natural disaster will not have to mean the end of a home, career, or life.

Victor Perez, SA-4260

My fervor for geology began early on with a childhood rock, mineral, and fossil collection and was amplified by a subscription to *National Geographic*. When I was in elementary school, my family took a trip to the Franklin Mineral Museum and Quarry in New Jersey. I had recently discovered geodes in the local mall, so once we arrived at the quarry I began smashing every rock in sight with the anticipation of finding a sparkling array of crystals inside. Defeated, I went with my family to a designated lunch area, but as all hope was lost I found a pile of discarded purple crystalline treasure (amethyst) on the other side of a fence. This became the centerpiece of my collection. When I was in middle school my parents introduced me to the fossil-rich, Miocene age rocks of Calvert Cliffs, Maryland, and fossilized sharks teeth became my obsession. My original interests in geology stemmed from the thrill of discovery and the aesthetic appeal that the minerals and fossils provided me, and it was this fascination that left me dead-set on becoming a geologist. I accumulated a basic knowledge of geology from the general science courses I took prior to college, but primarily what I learned was motivated by an overwhelming curiosity about what surrounded me. While in high school, I volunteered for The Lost Towns Project, an archeology program that excavated colonial plantations, in which I developed an appreciation for fieldwork and collaboration. Once it came time to apply to college I decided to choose Earth Sciences as my major with the intention of doing research on alternative energy. This was a pragmatic career choice that would aid my fellow man, but with my recent discovery of biomimicry I have found a way to combine creativity with nature that has barely been explored. I hope by increasing awareness of this concept as a professor at a research university that I will be able to invoke passion for the potential applications of science.

Over the summer of 2012 I came across an article on biomimicry, which inspired me to look at the world with a new outlook in which nature motivates innovation. I read a book by Janine Benyus (1997) on the subject, but was disappointed when I read, "after 3.8 billion years of research and development, failures are fossils, and what surrounds us is the secret to survival." My background as a geologist would not permit me to accept fossils as failures knowing that serendipity plays a role in dictating which organisms will survive or perish, which creates a potential for advantageous adaptations to be lost due to an untimely extinction. My love for nature and paleontology has driven me to pursue a paleobiomimicry approach, in which the adaptive traits of extinct organisms are replicated to develop new innovations.

The desire to find replicable adaptive traits in the fossil record has motivated me to begin research in paleontology. I am currently working on a project looking at taxon-specific organic molecules in Mississippian crinoids under the advisement of paleontologist Dr. William Ausich and organic chemist Dr. Yu-Ping Chin. In exceptional fossil preservation distinctive colors may represent specific organic molecules preserved within the minerals. Discovery of more organic molecules preserved in the fossil record may alter our perception of phylogeny, while shedding light on the course of life through Earth history.

Geology has already shaped my past and continues to influence me on a day to day basis. Now, as I develop as a geologist, I want to perpetuate an appreciation of geology and nature. My long-term aspiration is to become a professor at a research university, so that I can continue to unravel the mysteries of the Earth while igniting this curiosity in others. These past experiences have molded my affiliation with Earth Sciences and motivate me to continue research in order to expand scientific knowledge, while making an effort to aid people from the scale of individuals to the entire globe.

Reference

Benyus, J.M. 1997. Biomimicry: *Innovation Inspired by Nature*. HaperCollins Publishers Inc., 320 pp.

Karl Campbell, SA-4288

Ever since I was a child I have been fascinated by the outdoors. I grew up in a small town in eastern Michigan with a very small yard. Because of this small yard I would always find myself roaming into the state forest near our house. Whenever I was in the seclusion of the pines in this forest I felt at home. I remember when my dad would bring me to the river by our house to go swimming I would spend countless hours sifting through the river banks to find the most interesting rocks.

It wasn't until high school until I took my first earth science class. After taking this class I decided to get ahold of my uncle, a geophysicist, and ask him about jobs in the geological field. I became interested in geology and decided to put my

time and effort into taking classes that would benefit my geological studies.

During my senior year I took an anatomy class, and was influenced by my teacher that the health career was in high demand. So I enrolled to Grand Valley State University as a pre-med major. After taking one semester I realized that I did not want to go into a field because I thought there was going to be work, but because I wanted to enjoy going into work every day. I then decided that geology was the field for me.

Ever since switching to geology I found myself wanting to learn more about every topic we talked about. I have thought about the different fields of geology that I can pursue a career in and realized there are many that are not only interesting to me, but could benefit our country and perhaps the world as a whole.

My current career interest lies in the petroleum industry. I have come to realize that the United States is heavily dependent on petroleum and many of its by-products. After this realization I began to wonder what could happen if our world runs in short supply of petroleum. This potential shortage has influenced me to pursue a career with petroleum exploration.

Another goal I have set for my future is to aid in the study of petroleum substitutes. I would like to work with engineers to create an alternate source of energy so our country will not rely on the aid of many foreign oil producing companies. I believe that the study of an alternate energy source will allow our nation and even the world to become less dependent on fossil fuels and will hopefully use this money for furthering scientific research to better the world we live in today.

Cover Photos Needed for *TPG*

We are looking for high resolution photos to place on the cover of future *TPG* publications.

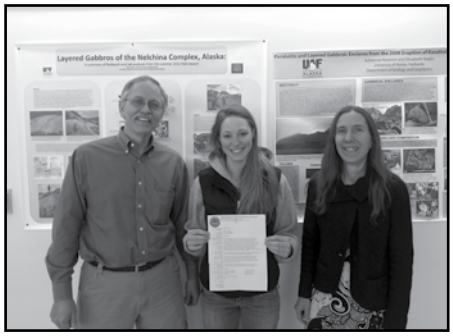
The photo must be of high resolution and geology related.

Please email your photo, with caption to *aipg@aipg.org* for consideration. You will be notified, if your photo is selected.

Scholarship Winners Receive Checks

Mike Lawless, AIPG Virginia Section President, presents Lisa Whalen with her scholarship letter and check.

John Barkach, AIPG Michigan Section President, presents Karl Campbell with his scholarship letter and check.



President Ron Wallace, on left, presented an AIPG National scholarship check to Jessica Eicher. Dr. Sarah Fowell, on right, chair of the Department of Geology and Geophysics at the University of Alaska Fairbanks wrote a letter of recommendation for Jessica.

Robert Traylor, AIPG Texas Section member, presents Joseph Cleveland with his scholarship letter and check.

Victor Perez (left) receiving AIPG scholarship award from AIPG Ohio Section President Tom Jenkins.

Undergraduate and graduate students are invited to participate in the

2013 Wisconsin Earth and Water Student Conference

Friday-Saturday, September 20-21, 2013 at University of Wisconsin Whitewater campus

- *Present your research orally or as a poster*
- *Compete for best presentation awards*
- *Participate in field trips*
- *Network with professionals*

For more information, please visit *http://blogs.uww.edu/bhattacj/*

Sponsored by AIPG Wisconsin Section, University of Wisconson-Whitewater and WGWA.

AIPG Student Chapter of the Year Award

The purpose of the AIPG Student Chapter of the Year Award is to recognize the most outstanding student chapter for their participation in, and contribution to, the American Institute of Professional Geologists. The award will consist of a plaque to be presented to the student chapter, a certificate to each of the officers of the chapter at the time of their submittal, a $500.00 award for the chapter, and a trip for one member of the winning student chapter to the annual AIPG conference and executive committee meetings. The student that attends the annual meeting will observe the organization and functions of AIPG and participate in the executive board meeting.

All AIPG student chapters are eligible to apply for the award. There is no limit on the number of times a student chapter may win the award. Only one chapter will receive the award per year.

The Student Chapter of the Year Award is administered by the Executive Committee of AIPG. The selection of the winning chapter will be decided by the AIPG Education Committee. The deadline for submittal of application materials for the Student Chapter of the Year Award, to AIPG National Headquarters, is June 30 of each year. The application should be submitted in a pdf or similar format. The winning chapter will be announced at the beginning of the Fall Semester. The certificates will be presented to the students at one of their chapter meetings. The award and plaque will be presented to the chapter delegate at the banquet of the annual meeting of AIPG.

The submittal for Student Chapter of the Year Award will consist of a written report. Photos documenting chapter activities are strongly encouraged. The submittal should cover the period from the beginning of the Fall Semester to the end of the Spring Semester and include the following as a minimum:

1) Name of the student chapter;
2) Names of student chapter officers;
3) Number of AIPG student members in the chapter;
4) Number of chapter meetings per year;
5) Programs to recruit new members;
6) Activities within the department (seminars, guest speakers, field trips, career day, mentoring, etc.);
7) Fundraisers;
8) Activities within the university (geology awareness, recycling, sustainability awareness, Earth Day, etc.);
9) Activities within the community;
10) Interactions with professional geologists and the local AIPG Section; and
11) Other significant activities that the chapter considers important to the mission of AIPG.

This award will start in the fall of 2013. Submittals are due June 2014 and awarded in the fall of 2014. Your submittals may be emailed to *aipg@aipg.org*.

Dennis Pennington at the Diggin ' the Dinosaurs Exhibit. (2003 ExCom meeting in Tennessee.)

Thomas Glenn Fails, Jr. CPG-03174, died on 14 April 2013 at the age of 85 after a long illness.

Tom, as he preferred to be called, was born 28 February 1928 to Mary C. (Adams) Fails and Thomas Glenn Fails, Sr. in Unity Township, Columbiana County, Ohio, but was raised primarily in Springfield, Ohio, where he became an Eagle Scout. After high school, Tom enlisted in the United States Marine Corps and served from 1946-48 and from 1950-51.

After his discharge from the Marines Tom enrolled under the GI Bill at The Ohio State University in Columbus, Ohio but then transferred to the Colorado School of Mines in Golden, Colorado where he earned the Geological Engineer degree in 1954. This was followed by graduate work at Columbia University in New York where he was awarded the Master of Arts degree in geology in 1955.

Following his graduation from Columbia, Tom went to work with the Shell Oil Co. – Marine Exploration Division, New Orleans, Louisiana where he became Senior Geologist before his resignation in 1966. During his time in New Orleans he met and married Mary Ivy Schmid on 1 March 1959.

The couple had two children, Glenn Michael Fails and Nora Anne Fails, both of whom survive him.

After leaving Shell, Tom joined Trend Exploration Ltd., New Orleans as District Geologist, 1967-1969 and then moved to London, England from 1970-1975. As Vice President, Exploration for Trend, he had responsibility for operations in the United Kingdom as well as exploration in Europe, Africa, and the Middle East.

In 1975, Tom returned to the United States and settled in Denver as an Independent Petroleum Geologist engaged in Rocky Mountain projects. In 1978 Tom resumed his international activities with projects at different times in Australia, Canada, Denmark, Germany, Great Britain and Romania. In 1984, Tom founded his own company, Raven Exploration Corporation, to develop oil & gas interests in south Louisiana. Tom served as a Director of Galaxy Energy Corporation from 2000-2004 and as President of Pannonian International, Ltd. from 2000 until ill-health led to his retirement in 2010.

Tom was a member of several professional organizations, including the American Association of Petroleum Geologists (AAPG), American Institute of Professional Geologists (AIPG), New Orleans Geological Society, Rocky Mountain Association of Geologists (RMAG), Petroleum Exploration Society of Great Britain (Ex-Director) and was a Fellow of the Geological Society of London. With AIPG, Tom served as Vice President in 1995, President-Elect in 1998 and President in 1999. Additionally, he served on the Colorado Geological Survey Advisory Committee, 1991-1994.

Among his many awards, Tom received from AIPG the Van Couvering Memorial Award in 2001 and the Ben Parker Medal in 2004. From RMAG he received the Distinguished Public Service to Earth Science Award in 1993.

Tom authored eleven published peer-reviewed geologic articles and was the lead author on a book about salt-dome (diapiric) structures in the United States Gulf Coast region.

Tom was a generous contributor to scholarship funds connected with the Colorado School of Mines and Columbia University as well as professional organizations such as AIPG and AAPG. In addition, he was a long-time supporter of various charitable organizations, such as Special Olympics, Boy Scouts of America (Denver Council), American Red Cross and many others.

Tom was preceded in death by his wife Ivy, who passed away on 25 March 2013. A memorial service for both Tom and Ivy was held at 10:00 am, on Saturday, 11 May 2013 at Augustana Lutheran Church, 5000 East Alameda Avenue in Denver, Colorado.

IN MEMORY

Thomas G. Fails
CPG-03174
Member Since 1976
April 14, 2013
Denver, Colorado

Richard H. Ragle
CPG-06022
Member Since 1982
May 13, 2013
Peacham, Vermont

Should I Become a CPG?

Have a you been thinking about upgrading your membership to CPG? If the answer is yes, What are your waiting for? To find out if you have the qualifications go to Article 2.3.1 of the AIPG Bylaws. The AIPG Bylaws can be found on the AIPG website or the directory.

The CPG application can be found on the website under 'Membership'. Just follow the instructions. The basic paperwork includes the application, application fee, transcripts, geological experience verification and sponsors.

If you have any questions, you may contact Vickie Hill, Manager of Membership Services at aipg@aipg.org or call headquarters at 303-412-6205.

www.aipg.org

If A State Doesn't License Geologists, Can A Geologist Be Not Licensed to Practice In That State?

Robert A. Stewart, CPG-08332

The inspiration for this column came to me while reading ***The Good Rat***, Jimmy Breslin's account of mobster Burt Kaplan, who turned into "…the Mafia witness of the ages." The Mafia culture focused on the code of omertà (silence), particularly if a member was arrested. With omertà, and the all-too-common lack of witnesses to a particular crime, jail sentences were short – often five years or less in federal courts. "Most tough guys could do that standing on one hand. And they did. That's why there were no rats back then. You kept your mouth shut, did your time, and came home a hero." This was before the federal law known as RICO – the Racketeer Influenced and Corrupt Organizations. After RICO became a law in 1970, sentencing for federal crimes began to parallel Soviet justice under Stalin. Sentences ran to decades, and in many respects RICO began the demise of the Mafia. Looking at 50-year sentences under RICO, omertà collapsed, as Breslin so deftly recounts.

Breslin freely admits that the protagonists of his narrative often tell the story better than even Breslin himself. Before RICO, omertà and the thin jail sentences bred an arrogance and sense of impunity in the accused during trials, which gave rise to this exchange between a prosecutor and a mobster:

Q: Do you know Al Capone?

A: No.

Q: You don't?

A: No.

Q: I show you this picture. Who is in the picture?

A: Me and Al Capone.

Q: You just said you didn't know him.

A: I met him. That don't mean I know him.

Q: What does Mr. Capone do for a living?

A: He told me he sold ties.

OK, so what does this have to do with the licensing of geologists? I'll set the stage – my story goes back about 10 years. I had a retired lawyer as a client (I'll call him lawyer #1), and he bought a chalet on a mosquito-infested lake in Massachusetts with the concept of running it as a bed-and-breakfast. The chalet had a septic system that immediately failed. My client hired his own lawyer (lawyer #2, to avoid confusion), and sued the lawyer representing the seller (let's call him lawyer #3) for failing to disclose the terminally constipated septic system. Because lawyer #1 was suing lawyer #3 for malpractice, lawyer #3's insurer hired its own lawyer (lawyer #4) to defend lawyer #3. Lawyers #1 and #3 couldn't settle out of court, and the case went to trial in front of a six-person jury.

Various documents were disclosed during discovery, and lawyers 1 and 2 hired their experts, including me, as well as a civil engineer of considerable experience who could design domestic septic systems in his sleep. My role was to offer expert testimony about the surficial geology of the site, specifically about the suitability of the native soil for an effluent absorption system. The site was a loser for any option other than a tight tank with no absorption field – dense glacial till, steep slope and shallow bedrock. Before I could comment about any of this, lawyer #2 qualified me as an expert by going through my education and experience, and turned me over to lawyer #4 for cross-examination. This back-and-forth is part of the Daubert Test used to assess the credibility of expert testimony by scientists. Lawyer #4 began his questioning of me:

Q: Are you licensed to practice geology in Massachusetts?

A: Massachusetts doesn't license the practice of geology.

Q: So it's fair to say you're not licensed to practice geology in Massachusetts.

A: No. There is no regulatory program governing the practice of geology in the Commonwealth. If I answered "yes" to your question, I'd be implying that there is a license to be obtained as a geologist, which isn't the case.

Q: Nonetheless, you admit to having no license to practice geology in Massachusetts…

A: I believe I've explained this point…

I wasn't trying to be flippant, but I wasn't prepared to say I was unlicensed in the absence of a licensure program. Lawyer #2 wanted to object, but he was having a hard time controlling his client (lawyer #1), who couldn't lose his legal urges even in retirement, and kept rising from his seat to object as well.

Lawyer #4 was very theatrical in his courtroom demeanor. This brief exchange was accompanied by much finger pointing (at me), and sweeping gestures at the jury. It backfired. Several jurors were smirking at lawyer #4, and the judge told lawyer #4 that I'd answered the question…move along. Lawyer #4 continued in this vein trying to impeach my credentials. Going through my résumé, lawyer #4 attacked my out-of-state experience as irrelevant to Massachusetts. This exasperated the judge: "Nonsense. If anything, all this out-of-state experience supports Dr. Stewart's expertise. This witness is qualified." Next up was the civil engineer, who breezed through the questioning.

I gave my testimony, stayed until the break, and was excused by the client. I was not called back, and didn't hear the outcome of the trial. I suspect it was positive, because my client paid his bill. Massachusetts licenses just about every professional practice except geology, probably because of the Licensed Site Professional (LSP) program, which includes geologists in the broader context of waste site cleanup professionals.

I numbered the lawyers because I don't remember all the names. This was also a problem for the court in ***The Good Rat***. Part of the trial involved two jewelers – jeweler #1 ("an honest thief") and jeweler #2 ("a not-so-honest thief"), in addition to many other characters.

Answers on Page 24

Robert G. Font, CPG-03953

1. This type of "pluton" is both tabular and concordant:

   a) Dike
   b) Sill
   c) Batholith

2. We are searching for a reasonably-priced, green-colored gemstone, at least as hard as glass, as a gift for a loved one. Which of the following should best fit the profile?

   a) $Na(Al, Fe^{3+})Si_2O_6$
   b) $Mg_3Al_2(SiO_4)_3$
   c) $CaSO_4.2H_2O$

3. We encounter a stratigraphic section with a rock unit containing bone fragments of "***Angistorhinopsis***" overlying another bed with specimens of "***Dactylioceras***". What geologic structure would we suspect that we may have found in this area?

   a) A gravity or normal fault separating Paleozoic marine strata indicative of transgression
   b) A reverse or thrust fault separating an older deep marine (abyssal) section from younger fluvio-lacustrine environment.
   c) A reverse or thrust fault separating an older section indicative of a possible fluvio-lacustrine environment from younger marine strata

4. Think of the seismic reflection method of subsurface exploration. Say that the distance between a single source and receiver is 25 kilometers. Layer 1 extends from the surface to a depth of 650 meters with an average velocity of 3.25 kilometers per second. Layer 2 underlies it with a velocity of 6.73 kilometers per second. Both layers are horizontal and horizontally stacked. Consider the seismic ray which travels from source to receiver, reflecting from the midpoint between them. Compute its travel time ($T_{reflected}$) in seconds:.

   a) $T_{reflected}$ = = 6.705 seconds
   b) $T_{reflected}$ = = 7.703 seconds
   c) $T_{reflected}$ = = 8.905 seconds
   d) Help!

Summer Activities

Ronald J. Wallace, CPG-08153
ronald.wallace@dnr.state.ga.us

Our National Parks are celebrating the 150th anniversary of many of our Civil War battles. The turning point of the Civil War was at Gettysburg in July 1863, and surprisingly, the geology and geomorphology had an impact on the ultimate outcome of this important battle. As geologists, we need to take the initiative to educate the public on the significance of their local geology. As we approach 2014, we will commemorate Sherman's "March to the Sea." Practically in my own back yard Sherman's advance was partially controlled by the rugged geology of north Georgia and his flanking maneuvers were influenced by the topography of the Valley and Ridge province. This is just one interesting example how we can educate the public on the importance of local geology on the historical development of their cities and communities.

For our members not interested in the Civil War or are simply too far from a battlefield, this is a great time of year to spend time with the family. As geologists, I hope you visit some of our great geological landmarks around the country. This is also a time when many of our sections plan local field trips and maybe you will get the opportunity to explore areas you have never seen. I encourage students to also attend these field trips as they are good opportunities to meet professionals that may one day be an employer. This is the time of year in which section officers should start planning for fall activities. Contact potential speakers and field trip leaders and do not forget to plan activities for our student members. My section is already planning to visit two remediation sites for students at the University of Georgia. We also plan to do a number of direct push and hollow stem auger drilling demonstrations for a few of our student chapters. Students really want to see what professionals do and AIPG can provide wonderful opportunities.

We recently held our Executive Committee meeting, and I am happy to announce that we are going to have a student chapter of the year award. Details will be in this issue of *TPG*. It starts this fall and I plan to contact each of our sections with a student chapter and encourage them to get them involved. We currently have 16 student chapters and most of them are very active, and while some are dormant, my hope is that this will motivate both the section and the chapter to come together and prosper. As we have been pointing out for the last number of years, our student members are the future of AIPG and we need to be out there talking to the students and helping them in any way that we can. Students want to know what to expect when then get their first job and how they can better prepare for their careers. The economy is improving, but unfortunately, many recent graduates in the last few years have struggled to find jobs. So if you are contacted by a graduate, please help in any way and continue to give them encouragement.

AIPG National recently announced eleven undergraduate students that each won a $1,000.00 scholarship. Many of our sections were able to deliver the checks directly to the students. I was lucky enough to present one of the checks to a student, and she was quite surprised. I hope you read their stories about why they want to be geologists. They are quite inspiring, and I am sure you will agree with me that the future of this profession will be in good hands.

As we approach our 50th Annual Conference in Broomfield, Colorado, I encourage each of you to come to celebrate the Institute, meet new people, visit with friends, attend technical talks, and go on field trips. Between now and our celebration, I plan to visit a few sections throughout the summer to meet with section officers and members, to promote our conference, and to give them some ideas that may improve their section. If you would like me to come to your section, do not hesitate to contact me. We can all learn from each other, and I will be the first to admit that if I hear of a good idea that will improve my section, I will definitely use it. ***AIPG WILL*** be stronger if we all work together for common goals. Friends and colleagues, I hope you have a great and memorable summer.

AIPG eNews and Website Advertising

Some AIPG members have been contacted by a company called MultiView. This is a legitimate corporation doing legitimate work for AIPG in an attempt to develop revenue sources which will lessen the Institute's dependence upon dues. MultiView has been retained by AIPG to solicit legitimate electronic advertising for a weekly AIPG eNews and for the AIPG website. The approach taken by MultiView is rather direct, but your forbearance is sought in order to advance AIPG's position in the geosciences community through increased visibility and advertising of vendors and suppliers to the geosciences.

Answers:

1. The answer is choice "b" or "sill". "Dikes" are tabular, discordant "plutons", whereas "batholiths" are discordant and massive.

2. Choice "a" is our best bet, as it describes "jadeite" or $Na(Al, Fe^{3+})Si_2O_6$. "Jadeite" is a typically greenish-colored gemstone and a monoclinic pyroxene with a hardness of 6.5 to 7.0 and specific gravity of about 3.4

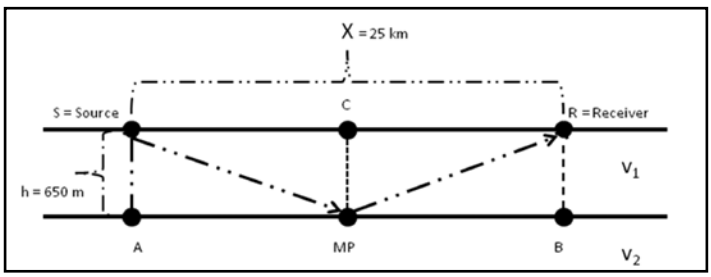
   Choice "b" indicates "pyrope" or $Mg_3Al_2(SiO_4)_3$, a member of the garnet group which is generally reddish in color or near black or purple. "Pyrope" belongs to the cubic system, has a hardness of about 7.0 to 7.5, a specific gravity of approximately 3.8 and exhibits conchoidal fracture and no cleavage.

   Choice "c" or "$CaSO_4.2H_2O$" defines gypsum, with a hardness of about 2.0.

3. The best answer is choice "c" or "A reverse or thrust fault separating an older section indicative of a possible fluvio-lacustrine environment section from younger marine strata".

   "***Angistorhinopsis***" is a crocodile-like "phytosaur" and an example of a large, semi-aquatic, Late Triassic carnivore that lived in rivers or lakes. In contrast, "***Dactylioceras***" is an ammonite and an index fossil for the marine Jurassic. Since we find Late Triassic overlying Jurassic, we have an apparently inverted section which could be the result of a reverse or thrust fault. The change from fluvio-lacustrine conditions in Late Triassic to a marine condition in the Jurassic may be indicative of rising sea levels and marine transgression over land.

4. The answer is choice "b" or $T_{reflected}$ = = 7.703 seconds. The proof follows:
   Consider the figure below:



   The direct wave travels along the surface from source to receiver. Then,
   Velocity = distance over time or v = s/t (eq. 1)
   t = s/v (eq. 2)
   For the direct wave:
   T_{direct} = X/v = 25 kilometers/3.25 kilometers per second
   T_{direct} = 7.692 seconds (eq. 3)

   To compute the travel time for the reflected wave, we must determine the distance traveled from source to midpoint and from midpoint to receiver. From our figure:
   Distance from source to midpoint = SMP
   $SMP^2 = h^2 + (X/2)^2$ (eq. 4)
   Distance from midpoint to receiver = MPR
   $MPR^2 = h^2 + (X/2)^2$ (eq. 5)
   Thus:
   $SMP = [h^2 + (X/2)^2]^{1/2}$ (eq. 6)
   $MPR = [h^2 + (X/2)^2]^{1/2}$ (eq. 7)

   The total distance travelled by the seismic ray is SMP + MPR = St and:
   $S_t = 2[h^2 + (X/2)^2]^{1/2}$ (eq. 8)
   The travel time for the reflected wave is:
   $T_{reflected} = S_t/V_1 = (2/v_1)\ [h^2 + (X/2)^2]^{1/2}$ (eq. 9)
   $T_{reflected}$ = (2/3.25 km per sec) $[(0.650\ km)^2 + (25\ km/2)^2]^{1/2}$
   $T_{reflected}$ = 7.703 seconds (eq. 10)

Announcement
AIPG
Executive Director Search

The **American Institute of Professional Geologists** has initiated a search for an Executive Director to succeed the current Director who will retire in 2014. AIPG is a professional geoscience society with a membership of nearly 7000 and a dedicated staff of seven at its headquarters in Thornton, Colorado.

AIPG is a 501(c) 6 professional organization dedicated to advocacy, education and competence within the profession. AIPG is a prominent organization within the geosciences community and marketplace and as such is poised for growth and an increasingly influential role. AIPG actively promotes the crucial role of the geosciences in the service of public health, welfare, and economy.

The staff under the leadership of the Executive Director has been a key element in strengthening AIPG's services to its membership and the profession of geology as a whole during its 50 year history. The Executive Director is responsible for headquarters operations, which include publication of *The Professional Geologist,* oversight of membership services, and management of event development. The Executive Director is also responsible for maintaining excellent relationships with appropriate professional and technical societies, especially sister geoscience societies such as the **American Geosciences Institute.**

The successful candidate will:

- Hold an advanced degree (MS or PhD) in the geosciences. An additional degree in marketing or business is considered a plus.
- Hold the AIPG certification credential, Certified Professional Geologist, by the date on which employment begins.
- Have a minimum of 15 years of technical and management experience at increasing levels of responsibility.
- Have a demonstrated record of increasingly challenging and successful leadership and management experiences.
- Have a background in fiscal management tied to annual profitability, growth, and program (services to members) expansion.
- Be a team-oriented leader with strong communication and interpersonal skills.
- Demonstrate an appreciation of policy issues affecting geoscientists and the geosciences, especially at federal and state levels.
- Demonstrate an obvious enthusiasm for service as a professional representative of the geosciences.
- Be willing to travel as needed. The responsibilities of this position often require weekend meetings and lengthy workweeks.
- Be committed to relocate to the Denver area within 6 months of accepting the position.

In addition to the specific qualifications, the AIPG Executive Committee expects the successor Executive Director to help propel AIPG to a higher level of involvement in the geosciences community and in increasing its services to members. The Executive Director must be entrepreneurial, dynamic, and able to commit to an aggressive campaign to increase membership and develop additional sources of non-dues revenue. The Executive Director is also expected to seek additional alliances and collaborative arrangements with other professional societies which will serve to benefit AIPG both professionally and financially.

The Executive Director is responsible to lead the implementation of the AIPG Strategic Plan and ensure that both AIPG leadership and AIPG membership are engaged in its implementation.

The future of all professional societies is dependent upon the younger members of the profession becoming actively involved in the governance of the societies. The successor Executive Director must vigorously engage younger members and students and encourage AIPG sections to increase section level efforts to bring young professionals into the organization.

The Executive Director will serve as *ex officio* board member of the Foundation of AIPG.

Salary is competitive with not-for-profit organizations of AIPG's budget and size. The start date is February 10, 2014. Applicants are required to send 1) a complete, detailed resume, 2) the names and addresses of at least four professional references, 3) and a concise two page essay outlining the applicant's interest and the applicant's concepts for expanding AIPG service to members, visibility, influence, and financial strength. Applications are due by October 1, 2013. It is anticipated that interviews will be held during the AIPG Annual Convention.

Mailing address:

AIPG Executive Director Search Committee
c/o American Institute of Professional Geologists
12000 North Washington Street, Suite 285.
Thornton, Colorado 80241

Teachers

William J. Siok, CPG-04773

It's probably an exercise each of us has practiced from time to time. Creating a list of our most memorable and influential teachers. I've done this many times over the years, and those who appear on my list are always the same, although perhaps the list expands slightly as a consequence of my attending a seminar or short course and meeting an extraordinary mentor for the first time.

Sally Joyner was a teacher I remember well from elementary (we called it grammar) school. She was a fine New England schoolmarm, who I thought was stiff and too strict, but who made a lasting impression upon a six year old rambunctious boy by making him stay 'after-school' for misbehaving and then as punishment asking him to help an immigrant child improve her English diction and grammar. This image has remained with me because this woman was, simply, thoughtful and encouraging to a young boy who had limited amounts of self-confidence.

In high school it was FXO, Francis Xavier Orlik. He was a consummate teacher of the English language. His mantra was "write, write, write." His primary approach to instruction was to assign us to compose a text (story, event, experiment, etc.) for the first part of class, then a critical review of that which had been written by students selected at random. My fundamental recollection of Father Orlik's class was the reams of paper I consumed writing in longhand. Any ability I might have for constructing meaningful sentences and texts I owe to this man.

At the university, there was the chemistry professor who continually reminded us of his availability (weekends included) to tutor us individually if we had trouble grasping the material. This was no small offer considering that the freshman class numbered about 600.

When I finally arrived at the geology department I met Robert G. LaFleur, a hydrogeologist. His perspective on the science of geology was one of an applied approach. The theoretical was important, but Bob instilled in his students the necessity of transitioning from theory to making common sense of the complex geology in order to solve problems and benefit the common welfare. He also promoted membership in professional organizations as a means of building one's credentials and networking. I can remember each of my professors and their respective areas of expertise, but Bob LaFleur made the lasting impact upon my approach to the profession.

In graduate school, the appeal of applied geology became clearer and more pronounced. My mentors (although they may not have realized it) were John P. Gries and Perry H. Rahn (yet very active in the professional community). Both focused on and emphasized a practical approach to solving geologic problems. Applied geology in bold letters best described their respective philosophies and as manifested in their down-to-earth (pun intended) relationship with students. I came away from my apprenticeship prepared to *solve* practical problems.

It's a relatively short list, and of course there are many others who influenced and help shape my professional persona, but these had a most lasting impact. Perhaps you wonder what my teachers, or anyone's teachers, have to do with AIPG. I suppose one could say "nothing" and "everything."

AIPG History

First Honorary Member Award

1978 President Grover E. Murray was the first member to receive this award. Grover was presented this award at the 1984 annual meeting held at Walt Disney World Village, Florida.

AIPG History

In 1985 the Institute had 4,565 members, most of which were distributed in ten states:

- Texas 1,091
- Colorado 586
- Oklahoma 309
- California 300
- Nebraska 231
- Pennsylvania 197
- Louisiana 154
- Ohio 147
- Florida 132
- Illinois-Indiana 121

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Topical Index-Table of Contents to the Professional Ethics and Practices Columns

A topically based Index-Table of Contents, "pe&p index.xls" covering columns, articles, and letters to the editor that have been referred to in the PE&P columns in Excel format is on the AIPG web site in the Ethics section. This Index-Table of Contents is updated as each issue of the TPG is published. You can use it to find those items addressing a particular area of concern. Suggestions for improvements should be sent to David Abbott, dmageol@msn.com

Moving from School to Professional Life

I've been made aware that many students facing the move from school to the professional world have little idea of the changes they'll be facing in terms of what sort of job they want, what they are going to be expected to do, what area of the industry they want to work in, what type of employment a new graduate should seek to start a successful career, what approaches they should be taking to specific jobs, etc. The awareness that the professional world is different from the academic world may only be general but it certainly can produce anxiety. This article is an attempt to answer some of these questions.

I don't have all the answers on careers. I hope that many of you will contribute your thoughts on this subject to be included in future PE&P columns. This will be an important mentoring service for our younger colleagues.

What will I be doing? The academic world is focused on learning new things and conducting research into new areas. Papers/projects/theses begin with extensive literature searches and move forward in carefully laid out steps. What you do in your professional life will be different from what you did in school. You'll be learning a lot of new skills, only some of which are "academic" in the strict sense, but are part of the working world. The working world is focused on solving specific problems and questions. The extensive literature research may or may not be needed. Here's a project, here's what we know, here's what we need to know more about, so what sort of sampling, drilling, testing, etc. is needed to answer the unknown questions to the degree required in order for the project to go forward. The questions are more likely to be answered by new data acquisition rather than in digging information out of the library.

When I started work as a field tech, my first introduction to mining exploration, I had no idea about how to stake mining claims, how to draft maps (this was done by hand with India ink then), how to collect geochemical samples, how to run electromagnetic and magnetometer geophysical surveys, basic vehicle repair in the field with duct tape and bailing wire, the real business of pace and compass traversing, and a host of other things. I just knew I'd be working outside most of the time, summer and winter. I had a lot of fun, learned a lot, much of which is not taught in school, including the fact that a job heavy on field work means that you're not home most of the time. Other jobs are different.

Dawn Garcia, CPG-08313 and hydrogeologist, wrote describing the types of work new graduates hired by her firm, SRK Consulting, do. "A junior geologist is expected to be eager and willing—that means that they should be ready to put extra time into the workday and to head out into the field without presenting a long list of personal conflicts and social engagements that need to be worked around. We're asking our juniors to do as much field work as possible, plus to be able to coordinate with laboratories, review and compile data, and to prepare technical reports that summarize their field work and the data results. Understanding and applying the USCS soil classification system is important, plus the ability to understand chemical testing. Since much of SRK's work is international, an open mind about different cultures and travel is paramount. Our newbies won't be sent out alone the first time, but they are expected to quickly learn how to coordinate their travel and navigate their way through the challenges of international travel. Language and technical skills are part of the toolbox. Some recent hires have expected their work clothes to be furnished, but that is not typical in consulting. We are asking our new hires to show up with appropriate field clothing. I've been surprised by new hires who have no long-sleeve shirts for outdoor work in the sun."

Regulatory issues are more important in the professional world. Regulations must be complied with and learning what regulations are involved and how compliance with them is achieved will occupy much of the new professional's learning time. Expect to spend time in training courses on job safety and learning regulatory compliance before you can really get to work on projects.

Time sheets, budgets, etc.: the professional world is a business whether you're working for a for-profit firm or a government agency. You will be expected to account for your time, mileage, travel expenses, etc. and to do so within various limits. At times, this tracking seems annoying, but it is vital that it be done properly and on time in order for the organization to function financially and for you to be paid and reimbursed for your expenses. You'll also want to track at least some of this information for your personal income taxes.

Mike Redman's article, "A New Career—Geology and Directional Well Installation," in the May/June 2013 *TPG* provides an excellent description of the first job held by a freshly graduated geologist. Those of you seeking your first job should read it.

What part of the geoscience business do I want to be in? The answer to this question has been broadly answered by the areas in which one concentrated in school. A mining exploration track versus an oil and gas track versus environmental, engineering, or hydrologic tracks is determined by personal preferences, the emphases at the school(s) attended, thesis topic, summer jobs, internships, etc. Some may find that the jobs available in a particular geographic area or chosen geoscience specialty are limited, forcing a change in direction. One friend of mine wanted to get into the mining business but found that the only jobs available were in oil and gas and therefore has pursued an oil and gas career. A solid geoscience foundation allows for flexibility in job selection as you move through your career. As many of us have learned over the course of our careers, we've moved from one specialty area to another due to job opportunities (or lack thereof in a preferred area).

What type of employment (employer) should I seek? One of the things I realized early in my career is that there are two kinds of people in the geoscience business, those who like working on different projects and those who really like digging into a particular project over an extended period of time. The latter are the real research types, the ones who don't get bored working on aspects of the same thing over long stretches of time. I'm the type that likes variety and have been lucky to have jobs that provide a lot of variety.

Larger organizations are likely to have programs specifically designed to train those new to the profession and perhaps a wider range of job experiences. But this is not a hard and fast rule. Working with a firm that offers a wider variety of projects provides the young professional with a wider range of project experiences. If you spend too much time, say more than two or three years, in a particular niche of the industry, you may become regarded as expert in that niche only. If it's a niche you really like and are good at, fine, but it can limit future job flexibility. Look for a job with field experience time, drilling, collecting samples, logging core, etc. Knowing how data are actually collected and analyzed represents basic knowledge and skills in professional practice that will be important for the rest of your career.

Larger organizations will have what can be perceived as more bureaucracy to keep track of time and expenses. But any size organization should be rigorous in keeping track of such things.

The only way you are going to find out what's right for you is to try a job and find out what you like and what you don't. If a job isn't right, move to something else. Regardless of what jobs you have, you'll learn important things on each job and project that will prove useful later on. Think about what you like and dislike about what you are doing and let those reflections guide you as you move forward with your career.

Your approach to your first job. Yes you have your degree, but you have little or no professional experience. Experience is required to become a recognized professional. This is why AIPG, state licensing boards, and other organizations require some minimum amount of years of experience in order to be recognized as an independent professional. Your first job(s) can be viewed as final, practical training in the profession. True, working on a drill rig or logging holes day after day, months on end may seem like drudgery after a while. But this is precisely the type of repeated experience that will expose you to the various problems that crop up in collecting vital data. True, you don't want to do just this basic work for too long, but recognize what you're doing for the learning process it is. Pay attention when your supervisors tell stories about problems that have occurred from time to time and learn from them.

Rick Powers, CPG-06765, contributed the following advice. Once you have acquired your first position here are several things that should be important to you:

1. **Be humble**: the people you are working with know vastly more than you do about everything : from completing a time sheet to driving the company truck. No one will really care what you think you know.
2. **Be on time:** in fact be early and stay late. To be successful in your professional career you will work an average of 50 hours per week and sometimes much more. This is the effort it takes to be successful as a professional.
3. **Dress appropriately:** understand the daily work environment and dress for the job. Especially know the requirements for your Personal Protection Equipment (PPE) (hard hats, safety glasses, safety vests, steel-toe boots, etc.).
4. **Ask Questions:** when you don't know something ask a question. Everyone will be glad to help the new person. NO QUESTION IS STUPID.
5. **Don't be nervous about making mistakes:** it's expected and you will make mistakes. When you make one—admit it, take responsibility and then don't make the same mistake again. A mistake is a great learning opportunity.
6. **Always be prepared to volunteer:** when your supervisor comes out late Friday afternoon and asks if anyone can work on Saturday, be the first one to say "yes." This will help set your reputation as a "can do person." Also on these types of assignments you will generally have additional responsibility and learn more.
7. **The first 12-to 24 months of employment:** this critical time in your career is about two things—learning and experience. Be like a sponge and absorb everything you can. This is not the time to worry about your compensation, that will take care of itself over time. If you're constantly learning and earning more responsibility you are in the right place.

Reflections on a Geological Career is available for free from the AIPG website under publications. It is a series of articles written by experienced geoscientists reflecting on what they wished they'd know in their twenties. There is a lot of great advice on starting and building your professional career. All the articles are worth reading and you'll find some common themes running through them. Download a copy and read it!

Taking the ASBOG Fundamentals of Geology Test

Stephanie Jarvis, SA-1495 and Student's Voice columnist, describes her experience in taking the ASBOG's Fundamentals of Geology (FG) test in her column, "Whew," in the May/June *TPG*. Jarvis passed. While you may not wish to duplicate the hectic situation Jarvis found herself in at exam time, her article is a worthwhile review of the exam experience. My advice to her was and to all those still in school or recent graduates is take the FG exam now while

you still remember more broadly based material that you may remember once you've started concentrating on your career. Being able to tell a potential employer that you've taken the FG test (and hopefully passed it) will be a point in your favor when your application is being considered, particularly if you plan to work in a state requiring an ASBOG license.

Threats to Geologic Licensing

A discussion thread on the AIPG's LinkedIn group describes various efforts that may or are being made to eliminate geologic licensing in Indiana, Missouri, South Carolina, Texas, and elsewhere. **B.J. Bonin**, MEM-2232, wondered why so many states seem to be moving in the same direction and if there was a particular group behind the effort? Others noted that such efforts crop up regularly in several states. State licensing is a local issue and AIPG Sections are charged with monitoring legislative activity in their states and taking action as needed.

AIPG national did send a notice of this thread out to members of AIPG's LinkedIn group. If you are not a member, consider joining as various interesting discussions arise from time to time.

Geologic Practice in Quebec and Elsewhere

AIPG recently received copies of letters sent to three AIPG CPGs regarding their practice of geology in Quebec without being duly registered or authorized. They were instructed to cease all such activity until they were duly registered or authorized. Failure to comply could entail the initiation of legal proceedings against them. The three CPGs are employees of a public company that has been exploring in Quebec and that issued press releases regarding the results of the exploration program.

Standard 2.1 of AIPG's Code of Ethics states, "Members should observe and comply with the requirements and intent of all applicable laws, codes, and regulations." These include the licensing and similar requirements of the jurisdiction(s) in which one practices. The letters from the Ordre des geologues du Québec does not discuss whether the alleged geologic practice was "public" or "private," a distinction that may make some difference in US state licensing laws. This distinction is apparently not made in Quebec.

The Ordre des geologues du Québec, *www.ogq.qc.ca*, does provide for a temporary permit to practice that AIPG CPGs may qualify for. However, the application requires proof of insurance coverage although it doesn't state what the type and amount of insurance required. If anyone has any experience with Quebec's temporary practice regulations, I'd appreciate learning about it.

Compliance with Standard 2.1 is part of complying with AIPG's Code of Ethics regardless of the jurisdiction in which one is practicing. It is the individual's responsibility to determine what laws and regulations apply and comply with them. Failure to comply can result in disciplinary action by AIPG in addition to actions taken by a particular jurisdiction.

How Not to Hire the Low-Bid Driller

Bill Stone's (MEM-2164) article, "How not to hire the low-bid driller," in the March 2013 *TPG* is one of those great, practical, short articles dealing with the common problem of getting quality bids, particularly for those in government or otherwise afflicted with "low-biditis." Stone's example did not involve a failure to fully state the requirements for the job, which can be a problem with RFPs, but the low-bidder's failure to properly respond. Stone's article is instructive reading.

Larry Austin, current AIPG National Treasurer, holding daughter Stephanie. Photo from 1990.

Burglars Don't Take Vacations

While you're away on vacation, the last thing you want to worry about is burglars invading your home and stealing your personal belongings. So before you leave, take these precautions. They'll help protect your property and give you peace of mind.

- Lock all windows and use dead-bolts on exterior doors. Install security bars on sliding doors to prevent them from being lifted off their tracks.
- Leave a few shades or curtains open to maintain a "lived-in" appearance.
- Set light timers in a few rooms so that it appears people are at home when it's dark.
- Stop newspaper delivery so that papers don't pile up at your door.
- Store cash, jewelry and other valuables in a bank safe-deposit box.
- Don't leave an outgoing message on your answering machine announcing you are on vacation. Lower the volume on the machine and your telephone ringer.
- Install outside lights, preferably with motion detectors.
- If you can afford one, install and activate a security system. Or at the very least, put security system warning decals on doors and windows to deter intruders.

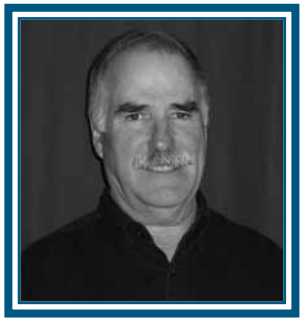
Finally, ask your neighbors to keep an eye on your property and to notify you if they suspect a problem. Even better, ask a friend or relative either to house sit or to stop by daily to collect your mail, put out your garbage, and check that everything's okay. Don't forget to exchange the favor yourself.

Liberty Mutual is a responsible company that delivers expert advice and caring service. For more information, please call 800.524.9400 (**mention client # 111397**) or visit *www.libertymutual.com/aipg*.

AIPG History

The Angelo Tagliacozzo Memorial Geological Scholarship has been established by NE/AIPG. It recognizes the dedicated leadership and service which Angelo, CPG 2630, provided to AIPG and the geological profession, until his untimely passing on October 11, 1986. The scholarship will further Angelo's goal of acquainting young geologists with AIPG and its importance to the geological profession.

NE/AIPG will grant at least four scholarships to undergraduate geology students in the spring of 1987 and annually thereafter. The scholarships will help with the cost of summer field courses, textbooks, and other aspects of geological education. Scholarships will be awarded, both on academic achievement and on financial need, to students enrolled in recognized geology programs at colleges or universities in New England, New Jersey, or New York.



People Do The Darnedest Things

William J. Stone, MEM-2164

Logic is an important part of science and hydrology is no exception. This is especially true of reports. Such documents are supposed to clearly convey the findings and recommendations of a study. In addition to good writing, the key to clarity is often as simple as making the right choices when preparing illustrations. It is critical that illustrations be clear, since they are often the basis for the report conclusions.

Such illustrations also often serve as visual aids in court cases. You cannot assume that all who view them there have training in your field, but they are probably rational beings. Therefore, graphs, maps, etc. must be intuitive. Sometimes people sabotage their own reports by failing to employ logic in their line drawings.

The draft of a government-agency report I was once asked to review contained a graph consisting of two curves for an environmental parameter, one under a poor scenario and one under a good scenario. The problem was, the poor-scenario curve was colored green and the good-scenario curve was colored red. Even though the legend explained this usage, it was counter-intuitive. This use of color is confusing since it is just the opposite of what most readers would expect: red for poor (as in stop) and green for good (as in go). Fortunately this logic gap was caught in internal review.

A similar approach should be applied to thematic maps as well. Undesirable conditions on maps of ground-water availability or ground-water quality should be marked in red and favorable conditions should be marked in green. I've often left areas where there were too few data blank or white. Zoning maps for various geologic hazards, such as earthquake risk, landslides, collapsing soil, flooding, etc., should employ colors the same way.

In another case, which was not caught in review, the variation in the concentration of a contaminant with depth was depicted with a normal X/Y graph. However, depth was plotted on the horizontal axis and concentration was plotted on the vertical axis. Why not plot depth on the vertical axis, so it looks like a well log? Rotating that X/Y plot so depth is on the vertical axis and concentration is on the horizontal axis (which is now at the top) results in the normal form for depth profiles. Such illustrations make it easy to visualize variation with depth. TIP: To get your point across, make your illustrations as intuitive as possible.

Dr. Stone has more than 30 years of experience in hydroscience and is the author of numerous professional papers as well as the book, Hydrogeology in Practice – a Guide to Characterizing Ground-Water Systems (Prentice Hall). Feel free to argue or agree with him via email at *wstone04@gmail.com*.

And again…

Stephanie Jarvis, SA-1495, sjarvis@siu.edu

David Abbott's name has been popping up in my inbox a lot recently, and his column in this issue probably gives you some insight into why. Our exchanges usually start out with him checking in on me because I've let the last email sit too long or haven't quite been my normal, positive self. They then continue with me laying out where I am (or, more likely, am not) in my "next-step" thought process. I'm at one of those points in my life that, though others seem to embrace, I despise. I have never been one with a decided path. The college search process? Terrible. Drawn-out. Stressful. "Exciting" is not a word I would come close to using to describe the beginning of what would be a great experience. Senior year of college was worse than senior year of high school, however. Grad school? Job? One of the many volunteer internship programs that let you have fun and put the decision off a bit longer? I ended up choosing grad school, not because I particularly wanted to go but because I knew that I knew how to do school and I knew that I would need that degree at some point, so sooner seemed as good as later. It was most practical. Now, two years later, I'm doing my best not to regret that decision (it's been great personally, perhaps the professional gains will be a little more persuading when I'm finally done) while also trying not to freak out about how far behind I feel and, once again, about what I'm going to do next.

It's tough to pare my disdain for the "next step" down into the various reasons behind it. Part of it is probably taking that step into the unknown, though that usually is exciting to me. Another, probably larger part, is fear of getting myself into something I don't want to be doing (again, that fear of being wrong, as I discussed in the Jan/Feb '13 issue). Of course, my indecisiveness, notorious to those who know me best, doesn't help. There's also some general life uncertainty. Where do I want to be? Is it time to finally go back home and get to know that place as an adult, as I eventually will, or do I need to see a little bit more first? And, finally, there's that small voice in the back of my head doubting that I actually want to be doing what I've set myself up to do. Which usually leads to me wondering what in the world I've set myself up to do.

Spring break, spent at Hamilton College, offered a different perspective on these reflections. Surrounded by undergrads in a very Wooster-ish setting, I couldn't help but think back to my undergrad career and the things I did differently then. I found myself giving lots of advice to the sophomore I was staying with. We chatted about summer internships and grad school requirements. I realized that, as an undergrad, I was constantly applying for things. Scholarships, research positions, more scholarships, jobs, more scholarships, grad school. As tedious as it was, it paid off even when I didn't get the thing I was going for. Any application requires some sort of personal statement, usually related to a career aspiration. I kept these pretty vague (again, indecisive), but they always followed some sort of policy-meet-science-meet-public theme. As much as I hated locking myself into even a vague description of what my future held, the value of that self-reflection process was immeasurable. At the very least, it made me draw connections between where I had been, where I was, and where I was going. Hindsight is 20-20. The thing that I was most excited about when entering my master's program was not having to worry about applying for anything for a little bit. Thus, the forced professional self-reflection stopped and the unforced was limited to those frustrating moments when I wished I had just spent a year in the woods doing trail maintenance.

I have no grand conclusions to offer yet. Despite the pulling-teeth nature of these transition times for me, they always end well (I'm pretty sure I'll feel that way about grad school). And, I meet some great people. There's always a lesson to be learned, and time is only wasted if you don't learn it.

Is Your Profile Correct?

It is important to keep your address, phone numbers, and e-mail information up to date in our records. Please take the time to go to the AIPG National Website, ***www.aipg.org,*** login to the member portion of the site and make sure your information is correct. You can edit your record online. If you do not know your login and password you can e-mail National Headquarters at *aipg@aipg.org* or call (303) 412-6205.

A Word of Advice

Kristina Pourtabib, SA-3410
kppourtabib@eiu.edu

I can't believe that the time is finally here! Tomorrow I will be completing, hopefully with success, the last final exams of my career as an undergraduate geology student. This time Saturday I will have my diploma in hand, say my good-byes, and start on my next adventure at graduate school. Just four years ago, and truthfully even just last year, I could not have pictured that I would have found my niche in the geological sciences. When I first became a geology major, every time someone would ask me what I wanted to do after I graduated, I would just shake my head and tell them that I didn't know. From my personal experience, it was a difficult task in itself to even find the right major for me, let alone determine my ultimate school and career goals. It is quite daunting for any young college student to try and plan out a future at this stage in life. For me, I still felt like I was just a little kid, and wanted to hold on to that feeling of being carefree for just a little bit longer before I had to start making adult decisions. Even though it took me awhile to find my direction in geology, I realized that it is good to step out of that comfort zone and really push yourself to achieve goals both academically as well as personally, and that I was doing myself a disservice by just coasting through school.

I recently came across a good piece of advice, that I will share, that really helped me as an undergraduate to not stress out about where I'll end up, but rather to focus on the present and setting myself up for a successful future, no matter where I am. This particular person told me that I don't have to be completely set in what I want to do in the future, and that no one expects undergraduate students to have this figured out. This person then went on to tell me that even some geology professionals who appear to have it all together are still struggling with determining what they ultimately want to do in life.

As a student, this piece of advice was exactly what I needed to hear to help give me back my sense of purpose in this major. It helped to shed light on the fact that everyone, no matter how successful today, has felt this way at some point in their life. Sometimes it is best to just realize that you are not alone in feeling lost when it comes to looking towards the future. Sitting here typing this article, I can look back at my college career and say, with confidence, that I am proud to have gotten myself involved in the geology department at my school. By putting myself out there, and stepping out of my comfort zone, I have been exposed to, and have taken advantage of many different opportunities that were presented to me while I was in the major. None of these opportunities would have been possible if I didn't inquire about them, put in a little extra effort, and most importantly, put myself out there. If you spend your whole time as an undergraduate and at any stage in your life for that matter, waiting for opportunities to come to you, then you will be out of luck. You have to take your life into your own hands and make opportunities for yourself. No one ever got anywhere in life by just sitting around, and that is why it is so important as an undergraduate to realize that no matter where you see yourself in the future, it is essential to develop a "go getters" attitude towards life because it only helps in setting yourself up for success. So a final word, to everyone out there, don't just sit around being content with how your life is unfolding, but make opportunities for yourself and push yourself towards achieving any goal that you put your mind to. Get involved! If your school's geology club is holding a meeting, then go. Even if it doesn't work out the way you plan, you can always redirect your course in life and set new goals.

Invitation from AIPG to Submit Articles

You are invited to submit an article, paper, or guest column based upon your geological experiences or activities to the American Institute of Professional Geologists to be included in "The Professional Geologist" (*TPG*) bi-monthly journal. The article can address a professional subject, be technical in nature, or comment on a state or national issue affecting the profession of geology.

Article submissions for *TPG* should be 800 to 3200 words in length (Word format). Photos, figures, tables, etc. are always welcome! Author instructions are available on the AIPG website at *www.aipg.org*.

Please contact AIPG headquarters if you have any questions. AIPG email is *aipg@aipg.org* or phone (303) 412-6205.

AIPG Kentucky Section History

During the early years of the American Institute of Professional Geologists and prior to the formation of the Kentucky Section, the function and growth of AIPG at the state level was delegated to the Coordinators of Institute Affairs. Local coordinators were appointed by the AIPG national president. Frank Walker, Kentucky's first Certified Professional Geologist, and James K. Vincent served successively as Coordinators for Kentucky until membership grew enough to allow the Kentucky Section to be established.

On November 10, 1967, the Kentucky AIPG membership held an organizational meeting and petitioned national AIPG for section status. Formal recognition of the Kentucky Section was granted in early 1968. James K. Vincent served as the Section's first president. Since then, KY-AIPG has operated as an integral chapter of AIPG for 45 consecutive years.

In 1987 and 2005, the Kentucky Section was host to AIPG national annual meetings. Geologists from across the nation attended each of these meetings, both of which were held in Lexington.

KY-AIPG has held annual sectional meetings since its inception. These meetings have been held at locations throughout the commonwealth and have typically been held in conjunction with a geologic field trip. As a result of efforts by the state geologist in 2012 to optimize the capabilities of geologic organizations in the commonwealth through a consortium, KY-AIPG has suspended offering field trips and is concentrating its efforts and resources toward providing continuing educational activities.

In 1992, the Kentucky Section of AIPG, along with other geologic associations in the state, lobbied for and succeeded in getting a bill passed by the Kentucky legislature to register professional geologists (KRS 322A). Since that date, more than 2,000 professional geologists from across the nation have become registered in the Commonwealth of Kentucky.

The KY-AIPG created several honors to be awarded every year, solicited from members and professors. In 1989, two $500 student scholarships were created to reward two geology undergraduates (with a junior status or above) attending a college or university in Kentucky for maintaining a high grade point average and their outstanding efforts. In 1996, the Lifetime Achievement Award was created for KY-AIPG members who through the years have been noteworthy in their geological careers. In 1999, the Outstanding Geologist Award was created for any Kentucky geologist who has made a significant contribution in geology that was considered beneficial to geologists during the previous year. Starting in 2009, the KY-AIPG makes a cash contribution every year to the Kentucky Science and Engineering Fair and, based on the recommendation of our volunteer judges, awards a monetary gift and a geology-related book to the best high school and/or middle school earth science entry.

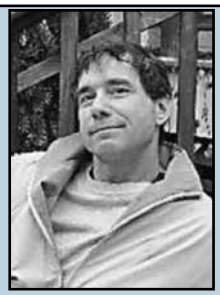
In 2008, the 60th United Nations General Assembly proclaimed 2008 to be the International Year of Planet Earth. The Kentucky Section of AIPG hosted a symposium, "Climate Change—Manmade Catastrophe or Natural Cycle: Two Perspectives on its Causes." In 2009, KY-AIPG continued the symposium program with Dr. Dennis Stanford from the Smithsonian National Museum of Natural History, who delivered "Seeking the First American." With the success of these symposiums, KY-AIPG began timing the lecture series to coincide with Charles Darwin's month of birth and designated the series as the Darwin Lecture Series. The Kentucky Section hosted Dr. Jack Horner in 2011, Dr. Eugenie Scott in 2012, and Dr. Phillip Currie in 2013.

In 2010, KY-AIPG participated in the introduction of a bill to amend KRS 332A, to change renewal from annual to biennial, require continuing education as a condition of registration renewal or reinstatement, remove exemption from registration for individuals preforming geologic work at both the state and local levels, and to permit the Board of Registration for Professional Geologists to impose a $1,000 fine for violation of provisions of KRS 332A by a registered geologist. The bill passed the House, but was not heard by the Senate, and therefore did not pass.

In 2012, the 20th anniversary of passage of KRS 332A, KY-AIPG assisted in introducing another bill to amend KRS 332A. Senate Bill 162 included provisions (1) to change the renewal period from annual to biennial, (2) to remove the exemption from registration for individuals performing geologic work at both the state and local government levels, (3) to permit the Board of Registration for Professional Geologists to impose a maximum fine of $1,000 for violation of the provisions of KRS 332A, and (4) to allow the state geologist, who is a permanent member of the Board of Registration, to be able to designate a second party to attend board meetings on behalf of the state geologist. This bill (SB 162) passed both the House and Senate by unanimous vote and was signed into law by Gov. Steve Beshear on April 11, 2012.

KY-AIPG began offering short courses for professional development in 2010. The first short course was "Overview of Contaminated Site Investigation and Remediation." In 2011, KY-AIPG continued with a two-day program on karst hydrology. In 2012, KY-AIPG offered two courses; the first was an eight-day short course in the Bahamas, "Modern Carbonate Analogs for the Geologic Record," and the second was "Overview of Environmental Geophysics." Those who attend these short courses are credited with professional development hours. Geologists registered in other states who attend may use these credits when renewing their licenses.

KY-AIPG created a Web site (*ky.aipg.org*) and a Facebook page (accessible from the KY-AIPG Web site) to keep members and the interested public current on our meetings and events.



Appeal for Assistance

Former AIPG member, Steve Shope was severely injured in a bicycle accident on April 26th *(http://www.seacoastonline.com/articles/20130430-NEWS-304300353).* His treatment will be hugely expensive and a fund has been established by his friends to assist Steve in defraying medical costs. The fund is called ***Trail to Recovery*** *(http://www.trailtorecovery.com/).* Please consider contributing to alleviate the financial burden to Steve's treatment and recovery.

AIPG

This service is open to AIPG Members as well as non-members. The Professional Services Directory is a one year listing offering experience and expertise in all phases of geology. Prepayment required. Advertising rates are based on a 3 3/8" x 1 3/4" space

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AIPG Member	**$300.00**
Non-Member	**$400.00**

Space can be increased vertically by doubling or tripling the size and also the rate.

AIPG Section Websites

AIPG Section Website links are on the AIPG National Website at www.aipg.org. Click on the top right drop down menu and click on Section Websites. If your section does not have a website contact AIPG Headquarters to get one setup (*wjd@aipg.org*). AIPG Headquarters will maintain a website for your section. Several sections (AZ, CA, CO, FL, GA, HI, IL Chapter, MI, MO, NM, OK, PA, and TN) are examples of websites hosted by AIPG National.

STUDENT APPLICATION FORM

American Institute of Professional Geologists
Student Application – FREE Membership
Sign up Online – www.aipg.org
12000 Washington Street, Suite 285, Thornton, CO 80241 – (303) 412-6205 - aipg@aipg.org

Last Name: First Name: MI: Suffix:

School Name: Undergraduate ☐ Graduate ☐ Doctoral Candidate ☐

Preferred Mailing Address: ☐ Home ☐ School

Anticipated Graduation Date: Male ☐ Female ☐ Birth Year:

Street:

City: State: Zip: Country:

School Ph: Home Ph: Cell:

Email:

ATTESTATION: I attest that I meet the requirements for AIPG Student Adjunct (currently enrolled in a geological science degree program) and agree to abide by AIPG Bylaws and Code of Ethics.

Applicant Signature: Date:

HEADQUARTERS USE ONLY Rcvd: Mbr #:

Applicants for certification must meet AIPG's standards as set forth in its Bylaws on education, experience, competence, and personal integrity. If any Member or board has any factual information as to any applicant's qualifications in regard to these standards, whether that information might be positive or negative, please mail that information to Headquarters within thirty (30) days. This information will be circulated only so far as necessary to process and make decisions on the applications. Negative information regarding an applicant's qualifications must be specific and supportable; persons who provide information that leads to an application's rejection may be called as a witness in any resulting appeal action.

Applicants for Certified Professional Geologists

AK	Katra Wedeking
AZ	L. Steven Vaughn
CT	Tunde Komuves-Sandor
KS	Michael Williams
KY	E. Glynn Beck
MI	Matthew Irvine
MO	Adam Rosenfelder
NY	Jason Cooper
NY	Christopher Boron
OH	Nathaniel Wanner
OR	Rowland French
TX	Mark VanDoren
UT	Edward Rutledge
WI	John Gartner

Applicants Upgrading to CPG

AK	Lucas Gamble	MEM-2043
CO	Scotty Mann	MEM-0774
FL	Trevor Nobile	MEM-2387
ID	Kevin Harris	MEM-2288
MA	Daniel Vellone	MEM-2394
NV	David Donovan	MEM-1957
OH	Timothy Brown	MEM-2117
WY	Chrsitopher Carroll	MEM-2376

New Certified Professional Geologists

AK	Jesse Grady	CPG-11592
AK	John Davis	CPG-11612
AZ	David Hawkins	CPG-11613
CA	Mukesh Mehta	CPG-11616
CO	Christopher Purcell	CPG-11601
CO	Vincent Matthews	CPG-11610
CO	Chester Wallace	CPG-11611
CO	Robert Bohannon	CPG-11621
FL	Miguel Garcia	CPG-11596
ID	Kelly Lippoth	CPG-11598
MA	Christopher Mabbett	CPG-11590
MA	Kristin Zeman	CPG-11597
MI	Mark Theobald	CPG-11617
MN	Jason Richter	CPG-11614
NM	James Bonner	CPG-11608
NV	James Balagna	CPG-11607
NV	Mark Coolbaugh	CPG-11620
NV	David Donovan	CPG-11622
NV	John Cox	CPG-11619
NY	Luigi Russo	CPG-11591
NY	Robert Call	CPG-11600
NY	Bernard Murphy	CPG-11604
OH	Michael Akins	CPG-11594
OH	Bradley Keller	CPG-11595
OR	Dulcy Berri	CPG-11593
OR	Kevin Schleh	CPG-11603
TX	Geoffrey Saunders	CPG-11605
VA	John Russell	CPG-11599
WA	Kurt Allen	CPG-11606
WV	Tammy Bellman	CPG-11615

New Professional Members

AR	David Bednar	MEM-2387
AZ	Finn Whiting	MEM-2386
CO	Joey Dean	MEM-2377
CO	Scotty Mann	MEM-2394
FL	Raul Escarrachi	MEM-2400
GA	Randa Harris	MEM-2382
HI	James Hengesh	MEM-2396
ID	Kevin Harris	MEM-2376
IN	Stephen Brellenthin	MEM-2398
KY	Thomas Brackman	MEM-2383
MI	Amanda Hayden	MEM-2385
MN	Dominique Zellmer	MEM-2402
MT	Joshua Brewer	MEM-2378
MT	Michael Peet	MEM-2384
NM	Kate Zeigler	MEM-2381
NV	Eric Saderholm	MEM-2390
NV	Brenda Buck	MEM-2401
NY	Nicholle Griffith	MEM-2380
NY	Eileen Oneil Litts	MEM-2395
PA	Kevin Kelly	MEM-2389
TN	Peter Johnson	MEM-2393
TX	Steven Pike	MEM-2391
TX	Rusty Jones	MEM-2392
TX	George Kurczyn M	MEM-2399
UT	David Zur	MEM-2379
WA	Tim Abbe	MEM-2388
WA	Michael McGowan	MEM-2397

New Associate Members

MI	Duane Hattem	AS-0101
MI	John Valkenburg	AS-0099
MI	Matthew Germane	AS-0100
OH	Andrew Kirsch	AS-0102

New Young Professional Members

IL	Adam Holman	YP-0061
MI	Chloe Lawson	YP-0062
MI	Erin Lower	YP-0063
NY	Adou Katche	YP-0058
OH	Ted Alfred	YP-0060
RI	Michael Kieron	YP-0064
TX	Wesley Mathews	YP-0059

New Student Adjuncts

AK	Richard Tankersley	SA-4524
CA	Ellen LeFevre	SA-4614
CA	Courtney Hart	SA-4681
CA	Andrea Lauden	SA-4700
CO	Carlos Hernandez	SA-4448
CO	Lance Lawson	SA-4452
CO	Tristan Wolff	SA-4678
CO	Rob Rice	SA-4691
CO	Michelle Davis	SA-4692
CO	Crystal Rauch	SA-4693
CO	Kevin Brooks	SA-4694
CO	Zachariah DeBacker	SA-4695
CO	Tsolmon Gonchig	SA-4433
CT	Natalie Johnson	SA-4439
CT	Kayla Carnes	SA-4440
CT	Tanay Ranadive	SA-4441
CT	Marc Herwig	SA-4459
CT	Laura Markley	SA-4465
CT	Lindsey Belliveau	SA-4466
CT	Mackenzie Fannon	SA-4467
CT	Emma Leonard	SA-4481
CT	Devin McGinty	SA-4483
CT	Brian Mocci	SA-4499
CT	Benjamin Purinton	SA-4501
CT	Patrick Cooper	SA-4509
CT	Meredith Metcalf	SA-4517
CT	Jeffrey Olandt	SA-4522
CT	Mark Smith	SA-4538
CT	Nishaila Porter	SA-4562
CT	Ryker Nolan	SA-4599
CT	Catherine Carr	SA-4600
CT	Kathy Fitzgerald	SA-4607
CT	Shannon Penna	SA-4608
FL	Brianne Apolinar	SA-4446
FL	Andrew Smith	SA-4447
FL	Robert Endicott	SA-4629
FL	Elizabeth Beesting	SA-4435
GA	Isabelle Cantin	SA-4436
GA	Olufolajimi Okunlola	SA-4705
IA	Eve Iversen	SA-4523
IA	Steven Ray Trent	SA-4657
IL	Jamie Grisko	SA-4449
IL	Michael Spehlmann	SA-4622
IL	Alex Backart	SA-4661
IL	Alexis McAdams	SA-4670
IN	Brandon Root	SA-4615
IN	Swardhuni Pethe	SA-4628
IN	Adam Simon	SA-4673
KS	Md Kibria	SA-4703
KS	Brian Gibson	SA-4706
KY	Bill Pierskalla	SA-4584
KY	Joe Moore	SA-4585
KY	Brittany Shelton	SA-4586
KY	Courtney Dieruf	SA-4587
KY	Nicholas Levitt	SA-4588
KY	Nathaniel Blackburn	SA-4589
KY	Nicole Meade	SA-4590
KY	Victoria Oberc	SA-4591
KY	Andrew Holcomb	SA-4592

AIPG Membership Totals

	As of 07/03/12	As of 6/26/13
CPG / Active	3,409	3,363
CPG / Non-Practicing	369	362
Prof. Member	907	940
Associate Member	39	43
Young Professional	21	50
Student Adjunct	1,395	2,209
Corporate Member	2	2
TOTALS	6,142	6,969

NEW APPLICANTS AND MEMBERS (4/11/2013-06/26/2013)

KY	Chase Lockhart	SA-4593
KY	Nirish Adhikari	SA-4594
KY	Thomas Pike	SA-4595
KY	David Radziewicz	SA-4596
KY	Jonathan Davis	SA-4597
KY	Ashley Boyd	SA-4679
KY	Andrew Stark	SA-4686
KY	Fawn Brooks	SA-4707
MA	Bridgette Gillespie	SA-4437
MA	Alexandra Stamison	SA-4438
MA	Ayla Heinze Fry	SA-4442
MA	Tara Cenzalli	SA-4454
MA	Sam Couture	SA-4455
MA	Scott Ouellette	SA-4457
MA	John Marraffa	SA-4464
MA	Austin Nijhuis	SA-4472
MA	Maricate Conlon	SA-4473
MA	Livia Capaldi	SA-4491
MA	Ian Nesbitt	SA-4500
MA	Jacqueline Cinella	SA-4505
MA	Dariusz Chlebica	SA-4508
MA	Shakib Ahmed	SA-4535
MA	Vanessa Napoli	SA-4542
MA	Alex Hatem	SA-4543
MA	Elizabeth Spencer	SA-4544
MA	Fernando Blohm	SA-4545
MA	Michaela Fendrock	SA-4550
MA	Kennedy Stomps	SA-4551
MA	Christopher Soeller	SA-4606
MA	Austin Hopkins	SA-4609
MA	Rachael Megnia	SA-4682
MA	John Strom	SA-4702
MA	Amanda Wescott	SA-4512
MD	Caroline Duncan	SA-4503
ME	Allison Bolger	SA-4469
ME	ArianaBoyd	SA-4470
ME	Chrishean Bon	SA-4498
ME	Kristina Madjerac	SA-4510
ME	Lauren Farnsworth	SA-4528
ME	Lea Korsmeyer	SA-4540
ME	Aaron Medford	SA-4541
ME	Chester Chiao	SA-4558
ME	Agnes Taylor	SA-4602
ME	Erica Doody	SA-4611
ME	Karl Koehler	SA-4698
MI	Brendan O'Leary	SA-4451
MI	Luke Cousino	SA-4618
MI	Travis Hayden	SA-4621
MI	Alanna Punch	SA-4624
MI	James Karsten	SA-4625
MI	Heather Monarch	SA-4626
MI	Jordan Hein	SA-4627
MI	Charlotte Lee	SA-4631
MI	Aiman Shahpurwala	SA-4632
MI	Mark Brown	SA-4634
MI	Steven Musch	SA-4635
MI	Kyle Deatrick	SA-4636
MI	Nicholas Panyard	SA-4637
MI	Derrick Lingle	SA-4652
MI	Cameron Manche	SA-4660
MI	Zachary Spotts	SA-4662
MI	Kelsey Artley	SA-4663
MI	Brittany Block	SA-4664
MI	Muthanna Yaqoob	SA-4665
MI	Lamees Mohamed	SA-4666
MI	Racha El Kadiri	SA-4667
MI	David GoldS	A-4668
MI	Gerianne Barnard	SA-4669
MI	Seth Kuiper	SA-4672
MI	Mustafa Emil	SA-4674
MI	Frank Sattler	SA-4675
MI	Andrew Poley	SA-4434
MN	Timothy Molitor	SA-4638
MN	Stephen Kunz	SA-4650
MN	Adam Marks	SA-4651
MN	Jonathan Sands	SA-4659
MO	Scott Healy	SA-4630
MO	Travis Doughty	SA-4646
MO	Kyla Erich	SA-4647
MO	Matt Smith	SA-4653
MT	Rachel Ross	SA-4690
NH	Avriel Schweinsberg	SA-4518
NH	Rachel Morrison	SA-4536
NH	Hannah Beauchesne	SA-4561
NJ	Jennifer Geoghegn	SA-4458
NJ	Eric Clementelli	SA-4461
NJ	Benjamin Dunham	SA-4462
NJ	William Reilly	SA-4463
NJ	Jaclyn White	SA-4484
NJ	Mary Birrer	SA-4488
NJ	Margot Ferencz	SA-4490
NJ	Robert DiLullo	SA-4504
NJ	Michael Mars	SA-4513
NJ	Kyle Piddington	SA-4514
NJ	Sarah Makin	SA-4516
NJ	Holden Muehleisen	SA-4521
NJ	Jason Cesta	SA-4527
NJ	Patrick Price	SA-4552
NJ	Rebecca Dykstru	SA-4555
NJ	Steph Kangas	SA-4560
NJ	Kelsey Brower	SA-4696
NM	Annelise Riggins	SA-4687
NM	Lisa Gaston	SA-4688
NM	Iain Mason	SA-4689
NY	Robert O'Flaherty	SA-4445
NY	L. Kenneth Horkley	SA-4456
NY	Mark Tate	SA-4475
NY	Trevor Jennings	SA-4476
NY	Catherine Winters	SA-4477
NY	Brandon Luther	SA-4478
NY	Joseph Guzzi	SA-4480
NY	John Wiant	SA-4482
NY	Caitlyn Korren	SA-4489
NY	Logan Frederick	SA-4495
NY	Stephanie Roth	SA-4507
NY	Alyssa Mastrocola	SA-4511
NY	Patrick Finnerty	SA-4515
NY	Alexandrea Bowman	SA-4520
NY	Carson Cain	SA-4525
NY	Evan Yokum	SA-4526
NY	Ed Napiorkowski	SA-4529
NY	Catherine Pulvirenti	SA-4531
NY	Charles Capozza	SA-4549
NY	Jessica DeForest	SA-4556
NY	Alexandra Tillman	SA-4563
NY	Samuel Capozzi	SA-4564
NY	Brianna McAdams	SA-4565
NY	Rachel Kazda	SA-4567
NY	Sharnea Spencer	SA-4603
NY	Veronica VanCleave	SA-4604
NY	Ashley Cirone	SA-4612
NY	Jazmin Inoa	SA-4613
NY	Tasha Lo	SA-4616
NY	Caitlin Boas	SA-4685
OH	Robert Coulter	SA-4450
OH	Michael Fox	SA-4453
OH	Jonathon Sanders	SA-4617
OH	Robin Richardson-Coy	SA-4620
OH	Jennifer Carnes	SA-4639
OH	Briana Camaret	SA-4640
OH	Patrick Cullen	SA-4642
OH	James Thomka	SA-4676
OH	Kelsey Danner	SA-4680
PA	Craig Leibfreid	SA-4471
PA	Kevin Foust	SA-4474
PA	Anthony Cerruti	SA-4479
PA	Emily Wivell	SA-4485
PA	Brandi Moore	SA-4486
PA	Colin Patrick	SA-4487
PA	Amanda Henry	SA-4492
PA	Brian Pawling	SA-4493
PA	Catherine Sutton	SA-4494
PA	Michael Winters	SA-4497
PA	Adam Kovac	SA-4502
PA	Katie Downey	SA-4506
PA	Christopher Kelly	SA-4519
PA	Michael Maresch	SA-4530
PA	Kristyn Hill	SA-4532
PA	Andrew Costello	SA-4533
PA	Stephen Schleder	SA-4534
PA	Zachary Schagrin	SA-4537
PA	Leslee Everett	SA-4539
PA	Alyssa Wentz	SA-4546
PA	Dominic Molinaro	SA-4547
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PA	Brittany Rose	SA-4557
PA	James Mason	SA-4559
PA	Franklin Rodemer	SA-4566
PA	Philip Griffith	SA-4598
PA	Danielle Loring	SA-4601
PA	Cody Hayton	SA-4605
PA	Samuel Lagor	SA-4699
PA	Mollie Kish	SA-4704
PA	Selena Oleck	SA-4443
RI	Tyler Brown	SA-4496
RI	Thomas Lockwood	SA-4701
TX	Diane Carrico	SA-4553
TX	Kathryn Penkala	SA-4568
TX	Lisa McLaughlin	SA-4569
TX	Taylor Coad	SA-4570
TX	Rachel Funk	SA-4571
TX	Adolfo Reyes	SA-4572
TX	Samantha Cunningham	SA-4573
TX	Ida Shalilian	SA-4574
TX	Ladislado Moreno	SA-4575
TX	Garrett Williamson	SA-4576
TX	Joshua Ivie	SA-4577
TX	Jill Garcia	SA-4578
TX	Garrett Thering	SA-4579
TX	Jessica Garcia	SA-4580
TX	Nikole Sullivan	SA-4581
TX	Lokin Casturi	SA-4582
TX	Jordan Dickinson	SA-4583
TX	Joanna Walker	SA-4683
TX	Dianna Price	SA-4432
VT	Jonathan Schell	SA-4554
VT	Ashliegh Belrose	SA-4610
VT	Bryan Keenhold	SA-4697
WA	Amanda Goss	SA-4468
WA	Braden Hauseman	SA-4677
WI	Caitlin Blahnik	SA-4619
WI	Darrick Jackson	SA-4623
WI	Libby Woodford	SA-4633
WI	Mitchell Salzwedel	SA-4641
WI	Shane Wulf	SA-4643
WI	Rebecca Moore	SA-4644
WI	Amy Rasmussen	SA-4645
WI	Matt Schmus	SA-4648
WI	Kelsey Franko	SA-4649
WI	Lauren Roeglin	SA-4654
WI	Kathryn Grant	SA-4655
WI	Danyl Johnson	SA-4656
WI	Ellen Jilek	SA-4658
WY	Feng Chen	SA-4444
Canada	Leslea Lotimer	SA-4671
Canada	Ryan Hladyniuk	SA-4460
Chile	Rocio Vargas Soto	SA-4684

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  - -Importance of economics and risk analysis.
  - -Drilling and logging.
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- Electric logs.
- Basic and specialized porosity logs.
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- Selecting log suite.
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- Identification and classification of logs and well log data management.

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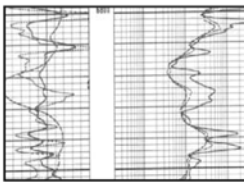

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  - Specific material geotechnical properties including:
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  - Engineering problems and solutions concerning:
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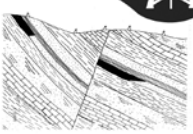
- **Petroleum reserves.**
- **EOR techniques.**
- **Rock deformation; fractured reservoirs.**
- **Rules for appraisal of oil and gas properties.**
- **Self-assessment questions and problems.**
- **Helpful references.**



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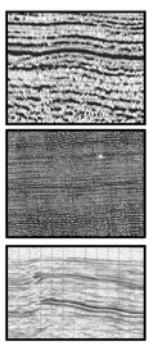
Basics of Seismic Petroleum Exploration for New Hires

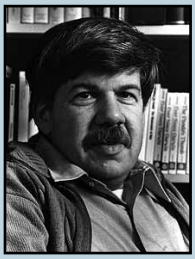
by
Robert Font, PhD, CPG, PG, EurGeol

- Review of world hydrocarbon reserves, production, consumption and goals and methods in petroleum exploration.
- Seismic waves, rock deformation and elastic versus plastic behavior.
- Elastic properties, density and seismic wave velocities.
- Seismic wave propagation and key travel time equations.
- Single fold versus multi-fold coverage, horizontal versus dipping reflectors, offsets, multiples and diffractions.
- Seismic acquisition, processing, corrections and velocity terminology.
- Integrating seismic with well control, reflection coefficients, synthetic seismograms, check shot surveys and VSPs.
- Seismic interpretation and steps in prospect development.
- 2-D and 3-D seismic methods, basic information and possible pitfalls. 4-D seismic analysis or 3-D through time.
- Hydrocarbon Indicators (HCI), AVO analysis, pore pressure prediction, seismic inversion, seismic stratigraphy and coherence.



AIPG accredited for continuing professional development (0.8 to 1.0 CEU without/with optional exam).

AIPG History



Stephen J. Gould First AIPG Outstanding Achievement Award

It seems that there are prominent non-AIPG members "out there" who should be recognized for their outstanding contribution to geology. In 1989 Proctor initiated a new award to recognize such individuals. The first recipient was Stephen Jay Gould, who accepted, and gave a thought-provoking speech at the Annual Meeting Banquet. The award is not necessarily given annually. Dr. Gould's work is particularly notable because of his clear and entertaining style of writing, which has resulted in better understanding of Man's position on Earth, and how we got to be where we are today. Book titles such as "Hens' Teeth and Horses' Hooves," "The Panda's Thumb," "Ever Since Darwin," and "Time's Arrow, Time's Cycle" have become popular college reading. Dr. Gould has received 11 honorary university degrees and 12 national awards.

AIPG History 1990 President

Susan M. Landon, CPG-4591

Our First Woman President

Is it proper to start with "Our first woman President"? Why not? Susan Landon is an exceptional person, geologist, and manager, regardless of gender. Thanks to Susan, we cannot be called a good old boy's club, if we ever were. Also, in 1998 Susan was only the second woman geologist to be President of the American Geological Institute. In 1991 she was the recipient of the Martin Van Couvering Award and in 2001 she was awarded the Ben Parker Medal.

AIPG 1990 President Susan Landon visited the Alaska Section in October. AIPG Erik Opstead treated her to a bird's eye view of Mount McKinley.

Groundwater Exploration in the Western Salta Province, Argentina

Tom Wohlford, CPG-10577 and
Zhaowei (Jack) Wang

Abstract

Exploring for potable groundwater in one of Argentina's most arid regions, the western Salta Province, can be a challenge due to the lack of fresh groundwater and an over-abundance of salt water brine. There is no surface water except for an occasional small spring or brine pool. The brine underlies the many salars (i.e. salt flats) that are located in closed basins throughout the western part of the province. These salars, consisting of a surficial layer of halite and underlain by interbedded sand and other halite layers, contain groundwater that is a highly concentrated brine, with total dissolved solids (TDS) ranging from 240,000 – 320,000 mg/L. The brine has formed over millions of years due to the very low precipitation (2 in/yr) and high evaporation (107 in/yr) from the salar surface. Data suggest that recharge to the aquifer does occur at higher elevations (14,000 - 16,000 ft msl) surrounding the salars so that there are areas of fresh, potable groundwater separated from the brines by a mixing zone of brackish water. The most permeable areas are large alluvial fans located around the perimeters of the salars so groundwater exploration operations have targeted these areas. Field activities have consisted of piezometer installation followed by installation of large diameter test wells at locations with the highest yields and best water quality. Initial pumping test results have been favorable but further analysis needs to be performed to determine the effects of salt water intrusion. Such analysis would benefit from groundwater modeling to simulate the movement of brines with a TDS almost ten times that of sea water.

Introduction

The Salta Province is located in the northwestern corner of Argentina between latitudes 23° – 26° S (Figure 1). The western part of the province contains the Andes Mountains, which near the Salta Province actually consist of a number of closed basins separated by high mountain ranges. The basins are about 12,000 feet above mean sea level (ft msl), and the adjoining mountain ranges exceed 16,000 ft msl. Within these basins are large salars (Figure 2): Salar de Pocitos (Figure 3), Salinas Grandes, Salar de Rincon, Salar de Diabillos, Salar de Pastos Grandes, Salar de Rio Grande, Salar de Llullaillaco, Salar de Hombre Muerto, Salar de Incahuasi and, the largest, the Salar de Arizaro. These salars can be quite large. The Salar de Arizaro is almost 60 miles long and 30 miles wide at its widest point.

Climate

The climate of the western Salta Province is largely controlled by its zonal location between 15° and 30° S in the sub-tropical high-pressure belt where descending stable air produced by the Hadley circulation significantly reduces convection and hence precipitation. The salars are a product of the arid environment that typifies this part of the province. Precipitation amounts as low as approximately 2 inches per year (in/yr) have been documented for the salars (Houston, 2010). Conversely, evaporation is very high with an average annual evaporation of 107 in/yr measured at the Salar de Hombre Muerto (Houston, 2010).

Figure 1. Salta Province location.

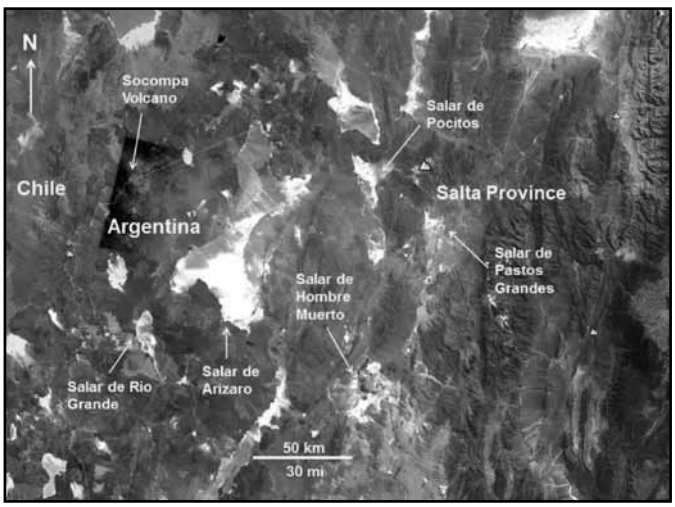


Figure 2. Western Salta Province and location of salars and selected other features discussed in this paper.

Geology

The basins that contain these salars have been formed by extensional faulting over the last 30 million years (Mon, 2005; Zappettini and Blasco, 1998). This faulting is related to back-arc extension of the subduction that is occurring along the west coast of Chile. Mid-crustal decollement with an east-vergent thrust fault and associated back thrusts created the ranges bordering the salars, with Paleogene to

Figure 3. View looking west across the Salar de Pocitos, Salta Province, Argentina.

Neogene deposits in the salar basins bordered by uplifted Ordovician to Precambrian bedrock (Mon, 2005). Exposures of the oldest geologic units in the western part of the Salta Province are Ordovician basement rock formed of marine sedimentary strata. These rocks have been intruded by magmatic rocks of basaltic composition and mantle-derived diorites of similar age. The region was uplifted in the Permian and a new period of magmatic activity that extended to the Triassic began, and is represented by interbedded pyroclastic and sedimentary rocks. Paleogene to Holocene time was characterized by a succession of compressional and extensional phases that control the structure of the area, along with volcanic activity and continental deposition. Volcanic activity and non-marine sedimentation in the basins are the primary depositional forces currently active in the region. Numerous composite volcanoes form the Andes Mountains along the border with Chile and extend eastwards along deep-seated lineaments that control the intrusion of magma (Figure 4).

Figure 4. Socompa Volcano on the border between Chile and Argentina. See Figure 2 for location.

Groundwater Flow

Since evaporation decreases with elevation and precipitation increases, the potential for groundwater recharge to the aquifer is at the highest elevations. Studies in the high Andes and Atacama Desert of Chile have shown modelled and calculated recharge rates at elevations above 13,200 ft msl ranging from 0.57 to 1.8 inches per year (Houston, 2009). While these rates are not high, they do provide evidence that recharge does occur at higher elevations in very arid localities. Groundwater flow from this recharge follows topography down to the lowest point of the basins where the salars are located. Since the salars are in closed basins, the most effective form of removal of groundwater from the basin water balance is by evaporation from the salar surface (Figure 5). The other form of removal is by inter-basin flow (Rosko, et. al., 2002).

The high evaporation from the closed basins has caused the groundwater in the area of the salars to become concentrated brine with a very high Total Dissolved Solids (TDS) content over 300,000 milligrams per liter (mg/L). Around the edges of the basin is a brackish water mixing zone with lower TDS

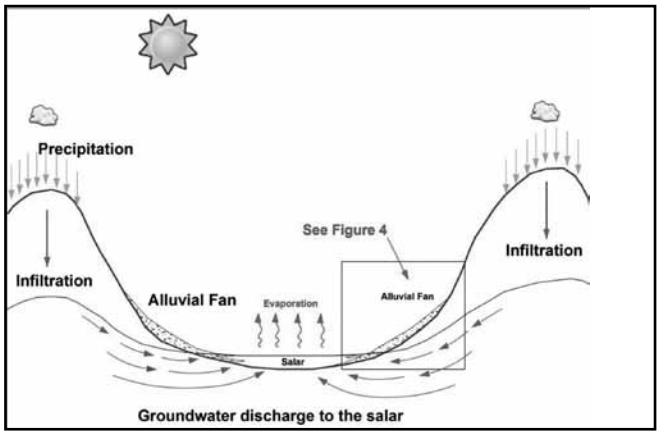


Figure 5. Simplified schematic of typical closed basin groundwater flow inputs and outputs.

(5,000-15,000 mg/L), which gradually becomes fresh water further away from the salar. On the edges of the salars, in a number of areas where perennial streams discharge from the mountains, are large alluvial fans. These alluvial fans consist mostly of coarse grained sand and gravel with coarser deposits of cobbles in the proximal parts of fans next to the mountains and finer deposits of sand and silt at the salar edges (Figure 6). The distal ends of the alluvial fans gradually grade into the evaporite deposits of the salars, which consist of inter-layered deposits of halite (NaCl) and fine sand (Figure 7).

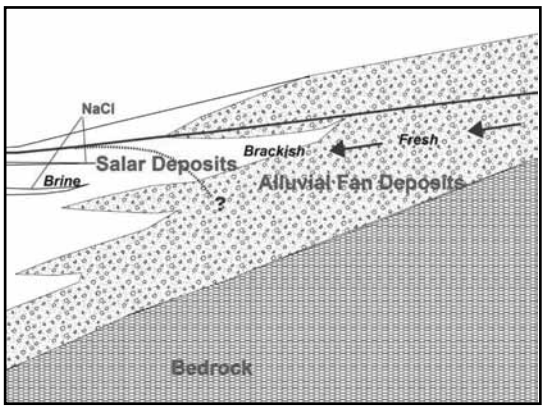


Figure 6. Typical relationship between alluvial fan and salar deposits in Salta Province.

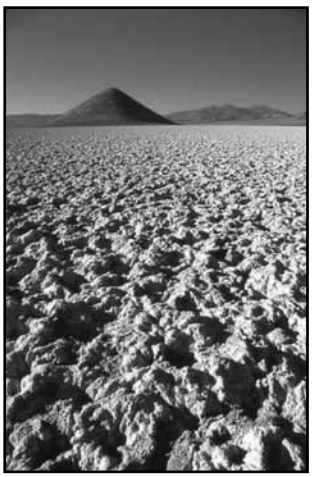


Figure 7. Close-up photo of halite-covered salar surface with volcanic cinder cone in background (Salar de Arizaro, Argentina).

Piezometer Installation

The alluvial fans make ideal targets for groundwater exploration due to their coarse-grained nature and content of fresh water. Although drilling

in the volcanic rock can also yield fresh water, the permeability is usually much lower, which results in a low-yielding well. Drilling in this part of Argentina is usually restricted to the direct rotary (Figure 8) or reverse circulation ("RC") drilling methods, which are the most readily available in the area. During drilling operations, surface casing is installed to maintain borehole wall stability but cannot be installed further than 100-120 feet because of equipment limitations. Usually the groundwater table is deeper than this when drilling in the higher portions of the alluvial fans (i.e. further from the salars) so drilling muds must be used for the deeper portions of the borehole to maintain borehole wall stability. The drilling mud in this case is based on a polymer and not bentonite. The polymer-based drilling mud is much more easily removed from the borehole and surrounding aquifer formation during well development activities than a bentonite-based drilling mud. The drilling tool is a tri-cone drill bit which also helps maintain borehole stability. An exploratory borehole is drilled first to determine the geology. If the RC drilling method is used, short-term air-lift tests are performed for every length of drilling rod to determine the borehole yield. Field parameters of pH, temperature, electrical conductivity and TDS are measured during the air-lifting. A decision is made for the piezometer depth based on the geology, air-lift rates and water quality. Then a 2-inch diameter stand-pipe piezometer is installed in the borehole with the screen set in what appears to be the most permeable zone or zone of best water quality. After the piezometer is installed, it is developed and a groundwater quality sample is collected for laboratory analysis. Laboratory analysis typically includes calcium, magnesium, sodium, potassium, bicarbonate, carbonate, phosphate, chloride, fluoride, sulphate, TDS, total suspended solids (TSS), turbidity, pH, total hardness, carbonate hardness, non-carbonate hardness, alkalinity, dissolved metals and selected non-metals.

Figure 8. Direct rotary drill rig for mud-rotary drilling, western Salta Province, Argentina.

Test Well Installation

Once the groundwater analysis indicates the location and depth of an aquifer containing fresh or relatively fresh water, then a drilling program is initiated to install a large diameter (8 inches or greater) test well in that area with the screen setting matching the zone of good quality water. The test well drilling is performed with the same RC or mud-rotary drilling technology as the piezometer installation program, with the exception that a much larger–12 inch or 14 inch diameter borehole is drilled. Usually, for shallow wells, PVC screen and casing are used. If the well is deep, carbon-steel casing and stainless steel screen are necessary. Due to a high amount of fine-grained sand mixed with the sand and gravel of the alluvial fan deposits, the screen slot width is typically 0.04 inch. Anything larger than this generates too many fines during development and pumping.

Once installed, development of the test well is usually performed by pumping and surging with a submersible pump, though surging with a surge block and pumping is preferred. The act of developing the well removes the polymer drilling mud and any fine-grained sediment from the gravel pack and, to a lesser degree, the surrounding aquifer formation.

Aquifer Test

Following development, a step-test is performed on the well using a submersible pump to determine the optimum pumping rate for a longer, constant rate pumping test. The constant rate pumping test is performed for a minimum of three days but a longer period of pumping (5 or 10 days) is preferred. The reason for this is to determine aquifer boundary conditions and, more importantly, possible salt water intrusion from the salar. During the aquifer test, electrical conductivity and TDS are measured hourly in the field, along with water level data, barometric pressure and pumping rate. If salt water intrusion starts to occur during the aquifer test, the frequency of electrical conductivity and TDS measurements is increased. A groundwater sample for laboratory analysis is collected from the aquifer test effluent just prior to shut-down to confirm the quality of the groundwater and any change in its nature.

Conclusion

Following the relatively simple methods described above can lead to successful discovery and development of a groundwater supply source in the western Salta Province of Argentina. To increase chances for success, it is imperative to follow some basic rules of investigation that apply for any such hydrogeological investigation:1) Understand the geology; 2) have a good, if not necessarily proven, hypothesis of groundwater flow patterns in the area, as well as likely areas of recharge and discharge; and 3) understand the groundwater quality in the area, how it varies and what controls the variation in water quality. Following these basic rules, it was determined that alluvial fans located at the periphery of the salars have the highest permeability and greatest chance to yield wells with good water quality.

Obviously, the methods described above are not the only means of performing a groundwater exploration investigation. Other methods, such as a geophysical survey of targeted areas, can also provide invaluable information. A good literature search of published data, reports and any scientific articles also increases the chance of success. What the authors have described in this paper are the experiences that have led to the *most cost effective* means of groundwater exploration in this part of Argentina. Based on the extreme aridity of the climate in this part of the world, it is a pleasant surprise that groundwater investigations can be successful at all.

While initial drilling and testing results have been favorable, additional studies must be performed for newly installed water supply wells to determine the possibility of salt water intrusion. Since the wells are located in alluvial fans that feed into the salars, there is a good chance of brine migration into

the pumping well's radius of influence if over-pumping of the well exceeds the aquifer recharge for that area. The longevity of a well or well field could be projected by a groundwater flow model to simulate the behavior of the high-TDS, high-density brine. Such a flow model could be used to predict the optimum pumping conditions for an aquifer and best management practices.

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Tom Wohlford, CPG – 10577, is Manager of Hydrology and Hydrogeology Services team for Ausenco's Denver, Colorado office specializing in hydrology and hydrogeology investigations and water management services for the mining industry. Tom graduated from SUNY Oneonta with a BS in Water Resources and from Wesleyan University with a MA in Environmental Science. His past experience has been municipal water supply development, environmental investigation and remediation, and mine water investigations and development. E-mail: t*om.wohlford@sbcglobal.net*

Zhaowei (Jack) Wang is a Hydrogeologist in Ausenco, specializing in groundwater flow modeling for the mining industry. His professional experience has focused on development of models and numerical methods for use in simulating fluid flow and contaminant transportation. Jack graduated from the University of Nebraska–Lincoln with a MS in Hydrologic Sciences. His past experience focused on stream aquifer interactions for agriculture use in Nebraska, E-mail: *jack.wang@ausenco.com*.

ExCom Meeting, May 17, 2003 in Tennessee. Checking out the Diggin' the Dinosaurs-Gaylord Opryland exhibit are (front row) Rick Powers, Larry Cerrillo, Ginger McLemore, Bob Levich and Bob Corbett. Back row Mark Sweatman, Dennis Pennington and Wendy Davidson.

AIPG Texas Section History

From the early 1990s through 2001, the Texas Section of the American Institute of Professional Geologists (AIPG-TX) was very active in the multiple efforts to craft a bill and to muster professional and legislative support to license the practice of geoscience in the State of Texas. The Texas Section hired a lobbyist to represent the Section before the Legislature and many members personally met with State Senators and Representatives to help make the case for licensure. Initially we had opposition from the engineering, environmental science and geography professions, but after much – at times heated – discussion and negotiation, won general support. The Texas Section worked with the broad geoscience community to focus the legislation on the practice of Geoscience in the public sector and to exclude from licensure those practicing in the private sector, such as the earth resource exploration/extraction (oil and gas, mining) industry or as academic geoscientists. The legislation was focused on geologists, geophysicists and soil scientists practicing in the public sector. The legislation that created licensure was called the Texas Geoscience Practice Act and was passed by the Texas State Legislature in 2001. The legislation became effective on September 1, 2003. The Texas Geoscience Practice Act created the Texas Board of Professional Geoscientists (TBPG) which is governed by a nine-member Board, all appointed by the Governor with the advice and consent of the Texas Senate. The Board consists of six Professional Geoscientists and three public members, who serve staggered six-year terms. The Texas Section has provided the Governor's office with recommendations for appointments to the Board.

The Texas Section maintains a website that is run by several Section members. The Section website has a column called the Wise Report that is periodically updated. The report summarizes and addresses issues of relevance to Texas CPGs and to geoscientists in general. The Wise Report typically contains news of activities in the Texas State Legislature and state regulatory agencies which might impact geoscientists, possibly warranting political action by Texas CPGs.

A group of Texas CPGs has been very active in monitoring Legislative and Texas regulatory agency actions and rulings, as they might potentially affect the practice, and licensure, of geoscience in Texas. They have been present at, and testified before, Legislative Committees and the TBPG, to ensure that the voice and interests of Texas geoscientists are recognized and that the Texas PG program is respected and maintained. These geoscientists have successfully interceded on several occasions to block Legislative and TBPG actions that, if implemented, would have been detrimental, if not fatal, to the proper and effective licensure of geoscience practice in Texas.

For additional information on AIPG-TX and the Texas Board of Professional Geoscientists, go to:

AIPG-TX: *www.aipg-tx.org*

TBPG: *www.tbpg.state.tx.us*

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Arizona Section

AIPG Arizona Section "Golden Anniversary" Trip to Chihuahua, Mexico-To celebrate AIPG's 50th anniversary, it seemed like something different and special was in order. Thus, the Arizona Section organized a geologic vacation to the State of Chihuahua, Mexico, to hit some cultural and geologic attractions that are off the beaten path for most of us. We had a fabulous trip! It's hard to say that any one thing was a highlight, because there were so many different things and our diverse group included folks with a wide-range of interests. The entire excursion was initially scheduled around a trip to the cave of giant crystals at the Naica Mine, but due to unsafe conditions experienced in the operating mine around the time of our visit, we had to delete Naica from our itinerary. This was a huge disappointment, and the majority of our participants (about 20 out of 30) cancelled. We ended up with a group of nine, plus we joined forces with a separate (non-AIPG) group for several days while in the northern part of Chihuahua.

Our trip started with a tour of the San Antonio mine operated by Grupo Mexico. We toured the process and also spent time with the site geologist gathered around his hand-drawn maps to hear about his exploration program. We were thrilled to be invited to take home samples from his personal collection of minerals! We continued with a stop in the historic town of Santa Eulalia to see the historic buildings and to visit a rock shop. We were treated to an impromptu concert by the local church musicians who happened to be recording at the church! Then we went to a new park in the City of Chihuahua that has been built around a water reservoir and is home to a variety of birds (perfect for the birders in the group!).

While in Chihuahua City the local section of the AIMMGM (a Mexican mining association) held a dinner for us with Dr. Ignacio Reyes of the Universidad Autónoma de Chihuahua as the featured speaker. Dr. Reyes gave an overview of the geology of the state of Chihuahua. As part of the business meeting, AIPG met with AIMMGM leadership to discuss a potential relationship between the two groups. A memorandum of understanding between the organizations is being advanced by the AIPG National ExCom.

We spent the next day touring the gorgeous historic center of the city, including the cathedral that is over 300 years old, the murals that depict the history of the area in the Palacio de Gobierno, the museum constructed where one of the leaders of the independence movement (Fr. Miguel Hidalgo) was held prisoner; the gorgeous art nouveau house "Quinta Gameros" that was built by a wealthy mine owner; the former home of Pancho Villa, which is now the Museo de la Revolución; and the huge cave "Grutas Nombre de Dios" with its numerous stalagmites and stalactites. During our two days in Chihuahua City we had a professional guide with who provided a wealth of background information and kept us laughing with his jokes.

We spent part of a morning at the Terrazas project site, a zinc-copper deposit. We had an adventure making our way down rough roads and scrambling up slopes to see the mined areas. More sample collecting! We then headed further north to Nuevo Casas Grandes, which was the springboard to the next sites on the agenda: Mata Ortiz, Colina Juarez, Paquimé and Hacienda San Diego. Everyone enjoyed Mata Ortiz so much that we stopped there twice! We were fortunate that John Bezy, our guide for this part of the trip, had arranged with local potters to demonstrate shaping a pot and a firing of pots using the traditional wood fuel. We were able to visit multiple artists in the area and many of us purchased pots. The Colina Juarez, a Mormon colony, was surrounded by fertile fields of apple and peach orchards, and there were many brick buildings built in the late 1800s. It is noted for its connection with the Romney family. Paquimé has an impressive museum with collections of jewelry, pottery and tools. The outside grounds include the original walls of the dwellings, macaw nesting boxes, a subterranean well, and water management system, plus other features from the 13th and 14th centuries, when Paquimé was a major city. The Hacienda San Diego had a special connection with some of our group because their father was originally from that area and they still have a photo of him as a boy in front of the hacienda in the 1930s. The hacienda was originally owned by General Terrazas, who owned vast portions of the State of Chihuahua.

Since our trip to Naica was cancelled, AIMMGM has arranged to have an excursion to Naica in April 2014 as part of the regional AIMMGM conference. If you are interested in the conference and field trip, the conference website is *www.chihuahuaminero.com*. The details regarding registration and pricing are posted. As part of the conference AIPG will be presenting a short course regarding ethics, which will be taught by David Abbott.

Dawn Garcia,
Section President

Group photo at the Chihuahua city hall. Left to right: Don Doehring CPG-2682, Barb Doehring, Ron Wallace CPG-8153, Jovita Quezada Synder, Holly Miller, Kevin Garcia, Dawn Garcia CPG-8313, Joaquin Quezada, Donna Quezada. Photo by D. Doehring

Ron Wallace meets a local. Photo by D. Garcia.

Paquimé. Photo by D. Doehring

California Section

AIPG California Section Presents Awards at the 2013 California State Science Fair-For the 13th consecutive year the California Section of AIPG presented awards at the California State Science Fair at the California Science Center in Los Angeles. A special treat awaited the participants and judges this year – the earth science projects were located directly beneath the Endeavour!

As in years past, we gave awards to the Junior Division and Senior Division

categories ($250 and a nice certificate in each category). Dave Sadoff, California Section Vice President, was assisted by Paul Enriquez with the judging.

The Senior Division winner was Hanna Washburn for her project entitled "Rehabilitating Hydrophobic Soil to Allow Indigenous Bunch Grass Growth". This topic is of special interest in her Fresno (San Joaquin Valley) area. Her purpose was to determine if treating hydrophobic soil with an alkaline solution or an Aqua Gro L solution would speed the soil rehabilitation process. She conducted tests on four soil types with grass/root plugs over 2 weeks to check the effectiveness of both alkaline and Aqua Gro L solutions. This effectiveness was based upon the height of the grass/root plugs at the conclusion of the test period. She concluded that Aqua Gro L has a better potential to allow water percolation and promote plant growth, which may translate as a way to rehabilitate hydrophobic soil. This could lead to better plant and root structures which may mitigate soil erosion in areas with this type of soil.

The Junior Division winner was Amanda Mickelson, with her project entitled "Seaside Heritage: Investigation of Local Eocene Fossils". Based on a visit to an area of exposed fossils from the Delmar Formation, she wanted to describe and document the current fossil deposit conditions, as she is concerned about potential loss of the deposits due to erosional processes. She made multiple visits to the site and utilized a laser rangefinder to measure distances, metric rulers, a calculator, and a digital camera to document and to describe the fossils. She also gathered loose fossils for subsequent evaluation. She found numerous Ostrea idriaensis fossils, ranging from 3 to 10 cm in length, and with densities in the exposed rocks as high as 300 fossils per square meter. Her research found the fossil deposits to be approximately 46-48 million years old. She believes the exposed deposits to be at risk as erosion appears to have accelerated in the past 20 years. She hypothesized that potential mitigation measures (e.g., sand replenishment or engineering to lessen the impacts of a nearby seawall) may help preserve the deposits.

Once again, it was a pleasure to discuss projects with such bright students who represent our future. Congratulations to the winners!

Dave Sadoff,
Section Vice President

Colorado Section

Logan MacMillan Awarded Denver Oil Recognition Award- Logan MacMillian, CPG-04560, received the Denver Oil Recognition Award from the Desk and Derrick Club of Denver at its Industry Appreciation Luncheon on May 14, 2013. The award is given annually to an individual committed to the development of the oil and gas industry, who demonstrates a strong commitment, understanding and working knowledge of the current issues that effect the daily operations of the industry. The award honors a person who is not only active in the industry, but who also educates the public, striving to make the industry better and promoting good public relations. Logan is an ideal candidate for this award. Congratulations Logan!

Doug Peters,
Section Newsletter Editor

Georgia Section

I would like to start this newsletter congratulating all our graduating student members. The officers of the Georgia Section wish you all the best. I've met quite a few students that plan to go to graduate school. Please remember you can still keep your student AIPG membership. You will need to email AIPG National Headquarters and tell them your email address and university if it changes. For all our graduates that plan to start working or looking for a job, please remember that AIPG has a new membership category called Young Professional that gives you a membership at a reduced cost for three years.

For all our professional members, if you are hiring a new geologist for permanent employment, please let us know. We need to help our student members as much as possible.

During April, I visited five of our six universities and delivered our section's $250.00 scholarship awards and awarded $500.00 to two of our chapters. I was disappointed when I heard that none of our student members applied for our National scholarships. A total of eleven $1,000.00 scholarships were awarded this year. Other section scholarship winners not pictured include Albert Killingsworth, SA-4345 – Georgia Southern University, Troy Mosac, SA-4209–West Georgia, and Rachel Sellers, SA-3432 – University of Georgia.

Rebecca Pickering, SA-3360, president of Georgia State University Chapter receives our section scholarship.

Markevious Thomas, vice-president of University of West Georgia Chapter, receives our $500.00 check for the chapter.

On March 18, 2013, David Wilderman from Arcadis and I gave talks on the history of the remediation at the former Ford plant. After the presentation we visited the site and had a walk through the area being remediated and talked about the remediation equipment. We had students from our student chapters at West Georgia and Georgia State attend.

West Georgia and Georgia State professors and students and other members attended the remediation field trip

Jeannie Patrick, SA-3752, receives our section scholarship and Don Osborne, SA-3137, president of Columbus State University Chapter, receives our $500.00 check for the chapter.

Scott Reyher, SA-3382, from Georgia Southwestern State University receives our section scholarship.

On March 25, 2013, we had a drilling demonstration at Berry College. From the picture you can tell it was a cold day. Joel Warner helped in the demonstration.

Ron Wallace,
Section President

Michigan Section

March 2013 Michigan Section Meeting-On March 14, 2013 the Michigan Section held its first Section meeting of the year at Central Michigan University in Mt. Pleasant. Approximately 80 members and non-members attended the meeting. Good participation from the CMU Student Chapter contributed to the good attendance, with about a dozen students and faculty in attendance.

Following the buffet dinner, Ron Wallace, the 2013 National AIPG President, gave a short presentation to Michigan Section members regarding activities of the Georgia Section and how their meetings provide opportunities for students, and also to encourage members to attend the 2013 Annual Meeting that will be held in Broomfield, Colorado in October. This year's Annual Meeting will be the 50th Annual Meeting of AIPG.

Following Ron's presentation, the scheduled speaker, Nick Swiger of the MDEQ Remediation and Redevelopment Division spoke about updates on NAPL (non–aqueous phase liquid) management on sites regulated under Part 213 and 201 of PA 451 as amended. Nick's talk provided new information released by the MDEQ within the past week; he also indicated that additional information will be forthcoming in the next few months.

Ron Wallace, 2013 National President addressing members following dinner. Photograph courtesy of Adam Heft.

The AIPG Michigan section and AIPG National exhibited at the North-Central GSA meeting in Kalamazoo, Michigan. The booth generated approximately 125 new members for AIPG. A raffle was held with the following items: AIPG hat, t-shirt, water bottle, briefcase, and handheld Garmin eTrex 20 GPS unit. This was a winner take all raffle.

Adam Heft,
Section Newsletter Editor

The AIPG booth at GSA in Michigan.

Brian Burke, CPG-10546, talking with prospective members.

John Barkach, CPG-09121, with Matt Smith, SA-4653, winner of the raffle. Matt is a new member generated from the GSA meeting.

New members signing up!!!

GSA Crowd

Ohio Section

Student Chapter-The Wright State University AIPG Student Section has been active and is planning a field trip for Ohio Section AIPG members this fall. The students are handling all the logistical aspects of the field trip, the Ohio Section will be providing some financial support. The initiative,resourcefulness and planning by the Wright State University

AIPG Student Section is very encouraging. Our objective is to see a number of Ohio universities develop similar active student sections. We are sending the current issue of *The Professional Geologist* to each university with active student members along with a letter to the department head. Also, Ohio State student Victor Perez was awarded a $1,000 scholarship from AIPG National based on his academic record and an essay that he submitted. Tim Brown, Greg Kinsall and I presented the award to Victor Perez over lunch that included his advisor, Dr. William Ausich. I asked Mr. Perez what he would like to get from the AIPG Student Section at OSU, and he responded that field trips that provide examples of what professional geologists do would be very worthwhile. This points out that students want to learn what geologists do, and if we are going to advance student participation in AIPG, we need to provide interaction that is of value to the student sections. There is competition for student time and attention, and what we have to offer is a view to the workplace. We will be soliciting volunteers to conduct workplace student tours – either at the office or at a jobsite.

Local Geology Student Receives AIPG Scholarship-Victor Perez, SA-4360, an undergraduate geology student at The Ohio State University, has been awarded a student scholarship by the national AIPG Executive Committee. Mr. Perez is enrolled in the honors program and is currently pursuing a Bachelor of Science in the School of Earth Sciences. Victor's primary interests include paleobiology and organic geochemistry. At The Ohio State University, Victor has been working with Dr. William Ausich and Dr. Yo Chin in a new area of paleobiology research involving the isolation and identification of taxon-specific biomarkers from echinoderm fossils exceeding 200 million years in age. Victor's senior thesis deals with the speciation of a suite of molecules using mass spectrometers and other equipment, and he intends to use the scholarship award to assist in funding the project. Future plans for Mr. Perez include attending graduate school, and his long-term goal is to become a professor at a research university. An article prepared by Victor appears on page 17 of this *TPG* issue.

AIPG scholarships are awarded to assist students with college education costs as well as to promote student participation in the AIPG. Detailed information about AIPG's National Scholarship Program, including scholarship awards and eligibility requirements can be viewed at: *http://www.aipg.org/students/scholarship.htm*.

Ohio Section Awards Committee Seeks Nomination-The Awards Committee is actively seeking nominations for Awards to be presented at the Ohio Section Annual Meeting in November. Please submit nominations to Awards Chairman, Curtis J. Coe via e-mail at *Curtis.Coe@dnr.state.oh.us*.

Award categories and criteria area include the following:

- **Award of Honor:** The Award of Honor is presented to individuals that have a demonstrated record for distinguished service, as acknowledged by receipt of two of the available awards.
- **Outstanding Public Service:** The Outstanding Public Service Award is presented to those individuals that have made outstanding contributions to the public health and welfare during their career through expert testimony to governmental units, distinguished service on governmental commissions and committees, and geological expertise where needed by the public at large.
- **Outstanding Service to the Profession:** The Outstanding Service to the Profession Award is presented to those individuals that have given to the profession a long record of service, improvement of the profession as an articulate and effective advocate, and emphasis on the profession/public interface.
- **Outstanding Service to the Institute:** is presented to those individuals that have made outstanding contributions of time and effort to the Ohio Section – AIPG.
- **Certificate of Merit:** This certificate is presented to individuals who have demonstrated meritorious or unusual service to the president of the Ohio Section. Nominations are made by the Ohio Section President.
- **Outstanding Service:** This award is presented to those individuals who have made an outstanding geologically related contribution to either the geologic profession or the general public. This award is open to individuals inclusive of government, other professions, other scientists, academicians and media professionals.

Tom Jenkins,
Section President

South Dakota

2013 J.P. Gries Geologist of the Year award announced-The South Dakota section of the American Institute of Professional Geologists (AIPG) has named South Dakota School of Mines & Technology alumnus Mark T. Anderson as 2013 J.P. Gries Geologist of the Year. Anderson, a native of South Dakota, earned an M.S. degree in civil engineering and environmental sciences in 1980 and a B.S. degree in chemistry in 1974 from the School of Mines, where he also serves as adjunct faculty member in the Department of Geology & Geological Engineering.

The award is named in honor of Dr. John Paul Gries for his exceptional work in the field of geology and is provided each year by the South Dakota Section AIPG in memory of Dr. Gries, a longtime geology professor at the School of Mines. Anderson was nominated by Dr. Perry Rahn, emeritus professor of geology and geological engineering.

Anderson currently serves as director of the U.S. Geological Survey's (USGS) South Dakota Water Science Center in Rapid City. In this position, he is responsible for developing and overseeing a staff of scientists, engineers and technicians who conduct hydrologic investigations and data collection for ground water, surface water, and various water quality programs in the state.

During his career, Anderson has held several positions in the field of geology and hydrology. In 2011, he served as acting director of the USGS Earth Resources Observation and Science (EROS) Center, the world's largest civilian storehouse of earth imagery. While there, he played an important role in the Landsat 8 satellite mission as he worked with other key USGS, EROS and NASA personnel. The satellite was recently launched this past February and was successfully placed into Earth's orbit. Since 1972, Landsat satellites have continuously acquired space-based images of the Earth's land surface, coastal shallows and coral reefs.

Anderson has made many other exceptional contributions to the field of geology and hydrology, a few of which are listed below.

- Co-author of USGS Circular 1261 titled "Water availability for the Western United States--Key scientific challenges"
- First to instrument the Madison water table in Wind Cave and Brooks Cave, and correlate the water table

fluctuations in Brooks Cave with Rapid Creek discharge

- Led many of the research projects related to the 1996 Controlled Flood of the Grand Canyon
- Authored a chapter on US Water Policy with the President's Science Advisor Dr. Neal Lane in 2003 that set the stage for a national program on water availability
- Furthered the understanding of the 1972 Black Hills flood through speeches, community activities, and installation of high water markers throughout Rapid City and Keystone
- Supported thesis topics for many School of Mines graduate students, several of whom have gone on to become USGS employees
- Appointed by the director of the US Geological Survey, Dr. Marcia McNutt, to serve as chairman of the Yellowstone River Compact Commission beginning in 2010
- Recipient of the US Department of Interior's Cooperative Conservation Award for hydrology work in the Upper San Pedro River, Arizona
- Founder and president of the Little Spearfish Conservation and Historical Preservation Association

Previous J.P. Gries award recipients include State Geologist Derric Iles, CPG-10986, and Dr. Mark Fahrenbach of the South Dakota DENR's Geological Survey Program, Fred Steece of DENR's Minerals and Mining Program, and Drs. James Fox, Alvis Lisenbee, MEM-1747, J. Foster Sawyer, CPG-10000, Perry H. Rahn, CPG-03724, Jack Redden and Edward Duke of the School of Mines.

Tom Durkin,
Section President

AIPG South Dakota President Tom Durkin, CPG-09138 (left), present the 2013 J.P. Gries Geologist of the Year award to Mr. Mark T. Anderson (right).

Medicine Bow, Wyoming.
Photo by Jeff Weber, CPG-04522.

Scholarship winner, Jessica Eicher, with her class poster.

50th Anniversary Lapel Pin

The lapel pin is available to members for $10. You can purchase the 50th pin from the online store at www.aipg.org.

Note: Everyone who attends the 50th annual meeting will receive the pin.

So sign-up today to attend the 50th annual meeting and receive your FREE pin.

Drilling Water Wells in Bakwa Tshileu, Democratic Republic of the Congo

Ray Talkington, CPG-07935

As part of a humanitarian project to bring clean drinking water to a rural village in the central Congo, Ray and Lynda Talkington traveled there to lend their expertise in the water well drilling project. A portable drilling rig was rented from a non-profit organization located about 110 miles away. The portable drill rig has the capability to drill to 300 feet and install up to 4-inch diameter casing. The drill rig did not have the capability of drilling into the underlying bedrock (dolostone). The overburden was penetrated to a depth of 120 feet before bedrock refusal was encountered. There was no groundwater in the overlying red-brown silty clay. We will be headed back to the village in August 2013 to complete the water well project using air rotary drilling equipment that will be leased from the regional government.

The series of photos show the setup of the portable drill rig (Photos A and B). Making sure there is good circulation of the drilling mud (Photo C). Meeting of all the parties before the drilling is begun (Photo D). Advancing the first couple of drill rods (Photo E). The crowds watching the drilling operation (Photo F).

There were hundreds of villagers from Bakwa Tshileu and the surrounding villages watching the drilling operation. There were always people willing to help with the drilling project.


A


B


C


D


E


F

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GEOSCIENCE CURRENTS
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The Community College to University Pathway: Geoscience Majors in the Texas Public University System

Community colleges are a key part of many four-year university students' post-secondary education pathways. According to AGI's 2011 Status of the Geoscience Workforce report, within the science and engineering disciplines, 67% of Bachelor's degree recipients, 58% of Master's degree recipients and 44% of Doctorates attended community college. Furthermore, within the geosciences, 52% of Bachelor's degree recipients, 40% of Master's degree recipients, and 21% of Doctorates attended community colleges.

Understanding the flow of students from community colleges to four-year institutions allows faculty to develop closer cross-institutional ties that can foster a stronger pipeline between community college and university programs. In 2012, 69% of the 7,445 geoscience majors at 26 Texas public universities had transferred from one of 67 Texas community colleges. Most universities received these transfer students from a pool of 5 or fewer community colleges. However, 5 universities received students from a pool of more than 10 community colleges.

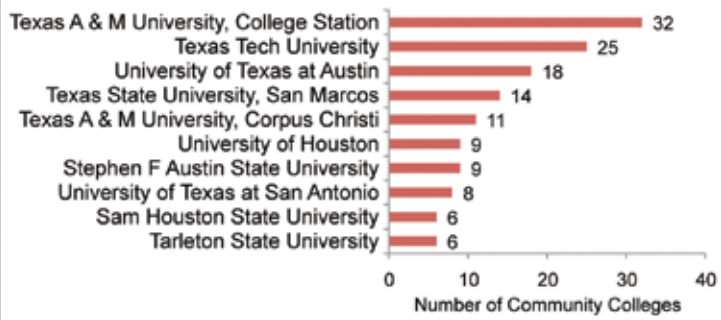
Texas Tech University and Texas A&M University, College Station received these transfer students from the largest pool of Texas community colleges, at 25 and 32 community colleges, respectively. Sul Ross State University, Midwestern State University, Texas A & M International University, University of Texas of the Permian Basin, University of Texas at Brownsville, University of Texas at El Paso each received students from only one community college each in 2012.

Dallas Community College District, which is comprised of 7 community colleges, served 11 universities that had geoscience majors who transferred from Texas community colleges. The Lone Star College System District (which is comprised of 5 community colleges) and Houston Community College served the next largest number of universities in Texas in 2012, at 10 universities each.

For a full exploration of the flow of students from community colleges to geoscience majors at public universities in Texas between 2000 and 2012, see the data visualizations posted on Tableau at: **http://bit.ly/16g2hcL**

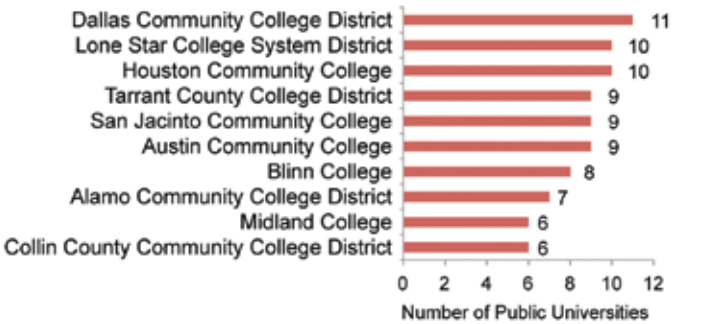
- Leila M. Gonzales

Texas Public Universities Receiving Geoscience Majors from the Largest Number of Texas Community Colleges (2012)



Source: Texas Higher Education Coordinating Board, custom data query.

Texas Community Colleges With the Widest Distribution of Students into Geoscience Majors at Texas Public Universities (2012)



Source: Texas Higher Education Coordinating Board, custom data query.

Dallas Community College District: Brookhaven College, Cedar Valley College, Eastfield College, El Centro College, Mountain View College, North Lake College, Richland College
Lone Star College System District: Cy Fair College, Kingwood College, Montgomery College, North Harris College, Tomball College
Tarrant County College District: Northeast Campus, Northwest Campus, South Campus, Southeast Campus, Trinity River Campus
Alamo Community College District: Northeast Lakeview College, Northwest Vista College, Palo Alto College, San Antonio College, St. Phillip's College

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