

GEO Spectrum

The Geosciences Newsletter



Letter from the Editor

Remember the days when summer was just about vacations, relaxation and prepping for another busy year? As we all know, summer in the geosciences is for conducting research, getting caught up on all the work that piled up during spring convention season, and tying up all the loose ends as we head towards the end of another fiscal year.

But don't forget, summer is the time to recharge and look forward. I hope this issue of GeoSpectrum gives you great ideas for ways you can be more involved in the coming months. We've featured the IGC Second Circular in the Meetings Section. I encourage you to plan to attend this event. It promises amazing science, world-class networking, and top-notch field trips throughout Australia and New Zealand. Maybe if we look far ahead enough into next summer we can plan for relaxation and vacations combined with geoscience (what could be better?).

If Australia seems a world away and next summer seems too far into the future, this issue is filled with other ways to be involved in the geoscience community. I hope you gain insight into several of the geoscience organizations you may or may not be familiar with and find events you wish to attend in these pages.

And as always, GeoSpectrum aims to be the most comprehensive source for the news of the geoscience community. To ensure this becomes a reality, submit your events to AGI's GeoCalendar <http://www.agiweb.org/calendar/> and send any story ideas and submissions to geospectrum@agiweb.org.

Andrea S. Martin

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Image © Michael Collier. Sunrise over meteor crater in Arizona.
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AGI Member Societies

- AASP-The Palynological Society (AASP)
- American Association of Petroleum Geologists (AAPG)
- American Geophysical Union (AGU)
- American Institute of Hydrology (AIH)
- American Institute of Professional Geologists (AIPG)
- American Rock Mechanics Association (ARMA)
- American Society of Limnology and Oceanography (ASLO)
- Association for Women Geoscientists (AWG)
- Association of American State Geologists (AASG)
- Association of Earth Science Editors (AESE)
- Association of Environmental & Engineering Geologists (AEG)
- Clay Minerals Society (CMS)
- Council on Undergraduate Research, Geosciences Division (CUR)
- Environmental and Engineering Geophysical Society (EEGS)
- Friends of Mineralogy (FOM)
- The Geochemical Society (GS)
- Geo-Institute of the American Society of Civil Engineers (GI)
- Geological Society of America (GSA)
- The Geological Society of London (GSL)
- Geoscience Information Society (GSIS)
- History of Earth Sciences Society (HESS)
- International Association of Hydrogeologists/U.S. National Chapter (IAH)
- International Basement Tectonics Association (IBTA)
- Internternational Medical Geology Association (IMGA)
- Karst Waters Institute (KWI)
- Mineralogical Society of America (MSA)
- National Association of Black Geologists and Geophysicists (NABGG)
- National Association of Geoscience Teachers (NAGT)
- National Association of State Boards of Geology (ASBOG)
- National Cave and Karst Research Institute (NCKRI)
- National Earth Science Teachers Association (NESTA)
- National Ground Water Association (NGWA)
- National Speleological Society (NSS)
- North American Commission of Stratigraphic Nomenclature (NACSN)
- Paleobotanical Section of the Botanical Society of America (PSBSA)
- Paleontological Research Institution (PRI)
- Paleontological Society (PS)
- Petroleum History Institute (PHI)
- Seismological Society of America (SSA)
- SEPM (Society for Sedimentary Geology) (SEPM)
- Society for Mining, Metallurgy, and Exploration, Inc. (SME)
- The Society for Organic Petrology (TSOP)
- Society of Economic Geologists (SEG)
- Society of Exploration Geophysicists (SEG)
- Society of Independent Professional Earth Scientists (SIPES)
- Society of Mineral Museum Professionals (SMMP)
- Society of Vertebrate Paleontology (SVP)
- Soil Science Society of America (SSSA)
- United States Permafrost Association (USPA)

American Geological Institute FOUNDA T I O N

www.agifoundation.org

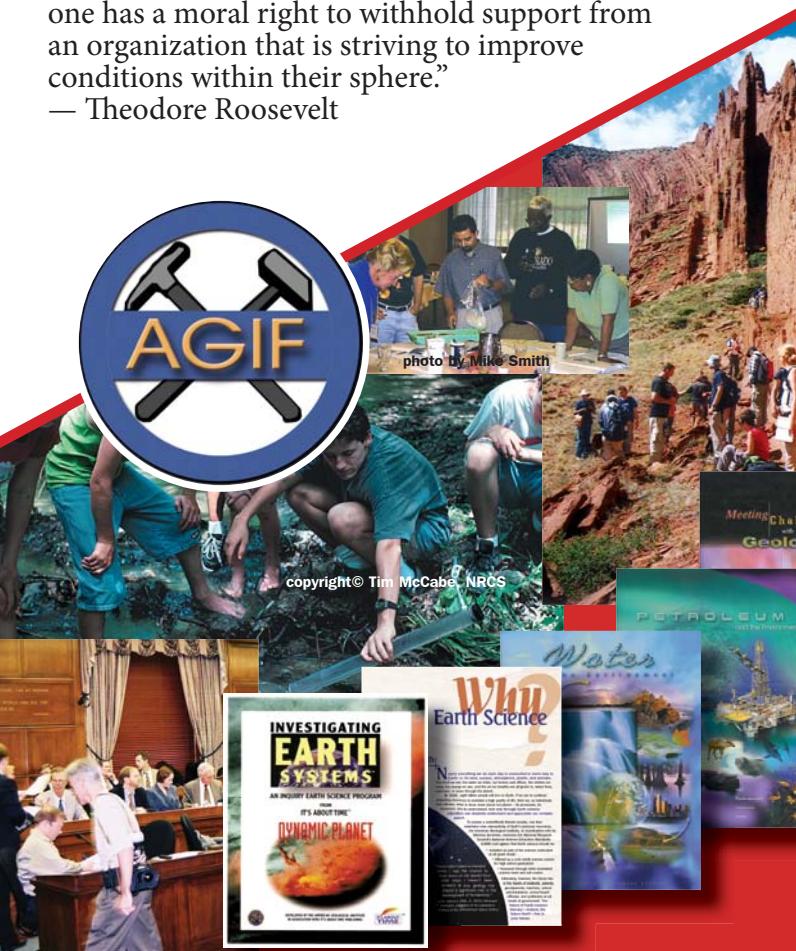
The AGI Foundation supports programs that assist researchers, educators, policy-makers, and young people — the geoscientists and informed citizens of tomorrow. Invest in the geosciences by supporting the AGI Foundation's efforts.

Some of the programs the AGI Foundation is working to fund are the following:

- Develop national geoscience curricula.
- Support a national teacher enhancement program.
- Establish a Congressional Geoscience Fellowship endowment.
- Produce environmental geoscience publications.
- Develop web-based training materials for geoscience students and professionals.

"Every person owes part of one's time and money to the business or industry to which one is engaged. No one has a moral right to withhold support from an organization that is striving to improve conditions within their sphere."

— Theodore Roosevelt



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AGI Member Society Services



Sign Up to Receive EarthNotes

The American Geological Institute (AGI) is pleased to offer, EarthNotes, information briefs that provide engaging and timely information about earth science issues.

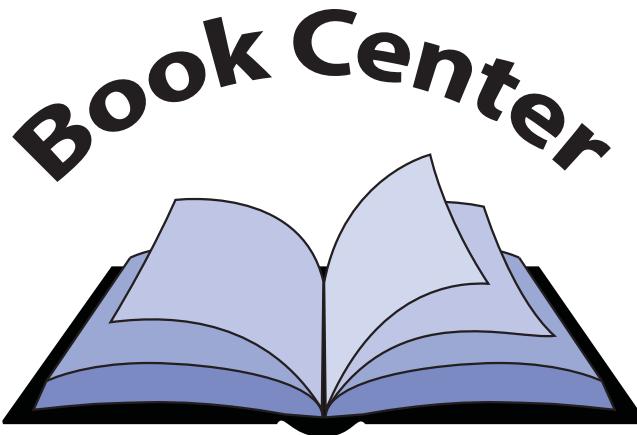
EarthNotes are concise reports created to inform the general public about the interactions between the planet and their daily lives. Each one-to-two-page EarthNote is authored by an expert in the field and will cover all geoscience topics ranging from volcanology to climate to natural resources.

To receive updates when new EarthNotes are published go to <http://www.agiweb.org/environment/earthnotes/updates/>.

AGI is currently soliciting authors for EarthNotes. If you are interested in participating in this outreach endeavor, please contact AGI Environmental Affairs Director, Travis Hudson at ageology@olypen.com.

To view EarthNotes, go to <http://www.agiweb.org/environment/earthnotes/>.

The AGI Book Center:



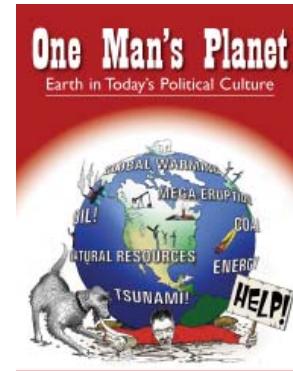
In association with Amazon.com, AGI has updated the Earth Science World Book Center. This site enables visitors to come to a central location to search books available through Amazon.com related to the earth sciences. Search by keyword or category to find books of interest to you! Visit the book center <http://www.earthscienceworld.org/books/> often to see new books that have recently been added to the collection.

A screenshot of the AGI EarthNotes website. At the top, there's a header with the AGI logo and the text "American Geological Institute EarthNotes". Below the header, there's a section titled "The Earthquake-Groundwater Connection" by Cliff Trexler, National Ground Water Association. The page contains several paragraphs of text about groundwater and earthquakes, accompanied by small images and graphs. At the bottom, there's a footer with the AGI logo and copyright information.

Webinar Archives:

AGI is pleased to announce an archive of all previous webinars. Our webinars have covered topics such as Open Access, Careers, Education and more. If you were not able to participate in the live webinar as it was happening, listen at your leisure to the discussions that have taken place. Also, be sure to check back for upcoming webinars that may be of interest to you or people in your organization: <http://www.agiweb.org/members/webinars/>

AGI now offers EBooks



Stephen M. Testa

One Man's Planet, GeoWriting, and the Status of the Geoscience Workforce report 2001 are all available on Amazon's Kindle and Barnes & Noble's Nook. Download these top AGI publications at a fraction of the cost of the print editions, plus no shipping and handling charges! Soon these publications will be available as part of iBooks as well. Keep checking AGI's website for new developments.

AGI's 2010 in Review

The American Geological Institute (AGI) actively served as a voice of shared interests in our profession in 2010 with a focus on strengthening geoscience education, and increasing the public's understanding of the vital role the geosciences play in society's use of resources, resilience to natural hazards, and interaction with the environment. To achieve these goals we expanded our collaborations with our Member Societies, directly engaged the international geoscience community, and developed new programs and tools to make the geosciences more accessible to both the public and the profession.

The AGI Federation grew in 2010 to include our 47th Member Society, the Karst Waters Institute (KWI). With their addition, we welcomed another valuable section of the earth science community to ensure that the needs of all earth scientists are being met. KWI is a non-profit institution whose mission is to improve the fundamental understanding of karst water systems through scientific research and the education of professionals and the public.

Education

Education and outreach has long been a cornerstone of AGI's mission. With funding from the National Science Foundation, the American Association of Petroleum Geologists, and the Geological Society of America, AGI hosted the first Earth System Science Education Summit. This event, held at BP Exploration's Helios Plaza brought together representatives from AGI's Member Societies and other key geosciences education partners to discuss the key issues in geoscience education.

Through shared experiences, this group highlighted the six main issues facing K-12 Earth Science Education. They are:

- High school Earth System Science is not perceived as a rigorous, laboratory course.

- The preparation and development of Earth System Science teachers needs improvement.
- Earth System Science needs to be included in the new national science education standards.
- An Earth System Science advanced placement course is lacking.
- There are challenges to Earth System Science in schools by the creationist and Intelligent Design movements.
- The role of the International Earth Science Olympiad could be used to raise the profile of Earth System Science.

The Summit participants discussed the appropriate next steps in addressing the key issues such as identifying possible funding sources and the current initiatives and individuals already focused on Earth System Science education. There are currently several reports and projects underway as a result of the Geoscience Education Summit. To read the Executive Summary or Full Report of the Summit, go to <http://www.agiweb.org/education/summit/>.

Outreach

The AGI Education and Outreach Departments are actively working to make quality science education and materials accessible to all people. In 2010, AGI partnered with Schlumberger Excellence in Educational Development (SEED) to produce an online Earth Science Week toolkit that contained educational resources in both Spanish and English for use in both U.S. schools and SEED classrooms around the world. To access the Earth Science Week SEED materials for 2010 go to <http://www.earthsciweek.org/seed/>.

The challenges in geoscience education, be it the perception of the course matter to the training of the educators, have a ripple effect that could be felt in

the earth science profession for years to come. AGI's Workforce Program continued their work of tracking the data of the geosciences in 2010. From K-12 through graduate level studies, the professional level and into retirement, AGI provided information on education trends, employment and salary statistics and the future of the geosciences.

Workforce

To ensure that the community is aware of the challenges and successes in our industry, the Workforce program published 13 Geoscience Currents, one page PDF's highlighting a specific set of data. Each *Current* features graphical information and a short description covering topics such as the degrees held by K-12 earth science educators, minorities in the geoscience workplace, trends in the mining industry, salary levels, and NSF funding in the geosciences. To view or download all GeoScience Currents go to <http://www.agiweb.org/workforce/currents.html>.

In addition to providing Geoscience Currents, the Workforce program also hosted over a dozen webinars with invited speakers/presentations and question and answer sessions. Many of the webinars were co-sponsored and attended by AGI Member Societies to discuss issues of shared interest. These webinars have all been archived and are available at <http://www.agiweb.org/workforce/webinars.html>.

Policy

AGI doesn't just bring geoscientists, students and elected officials together in virtual settings. We bring together key players to discuss current issues affecting the community and the ways America's elected officials should proceed in developing policy to address these concerns. The 2010 Leadership Forum, "Water Resources: National Policy and Global Implications" did just that.

Invited panel speakers, including Ms. Anne Castle from the Department of the Interior, Dr. Marcia McNutt, Director of



the U.S. Geological Survey, Ms. Mary Glackin of the National Oceanic and Atmospheric Administration, and Ms. Denise Keehner, Director of the Office of Wetlands, Oceans, and Watersheds, spoke on topics involving water science from the Federal Perspective. Later, Forum attendees discussed oceans, water quality and water quantity and the ways these issues should be addressed and corresponding policy recommendations. Visit <http://www.agiweb.org/events/LF2010/index.html> to learn more about the Leadership Forum.

Another way AGI maintains close communication channels with policy makers is by hosting the William L. Fisher Congressional Geoscience Fellow each year. In 2010-2011, Ursula Rick served as AGI's fellow, working in the office of Senator Mark Udall of Colorado.

International Growth

The problems we as a society face are not exclusive to the U.S. AGI realizes that education standards, an aging workforce, and funding issues are global. During 2010 we reached out, with the help of several Member Societies, to build stronger international relations.

AGI was pleased to be a founding partner of the International Year of Planet Earth. As IYPE came to a close, AGI, in partnership with the Geological Society of America, the Geological Society of London, and the British Geological Survey developed the Global Geoscience Initiative. Town halls were held in conjunction with international geoscience meetings. In 2010, Town-hall meetings took place during at The European Geosciences Union annual meeting in Vienna, Austria and the American Geophysical Union Meeting of the Americas in Iguassu Falls, Brazil. Topics at these meetings included global earthquake models, UNESCO earth science initiatives, communicating climate change, and global research initiatives.

To learn more about the Global Geoscience Initiative go to <http://www.agiweb.org/members/ggi/>. Here you will find full reports, summaries, and the power point presentations given at each Townhall.

AGI also added the International Associates (IA) membership category during 2010. Any international geoscience organization with fewer than 25 U.S. members is eligible to become an International Associate. Once accepted into the AGI Federation, IA's are able to attend AGI member society council members, receive important AGI communications and will have priority when suggesting new programs AGI should undertake.

Our first International Associate, accepted during the 2010 calendar year, is the Young Earth Science (YES) Network. This organization represents geoscientists (primarily under the age of 35) from around the globe. The YES Network also developed as a result of the International Year of Planet EARTH and continues to promote the development of the geosciences by establishing strong networks, providing professional development opportunities, building relationships between earth scientists and those in other fields, and fostering collaboration.

In addition, AGI collaborated with the YES Network to webcast their proceedings from meetings around the world, from Beijing to Vienna to Johannesburg.

GeoRef

GeoRef continues to be a premiere program at AGI. It too has taken on a larger worldwide role. In addition to producing more than 100,000 new bibliographic references in 2010, GeoRef began development for CanGeoRef, a bibliographic geoscience database covering Canadian research and literature. Similar to AusGeoRef, which covers the Australian Geosciences since 1840, CanGeoRef will enable Canadian earth scientists to access the best and most pertinent research in their areas.

Also During 2010, GeoRef received a grant to digitize the Antarctic Journal. For the first time, earth scientists worldwide will be able to access the original research on Antarctica, which previously only existed in a print format inaccessible to many.

Communications

As AGI partners more closely with our Member Societies and geoscience organizations within the U.S. and worldwide, we have relaunched GeoSpectrum to be the newsletter keeping us all informed of the many activities and updates within the community. GeoSpectrum's first new issue was sent as a 26 page PDF in the summer of 2010. It has quickly evolved to be a quarterly e-zine that reaches over 10,000 earth scientists and interested individuals globally. By publishing this newsletter as a PDF we are able to maintain a free subscription rate and are not limited to strict page limits. To subscribe to GeoSpectrum or to read past issues visit <http://www.agiweb.org/geospectrum/>.

Technology

AGI is working constantly to create new programs or adapt existing products to take advantage of technologies that are evolving and rapidly becoming more prevalent in society.

The Glossary of Geology has long-been one of AGI's most popular publications. AGI developed a version of the Glossary, containing all of the 40,000 terms available in the print edition, for the iPhone and iPad. Users of the Glossary App are able to access the complete Glossary of Geology no matter how remote their field location may be. This App is available for educational volume discounts through campus licensing offices. Because of this, geology students will be able to obtain the Glossary for a fraction of the cost of the print edition.

Publications

EARTH magazine also developed an app. Available on the Android platform, the EARTH app is free and displays the latest information available on the EARTH website including multimedia content.

Not only has EARTH developed an app, but in 2010 the magazine also began a digital subscription offer through Zinio. A digital subscription of EARTH costs only \$20.00 no matter where the subscription is purchased or viewed. This low price enables readers from



around the world to access the magazine without the substantial shipping costs. The digital version of the magazine contains the same information and graphics as the print edition, but is delivered to your computer, phone or tablet device several weeks earlier than the print edition appears in mailboxes or on newsstands.

In addition to digital subscriptions and apps, AGI also began publishing eBooks on the Amazon Kindle platform in 2010. One Man's Planet, authored by Past President of AGI, Stephen M. Testa, was the first book we provided for the Kindle as well as in print, preparing the way for AGI to fully engage its publications portfolio to the eBook revolution that is underway.

In an effort to provide accurate and timely information on engaging earth science topics, AGI launched the free service, EarthNotes. EarthNotes are concise one-to-two-page reports authored by an expert in their field. They cover all geoscience topics from volcanology to climate to natural resources. EarthNotes can be used to brief local leadership about ongoing issues that affect the community, as an educational resource for any age student, or purely for informational purposes. To learn more about EarthNotes (including information on how to become an EarthNote author) or to subscribe to this free service go to AGI's Environmental Geoscience page at <http://www.agiweb.org/environment/earthnotes/>.

2010 was a productive year at AGI as we renewed our mission to work closely with our Member Societies on issues of shared concern. Strides were made in increasing earth science education in the U.S. and building relationships with new organizations here and abroad. We developed new programs that would allow geological information to be more

accessible, such as CanGeoRef and the Glossary of Geology app. AGI strengthened communications between organizations and remains committed to sharing what we have learned through our various programs with the community as a whole. 2011 has continued on this same path and we look forward to the achievements we can make with the collaborations of our partner organizations in the coming years.

2010 Financial Information in Review

For the fiscal year ended September 30, 2010, AGI revenues exceeded expenses by \$166,000. Given the uncertainties of the economy this was a welcomed result.

Royalty and grant/contract revenue represented over 65% and nearly 18% of AGI's revenue stream, respectively. Both of these sources of revenue represent over 83% of AGI's total revenue stream. It should be noted that both of these revenue items did decline in FY2010. For royalties, the decline was due to eroding sales of the middle and high school science curriculums and grant declines were due to lack of Federal funding awards for AGI programs. About two-thirds of grant funding in FY2010 came from the American Geological Institute Foundation.

Continuing efforts and proposals have been presented to seek and obtain federal grants for AGI programs. As a result, an award of over \$1.1 Million for a two-year period was received by AGI. Grant activity continues to be a vital part of AGI's operations and a steady volume of federal funding is desirable for the continuing enhancement of AGI's educational programs.

Publications and magazine revenues were down as well, primarily due to de-

clining demand for books and periodicals driven by the recession and the increasing use of the internet and digital media.

For the fiscal year ended September 30, 2010, program expenses represented 76% of AGI's total expenses. This is a percentage measurement known as the program service expense ratio--a gauge often used to measure a non-profit's efficiency. In general, the higher the ratio of program-related expenses to total dollars spent, the more effective the non-profit is deemed to be in furthering its mission. Depending on whose ratio criteria benchmark you use, which ranges 65% to 72%, AGI is above the threshold.

What happened in September? The stock market had its best September in eighty years. On our fiscal year basis, the S&P 500 Index YTD returns as of August 31 and September 30, 2010 were a negative 0.8% and a positive 7.9%, respectively, compared to AGI's mutual fund portfolio's positive returns of 4.4% and 10.1%, respectively. For the fiscal year, AGI's top mutual fund performers, percentage-wise, were the precious minerals fund, which gained nearly 43%, and the media and telecommunications fund that gained nearly 25%.

Financial position continues to be healthy as of September 30, 2010: current assets are 4-to-1 over current liabilities, cash and investments are \$3.9 million, compared to \$3.7 million a year ago, and net assets are approaching \$9.3 million. Liabilities are under \$1.2 million. Of that amount, over 50% are advanced payments received for subscriptions and program activities.

AGI strives to maintain financial diligence and ensure the continuance of programs and services that meet a high standard for the geosciences.

American Geological Institute

Statement of Financial Position September 30, 2010

Assets

Current assets

Cash and cash equivalents	\$ 1,987,403
U.S. Treasury securities	1,500,000
Marketable securities	422,284
Accounts receivable	416,077
Grants and contracts receivable	15,953
Prepaid expenses and advances	81,072
Inventory of publications	40,373
	<hr/>
	4,463,162

Property and equipment, at cost

Building and improvements	1,940,955
Furniture and equipment	296,787
Less: accumulated depreciation	(1,410,539)
	<hr/>
	827,203
Land	525,032
	<hr/>
	1,352,235

Other assets

Trademark	108,540
GeoRef database	4,500,000
Software, net of amortization	14,815
Mineral displays	13,362
	<hr/>
	4,636,717
Total assets	\$ 10,452,114
	<hr/>

Liabilities and net assets

Current liabilities

Accounts payable and accrued expenses	\$ 361,491
Advance subscription and project income	575,184
Accrued vacation	165,691
Publication obligations, current portion	17,860
	<hr/>
	1,120,226

Long-term liabilities

Publication obligations, net of current portion	46,680
Total liabilities	1,166,906

Net assets

Unrestricted	9,216,394
Temporarily restricted	68,814
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Total net assets	9,285,208
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Total liabilities and net assets	\$ 10,452,114

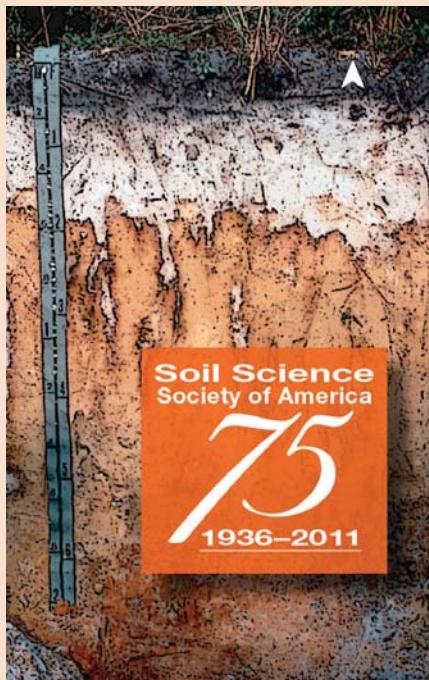
Audited

American Geological Institute

Statement of Activities for the year ended September 30, 2010

	Unrestricted	Temporarily Restricted	Total
Support and revenue			
Advertising	\$ 130,976	\$ -	\$ 130,976
Dues	141,917	-	141,917
Grants, contracts, and services	1,051,653	-	1,051,653
Contributions	101,197	-	101,197
Publication sales	161,612	-	161,612
Subscription income	295,534	-	295,534
Royalties	3,830,049	-	3,830,049
Interest and investment income	76,757	-	76,757
Other	73,863	-	73,863
Net assets released from restrictions	10,000	(10,000)	-
	5,873,558	(10,000)	5,863,558
Expenses			
Publications	117,103	-	117,103
Grant and contracts	1,039,927	-	1,039,927
Education and special programs	459,178	-	459,178
Environmental series	17,208	-	17,208
Magazine department	684,857	-	684,857
GeoRef department	1,811,278	-	1,811,278
Public relations	205,037	-	205,037
General and administrative	1,362,808	-	1,362,808
	5,697,396	-	5,697,396
Change in net assets	176,162	(10,000)	166,162
Net assets, beginning of year	9,040,232	78,814	9,119,046
Net assets, end of year	<u>\$ 9,216,394</u>	<u>\$ 68,814</u>	<u>\$ 9,285,208</u>

Audited



Soil Science Society of America Celebrates 75th Anniversary

dergraduate and graduate students, and members around the world.

"During our 75-year history, the Soil Science Society of America has had many accomplishments. From our peer-reviewed journals, Annual Meeting, and educational outreach, we have much to celebrate," says SSSA President Charles W. Rice, Kansas State University. "We look forward to the next 75 years in SSSA history, as the importance of the soil ecosystem moves to the forefront of discussions about climate change, food security, water quantity and quality, contamination, and human health."

SSSA recently completed its assessment of the Grand Challenges facing the soil science discipline. SSSA identified the most critical future research needs in soil science, pointing to: Climate Change; Food and Energy Security; Waste Treatment and Water quality; Human and Ecosystem Health. For more information the Soil Grand Challenges, including the full list of short-, medium-, and long-term research goals, visit: www.soils.org/about-society/grand-challenges.

The organization is planning several anniversary activities throughout 2011. A national outreach plan is being launched to increase awareness of the importance of soils and the soil science

profession and will continue throughout 2011. Anniversary celebrations will culminate at the 2011 Annual Meeting, Oct. 16-19, 2011 in San Antonio, TX. For more information on the Annual Meeting, visit www.acsmeetings.org. To celebrate the anniversary of the journal, SSSAJ will publish historical perspectives throughout 2011. For more information on the journal, visit www.soils.org/publications/ssaj.

The [Soil Science Society of America \(SSSA\)](http://www.soils.org) is a progressive, international scientific society that fosters the transfer of knowledge and practices to sustain global soils. Based in Madison, WI, SSSA is the professional home for 6,000+ members dedicated to advancing the field of soil science. It provides information about soils in relation to crop production, environmental quality, ecosystem sustainability, bioremediation, waste management, recycling, and wise land use.

SSSA supports its members by providing quality research-based publications, educational programs, certifications, and science policy initiatives via a Washington, DC, office. Founded in 1936, SSSA celebrates its 75th Anniversary this year (2011). For more information, visit www.soils.org or follow [@SSSA soils](https://twitter.com/SSSA_soils) on Twitter.

The Soil Science Society of America (SSSA), the international scientific Society that is the professional home to more than 6,000 soil scientists, celebrates its 75th Anniversary in 2011, and also the 75th anniversary of its peer-reviewed journal, the Soil Science Society of America Journal (SSSAJ).

Founded in 1936, SSSA supports peer-reviewed publications, an Annual Meeting, science policy activities, and the Certified Professional Soil Scientist Program. Today, SSSA continues to help its members advance the field of soil science through outreach to teachers, un-

AGI Welcomes International Medical Geology Association

The American Geological Institute (AGI) is pleased to welcome its 49th Member Society, the International Medical Geology Association (IMGA).

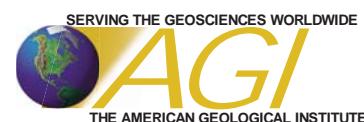
IMGA was established in 2006. Since that time, its nearly 500 members represent 73 countries. This multi-national organization facilitates interactions between geoscientists and biomedical and public health researchers to address hu-

man and animal health problems created by geologic materials and processes.

Dr. P. Patrick Leahy, AGI Executive Director, says of IMGA's addition to the AGI federation, "IMGA is an association that truly matches with AGI's mission to increase the awareness of the vital role the geosciences play in society. Human health directly relates to the earth sciences, be it access to safe drinking water, or geo-engineering to live safely in

an area of high earthquake risk. IMGA assures that the quality application and knowledge of the geosciences protect society."

To learn more about IMGA please visit their website at <http://www.medicalgeology.org/index.htm>.



National Cave and Karst Research Institute in New Headquarters

The National Cave and Karst Research Institute (NCKRI) recently moved from temporary office space to a newly built headquarters.

Their new address is:

National Cave and Karst Research Institute
400-1 Cascades Avenue
Carlsbad, New Mexico 88220-6215

To learn more about NCKRI please visit their website <http://www.nckri.org>

Call for Papers: BSSA Special Issue on the 2011 Tohoku-Oki Earthquake and Tsunami

The Bulletin of the Seismological Society of America (BSSA) will publish a special issue on the 11 March 2011 Magnitude 9.0-9.1 Tohoku-Oki earthquake and tsunami. This is one of the best geophysically-recorded great earthquakes and the largest event to have occurred near Japan since at least 869 CE. The earthquake ruptured the megathrust plate boundary in the Japan subduction zone, creating a tsunami that devastated parts of northeastern Honshu for up to 5 kilometers inland and caused damage as far away as western North America. The size of the local tsunami contributed extensively to the high death and damage toll in the densely populated coastal region. Japan's stringent seismic building codes, early warning systems, and high public awareness of earthquake and tsunami hazards undoubtedly helped in saving many lives, but the size of the event and

its tsunami exceeded expectations that had guided some earthquake mitigation efforts. The mainshock was preceded by several foreshocks, including one of magnitude 7.2 on March 9. Japan is one of the most heavily instrumented areas on Earth, providing extensive seismological, geodetic, and water level information that will provide unprecedented resolution of this great earthquake event and the fundamental nature of deformation on the megathrust fault.

This BSSA special issue will focus on results of investigations into all seismological, geodetic, tsunami, other geo-physical, geological, paleoseismic, and engineering aspects of the 2011 Tohoku-Oki earthquake. Authors working in this area are encouraged to submit research papers for consideration as part of this special issue. We recommend that authors contact one of the guest editors, who are listed below with their primary responsibilities.

Thorne Lay, University of California at Santa Cruz (tlay@es.ucsc.edu), and Justin Rubinstei, U.S. Geological Survey (jrubinstein@usgs.gov) will handle

papers on seismology

- Eric Geist, U.S. Geological Survey (egeist@usgs.gov) will cover papers on the tsunami and its effects
- Takeshi Sagiya, Nagoya University (sagiya@seis.nagoya-u.ac.jp) will oversee papers on geodesy.

The special issue will be published in May 2013. BSSA will begin accepting submissions immediately; the submission deadline is 31 March 2012. Manuscripts should be prepared as described at <http://www.seismosoc.org/publications/bssa/authors/> and should be submitted via <http://bssa.edmgr.com>. Authors should select the category "Tohoku-Oki Earthquake Special Issue" during the submittal process. Questions related to scientific issues may be addressed to Diane Doser, Editor-in-Chief, at bssaeditor@seismosoc.org, while those related to submission of papers may be addressed to Carol Mark, Managing Editor, at bssa@seismosoc.org.



Rediscovering Sound Soil Management

New book aims to spark renewed interest in soil management, firmly grounded in science

At the same time that demand for food is soaring along with the world's population, the soil's ability to sustain and enhance agricultural productivity is becoming increasingly diminished and unreliable.

Fortunately, it's not too late to restore our soil resources. What it will take, say the editors and contributors to a new book, *Soil Management: Building a Stable Base for Agriculture*, is rediscovering the value of soil management and following practices that are firmly grounded in science. The book is published by the Soil Science Society of America (SSSA) and the American Society of Agronomy (ASA).

Soil management concepts have been in place since the beginning of agriculture. However, "our personal concern," say the editors, Jerry L. Hatfield and Thomas J. Sauer of the USDA-Agricultural Research Service, "is that we have not focused enough on how to improve

our soils and management practices." This concern led them to assemble in the book the latest scientific knowledge about the physical, biological, and chemical processes taking place in soils, which together form the foundation of effective soil management.

Individual chapters cover diverse issues of global relevance, including water dynamics in soils, gas exchange, soil biology, pesticide movement, and wind erosion. The book also emphasizes the mounting challenges of enhancing productivity while simultaneously achieving environmental protection, and managing soils in a changing climate.

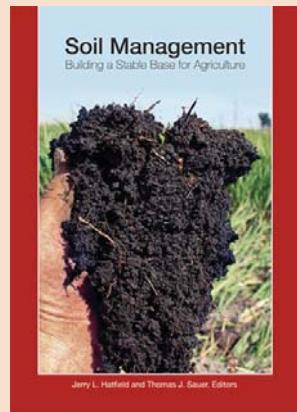
"The management of soil is fundamental to life," say SSSA president Charles Rice and ASA president Newell Kitchen. "This book speaks to a priority message of our sciences."

While the book is well suited to scientists, it also uses accessible language, allowing students, soil science profession-

als, and other science-literate readers to benefit from its integration of management

issues, soil research and long-term conservation efforts. The editors hope the volume will spark renewed interest in the critical, but somewhat neglected, topic of soil management.

Soil Management: Building a Stable Base for Agriculture is 430 pages, hardcover and available from Soil Science Society of America for \$100 at www.societystore.org, or call 608-268-4960 or email books@soils.org.



Proposed Changes in Canadian NI 43-101 State-licensed PGs Not Recognized

The Canadian Securities Administrators (CSA) on April 8, 2011 adopted changes to National Instrument 43-101 that covers technical reports about mining properties. Some of the changes, such as the re-organization of and relaxing of the rigidity of the form of the report (NI 43-101F1) are welcome improvements. However, the proposed change in the definition of "qualified person" is causing concern to some professional organizations, particularly US state-licensed PGs and RGs. The definition of "qualified person" is being changed to make it less prescriptive and more adaptable. This requirement would relieve the CSA from having to amend NI 43-101's list of recognized foreign professional associations every time another professional requests recognition. At the same time, the CSA has shortened its list of recognized foreign professional organizations. The proposed changes to NI 43-101 contain an Appendix A, the "Accepted Foreign Associations and Membership Designations."¹ The CSA's proposal is designed to bring greater consistency in the assessment of those organizations and their membership grades that are deemed appropriate for recognition as "qualified persons."

AIPG CPGs are listed in Appendix A, as do licensed or certified profession-

al engineers from a US state. Licensed or registered geologists by US states are conspicuously absent. Those of you and your colleagues who are relying on a US state-issued Professional or Registered Geologist license for their credential for "qualified person" status should apply for AIPG certification.

Similarly, the Australasian Institute of Mining and Metallurgy (AusIMM) has recently noted that the proposed changes will no longer recognize AusIMM or AIG Members as "qualified persons." Instead Fellowship status or recognition as an AusIMM Chartered Professional will be required for recognition. The reason for this change in the recognition of AusIMM membership categories is to bring uniformity to the characteristics of those recognized as meeting the definition of "qualified person." Like AIPG, AusIMM has different membership categories. In AusIMM's case, the "Member" category "is available to graduates following three years of relevant experience after graduation. In the case of a three year degree or equivalent, the required length of experience is four years."² The requirements for certification or chartered professional status are generally higher and frequently require a minimum number of continuing professional development (CPD) credits

be undertaken each year. I encourage those AIPG CPGs who are interested in being recognized as "qualified persons" for the purposes of NI 43-101 or NI 51-101 (for oil and gas) to maintain a CPD log. AIPG's website has allowed members to keep a good on-line CPD record but this function is currently not available as AIPG's website undergoes a major reconstruction—the previously recorded CPD activities have not been destroyed; you can get copies from Vickie Hill at AIPG HQ (vlh@aipg.org).

1. http://www.osc.gov.on.ca/en/NewsEvents_nr_20110408_csa-new-mining-rule.htm. When converted to a PDF file (40 MB in size), the revised Appendix A of recognized foreign professional associations is on page 46.

2. Three-year undergraduate degrees are common in other countries. In these countries a 4-year degree is an "honors" degree.

This article originally appeared in the May/June 2011 issue of *The Professional Geologist*



AGI Welcomes the National Cave and Karst Research Institute

The American Geological Institute is pleased to announce the 48th Member Society of the AGI Federation, The National Cave and Karst Research Institute.

Originally part of the National Park Service, The National Cave and Karst Research Institute (NCKRI), is a non-profit organization with three founding partners: The National Park Service; the City of Carlsbad; and the New Mexico Institute of Mining and Technology. NCKRI exists to advance cave and karst science, serve as a repository for data, foster partnerships, promote educational programs, develop both national and international programs, and promote

environmentally sound and sustainable cave and karst management.

Their addition to the AGI federation adds to the quality speleological and hydrological organizations already part of AGI's member society council. NCKRI's active role in research, publishing and developing educational and outreach programs matches well with AGI's mission. Dr. P. Patrick Leahy, AGI Executive Director says "We are very pleased to include NCKRI as part of the AGI Federation and hope to partner with their staff on shared initiatives to increase the public awareness of the earth sciences. This is an exciting time at NCKRI as they transition to non-profit status and

it is our hope that belonging to AGI is beneficial during this process."

NCKRI's Executive Director, Dr. George Veni, sees AGI membership as integral to fulfilling NCKRI's mission. "Roughly 25% of this country is karst, yet most people, including some geoscientists, don't adequately understand what that means. AGI offers an unparalleled platform for educating the public, policymakers, and the geoscience community about how karst functions, and the resources and challenges it presents."

To learn more about NCKRI visit <http://www.nckri.org/>.

New Things from SEPM - Society for Sedimentary Geology

OPEN ACCESS Author Options

Both of SEPM's technical journals offer authors the option of having their articles in Open Access at the journals website (www.sepmonline.org). Authors may use this option to broaden readership or if it is a requirement of the funding agency. The cost per article is \$2,000 but whether a submitted manuscript is to be open access or not, it plays no part in the review and acceptance process. Contact the journal editors for more details if open access is an option you are considering.

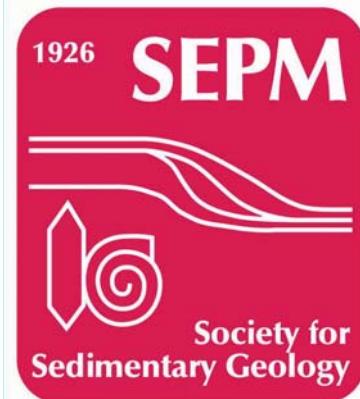
SEPM Books Online

Last year SEPM finished a long term project to digitize all of its previously published print books (almost 200 books). These books, many of them classics and out of print, are now available on CD or online. The CDs are available for purchase at the SEPM Bookstore (www.sepmonline.org). The online access, which includes the Special Publication Series, Concepts in Sedimentology and Paleontology Series, the Short Course Notes Series and the Core Workshop Notes Series is available to members or by library subscription. Details

are available at www.sepmonline.org or by calling the SEPM office (1-800-865-9765).

SEPM STRATA

In 2009, Dr. Christopher Kendall's website STRATA at the University of South Carolina was transferred to SEPM for caretaker ship and further development. The original site is preserved at www.sepmonline.org while a new site, designed for easier maintenance and updating is being developed under the sponsorship of ExxonMobil and Fugro-Robertson. STRATA is an open access site which using a combination of linked text, images, and short movies this site is designed to help the above users gain an instant understanding of the principles of sequence stratigraphy and other aspects of sedimentary geology. Often persons exposed to this topic for the first time, even experienced sedimentary stratigraphers, are confused with the extensive terminology of this burgeoning science and the complex geometric response of the sedimentary record to changing rates of sedimentation and relative sea level (whether this latter is the product of world-wide changes in sea level [eustasy], or vertical tectonic



movement). This web site is designed to help navigate these common problems while helping improve the users understanding of the sedimentary section of the earth's crust and the principles of this important earth science discipline.

Next SEPM Research Conference

Deciphering Paleoclimatic Signals from Continental Successions

Truro, Nova Scotia -August 2 - 6, 2011

Registration opens May 2011

Details at www.sepmonline.org under Conferences.



AGI Executive Director Named to U.S. UNESCO Commission

Dr. Patrick Leahy, American Geological Institute (AGI) Executive Director has been appointed as a Commissioner to the U.S. National



Dr. Leahy

Commission to United Nations Educational, Scientific, Cultural Organization (UNESCO) by Secretary of State Clinton.

Founded in 1945 to contribute to peace and security, UNES-

CO promotes collaboration among the nations through education, science, and culture. Today, the United States has two UNESCO affiliations, one at the Permanent Mission in Paris and the U.S. National Commission for UNESCO in Washington, D.C. The National Commission is comprised of members from non-governmental organizations, U.S. government officials and representatives of the interests of state and local governments.

"AGI has a long history of promoting scientific education, research, and awareness. Our mission to increase awareness of the role the geosciences

play in society's use of resources, resilience to natural hazards, and the health of the environment is global in nature. It also matches closely with UNESCO's goals of encouraging education and science to promote a betterment for all people. It is my hope that my involvement with UNESCO is positive for both the geosciences and for UNESCO" says Dr. Leahy.

For more information on UNESCO visit <http://unesco.org/>. To learn specifically about the U.S. National Commission for UNESCO, go to <http://www.state.gov/p/io/unesco/>.

AGI Announces Winner of 2011 Edward C. Roy Award

Greer Lynn Harvell, a teacher at Clifford C. Meigs Middle School in Shalimar, Florida, has been named the 2011 recipient of the Edward C. Roy, Jr. Award for Excellence in K-8 Earth Science Teaching.

Mrs. Harvell began her career teaching first grade at Elliot Point Elementary where she also later taught 4th grade. Since 2005, she has taught both 7th and 8th grade at Clifford Meigs. Harvell received her A.A. from Okaloosa Walton Junior College (1981) and her B.S. in Education from the University of West Florida (1996).

"We were excited to read about the way in which Mrs. Harvell helps her students to generate and investigate their own questions about the world," says Ann E. Benbow, Ph.D., AGI Director of Education. "This is the kind of learning that stays with students throughout their lives."

Dr. Lamar White, Principal of Clif-

ford C. Meigs Middle School, says, "As an instructor, Mrs. Harvell's main strength is her ability to relate to her students and share their wonder and excitement over scientific discoveries no matter how small."

Because of her enthusiasm for encouraging scientific exploration, Mrs. Harvell is an active and involved earth science teacher. In the past, she has collaborated with students at the E.O. Wilson Biophilia Center to conduct research using Global Positioning Systems (GPS). She has presented at STEM and National Science Teachers Association (NSTA) Conferences, coached the academic team, and teams for both the Tech Bowl and the first Lego Robotics competitions, plus she has been a volunteer judge at various science fairs for elementary and middle schools in her district.

Given annually, the Edward C. Roy, Jr. Award recognizes one classroom teacher from kindergarten to eighth grade for



Greer Harvell accepts award from AGI staff member Geoff Camphire

his or her leadership and innovation in earth science education. This award is named in honor of Dr. Edward C. Roy, Jr., who was a strong and dedicated supporter of earth science education.

Mrs. Harvell was presented with the Edward C. Roy, Jr. Award at the 2011 NSTA National Conference in San Francisco, California. Other finalists for the 2011 award are Amy Clapp of Salisbury Community School in Salisbury, Vermont, and Jan L. French of Cincinnati Country Day School in Cincinnati, Ohio.

ExxonMobil Receives Award for Outstanding Contribution to Public Understanding of Geosciences

ExxonMobil Corporation received the American Geological Institute (AGI) Award for Outstanding Contribution to the Public Understanding of the Geosciences. The award was presented at the AGI Past Presidents Dinner during the American Association of Petroleum Geologists Annual Convention in Houston on April 10, 2011.

"This award recognizes efforts to create greater public appreciation and knowledge of the role the geosciences play in our society," said Dr. Patrick Leahy, AGI Executive Director. "ExxonMobil, through its strong support of earth science outreach and education programs, is extremely deserving of this honor."

ExxonMobil supports many educational activities for the earth science community including K-12 teacher development workshops, such as the

annual AGI Summer Leadership Academy, and traditional and online teaching materials available to all schools. ExxonMobil has also been a lead sponsor of Earth Science Week, ensuring quality earth science materials are distributed each year to schools, national parks, scouting clubs and other public organizations each year.

ExxonMobil encourages minority students to pursue geoscience careers through sponsorship of programs like the University of Texas *GeoForce* program for students in middle and high school, and AGI's Minority Participation Program, providing scholarships and mentoring programs for under-represented undergraduate and graduate level geoscience students.

"ExxonMobil's support of geoscience outreach and education programs helps the public understand the many ways



Steve Greenlee accepts award from AGI President, Skip Hobbs

the earth sciences touch their lives daily," said Steve Greenlee, president of ExxonMobil Exploration Company. "We know our future employees are today's students who have access to quality earth science educational materials and have teachers who understand the geosciences."

NGWRE Foundation Awards Three Grants for Water Wells in Developing Countries

Three grants totaling \$20,000 have been awarded to help build and restore drinking water wells in Uganda and Kosovo, the National Ground Water Research and Educational Foundation (NGWREF) announced.

The three grant recipients and award amounts are:

Atkinson Foundation / Family Empowerment Uganda (FEM), \$6,000

Committee on Foreign Missions for the Orthodox Presbyterian Church, Nakaale Station, Uganda, \$8,000.

Water for Life, Tushile Safe Water Project, \$6,000.

The Atkinson Foundation/FEM project seeks to install a high-capacity water well and solar pumping system at the FEM Canaan Farm in Rakayata village, Masindi, Uganda. The NGWREF grant would pay a portion of the overall

project cost of \$27,000. The project will help 150 survivors of civil war who are trying to rebuild their lives on Canaan Farm.

The Nakaale Station project by the Committee on Foreign Missions for the Orthodox Presbyterian Church is in northeast Uganda. The project involves installing wells in four villages to serve up to 5,000 people. At present the people in these villages get their drinking water from polluted water in rivers, creeks and swamps.

The Tushile Safe Water Project developed by Water for Life will serve 800 villagers in Kosovo by capping 150 open wells to protect them from contamination, installing pumps in the wells, and cleaning up sources of pollution.

"Thousands of people in these war-torn, impoverished counties will benefit

from the safe drinking water that these projects will provide. For some, especially children under the age of five, these projects are a matter of life and death," said Steve Schneider, MGWC and NGWREF president. "It was for projects such as these that the Foundation created its Developing World Project Fund."

For more information on NGWREF's Developing World Project Fund, visit http://www.ngwa.org/ngwref/dev_world/index.aspx.

Established in 1994, the NGWREF is focused on conducting educational, research, and other charitable activities related to a broader public understanding of groundwater. NGWREF is operated by the National Ground Water Association as a 501(c)(3) public foundation.

Society of Economic Geologists Awards for 2010-2011



David L. Leach (US Geological Survey, Denver, Colorado USA) - R.A.F. Penrose Gold Medal for 2010

Ross R. Large (University of Tasmania, Hobart, Australia) - SEG Silver Medal for 2010

William X. Chávez, Jr. (New Mexico Institute of Mining and Technology, Socorro, New Mexico USA) Ralph W. Marsden Award for 2010

Brian G. Rusk (James Cook University, Townsville, Australia) - Waldemar Lindgren Award for 2010

Lawrence M. Cathles, III (Cornell University, Ithaca, New York USA) – SEG Distinguished Lecturer for 2011

Mark D. Hannington (University of Ottawa, Ottawa, ON, Canada) – SEG International Exchange Lecturer for 2011

Glenton J. Masterman (Kinross Gold Corporation, Toronto, ON, Canada) – SEG Thayer Lindsley Lecturer for 2011

Chusi Li (Indiana University, Bloomington, Indiana USA) – SEG Regional VP Lecturer for 2011

Awards Presented at the SSA 2011 Annual Meeting

Seismological Society of America is pleased to announce the recipients of several of the Society's awards for 2010. These awards were presented at the Society's Annual Meeting in Memphis, Tennessee in April 2011.



Tatyana Rautian

The 2010 Reid Medal was awarded to Tatyana Rautian, most recently of Lamont Doherty Earth Observatory.



Hugo Yepes

be awarded to Zhigang Peng, Georgia Institute of Technology.

The Richter Early Career Award was



The Frank Press Public Service Award was awarded to Hugo Yepes, Instituto Geofísico de la Escuela Politécnica Nacional, Ecuador.

NOAA, University of Puerto Rico scientist elected president of SSA;

Christa Von Hillebrandt-Andrade to lead world's largest society of seismologists

The Seismological Society of America has elected Christa von Hillebrandt-Andrade, manager of the Caribbean Tsunami Warning Program, to serve as its president.

The world's largest society of earthquake seismologists, SSA is an international scientific society devoted to the advancement of seismology and its applications in understanding and mitigating earthquake hazards.

"Christa von Hillebrandt-Andrade is a well recognized expert on tsunamis and seismology," said Mary Lou Zoback, board member of SSA and chair of the nominating committee. "Her leadership will provide SSA an opportunity to strengthen its interaction and involvement with Latin American seismologists."

Previously elected to serve as the society's vice president, von Hillebrandt-Andrade assumes the presidency at a challenging time, when fiscal pressure threatens the continued funding of the U.S. Geological Survey and the effective collection and assessment of earthquake data.

"Saving lives from earthquakes is a complex puzzle in which every piece is essential," said von Hillebrandt-Andrade, who will serve a two-year term as the society's president while continuing in her position as the manager of the Caribbean Tsunami Warning Program (CTWP), located at the University of Puerto Rico. Funded by the National Oceanic and Atmospheric Administration, CTWP was created in 2010 as the first step of a phased approach for the establishment of a Caribbean Tsunami Warning Center.

"The vulnerability to human life from earthquakes continues to increase. The interface between science and the protection of life," says von Hillebrandt-Andrade, "depends upon our continued progress in understanding the processes at work. The current fiscal situation poses a great challenge to that progress."

As the former Puerto Rico Seismic Network Director (1990-2010) and as a member of the University of Puerto Rico Geology Department, von Hillebrandt-Andrade provided key leadership in the modernization, restructuring, staffing and funding of the seismic network to provide earthquake and tsunami monitoring, warning and education services. Her experience in Puerto Rico, the Caribbean and South America has afforded her a unique familiarity with a variety of natural hazards such as volcanoes, earthquakes and tsunamis.

The author and co-author of more than 50 journal papers and abstracts on earthquakes and tsunamis, Professor von Hillebrandt-Andrade has also served on the Puerto Rico Earthquake Safety Commission and the Puerto Rico Tsunami Technical Review Committee. She is a member of the Seismological Society of America, the Earthquake Engineering Research Institute, the American Geophysical Union and Geological Society of Puerto Rico. The Seismological Society members twice elected her as a director (2007 and 2010) and as Vice President of the Society (2009).

Since 2005, she has been a member of the United States delegations to the UNESCO meetings on tsunamis and the oceans. In 2010 she was elected Vice-Chair of the UNESCO IOC Intergovernmental Group on Tsunami and Other Coastal Hazards



Christa Von Hillebrandt

Warning System for the Caribbean and Adjacent Regions -- encompassing over 40 nations in the Caribbean and America.

Upon graduation as a geologist of the University of Delaware, von Hillebrandt-Andrade went to Quito, Ecuador as a Fulbright Scholar (1984-1986) and received a master's degree in Geology from the Escuela Politécnica Nacional. She played an important role in monitoring the active volcanoes of this Andean country and co-authored its first volcanic hazard maps as a Research Engineer with the Nacional's Geophysical Institute (1987-1990).

von Hillebrandt-Andrade succeeds Rick Aster, professor of geophysics at New Mexico Tech, as president of SSA. Founded in 1906 in San Francisco, SSA now has members throughout the world representing a variety of technical interests: seismologists and other geophysicists, geologists, engineers, insurers, and policy-makers in preparedness and safety.

Also elected to SSA leadership are: William U. (Woody) Savage, USGS Emeritus, as Vice President; Keith Knudsen, USGS, Menlo Park as Secretary; Mitch Withers, University of Memphis as Treasurer.

Selected NSF Research Grants in the Directorate for Geosciences

Awarded Between January and May 2011

- Heme uptake by marine bacteria: A molecular-level study of an oceanic iron recycling pathway
P.I. Barbeau, Katherine
University of California-San Diego
Scripps Inst of Oceanography
\$352,716.00
- Collaborative Research: Characterization of Microbial Transformations in Basement Fluids, from Genes to Geochemical Cycling
P.I. Girguis, Peter
Harvard University
\$354,080.00
- RUI: Colonization genetics of globally invasive marine bryozoa: Does adaptation prior or post-introduction determine spread?
P.I. Craig, Sean
Humboldt State University Foundation
\$355,586.00
- Collaborative Research: Improved Regional and Decadal Predictions of the Carbon Cycle
P.I. Doney, Scott
Woods Hole Oceanographic Institution
\$355,820.00
- The Modulation of the Galactic Cosmic Radiation Over the Past 10,000 Years and the Implications of the Long Solar Minimum of 2006-9
P.I. McDonald, Frank
University of Maryland College Park
\$357,195.00
- Collaborative Research: Effects of Marine Algal Sterols on Zooplankton Growth and Reproduction
P.I. Giner, Jose
SUNY College of Environmental Science and Forestry
\$362,990.00
- Convective Precipitation and Heating Structures Observed by the SMART-Radar During the Dynamics of the Madden-Julian Oscillation Project (DYNAMO)
P.I. Schumacher, Courtney
Texas A&M Research Foundation
\$364,812.00
- Collaborative Research: Evaluating the Roles of Factors Critical to MJO Simulations Using the NCAR CAM3 with Deterministic and Stochastic Convection Parameterization Closures
P.I. Zhang, Guang
University of California-San Diego
Scripps Inst of Oceanography
\$367,077.00
- Using the RO/ED Method to Isolate Low-Ash Dissolved Organic Matter in High Yield along a Salinity Gradient
P.I. Perdue, E. Michael
Georgia Tech Research Corporation
\$369,189.00
- Collaborative Research: The role of calcifying algae as a determinant of rocky intertidal macrophyte community structure at a meta-ecosystem scale
P.I. Nielsen, Karina
Sonoma State University
\$370,000.00
- An Experimental Study of Coupling between Stress-Driven and Reaction-Driven Melt Migration in Mantle Rocks
P.I. Kohlstedt, David
University of Minnesota-Twin Cities
\$371,485.00
- Collaborative Research: Characterization of Microbial Transformations in Basement Fluids, from Genes to Geochemical Cycling
P.I. Glazer, Brian
University of Hawaii
\$378,937.00
- Seismogenic zone processes of Hikurangi subduction, New Zealand: illumination using the SAHKE seismic project
P.I. Okaya, David
University of Southern California
\$379,607.00
- Collaborative Research: Developing a Next-Generation Approach to Regional Climate Prediction at High Resolution
P.I. Hakim, Gregory
University of Washington
\$381,000.00
- Collaborative Research: Chemical and Biological Characterizations of Phosphonate and Polyphosphate Dynamics in Marine Phytoplankton
P.I. Dyhrman, Sonya
Woods Hole Oceanographic Institution
\$386,457.00
- Radar Observations of the Cloud Population in the Developing Madden-Julian Oscillation
P.I. Houze, Robert
University of Washington
\$386,911.00
- Collaborative Research: The Dynamics of Rhyolite Lava Eruption and Emplacement Inferred from Micro-Textures, Decompression Experiments, and Numerical Modeling
P.I. Gardner, James
University of Texas at Austin
\$387,869.00
- Collaborative Research: Seismicity of the Equatorial Mid-Atlantic Ridge and its Large Offset Transforms
P.I. Dziak, Robert
Oregon State University
\$391,185.00

- Collaborative Research: Characterization of Microbial Transformations in Basement Fluids, from Genes to Geochemical Cycling
P.I. Huber, Julie
Marine Biological Laboratory
\$395,012.00
- Collaborative Research: Shallow-Sea Hydrothermal Systems: Micron-Scale Sedimentary Sulfur Cycling and its Impact on Ocean Processes
P.I. Fike, David
Washington University
\$395,320.00
- Aqueous Aluminosilicate Polymers: Transport Agents in Crustal and Mantle Fluids?
P.I. Manning, Craig
University of California-Los Angeles
\$398,382.00
- P2C2: Mechanistic Interpretation of the Spatial Signatures of Mid-Holocene Precipitation over South America and the Atlantic
P.I. Lintner, Benjamin
Rutgers University New Brunswick
\$400,814.00
- Collaborative Research: Investigating Decadal Climate Predictability and Climate Impacts (IDCPI) on the Western United States
P.I. Stott, Lowell
University of Southern California
\$402,303.00
- Calcification by amorphous pathways: Establishing effects of acidification and interplays with Mg and biomolecule chemistry
P.I. Dove, Patricia
Virginia Polytechnic Institute and State University
\$418,792.00
- DYNAmics of the Madden-Julian Oscillation / DYNAMO Subsurface Fluxes
P.I. Moum, James
Oregon State University
\$419,807.00
- Tuning Dynamo Models to Paleomagnetic Observations
P.I. Constable, Catherine
University of California-San Diego
Scripps Inst of Oceanography
\$424,559.00
- CAREER: Towards a Better Understanding of Turbulence Structures in a Disturbed Atmospheric Surface Layer
P.I. Liu, Heping
Washington State University
\$425,565.00
- Subtropical North Pacific variability in primary production and nutrient utilization inferred from compound specific isotopes in Hawai'ian deep-sea coral gorgonin.
P.I. Guilderson, Thomas
University of California-Santa Cruz
\$426,747.00
- Forearc Uplift in Northern Chile
P.I. Jordan, Teresa
Cornell University
\$430,886.00
- Collaborative Research: Lipid lubrication of oceanic carbon and sulfur biogeochemistry via a host-virus chemical arms race
P.I. DiTullio, Giacomo
College of Charleston
\$445,837.00
- Collaborative Research: EaSM Type I--Assessing High-Impact Weather Response to Climate Variability and Change Utilizing Extreme Value Theory
P.I. Holland, Gregory
University Corporation For Atmospheric Res
\$455,934.00
- African Monsoon Systems: Basic Dynamics and Applications to Interannual and Decadal Prediction
P.I. Cook, Kerry
University of Texas at Austin
\$457,282.00
- CAREER: Nanoscale Mineral Transformations During Biogeochemical Cycling and the Fate of Trace Elements and Nutrients
P.I. Catalano, Jeffrey
Washington University
\$460,000.00
- SID/ISMS, An Autonomous Instrument for Combined In Situ Tracer Incubation Studies and Preservation of Microbial Samples for Genomic, Transcriptomic and Proteomic Analysis
P.I. Edgcomb, Virginia
Woods Hole Oceanographic Institution
\$460,006.00
- P2C2: Mid to Late Holocene Seasonality from Archaeological Sources in North Atlantic Coastal Scotland
P.I. Surge, Donna
University of North Carolina at Chapel Hill
\$464,107.00
- Constraining the Past and Future Ocean Sink of Anthropogenic Carbon with Observations
P.I. Khatiwala, Samar
Columbia University
\$467,174.00
- P2C2: Megadrought--Local versus Remote Causal Factors for Medieval North America
P.I. Feng, Song
University of Nebraska-Lincoln
\$469,398.00
- Early diagenetic aluminosilicate formation and burial of biogenic silica in tropical deltas
P.I. Aller, Robert
SUNY at Stony Brook
\$471,594.00
- Collaborative Research: A Pilot Project on Interactive Land Use and Climate Predictions
P.I. Wang, Guiling
University of Connecticut
\$473,732.00

- Tropical Storms: A Bridge Between Formation and Intensification
P.I. Barnes, Gary
University of Hawaii
\$474,455.00
- CAREER: Studies of 3D Dynamics in the Global Magnetosphere Using High-performance Heterogeneous Computing Architectures
P.I. Germaschewski, Kai
University of New Hampshire
\$495,886.00
- Coherent Structures, Vortices and Waves in Jets and Instabilities P.I. Boyd, John
University of Michigan Ann Arbor
\$497,758.00
- Assessing the chemical speciation and bioavailability of iron regenerated by marine zooplankton
P.I. Twining, Benjamin
Bigelow Laboratory for Ocean Sciences
\$519,331.00
- A Modelling and Empirical Study of the Climate of the Lake Victoria Basin of Eastern Africa
P.I. Semazzi, Fredrick
North Carolina State University
\$520,097.00
- Zonation
P.I. Young, William
University of California-San Diego
Scripps Inst of Oceanography
\$526,196.00
- P2C2: Rapid Climate Variations--A Speleothem-based High-resolution Record of Rainfall in the Equatorial South Pacific over the Last 83,000 Years
P.I. Sinclair, Daniel
Rutgers University New Brunswick
\$528,195.00
- Type 2: A CRI-EaSM Collaborative proposal: Climate-to-humans: A study of urbanized coastal environments, their economics and vulnerability to climate change
P.I. Bacmeister, Julio
University Corporation For Atmospheric Res
\$530,944.00
- Collaborative Research: Integration of Decadal Climate Predictions, Ecological and Human Decision-Making Models to Support Climate-Resilient Agriculture in the Argentine Pampas
P.I. Podesta, Guillermo
University of Miami Rosenstiel School of Marine&Atmospheric Sci
\$532,155.00
- Teleconnections: Intraseasonal Dynamics and its Relationship to Interannual and Interdecadal Variability
P.I. Feldstein, Steven
Pennsylvania State Univ University Park
\$534,120.00
- Waterborne chemical cues in the plankton: a systems biology approach
P.I. Kubanek, Julia
Georgia Tech Research Corporation
\$545,870.00
- Tidal Mixing Fronts: Stability and Cross-frontal Transport in the Presence of Tides, Topography and Bottom Stress
P.I. Brink, Kenneth
Woods Hole Oceanographic Institution
\$552,902.00
- Collaborative Research: Eddy Correlation and chamber measurements of benthic oxygen fluxes in permeable sediments
P.I. Berg, Peter
University of Virginia Main Campus
\$552,954.00
- Collaborative Research: Tracer Age-Based Estimates of Carbon Export and Ventilation Variability in the Indian Ocean
P.I. Mecking, Sabine
University of Washington
\$561,782.00
- Analysis of Field Measurements of Viscous Damping of Ocean Surface Waves by Fluid Mud
P.I. Traykovski, Peter
Woods Hole Oceanographic Institution
\$564,497.00
- Type 1 - The Dynamic Watershed and Coastal Ocean: Predicting Their Biogeochemical Linkages and Variability over Decadal Time Scales
P.I. Powell, Thomas
University of California-Berkeley
\$575,000.00
- Collaborative Research: Improved Regional and Decadal Predictions of the Carbon Cycle P.I. Lindsay, Keith
University Corporation For Atmospheric Res
\$599,338.00
- Bridging Data, New Technologies, and Communities to Enable and Communicate EarthScope Exploration and Discovery
P.I. Arrowsmith, J Ramon
Arizona State University
\$599,426.00
- Collaborative Research: Causes and Effects of Shelf-Edge Internal Tide Variability
P.I. Lermusiaux, Pierre
Massachusetts Institute of Technology
\$607,248.00
- Understanding the nitrogen isotopes of planktonic foraminifera: A modern Sargasso Sea study
P.I. Sigman, Daniel
Princeton University
\$619,900.00
- Role of Mesoscale Eddies in Ventilation of the Southern Ocean
P.I. Kamenkovich, Igor
University of Miami Rosenstiel School of Marine&Atmospheric Sci
\$620,345.00
- Effects of Predator Diversity on the Strength of Trophic Cascades in an Oceanic Benthic Ecosystem
P.I. Witman, Jon
Brown University
\$628,896.00

- Bubble Creation Rates From Breaking Wave Noise
P.I. Deane, Grant
University of California-San Diego
Scripps Inst of Oceanography
\$631,411.00
- Improved Observation, Analysis and Modeling of Fine Sediment Dynamics in Turbid, Biologically Active Coastal Environments
P.I. Friedrichs, Carl
College of William & Mary Virginia Institute of Marine Science
\$644,025.00
- Relative Influence of Turbulence and Waves on Larval Behavior
P.I. Fuchs, Heidi
Rutgers University New Brunswick
\$645,439.00
- Collaborative Research: Lipid lubrication of oceanic carbon and sulfur biogeochemistry via a host-virus chemical arms race
P.I. Bidle, Kay
Rutgers University New Brunswick
\$725,035.00
- Ship and Island Based Radar Observations in the Dynamics of the Madden-Julian Oscillation Project (DYNAMO)
P.I. Rutledge, Steven
Colorado State University
\$741,819.00
- Collaborative Research: The role of calcifying algae as a determinant of rocky intertidal macrophyte community structure at a meta-ecosystem scale
P.I. Menge, Bruce
Oregon State University
\$749,999.00
- Collaborative Research: Lipid lubrication of oceanic carbon and sulfur biogeochemistry via a host-virus chemical arms race
P.I. Van Mooy, Benjamin
Woods Hole Oceanographic Institution
\$750,000.00
- Collaborative Research: Causes and Effects of Shelf-Edge Internal Tide Variability
P.I. Duda, Timothy
Woods Hole Oceanographic Institution
\$764,992.00
- Continental Shelf Benthic Oxygen Fluxes Determined by Eddy Correlation in the Presence of Wave Motions
P.I. Reimers, Clare
Oregon State University
\$791,126.00
- Variability of the California Current System Derived from 4D-Var Circulation Estimates
P.I. Moore, Andrew
University of California-Santa Cruz
\$840,416.00
- Collaborative Research: Transport, Internal Waves and Mixing in the Samoan Passage
P.I. Alford, Matthew
University of Washington
\$858,433.00
- Multi-scale climate information for agricultural planning in southeastern South America for coming decades
P.I. Goddard, Lisa
Columbia University
\$870,999.00
- Biogeochemical implications of marine phage: Roseophage as a relevant and tractable model
P.I. Buchan, Alison
University of Tennessee Knoxville
\$874,605.00
- Collaborative Research: Improved Regional and Decadal Predictions of the Carbon Cycle
P.I. Randerson, James
University of California-Irvine
\$884,194.00
- An Informed Guide to Climate Data Sets with Relevance to Earth System Model Evaluation
P.I. Deser, Clara
University Corporation For Atmospheric Res
\$899,973.00
- Collaborative Research: Impact of Climate Warming and Ocean Carbonation on Eelgrass (*Zostera marina L.*)
P.I. Zimmerman, Richard
Old Dominion University Research Foundation
\$912,102.00
- Linking topographic internal wave radiation to near-field processes, dissipation and mixing
P.I. Winters, Kraig
University of California-San Diego
Scripps Inst of Oceanography
\$974,366.00
- Collaborative Research Type 2 - MOBY: Modeling Ocean Variability and Biogeochemical Cycles
P.I. Large, William
University Corporation For Atmospheric Res
\$1,008,685.00
- Collaborative Research: Improved Regional and Decadal Predictions of the Carbon Cycle
P.I. Mahowald, Natalie
Cornell University
\$1,064,047.00
- Collaborative Research Type 2 - MOBY: Modeling Ocean Variability and Biogeochemical Cycles
P.I. McGillicuddy, Dennis
Woods Hole Oceanographic Institution
\$1,236,042.00
- Multiscale Modeling of Aerosol Indirect Effects on Decadal Timescales
P.I. Russell, Lynn
University of California-San Diego
Scripps Inst of Oceanography
\$1,350,000.00
- Do interactions between vertically and horizontally transported particles measurably affect particle composition and flux to the sediments? A mechanistic approach.
P.I. Black, David
SUNY at Stony Brook
\$1,597,059.00

- Collaborative Research: Developing a Next-Generation Approach to Regional Climate Prediction at High Resolution
P.I. Holland, Gregory
University Corporation For Atmospheric Res
\$2,094,000.00
- Type 2: A CRI-EaSM Collaborative proposal: Climate-to-humans: A study of urbanized coastal environments, their economics and vulnerability to climate change
P.I. Curchitser, Enrique
Rutgers University New Brunswick
\$2,314,487.00
- Climate Mitigation and Earth System Management from Local to Global Scale: Modeling Technology-Driven Futures
P.I. Zhang, Yang
North Carolina State University
\$2,299,999.00
- Collaborative Research Type 2 - MOBY: Modeling Ocean Variability and Biogeochemical Cycles
P.I. Marshall, John
Massachusetts Institute of Technology
\$2,633,961.00

Field Course offers Earth Science Teachers Hands-on Learning of Groundwater Science

Earth science teachers can earn professional credit and learn applied groundwater science in a new short course offered July 27-29 in Flagstaff, Arizona, by the National Ground Water Association (NGWA).

During the three-day course, "A Field Experience for Earth Science Teachers—Learn about Groundwater and Wells," participants will:

- Experience applied science by shadowing groundwater professionals in real work situations
- Interact with instructors and professionals to master hydrogeological exercises to engage students back home
- Receive Discover a Watershed: The Colorado Educators Guide, science notebooks, course notes, and training in the use of groundwater flow models.

The course is worth 22 professional development hours and best suited to high school and middle school Earth science teachers, new teaching professionals, and graduate education students.

Additionally, participants will:

- Conduct an aquifer test
- Observe the influence of surface water/groundwater interaction in actual field conditions
- Identify geologic formations and recognize their capacity for groundwater production
- Experience the drilling, construction, and development of a water supply well
- Learn how to infuse 21st century learning, communication, and collaborative learning skills into classroom instruction



- Discover how to model the inquiry process using problem-solving and critical-thinking skills with local, regional, and national content.

NGWA, Arizona Project WET (part of the University of Arizona), and Northern Arizona University, as well as practicing groundwater professionals are collaborating to provide this non-traditional, insightful, and memorable educational opportunity in the shadow of the Grand Canyon.

To learn more about this course, as well as the many other NGWA educational programs, click on the "Events/Education" menu tab above or call 800 551.7379 (614 898.7791).

Student-to-Professional Continuum Webinar now Online

The American Geological Institute (AGI) has made available the recorded version of the webinar roundtable "A Secure Future for Energy, Environment and Hazard Mitigation: Retaining students through the Student-to-Professional Continuum in the Geosciences."

The geoscience profession is facing critical human resource issues as a result of its aging workforce and low number of new graduates entering core geoscience occupations. Data from the National Science Foundation's statistical databases indicates that only 35 percent of geoscience graduates work in core geoscience occupations. The majority of the geoscience workforce will be retiring over the next decade and data from federal sources, professional societies, and industry indicate this growing imbalance in the profession's age demographics.

Because of increasing pressure to ad-

dress issues such as energy supply, climate and other environmental concerns, and as seen with the Japan disaster, hazard mitigation, it is estimated that there will be 23 percent increase in geoscience jobs over the next decade.

Future geoscientists will need solid fundamental skills in both geoscience and mathematics that can be applied to many geoscience challenges including water resources, energy, minerals, hazards and climate issues. Given the current trends, many core and specialty geoscience sub-disciplines that are also economically critical are at risk. Without investment in the retention of geoscience university students and the successful transition of geoscience graduates into core geoscience occupations, the sustainability of U.S. geoscience academic infrastructure and pursuit of basic geoscience research is at risk.

To view the presentations and the summaries of the working group discus-

sions visit http://www.agiweb.org/workforce/webinar-videos/GeoWebinar_StdtoECContinuum.html. A PDF summary report of the working group discussions is also posted on this webpage.

"A Secure Future for Energy, Environment and Hazard Mitigation: Retaining students through the Student-to-Professional Continuum in the Geosciences" was co-sponsored by the YES Network USA National Chapter and the Soil Science Society of America.



Spike Takes on the EPA – A GeoVoices Column

Stephanie Jarvis, SA-1495

By the time you're reading this, the sun will be shining, I.S. (Independent Study) will be turned in, I'll know what I'm doing for the next year or so of my life, and I'll be spending my days going for inadvertent 50 mile bike rides and basking in the glory that is the homestretch of senior year. Right now? Well...I just finished coloring some hatching dinosaurs that reminded me of Spike from *The Land Before Time*.

Distractions are key to maintaining what sanity is possible during this time of year for a senior at The College of Wooster. To give you some perspective, I was in front of the computer in my lab by 7 am this morning (it's a Sunday). I'm gearing up for a late night to start another week off right, clutching my mug of tea (green if I think I'm going to make it, black if it could be bad, some really disgusting coffee if I'm absolutely falling apart) and making that really hard choice between some shuteye and a shower. As the due date that we hear about the first day we step foot on campus draws near (the one for I.S., that is), friends are solidifying post-graduation plans, and the grey February days of NE Ohio drag on, we're looking a little frazzled. I do what I can to give others fuel to feed the distraction fire. Coloring, for instance, works wonders. As do politics.

Lately, it's been Kentucky's coal politics that have been grabbing my attention. The sleepover at the Governor's the weekend before Valentine's Day was especially exciting. Though it may not have convinced the Governor to drop the lawsuit he is currently in with coal companies against the EPA for actually

upholding The Clean Water Act (really, what is the EPA thinking?), it created quite a buzz. A look at the bills being considered by the state legislature shows just how necessary that buzz is. A "21st Century Bill of Rights" to prohibit laws or rules that may result in the prevention of the severing of coal (which, according to the Kentucky Resource Council, could include mine safety regulation and the coal severance tax) and the declaration of Kentucky as a "sanctuary state" from the EPA's water quality standards are among issues of concern during the 2011 session.

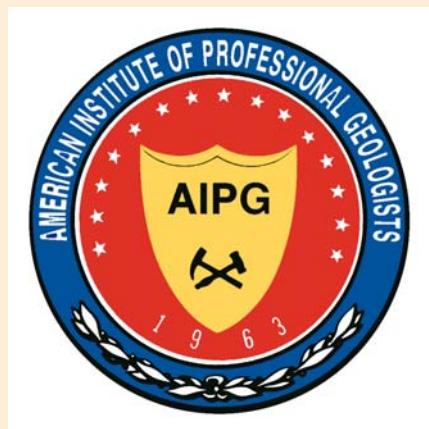
Every morning I eat breakfast by the windows in the dining hall, watching the sun rise behind the smokestack of my campus's coal-burning power plant. It's rather pretty, actually. When I was little, my family would visit Otter Creek State Park, and I remember watching the barges loaded with coal go by on the Ohio River. I would get so excited at the sound of a barge, rushing to the porch of the cabin to watch it maneuver its way around the bend with its heavy load and straining to see until it was out of completely sight. I never had to see the mines--you can't from the rolling hills of the Bluegrass Region, and there really isn't any reason to go looking for them. I wasn't aware of the controversies of mining until late high school, and it wasn't until a few summers ago that I saw a mine. I don't think I had even held a piece of coal before becoming a geology major.

Mining is ugly; that's its nature. But there are ways to do it right that are often overlooked when money is to be

made and companies can get away with it. Due to its economic importance in Kentucky and elsewhere, companies tend to be able to get away with it far too often. Regulation is bad for business. So is, as pointed out by one of my advisors, killing your customers. There's a balance to be found in everything.

You see, there are different kinds of distractions. There's the coloring baby dinosaurs kind that can be mindless, happy, and easily put down. And then there's the kind that works up passions and frustrations. Passion because you can't help but be disgusted by people who not only pollute water in the name of profit but have the gumption to think it should be illegal to prevent them to from doing so. Frustration because you have a thesis to write and all you want to do is color more baby dinosaurs. Balance, for an aspiring geologist, can take on some odd forms.

This article was originally published in the May/June 2011 issue of The Professional Geologist.



An Opportunity for Exhibitors: State of the Art and Practice in Geotechnical Engineering

Oakland Marriott City Center, Oakland, California
March 25-29, 2012

The Geo-Institute's GeoCongress 2012 is the place you need to be to reach the very targeted geo-professional marketplace. If you have exhibited at a G-I annual congress before, you already know the diversity the

congress attracts and the high-caliber of professional decision-makers that visit your booth. And, GeoCongress 2012 will be no exception. So, if your clientele includes practitioners, consultants, researchers, and educators, return your completed booth rental contract soon, because the-I annual congress is normally a sellout.

Exhibitor Booth Rental: Includes (1) 10'x10' booth, (1) 6-foot skirted



GEO-INSTITUTE

table, (2) chairs, (1) trash can
\$2,095 before July 20, 2011
\$2,295 after July 20, 2011

To learn more about GeoCongress 2012 go to <http://www.geocongress2012.org>

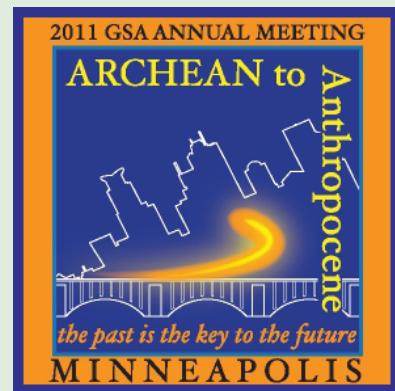
Abstract Submission for GSA's 123rd Annual Meeting is now Open

The Geological Society of America (GSA) is now accepting abstracts for their 123rd Annual Meeting "Archean to Anthropocene: The past is the key to the future" to be held 9-12 of October 2011 in Minneapolis, Minnesota.

The deadline is July 26, 2011. To submit an abstract go to <http://www.geosociety.org/meetings/2011/techProg.htm>.

New this Year!

- Digital Poster Sessions for three topical sessions:
- Visualizations in Geology: Advancing the Science Using Digital Tools
- Techniques for Measuring Shoreline Change
- Virtual Reality in Geoscience Education



Karst Waters Institute Carbonate Geochemistry Conference

August 6-12, 2011, Billings, Montana and Cody, Wyoming

The Karst Waters Institute's Carbonate Geochemistry conference scheduled for August 6-12, 2011 is rapidly approaching. The meeting will bring academics and professional scientists together to discuss issues related specifically to carbonates, from sedimentology, diagenesis, biogeochemistry, and karst processes, to aquifer and petroleum reservoir characterization, to issues associated with climate change and alternative energy. The main part of the conference will occur over 2.5 days (August 6-9) and consists of invited lectures, afternoon poster sessions, and a banquet. Dr. Noel James, Queen's University, will provide the keynote presentation. The Conference will have a multiple-day field

trip through the Bighorn Basin following the meeting, from August 9-12 and be based in Cody, Wyoming. Registration for the field trip is separate from the main conference, and seats are limited. The extended abstracts from the meeting will be available to all participants and published by the Karst Waters Institute in our Special Publications book series.

Confirmed speakers include Will White (Penn State), Hans Machel (U. Alberta), John Mylroie (MSU), Hank Chafetz (U. Houston), Toni Simo (ExxonMobil), Maria Mutti (U. Potsdam), Gene Rankey (U. Kansas), Laura Crossey (U. New Mexico), Bob Goldstein (U. Kansas), W. Langhorne "Taury" Smith (New York State Museum), Marco Menichetti (U. Urbino), Gregor Eberli (U. Miami), Charles Kerans (U. Texas - Bureau of

Economic Geology), Jerry Lucia (U. Texas - Bureau of Economic Geology), Franci Gabrovsek (Karst Research Inst. - Solvenia), Ernie Anderson (USGS), Brian Katz (USGS), Dave Budd (U. Colorado), Calvin Alexander (U. Minn.), Dan Doctor (USGS), Ronald Green (SW Research Inst.), John Jenson (U. Guam), Fiona Whitaker (U. Bristol), Paul Wright (BG), David Katz (Chevron), Penny Boston (New Mexico Tech.), Dorothy Vesper (W. Virginia), Corinne Wong (U. Texas-Austin), Marcus Gary (Zara Environmental) and Pavel Bosak (Czech Academy of Sciences).

For more information please see the Conference web page at <http://www.karstwaters.org/conferences/carbonatoge geochemistry.php>

2011 SSSA Annual Meeting Preview



San Antonio Riverwalk

Join us 16-19 October in sunny San Antonio, TX for the 2011 International Annual Meeting of the Soil Science Society of America (SSSA), the American Society of Agronomy (ASA), and Crop Science Society of America CSSA, and SSSA. This year, the meeting is held in conjunction with the Canadian Society of Soil Science. The events will be held primarily at the Henry B. Gonzales Convention Center and the Hilton Palacio del Rio Hotel.

The Annual Meetings will explore the theme, "Fundamental for Life: Soil, Crop, and Environmental

Sciences," and will celebrate the 75th anniversary of SSSA with activities, special symposia, and a Tuesday evening outdoor reception.

This Annual Meetings bring together more than 4,000 scientists and practicing professionals in academia, government, and private industry from more than 40

countries, including a large contingent of undergraduate and graduate students. More than 3,200 poster and oral papers will be presented at the meetings.

It's the premiere opportunity for professionals working in agronomy, crop, soil, and related sciences to hear about the latest research, meet and learn from their peers, expand their knowledge base, and take advantage of an abundance of networking opportunities to enhance their career growth.

Early registration and housing open 14 June online at www.acsmeetings.org, with an early registration deadline of 7 September.

The SSSA Plenary Address, Awards Program, and 75th Anniversary Reception will be held on Tuesday, 18 October. The plenary speaker is book author and journalist Chris Mooney of Los Angeles, CA. **Mooney is an award-winning science and political journalist whose**



Chris Mooney

work has appeared in Wired, Mother Jones, The Nation, Seed, and many other publications. He is also the author of three books, including *Unscientific America: How Scientific Illiteracy Threatens Our Future and The Republican War on Science*, co-authored with Sheril Kirshenbaum. Mooney is a host of the podcast Points of Inquiry and has been featured on broadcasts such as The Daily Show with Jon Stewart and NPR's Science Friday. He graduated from Yale University in 1999.

Other noted speakers to provide insight and expertise include:

- Opening Keynote 16 Oct.: Sam Dryden, Gates Foundation
- CSSA Plenary 17 Oct. : Marianne Bänziger, International Maize and Wheat Improvement Center (CIMMYT)
- ASA Plenary 19 Oct. : John Soper, Pioneer Hi-Bred
- Closing Reception 19 Oct.: radio commentator and author Jim Hightower with science comedian Don McMillan

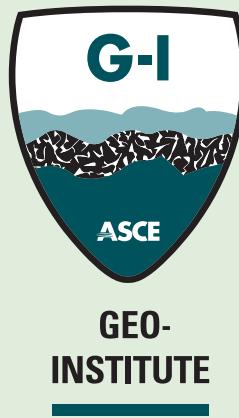
View preliminary symposia, sessions at:
<http://a-c-s.confex.com/crops/2011am/webprogrampreliminary/programs.html>

Geo-Risk 2011

**June 26-28, 2011
Intercontinental Buckhead
Atlanta, GA**

Geo-Risk is the first major Geo-Institute specialty conference about risk assessment and management since 1996. You can hone your skills how to explicitly consider risk and uncertainty to improve the value and scope of the services you provide. You also will be able to network with other

engineers who may be experiencing the same challenges. This conference will present a unique opportunity for professional engineers, researchers, regulators and policymakers, educators and students to interact through a broad range of keynote lectures, technical sessions, panel discussions, short courses and software demonstrations. Please register onsite. For more information, visit <http://www.georisk2011.org>.



AIPG 48th Annual Meeting

Geosciences: The Road to a Sustainable Future

On behalf of the organizing committee, it is with great pleasure that I announce the American Institute of Professional Geologists (AIPG) 48th Annual meeting will be held at the Hilton Chicago/Indian Lakes Resort located in Bloomingdale, Illinois from September 10 through 13, 2011. This is the first time that the AIPG national meeting will be in the Chicago area. The national conference is being held jointly with the American Institute of Hydrology (AIH) and is co-hosted by the AIPG Illinois/Indiana Section and co-sponsored by the Lake Michigan Section of the Air and Waste Management Association (LM-A&WMA). At this conference you will have the opportunity to increase your technical knowledge of current advancements in technology and practice methods, earn continuing education credits, and interact with fellow professionals from the consulting, municipal, industrial, regulatory, and academic communities. Together, we

are working on creating a sustainable environment.

The conference theme is "Geosciences: The Road to a Sustainable Future". The four day conference includes technical presentations, nationally recognized keynote speakers, workshops, field trips, poster sessions and an exhibit hall. The technical program offers a solid selection of multidiscipline topics including sustainability, natural resource management, energy, environment and technology and climate change. In addition, exciting field trips will include Lake Michigan coastal geology and development, regional quarry and mining trips, and field lectures covering geological, hydrological, and environmental engineering areas of interest. Continuing education credits will be offered for all technical sessions, workshops and field trips. The exhibit hall will include an area for student posters, exhibitor booths for marketing products and services, and displays from conference sponsors.

The conference organizing committee consists of David Pyles (general

chairperson), Marzi Sharfaei (co-chair), Emitt Witt (co-chair), Ramona Cornea (field trips), Jeff Groncki and Jim Cruise (technical sessions), and James Adamson (Student Poster Session). We should all thank the staff at AIPG Headquarters for their time and effort in making this an exemplary conference.

I look forward to seeing you at the conference!

David G. Pyles, CPG-07364
President IL-IN Section of AIPG
General Chairperson



International Fragile Earth Conference



Early-bird registration is now open for the International Fragile Earth Conference: "Geological Processes from Global to Local Scales, Associated Hazards & Resources" to be held in Munich, Germany, 4-7 September 2011. To

learn more about this convention, associated field trips, sessions, workshops, to submit and abstract (deadline is May 25) please visit <http://www.geosociety.org/meetings/2011munich/>.



34th International Geological Congress (IGC): AUSTRALIA 2012

Unearthing Our Past And Future – Resourcing Tomorrow

Brisbane Convention and Exhibition Centre
Queensland, Australia

5 - 10 August, 2012 | www.34igc.org

34th IGC CIRCULARS

General distribution of this and subsequent Circulars for the 34th IGC is by email.
Please feel free to forward it to others who may be interested.

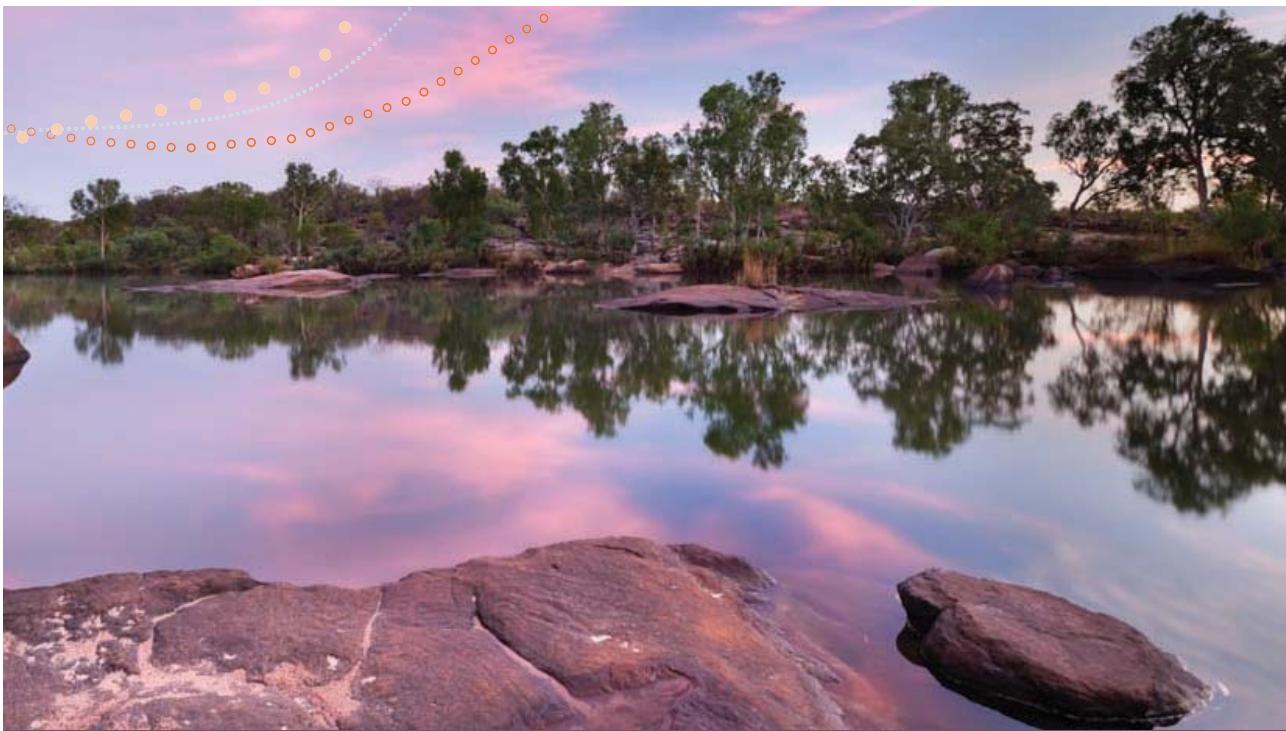
The Third Circular is scheduled for electronic distribution in September 2011.



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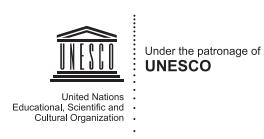
AUSTRALIA 2012

An unparalleled opportunity for all to experience the geological
and other highlights “downunder”

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Message from the President and Secretary General

It is with great pleasure that we provide you with the 34th IGC's Second Circular.

This circular represents a major milestone in the organisation of the 34th IGC. The Scientific Program, Call for Abstracts and GeoHost Support Scheme are all announced in this circular, as are details of the GeoExpo exhibition that will be held in conjunction with the 34th IGC.

We would like to take this opportunity to thank sincerely the many members of the global Geoscience community who have made valuable contributions to the Scientific Program. Literally hundreds of suggestions were received from around the world and the Scientific Program committee faced the daunting task of considering all of these suggestions and collating them into the program that appears in this circular. In the process of creating the program, the committee often had to weigh up overlapping suggestions. Every effort has been made to accommodate as divergent a range of interests as possible within the limitations of available resources. If you are submitting an abstract, you will be asked to nominate the Theme and Symposium for which you would like your submission to be considered. It will be necessary for you to nominate the Theme, however if you are unsure as to which actual Symposia would best suit your abstract, you may select the "Reviewer's choice" option. The reviewers will then make a determination as to the most appropriate Symposium for your submission.

In recognition of the tight economic circumstances that prevail in some regions and the continuing strength of the Australian Dollar, the Organising Committee is pleased to announce a Super Early Bird registration offer that rewards those who register early with very significant discounts. These Super Early Bird registration fees will only be available to the first 500 delegates and this offer will definitely end in September 2011 with the release of the Third Circular. Individual and group Super Early Bird registrations are available and full details are provided in this circular.

The Pre- and Post-Congress tours are an important element of the 34th IGC. Outlines of the tours offered are provided herein and full tour details, including prices, will be released in the Third Circular, due in September 2011.

We are also announcing the release of GeoExpo information and the sale of commercial exhibition space in this circular. Any organisation wishing to exhibit at the 34th IGC is well advised to book their exhibition space at their earliest opportunity.

Thank you for your interest in the 34th IGC. We are very much looking towards your participation in the Congress in Brisbane, 5 to 10 August, 2012.

Neil Williams
PRESIDENT, 34th IGC

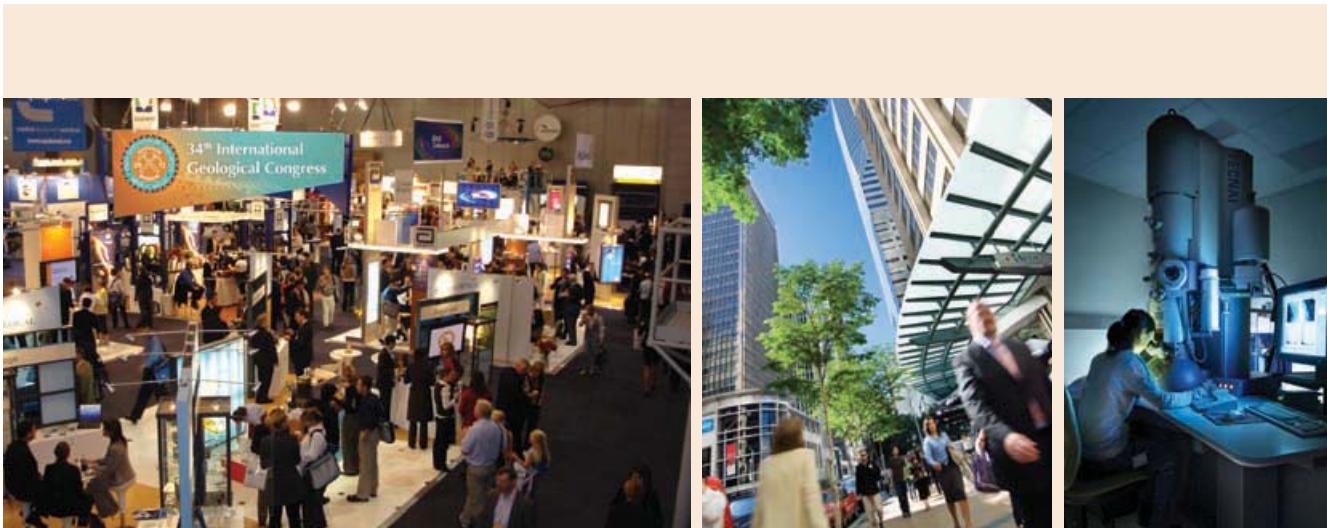
Ian Lambert
SECRETARY GENERAL, 34th IGC - ian.lambert@ga.gov.au

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Important Dates

15 July 2011	Closing of proposals for (i) Professional Development Workshops and Short Courses and (see page 35) (ii) business meetings (see page 32)
September 2011	Release of Third Circular. Field trip bookings open.
	Super Early Bird registrations close (see page 5)
1 November 2011	GeoHost support applications close (see page 37)
17 February 2012	Abstract submissions close (see page 33)
31 March 2012	Field trip bookings close (full payment)
30 April 2012	Presenters' registration deadline
	Early Bird registrations close
1 July 2012	Standard Congress registrations close. Late registrations commence.



Super Early Bird Registration Offer

The Organising Committee is pleased to announce the Super Early Bird registration offer, which is aimed particularly at international delegates. This offer enables delegates to register for the 34th IGC before September 2011, at significantly reduced fees. These reduced fees are available for individual delegates or for groups of up to 20 delegates from the same organisation.

The Super Early Bird fees represent a significant discount on the Early Bird and Standard registrations, which will be released in Third Circular (September, 2011) along with accommodation options and social events.

Super Early Bird – Individual delegate: \$895

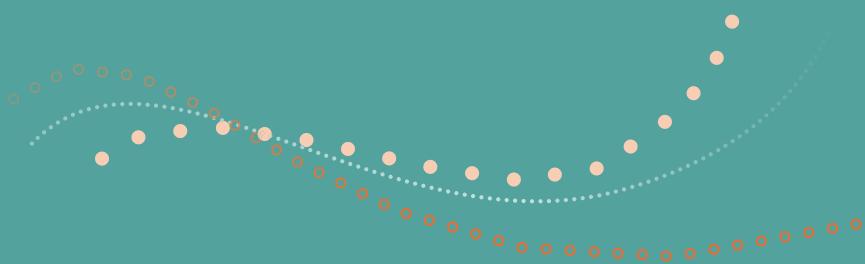
Super Early Bird – Group registration: \$850 per delegate

Available to groups of 3 to 20 delegates from the same organisation.

To take advantage of the Super Early Bird discount registration fees, please visit www.34igc.org and select the "Congress Registration" option.

About Super Early Bird registration fees:

- The fees are shown in Australian Dollars (AUD) and include Goods and Services Tax
- Super Early Bird registration fees include participation in the 34th IGC scientific program, delegate resources, lunch and morning and afternoon refreshments each day of the scientific program
- The Super Early Bird registration offer is limited to 500 delegates and will expire with the release of the Third Circular (due in September, 2011)
- Payment of Super Early Bird registration fees must be made in full by credit card (American Express, Diners Club, Visa and MasterCard accepted) when registration forms are completed. Registrations cannot be processed without full payment by credit card
- Super Early Bird fees are non-refundable, however the registration may be transferred to an alternative delegate up until 60 days prior to the Congress
- Registrations for groups of delegates (from a minimum of 3 to a maximum of 20 delegates) may be purchased now and the names of delegates can be provided later, up until May 2012.



Message from Scientific Program Chair

Welcome to the Scientific Program of the 34th International Geological Congress. The overall theme of Australia 2012, *Unearthing our Past and Future – Resourcing Tomorrow*, reflects the crucial roles the geosciences play in meeting the needs of societies while sustaining the Earth.

A broad scientific program based on 37 Themes has been developed by the Scientific Program Committee and the Scientific Theme Coordinators, with input from International Union of Geological Sciences (IUGS) affiliated groups and individual scientists.

On behalf of the Scientific Program Committee I hope you find the program both interesting and exciting. We hope that the scientific sessions and the plenary presentations and panels will stimulate discussion and interest in your area of science and beyond, recognising the increasing need for interdisciplinary and multidisciplinary approaches to addressing contemporary issues in the geosciences.

Lynton Jaques
Chair, 34th IGC Scientific Program Committee

Scientific Program Committee

Lynton Jaques, Committee Chair, Canberra, ACT
Mike Smith, Chair Australian Geoscience Council, Sydney, NSW
Ian Lambert, Secretary General 34th IGC, Canberra, ACT
Mike Archer, University of New South Wales, Sydney, NSW
Mark Berry, Australian Institute of Geoscientists, Brisbane, Queensland
David Denham, Australian Society of Exploration Geophysicists, Canberra, ACT
George Gibson, Geoscience Australia, Canberra, ACT
Andrew Gleadow, University of Melbourne, Melbourne, Victoria
David Lumley, University of Western Australia, Perth, WA
Alex Malahoff, Chief Executive, GNS Science, Lower Hutt, New Zealand
Colin Simpson, Councillor, IUGS, Canberra, ACT
Paulo Vasconcelos, University of Queensland, Brisbane, Queensland
Malcolm Walter, University of New South Wales, Sydney, NSW
Paul Kay, Deputy Secretary General 34th IGC, Canberra, ACT

Draft Program Timetable

The timetable for the 34th IGC Scientific program is outlined in the table which follows. The program will take place over five days, between the Opening Session in the morning of Monday 6 August and the Closing Ceremony in the late afternoon Session on Friday 10th August, 2012. Each day will comprise around 35 concurrent Symposia and a plenary "Hot Topic" session in the middle of each day.

Most business meetings will be held after 7pm, 6-9 August. Requests for business meetings are to be made by 15 July 2011 (see page 32).

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0830-1015	Opening ceremony	Scientific program Session 4	Scientific program Session 8	Scientific program Session 12	Scientific program Session 16
1015-1045	Break Posters	Break Posters	Break Posters	Break Posters	Break Posters
1045-1230	Scientific program Session 1	Scientific program Session 5	Scientific program Session 9	Scientific program Session 13	Scientific program Session 17
1230-1400	Plenary session lunch Posters	Plenary session lunch Posters			
1400-1545	Scientific program Session 2	Scientific program Session 6	Scientific program Session 10	Scientific program Session 14	Scientific program Session 18
1545-1615	Break Posters	Break Posters	Break Posters	Break Posters	Break
1615-1800	Scientific program Session 3	Scientific program Session 7	Scientific program Session 11	Scientific program Session 15	Closing ceremony
1800-1900	Poster session	Poster session	Poster session	Poster session	
1900-Onwards	Evening program including business meetings				

Oral presentations will be 15 minutes including discussion, but invited keynote addresses may occupy two 15 minute slots.

Poster papers will be accorded a prominent place in the Congress program – abstracts for all poster papers will be published in the Congress Abstracts and posters will be located in high traffic areas adjacent to rooms used for oral sessions and catering points.





Scientific Symposia

The Scientific Program is outlined over the following pages. It is also available on the 34th IGC website, www.34igc.org, where a summary of each of the Symposia can be accessed. This is the basis for the call for abstracts and for inviting speakers. It will not be revised further until March-April 2012, when the number and range of abstracts submitted will be taken into account in designing the final program and timetable for the 5 day program.

The broad ranging Scientific Program for the 34th IGC includes some 218 Symposia under the 37 Themes. All of these will be open for any delegate with full IGC registration to attend.

All Symposia in the Scientific Program are expected to include both oral and poster presentations. Individuals will only be permitted to deliver one oral presentation in the Symposia program, but they may co-author multiple oral presentations and may give multiple poster presentations. Invited keynote speakers and presenters in IUGS related specialist Symposia may deliver a second oral paper in the Symposia program.

The Scientific Program also includes the Second YES (Young Earth Scientists) Network Congress which will include a Symposium on overcoming geoscience challenges in the 21st Century and an evening program. Further details will be provided on the YES Network website (www.networkyes.org) and in the Third Circular for the 34th IGC, which is scheduled for release in September 2011.

The official language of the Congress will be English and translation services will not be provided.

Symposia outlines are accessible via live links from the IGC website (www.34igc.org). Any questions or requests for further information should be addressed to the Communicating Theme Coordinators or Symposium Convenors, whose email addresses are listed in the program following.

Video-recording of presentations will not be permitted at the 34th IGC.



Theme 1. Geoscience for Society

Coordinator: Hamish CAMPBELL h.campbell@gns.cri.nz (New Zealand)

Symposia

1.1 Geoheritage, geoparks and geotourism

Bernie JOYCE ebj@unimelb.edu.au (Australia), José BRILHA (Portugal), Ian GRAHAM (New Zealand), Patrick MCKEEVER (Ireland), Nickolas ZOUROS (Greece), Changxing LONG (China), Ross DOWLING (Australia) and Angus M ROBERTSON (Australia)

1.2 Geoscience education

Jesus MARTINEZ-FRIAS jmfrias@cab.inta-csic.es (Spain), Gary LEWIS (USA), Sarah GAINES (USA), Julian THOMSON (New Zealand) and Bronte NICHOLLS (Australia)

1.3 Geoscience outreach (public communication, museums and media)

Hamish CAMPBELL h.campbell@gns.cri.nz (New Zealand) and Alex COOK (Australia)

1.4 Forensic geoscience

Rob FITZPATRICK rob.fitzpatrick@csiro.au (Australia), Laurance DONNELLY (UK) and Dallas MILDENHALL (New Zealand)

1.5 Gemstones - Diamonds

Lin SUTHERLAND l.sutherland@uws.edu.au (Australia), Ian T GRAHAM (Australia) and Lee GROAT (Canada)





Theme 2. Geoscience Benefiting Low Income Countries

[Association of Geoscientists for International Development (AGID)]

Coordinators: Mike KATZ m.katz@unsw.edu.au (Australia), Shrikant LIMAYE (India), Afia AKHTAR (Bangladesh) and Antony REEDMAN (UK)

Symposia

2.1 Improving rural health and mitigating rural poverty through sustainable ground water development

Shrikant LIMAYE limaye@vsnl.com (India) and Afia AKHTAR (Bangladesh)

2.2 Creating social awareness, preparedness and capacity-building for mitigating geohazards

Karen VILLHOLTH kvg@geus.dk (Denmark), Shrikant LIMAYE (India) and Antony REEDMAN (UK)

2.3 Developing geoscience education and awareness for the benefit of society

Nurul HASAN mn_hasan@ymail.com (Bangladesh), Mike KATZ (Australia), Gbenga OKUNLOLA (Nigeria) and Antony REEDMAN (UK) and Chris KING (UK)

2.4 Geoplanning for urban development and infrastructure and protecting ecosystems

Afia AKHTAR afia@agni.com (Bangladesh), Mehedi Ahmed ANSARY (Bangladesh), Shrikant LIMAYE (India), Sospeter MUHONGO (Tanzania) and Gbenga OKUNLOLA (Nigeria)

2.5 Geoethics

Vaclav NEMEC jidmila.nemcova@quick.cz (Czech Republic), Jesus MARTINEZ-FRIAS (Spain), Nataliya NIKITINA (Russia), Niichi NISHIWAKI (Japan) and Silvia PEPPOLONI (Italy)

2.6 Role of women geoscientists in resource development

Afia AKHTAR afia@agni.com (Bangladesh), Madhumita DAS (India), Ezzoura ERRAMI (Morocco), Mike KATZ (Australia), Sharon LOCKE (USA) and Antony REEDMAN (UK)

2.7 Mineral and energy resources, construction and industrial minerals

Mike KATZ m.katz@unsw.edu.au (Australia), Afia AKHTAR (Bangladesh), Gbenga OKUNLOLA (Nigeria) and Nehal UDDIN (Bangladesh)

2.8 The role of Geological Surveys in the development and management of natural resources, groundwater and disaster risk reduction

Antony REEDMAN antony@areedman.wanadoo.co.uk (UK), Afia AKHTAR (Bangladesh), David DENHAM (Australia), Siyan MALOMOS (Nigeria) and Qincheng HE (Thailand)

Theme 3. Climate Change: Lessons from the Past; Implications for the Future

Coordinators: Chris HOLLIS c.hollis@gns.cri.nz (New Zealand) and Michael BIRD (Australia)

Symposia

3.1 Climate change and food security: archaeological and palaeoenvironmental evidence for past interactions between food producers and environment

David TAYLOR taylor@tcd.ie (Ireland) and Yongqiang ZONG (China)

3.2 Geology and Archaeology: submerged landscapes of the continental shelf.

Jan HARFF jan.harff@io-warnemuende.de (Germany), Geoff BAILEY (United Kingdom) and Friedrich LÜTH (Germany)

3.3 Monsoons, droughts and extreme weather events: deciphering climate variability from the geological record

Jonathan NOTT jonathan.nott@jcu.edu.au (Australia) and James SHULMEISTER (Australia)

3.4 Climate in a warmer world: Late Quaternary evidence from land, sea and ice records

Lionel CARTER lionel.carter@vuw.ac.nz (New Zealand), Giuseppe CORTESE (New Zealand), Rewi NEWNHAM (New Zealand) and Nancy BERTLER (New Zealand)

3.5 The silent majority: Cenozoic (Paleocene-Pliocene) records of climatic warmth

David GREENWOOD greenwoodd@brandonu.ca (Canada), Matt HUBER (USA) and Patrick MOSS (Australia)

3.6 Greenhouse world and rapid climate change during the Mesozoic [International Geoscience Program (IGCP) 555, IGCP 507 and International Continental Drilling Program (ICDP) Songliao Project]

Chengshan WANG chshwang@cugb.edu.cn (China), Michael WAGREICH (Austria) and Xiaoqiao WAN (China)

3.7 Pre-Mesozoic climates and global change [IGCP 591]

Kathleen HISTON catherine.histon@unimore.it (Italy), Vinod TEWARI (India) and Michael MELCHIN (Canada)

3.8. Climate change and biodiversity patterns in the Mid-Palaeozoic (Early Devonian to Early Carboniferous) [IGCP 596]

Peter KÖNIGSHOF peter.koenigshof@senckenberg.de (Germany) and Thomas SUTTNER (Austria)

3.9. Climate variability in the Holocene

Gert J. DE LANGE gdelange@geo.uu.nl (Netherlands) and Francis JIMENEZ-ESPEJO (Spain)



Theme 4. Environmental Geoscience

Coordinators: Colin SIMPSON simpsons@grapevine.com.au (Australia) and Michael LEGGO (Australia)

Symposia

4.1 Environmental aspects of mining

Bernd LOTTERMOSER bernd.lottermoser@utas.edu.au (Australia) and Kirk NORDSTROM (USA)

4.2 Global geochemical mapping: understanding chemical Earth (The 2nd Arthur Darnley Symposium)

David SMITH dsmith@usgs.gov (USA), Xueqiu WANG (China) and Patrice DE CARITAT (Australia)

4.3 Advances in the evaluation and interpretation of geochemical data at the continental scale

Eric GRUNSKY egrunkys@nrcan.gc.ca (Canada) and Patrice DE CARITAT (Australia)

4.4 Medical geology

Phil WEINSTEIN phil.weinstein@unisa.edu.au (Australia) and Jose CENTENO (USA)

4.5. Man-made strata and geopolution

Jonas SATKUNAS jonas.satkunas@lgt.lt (Lithuania) and Hisashi NIREI (Japan)

Theme 5. Geoscience Information

Coordinators: Bruce SIMONS bruce.simons@dpi.vic.gov.au (Australia), Simon COX (Australia), Robert TOMAS (Europe), Richard HUGHES (UK), June HILL (Australia) and Lesley WYBORN (Australia)

Symposia

5.1 Geoscience spatial data infrastructure

Bruce SIMONS bruce.simons@dpi.vic.gov.au (Australia) and Robert TOMAS (Czech Republic)

5.2 Information Management - Interoperability and Standards

Simon COX simon.cox@csiro.au (Australia) and John LAXTON (UK)

5.3 Delivery, dissemination and exploitation of geoscience data and information

Richard HUGHES rah@bgs.ac.uk (UK) and Oliver RAYMOND (Australia)

5.4 Tools – software, hardware, open source

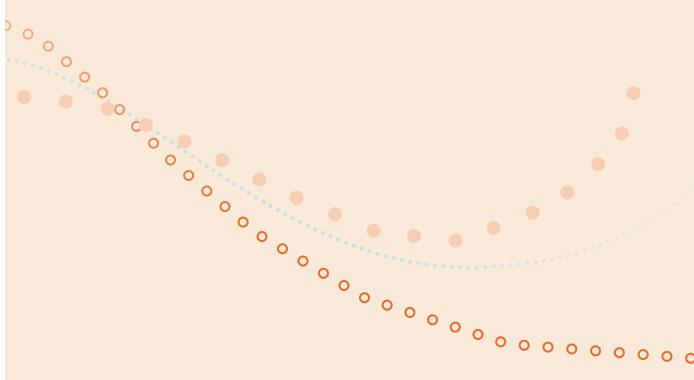
Peter BAUMANN p.baumann@jacobs-university.de (Germany) and Robert WOODCOCK (Australia)

5.5 Model fusion, visualisation, exploration and 3D and 4D modelling

Laurent AILLERES laurent.ailleres@monash.edu (Australia) Holger KESSLER (UK) and Mark JESSELL (France)

5.6 Mathematical geosciences [International Association of Mathematical Geologists (IAMG)]

June HILL june.hill@csiro.au (Australia) and Ricardo OLEA (USA)



Theme 6. Energy in a Carbon Constrained World

Coordinators: Peter COOK pjcook@co2crc.com.au (Australia) and David LUMLEY (Australia)

Symposia

6.1 CO₂ geosequestration

David LUMLEY david.lumley@uwa.edu.au (Australia), Kevin DODDS (USA) and John KALDI (Australia)

6.2 Geothermal resources

Anthony BUDD anthony.budd@ga.gov.au (Australia), T HARINARAYANA (India), Greg BIGNALL (New Zealand) and Klaus REGENAUER-LIEB (Australia)

6.3 Nuclear energy and waste disposal

Charles MCCOMBIE charles.mccombie@arius-world.org (Switzerland), Andrew ORRELL (USA), John WATERHOUSE (Australia), Tomas PACES (Czech Republic) and Peter WIKBERG (Sweden)

6.4 Clean energy: options and limitations

Peter COOK pjcook@co2crc.com.au (Australia), Sally BENSON (USA) and Mike SANDIFORD (Australia)

Theme 7. Mineral Resources and Mining

Coordinators: Graham CARR graham.carr@csiro.au (Australia) and Dale SIMS (Australia)

Symposia

7.1 New age metals: the geology and genesis of ores required for a changing economy and a carbon constrained world [Society for Geology Applied to Mineral Deposits (SGA)]

David HUSTON david.huston@ga.gov.au (Australia) and Bernd LEHMAN (Germany)

7.2 Future sources of industrial minerals and construction materials

John SIEMON john@siemon.id.au (Australia), Björn SCHOUENBORG (Sweden) and Lola PEREIRA (Spain)

7.3 Resource and reserve reporting, international codes and the valuation of mineral assets

Peter STOKER pstoker@amccconsultants.com.au (Australia) and Charlotte GRIFFITHS (Switzerland)

7.4 Resource modelling, estimation and visualisation for project and mine development

Scott DUNHAM sd@qgroup.net.au (Australia) and Rodrigo MELLO (Brazil)

7.5 Mining geology, technology, geophysics and geometallurgy

Dale SIMS dalesims@tpg.com.au (Australia) and Simon DOMINY (UK)

7.6 The future mine and geoscience

Jock CUNNINGHAM jock.cunningham@csiro.au (Australia) and Alberto ELFES (USA)

7.7 Qualitative and quantitative methods of assessing undiscovered mineral resources

Subhash JAIRETH subhash.jaireth@ga.gov.au (Australia), Mike CUNNINGHAM (Australia), Susan HALL (USA) and Stephen PETERS (USA)

Theme 8. Mineral Exploration Geoscience

Coordinators: Cam MCCUAIG campbell.mccuaig@uwa.edu.au (Australia) and David GILES (Australia)

Symposia

8.1 Footprints of mineralised systems: new concepts and data for exploration

Roger SKIRROW roger.skirrow@ga.gov.au (Australia), Richard TOSDAL (Canada) and Zengqian HOU (China)

8.2 The science of exploration targeting

Cam MCCUAIG campbell.mccuaig@uwa.edu.au (Australia), Graham BEGG (Australia) and Zengqian HOU (China)

8.3 Probing the Earth from near-surface to the mantle - techniques, modelling software and case histories to aid mineral exploration

Richard LANE richard.lane@ga.gov.au (Australia), Ken WITHERLY (USA), Bob MUSGRAVE (Australia), Asbjorn CHRISTENSEN (Australia), Hans-Juergen GOETZE (Germany) and Ned STOLZ (Australia)

8.4 Advances in geochemical exploration

David COHEN d.cohen@unsw.edu.au (Australia), Ravi ANAND (Australia), Ryan NOBLE (Australia), David LAWIE (Australia), Graham CLOSS (USA) and Andrew RATE (Australia) and Mark ARUNDALL (Australia)

8.5 Exploration and discovery: diagnosis, prognosis - are we in need of cure? [Society for Geology Applied to Mineral Deposits (SGA)]

David HUSTON david.huston@ga.gov.au (Australia) and Mike HULEATT (Australia)



Theme 9. Mineral Deposits and Ore Forming Processes

Coordinators: Ross LARGE ross.large@utas.edu.au (Australia) and Cornel DE RONDE (New Zealand)

Symposia

9.1 Orogen to district scale structural and tectonic controls on porphyry and epithermal deposits

Dick GLEN dick.glen@dpi.nsw.gov.au (Australia), Dave COOKE (Australia), Reimar SELTMANN (UK) and Eduardo CAMPOS (Chile)

9.2 Volcanic and basin-hosted ores (Fe, Zn-Pb, Cu, U)

Bruce GEMMELL bruce.gemmell@utas.edu.au (Australia), Cornel DE RONDE (New Zealand), Stuart BULL (Australia) and David LEACH (USA)

9.3 Dating of ore deposits

Anthony HARRIS a.harris@utas.edu.au (Australia), Sebastien MEFFRE (Australia) and Alain CHEILLETZ (France)

9.4 Iron oxide copper - gold deposits (IOCG); the unhappy family

Gary DAVIDSON garry.davidson@utas.edu.au (Australia), Roberto XAVIER (Brazil) and Murray HITZMAN (USA)

9.5 Sediment and/or greenstone-hosted gold

Ross LARGE ross.large@utas.edu.au (Australia), Steve COX (Australia) and Richard GOLDFARB (USA)

9.6 Global sulfur cycle and impact on metallogenesis

Andy TOMKINS andy.tomkins@monash.edu (Australia), Iain PITCAIRN (Sweden) and Katy EVANS (Australia)

9.7 Mineral deposits: episodes, accumulation of metals and related geodynamic processes in China and adjacent regions [IAGOD]

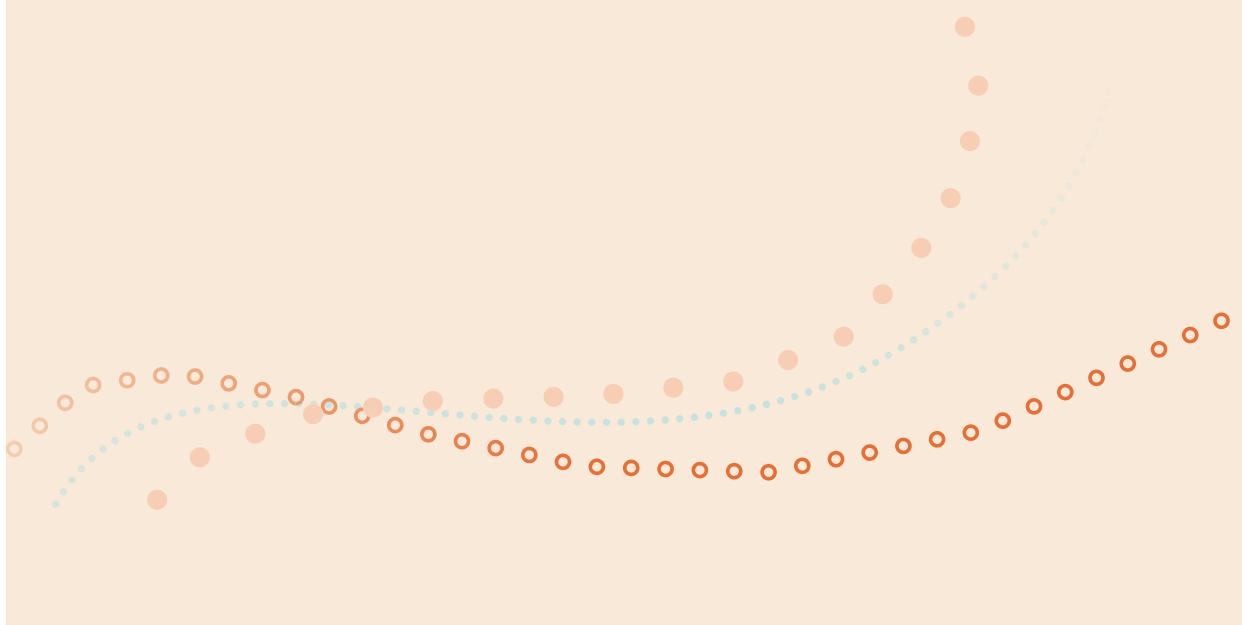
Jingwen MAO jingwenmao@263.net (China), Franco PIRAJNO (Australia) and Reimar SELTMANN (UK)

9.8 Metallogeny of the Tasmanides [Australian Institute of Geoscientists]

Doug YOUNG d.young@findex.net.au (Australia) and Kaylene CAMUTI (Australia)

9.9 Giant and super giant orebodies

Dave COOKE d.cooke@utas.edu.au (Australia), PEI Rongfu (China) and Richard GOLDFARB (USA)





Theme 10. Coal - a Myriad of Resources

Coordinator: Joan ESTERLE j.estelle@uq.edu.au (Australia)

Symposia

10.1 Finding resources, making reserves

Joan ESTERLE j.estelle@uq.edu.au (Australia)

10.2 Coal - a record of change

Robert LANGFORD robert.langford@gov.au (Australia)

10.3 Clean coal - what is the global reality?

Leslie RUPPERT l.ruppert@usgs.gov (USA)

Theme 11. Petroleum Systems and Exploration

Coordinators: Marita BRADSHAW marita.bradshaw@gov.au (Australia), Chris URUSKI (New Zealand) and Sylvia ANJOS (Brazil)

Symposia

11.1 Petroleum prospectivity of divergent and transform passive margin basins of North and South Atlantic, Arctic, India and Australasia

Marita BRADSHAW marita.bradshaw@gov.au (Australia) and Luciano MAGNAVITA (Brazil)

11.2 Pacific Rim petroleum system architecture

Chris URUSKI c.uruski@gns.cri.nz (New Zealand), Hermann LEBIT (USA), Bruce AINSWORTH (Australia), Lawrence MECKEL (Indonesia) and Ian BREWER (USA)

11.3 Petroleum system modelling: geochemistry, basins and source rock

Rob FUNNELL r.funnell@gns.cri.nz (New Zealand)

11.4 Petroleum reservoir modelling, seals and enhanced oil recovery (EOR)

Carlos Henrique BRUHN bruhn@petrobras.com.br (Brazil) and Robert SEGGIE (Australia)

11.5 Petroleum exploration in frontier basins

Irina BORISSOVA irina.borissova@gov.au (Australia), Julien COLLOT (New Caledonia) and Sylvia ANJOS (Brazil)

11.6 Putting the geo into geophysics - adding clout through better datasets and joint interpretation

Ron HACKNEY ron.hackney@gov.au (Australia), Jörg EBBING (Norway), Hans-Jürgen GÖTZE (Germany) and Bernd LAHMEYER (Norway)

Theme 12. Unconventional Hydrocarbons – Emerging Fuels

Coordinators: James UNDERSCHULTZ james.underschultz@csiro.au (Australia) and Ingo PECHER (New Zealand)

Symposia

12.1 Coal seam gas

Mohinudeen FAIZ mohinudeen.faiz@originenergy.com.au (Australia) and Romeo FLORES (USA)

12.2 Shale and tight gas

Dan MOOS dmoos@bakerhughes.com (USA) and Scott TINKER (USA)

12.3 Gas hydrates

Reem FREIJ-AYOUB reem.freij-ayoub@csiro.au (Australia) and Ingo PECHER (New Zealand)

12.4 Heavy oil

Rick RICHARDSON richardson@woosh.co.nz (New Zealand), Fran HEIN (Canada) and Darrell COTTERILL (Canada)

Theme 13. Sedimentation and Sedimentary Processes

Coordinators: Chris FIELDING cfielding2@unlnotes.unl.edu (USA) and Peter MCCABE (Australia)

Symposia

13.1 Continental depositional systems

Peter MCCABE peter.mccabe@csiro.au (Australia)

13.2 Deposits of coastal and shallow marine systems

Bruce AINSWORTH bainsworth@asp.adelaide.edu.au (Australia)

13.3 Deepwater sedimentation

Peter KING p.king@gns.cri.nz (New Zealand) and Greg BROWNE (New Zealand)

13.4 Depositional controls on reservoirs

Simon LANG simon.lang@woodside.com.au (Australia)

13.5 Applied ichnology

Kerri BANN kerriebann@ichnofacies.com (USA) and James MACEACHERN (Canada)

13.6 Sedimentation in icehouse versus greenhouse epochs

Chris FIELDING cfielding2@unlnotes.unl.edu (USA)

13.7 Modelling sedimentary systems

Cedric GRIFFITHS cedric.griffiths@csiro.au (Australia) and Gary KARNER (USA)

13.8 Global controls on sediment accumulation

Tom ALGEO algeot@ucmail.uc.edu (USA)

13.9 River-dominated shelf sediments in Asian seas

Peter CLIFT p.clift@abdn.ac.uk (UK), Jan HARFF (Germany) and Qui YAN (China)





Theme 14. Basin Formation and Continental Margin Processes

Coordinators: George GIBSON george.gibson@ga.gov.au (Australia) and Francois ROURE (France)
[International Lithosphere Program Task Force on sedimentary basins]

Symposia

14.1 Linking multiple scales of deformation for basin modelling

Christian HEINE christian.heine@sydney.edu.au (Australia), Peter JAPSEN (Denmark) and Simon WILLIAMS (Australia)

14.2 Convergent margin sedimentary basins

Francois ROURE francois.roure@ifpen.fr (France) and Kevin HILL (Australia)

14.3 Divergent and transform passive margins: observations, imaging and case studies

Magdaena SCHECK-WENDEROTH leni@gfz-potsdam.de (Germany), Jennie TOTTERDELL (Australia), Christophe BASILE (France) and Jean MASCLE (France)

14.4 Passive to hyper-extended continental rift margins in the geological record: their recognition, diagnostic elements and comparison with present-day analogues

George GIBSON george.gibson@ga.gov.au (Australia) and Gianreto MANATSCHAL (France)

Theme 15. A Dynamic Earth

Coordinators: Dietmar MÜLLER dietmar.muller@sydney.edu.au (Australia)

Symposia

15.1 Plate tectonics, plate-mantle coupling and associated deformation

Maria SETON maria.seton@sydney.edu.au (Australia) and Giampiero IAFFALDANO (Australia)

15.2 Large asteroid impacts and crustal evolution

Andrew GLIKSON andrew.glikson@anu.edu.au (Australia), Don LOWE (USA), Vic GOSTIN (Australia) and Peter HAINES (Australia)

15.3 Evolution and dynamics of the Indo-Australian Plate

Myra KEEF myra.keep@uwa.edu.au (Australia) and Wouter SCHELLART (Australia)

15.4 Linking deep earth to plate tectonic and surface processes

Dietmar MÜLLER dietmar.muller@sydney.edu.au (Australia), Mike GURNIS (USA) and ZHAO Yue (China)

15.5 Orogens and orogenesis: accretionary, cordilleran and collisional processes, products and metallogenesis [with IGCP 600]

Patrice REY patrice.rey@sydney.edu.au (Australia), Richard GLEN (Australia), Christian TEYSSIER (USA), Donna WHITNEY (USA) and Zengqian HOU (China)

Theme 16. The Deep Earth

Coordinators: Sue O'REILLY sue.oreilly@mq.edu.au (Australia) and Bill GRIFFIN (Australia)

Symposia

16.1 The lithosphere-asthenosphere boundary: nature, formation and evolution from Hadean to now

Craig O'NEILL cneill@els.mq.edu.au (Australia) and Manel FERNANDEZ (Spain)

16.2 Fluids in the lithospheric mantle

Alan JONES alan@cp.dias.ie (Ireland) and Anne POMMIER (USA)

16.3 The crust-mantle lithosphere system

Bill GRIFFIN bill.griffin@mq.edu.au (Australia), Ramon CARBONELL (Spain), Adrian LENARDIC (USA) and Norman PEARSON (Australia)

16.4 Deep earth circulation

Shijie ZHONG shijie.zhong@colorado.edu (USA), Julian PEARCE (UK), Leonid DUBROVINSKY (Germany) and Jingsui YANG (China)

16.5 Lithosphere structure from ambient noise and other seismology

Michael RITZWOLLER michael.ritzwoller@colorado.edu (USA), Ling CHEN (China), Yingjie YANG (Australia) and Juan Carlos AFONSO (Australia)

Theme 17. The Early Earth: Hadean and Archean Development of a Habitable Planet

Coordinators: Vickie BENNETT vickie.bennett@anu.edu.au (Australia), Malcolm WALTER (Australia) and Martin VAN KRANENDONK (Australia)

Symposia

17.1 Building planet Earth – the first 500 million years

Vickie BENNETT vickie.bennett@anu.edu.au (Australia) and Tony KEMP (Australia)

17.2 Rates and mechanisms of Archean crust formation – the relative contribution of plume vs plate tectonics

Patrice REY p.rey@usyd.edu.au (Australia), Kent CONDIE (USA) and Martin VAN KRANENDONK (Australia)

17.3 The habitats and palaeobiology of early life on Earth, and the rise of oxygen

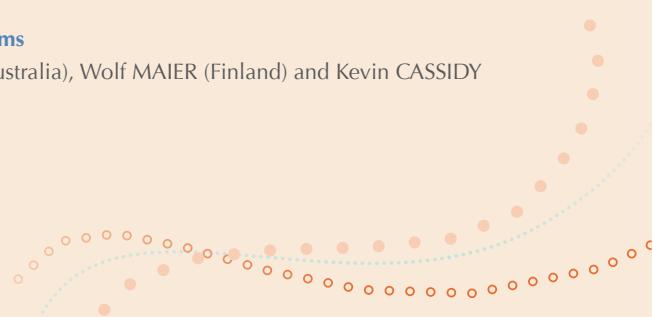
Malcolm WALTER malcolm.walter@unsw.edu.au (Australia), Dave WACEY (Australia) and Ariel ANBAR (USA)

17.4 Early Earth geodynamics and evolution – uncovering links between changing early Earth and biological diversification

Martin Van KRANENDONK martin.vankranendonk@dmp.wa.gov.au (Australia), Ian CAMPBELL (Australia) and Craig O'NEILL (Australia)

17.5 The origin and settings of Archean mineral systems

Nicolas THÉBAUD nthebaud@cyllene.uwa.edu.au (Australia), Wolf MAIER (Finland) and Kevin CASSIDY (Australia)



Theme 18. The Proterozoic Earth

Coordinators: Peter BETTS peter.betts@sci.monash.edu.au (Australia) and Martin HAND (Australia)

Symposia

18.1 Building the Australian continent

Richard BLEWETT richard.blewett@ga.gov.au (Australia) and Dorothy CLOSE (Australia)

18.2 The Neoproterozoic Earth

Martin KENNEDY martin.kennedy@adelaide.edu.au (Australia), Louis DERRY (USA) and Nicholas CHRISTIE-BLICK (USA)

18.3 Proterozoic supercontinents, processes, models, myths, and possibilities

David EVANS dai.evans@yale.edu (USA) and Zheng-Xiang LI (Australia)

18.4 Proterozoic magmatism: implication for tectonic models

Kent CONDIE kcondie@nmt.edu (USA) and Justin PAYNE (Australia)

18.5 Metallogenic systems of the Proterozoic

Franco PIRAJNO franco.pirajno@dmp.wa.gov.au (Australia) and Tom BLENKINSOP (Australia)

Theme 19. Geochronology and Isotope Geology

Coordinators: Paulo VASCONCELOS paulo@earth.uq.edu.au (Australia), Donald DEPAOLO (USA) and Igor VILLA (Switzerland)

Symposia

19.1 Dating earth and planetary evolution - cosmochronology and isotope cosmochemistry

Yuri AMELIN yuri.amelin@anu.edu.au (Australia) and Claudine STIRLING (New Zealand)

19.2 Dating our recent past - analytical methods in quaternary geochronology and palaeoclimatology

Jian-xin ZHAO j.zhao@earth.uq.edu.au (Australia), Chuan-Chou (River) SHEN (Taiwan) and Gangjian WEI (China)

19.3 Dating landscape evolution - low-temperature thermochronology and cosmogenic nuclides

Paulo VASCONCELOS paulo@earth.uq.edu.au (Australia), Ken FARLEY (USA), Paul BIERMAN (USA) and Andrew GLEADOW (Australia)

19.4 Unravelling the complexities of high and low temperature geologic processes: light and heavy stable isotope geochemistry

Sue GOLDING s.golding1@uq.edu.au (Australia), Torsten VENNEMANN (Switzerland) and Allan CHIVAS (Australia)

19.5 Advances in radiogenic isotope geochemistry and geochronology

Kurt KNESEL k.knesel@uq.edu.au (Australia) and Márcio PIMENTEL (Brazil) and Robert CREASER (Canada)

19.6 Conventions on decay constants and isotopic compositions

Igor VILLA igor@geo.unibe.ch (Switzerland) and Paul RENNE (USA)





Theme 20. Planetary Sciences

Coordinators: Graziella CAPRARELLI graziella.caprarelli@uts.edu.au (Australia), Monica PONDRELLI (Italy), Charles LINEWEAVER (Australia), James HEAD (USA) and Phil NICHOLSON (USA)

Symposia

20.1 Surface processes on Mars

Angelo PIO ROSSI; an.rossi@jacobs-university.de (Germany), Gian Gabriele ORI (Italy) and Monica PONDRELLI (Italy)

20.2 Bio-geomarkers and models in astrobiology

Jesus MARTINEZ-FRIAS jmfrias@cab.inta-csic.es (Spain) and Howell EDWARDS (UK)

20.3 Radar in planetary exploration

Roberto OROSEI roberto.orosei@ifsi-roma.inaf.it (Italy) and Jani RADEBAUGH (USA)

20.4 Lunar research and exploration in the 21st century

Robert PIDGEON r.pidgeon@curtin.edu.au (Australia) and Jennifer HELDMANN (USA)

20.5 Planets and satellites of the solar system

Graziella CAPRARELLI graziella.caprarelli@uts.edu.au (Australia)

Theme 21. Magmatism – Settings, Compositions and Processes

Coordinators: Janet HERGT jhergt@unimelb.edu.au (Australia) and Jon BLUNDY (UK)

Symposia

21.1 Felsic magmas: petrogenesis to metallogenesis

Phil BLEVIN phil.blevin@industry.nsw.gov.au (Australia), Bruce CHAPPELL (Australia) and Shunso ISHIHARA (Japan)

21.2 Granite versus orogenic style

Bill COLLINS bill.collins@newcastle.edu.au (Australia) and Bernard BONIN (France)

21.3 Subduction zone magmatism including a special session on magmatism in the SW Pacific

Richard WYSOCZANSKI r.wysoczanski@niwa.co.nz (New Zealand) and Monica HANDLER (New Zealand)

21.4 Magmatism in extensional environments (continental rifts and MORB)

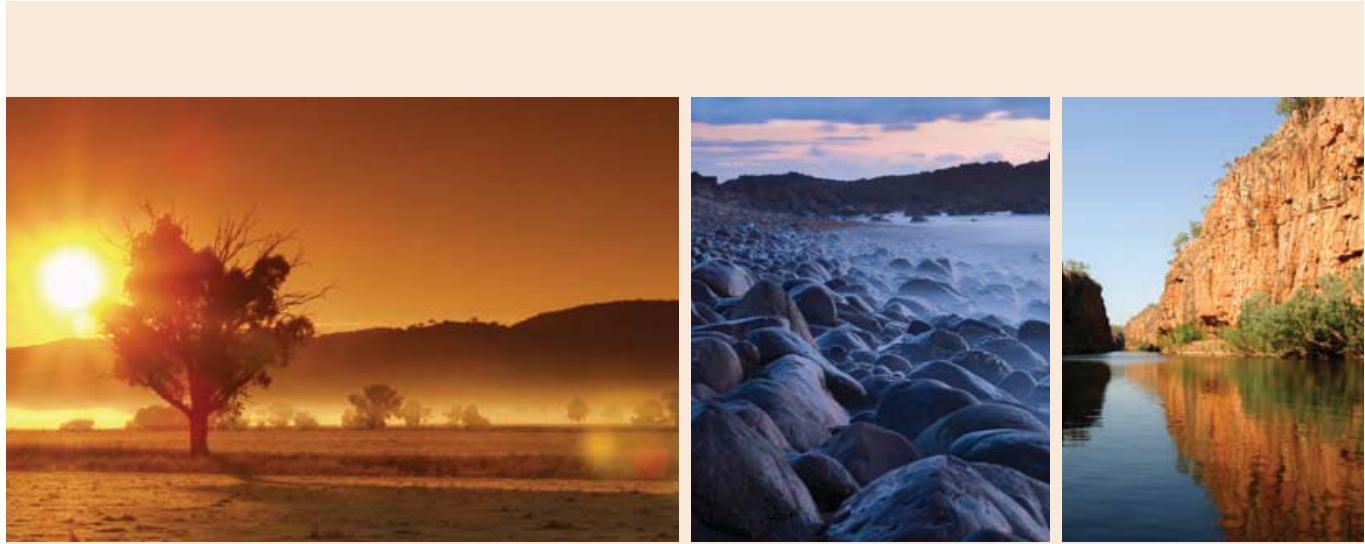
Trevor FALLOON trevor.falloon@utas.edu.au (Australia) and Yaoling NIU (UK)

21.5 Intraplate magmatism, including ocean island basalts, continental basalt provinces, kimberlites and lamproites

Ben COHEN b.cohen@uq.edu.au (Australia), Ian McDougall (Australia) and Godfrey FITTON (UK)

21.6 Large Igneous Provinces (LIPS): magmatism impacts on atmosphere and biosphere

Scott BRYAN scott.bryan@qut.edu.au (Australia), Steve SELF (UK) and Ingrid UKSTINS-PEATE (USA)



Theme 22. Metamorphic Rocks and Processes

Coordinators: Jörg HERMANN joerg.hermann@anu.edu.au (Australia), Geoff CLARKE (Australia) and Simon HARLEY (UK)

Symposia

22.1 From ocean floor to subduction zone metamorphism

Katie EVANS k.evans@curtin.edu.au (Australia), Phillip AGARD (France), Carl SPANDLER (Australia), Marco SCAMBELLURI (Italy) and Joerg HERMANN (Australia)

22.2 Rates of metamorphic processes

Geoff FRASER geoff.fraser@ga.gov.au (Australia), Ethan BAXTER (USA) and Sue BALDWIN (USA)

22.3 Mechanisms of metamorphic reactions and fluid-rock interaction

Andrew PUTNIS putnis@uni-muenster.de (Germany), Lukas BAUMGARTNER (Switzerland), Bill CARLSON (USA) and Jay AGUE (USA)

22.4 Quantification of extreme metamorphism and implications for tectonics

Chris CLARKE c.clark@curtin.edu.au (Australia), Brad HACKER (USA), Yong Fei ZHENG (China) and Yasu OSANAI (Japan)

22.5 Anatexis

Geoffrey CLARKE geoffrey.clarke@sydney.edu.au (Australia), Michael BROWN (USA), Bernardo CESARE (Italy) and Gary STEVENS (South Africa)

22.6 Accessory phases and trace elements in metamorphic processes

Daniela RUBATTO daniela.rubatto@anu.edu.au (Australia), Nigel KELLY (USA), Ian BUICK (South Africa) and Simon HARLEY (UK)

Theme 23. Evolution of the Biosphere

Coordinators: John LAURIE john.laurie@ga.gov.au (Australia) and Andrew KNOLL (USA)

Symposia

23.1 Martin Glaessner Symposium: The Ediacaran and the Cambrian Explosion

John LAURIE john.laurie@ga.gov.au (Australia), Glenn BROCK (Australia) and Guy NARBONNE (Canada)

23.2 John Talent Symposium: Palaeozoic biofacies, biogeography and bioevents

Ian PERCIVAL ian_percival@industry.nsw.gov.au (Australia), Tony WRIGHT (Australia) and Guang SHI (Australia)

23.3 Evolution of hominins

Colin GROVES colin.groves@anu.edu.au (Australia), Chris STRINGER (Australia) and Darren CURNOE (Australia)

23.4 General palaeontology

Alex COOK alex.cook@qm.qld.gov.au (Australia) and Alexander NUTZEL (Germany)

23.5 Oxygen and evolution

Andrew KNOLL aknoll@oeb.harvard.edu (USA) and Jochen BROCKS (Australia)

23.6 Proterozoic life

Kathleen GREY kath.grey@dmp.wa.gov.au (Australia) and Stanley AWRAMIK (USA)

23.7 Gondwanan Mesozoic vertebrates

Benjamin KEAR benjamin.kear@geo.uu.se (SWEDEN) and Thomas RICH (Australia)

23.8 Mesozoic bioevents

David HAIG david.haig@uwa.edu.au (Australia), Stephen MCLOUGHLIN (Sweden) and Mikael SIVERSSON (Australia)

23.9 Origin and evolution of marsupials

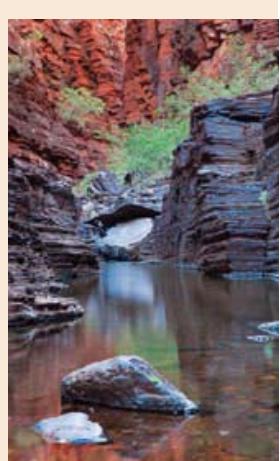
Michael ARCHER m.archer@unsw.edu.au (Australia) and Suzanne HAND (Australia)

23.10 Early vertebrate evolution

Kate TRINAJSTIC k.trinajstic@curtin.edu.au (Australia), Gavin YOUNG (Australia) and Carole BURROW (Australia)

23.11 Cenozoic marine environments

Stephen GALLAGHER sjgall@unimelb.edu.au (Australia) and Bridget WADE (UK)



Theme 24. Reefs and Carbonates

Coordinators: Gregory E WEBB g.webb@uq.edu.au (Australia) and Noel P JAMES (Canada)

Symposia

24.1 Reefs and climate change

Gilbert CAMOIN gcamoin@cerege.fr (France) and Bradley OPDYKE (Australia)

24.2 Ancient reefs

Wolfgang KIESSLING wolfgang.kiessling@mfn-berlin.de (Germany) and Jody WEBSTER (Australia)

24.3 Understanding microbial carbonates

Robert RIDING riding@cf.ac.uk (USA) and Gregory E WEBB (Australia)

24.4 Secular change in carbonate sedimentology/geochemistry

Vinod TEWARI vtewari@wihg.res.in (India) and Annette GEORGE (Australia)

Theme 25. Marine Geoscience and Oceanography

Coordinators: Peter HARRIS peter.harris@ga.gov.au (Australia) and Neville EXON (Australia)

Symposia

25.1 Integrated Ocean Drilling Program (IODP), the results of deep drilling in the oceans

Neville EXON neville.exon@anu.edu.au (Australia) and Mike MOTTL (USA)

25.2 Palaeoceanography and sea-level records

Colin WOODROFFE colin@uow.edu.au (Australia) and Leanne ARMAND (Australia)

25.3 Physical processes of coastal and shelf sedimentation

Peter HARRIS peter.harris@ga.gov.au (Australia), James SYVITSKI (USA) and Charitha PATTIARATCHI (Australia)

25.4 Source to sink sediment pathways and the evolution of continental margins

Chuck NITTROUER nittrouer@ocean.washington.edu (USA) and Alan ORPIN (New Zealand)

25.5 Geoscience applications for ocean management and also for supporting jurisdictional claims under the United Nations Law of the Sea

Andrew HEAP andrew.heap@ga.gov.au (Australia) and Brian TODD (Canada)

25.6 Marine minerals in Oceania

David CRONAN d.cronan@imperial.ac.uk (UK), Cornel DE RONDE (New Zealand) and Neville EXON (Australia)



Theme 28. Groundwater/Hydrogeology

Coordinators: Ken LAWRIE ken.lawrie@ga.gov.au (Australia) and Chris DAUGHNEY (New Zealand)

Symposia

28.1 Groundwater resources and sustainable management

Gil ZEMANSKY g.zemansky@gns.cri.nz (New Zealand) and Ross BRODIE (Australia)

28.2 Groundwater processes: interactions, dynamics and response

Chris DAUGHNEY c.daughney@gns.cri.nz (New Zealand), Uwe MORGESTERN (New Zealand) and Bear MCPHAIL (Australia)

28.3 Geoscientific mapping, characterisation and conceptualisation of hydrogeological systems

Ken LAWRIE ken.lawrie@ga.gov.au (Australia), Jon CLARKE (Australia) and Mal COX (Australia)

28.4 Groundwater for energy and mining

Ken LAWRIE ken.lawrie@ga.gov.au (Australia) and Steven LEWIS (Australia)

28.5 Hazards and risks to groundwater systems

Ken LAWRIE ken.lawrie@ga.gov.au (Australia), Baskaran SUNDERAM (Australia) and Chris DAUGHNEY (New Zealand)

28.6 Visualisation and modelling of groundwater systems

Malcolm COX m.cox@qut.edu.au (Australia), Mauricio TAULIS (Australia) and Bruce GILL (Australia)

Theme 29. Surficial Processes and Landscape Evolution

Coordinators: Allan CHIVAS toschi@uow.edu.au (Australia) and Brad PILLANS (Australia)

Symposia

29.1 Landscape response to climate change: quantifying present and ancient rates of Earth-surface processes

Anthony DOSSETO tonyd@uow.edu.au (Australia) and Arjun HEIMSATH (USA)

29.2 Karst: processes, environment and palaeoenvironmental records

Jianhua CAO jhcao@mail.karst.ed.cn (China) and Yaoru LU (China)

29.3 History of aridity: evidence from the continents and the oceans

Paul HESSE paul.hesse@mq.edu.au (Australia) and Matt TELFER (UK)

29.4 Deep weathering through deep time: regolith processes and ore deposits

Ravi ANAND ravi.anand@csiro.au (Australia) and Allan CHIVAS (Australia)

29.5 Gondwana landscapes: tectonics and denudation

Brad PILLANS brad.pillans@anu.edu.au (Australia) and Paul BISHOP (UK)

29.6 Clays and clay minerals: geology, properties and uses

Chun-Hui ZHOU chunhui09clay@yahoo.cn (China) and John KEELING (Australia)

Theme 30. Geohazards

Coordinators: Phil CUMMINS phil.cummins@anu.edu.au (Australia), Terry WEBB (New Zealand) and Kelvin BERRYMAN (New Zealand)

Symposia

30.1 Subaerial and submarine landslide hazards [IGCP585]

Jason CHAYTOR jchaytor@usgs.gov (USA), Ashvin WICKRAMASOORIYA (Sri Lanka) and Diana ZAKHIDOVА (Romania)

30.2 Natural hazards and climate change

Bob CECHET bob.cechet@gar.gov.au (Australia), Graeme SMART (New Zealand) and Martyn HAZELWOOD (Australia)

30.3 Improving the interaction between natural/physical and social sciences to increase the effectiveness of natural disaster risk reduction

Irina RAFLIANA irina.rafliana@hotmail.com (Indonesia), Dale DOMINEY-HOWES (Australia) and Michelle DALY (New Zealand)

30.4 Geohazards in subduction zones

Laura WALLACE lwallace@gns.cri.nz (New Zealand), Phil CUMMINS (Australia) and Danny NATAWIDJAJA (Indonesia)

30.5 Geohazard risk analysis: the state of the art

Jane SEXTON jane.sexton@ga.gov.au (Australia)

30.6 Earth monitoring for improved forecasting of natural hazards

Phil CUMMINS phil.cummins@anu.edu.au (Australia) and Ken GLEDHILL (New Zealand)

Theme 31. Engineering Geology and Geomechanics

Coordinators: Mark EGGLERS mark.eggers@psmconsult.com.au (Australia) and Francisco DE JORGE (Brazil)

Symposia

31.1 Engineering geological challenges for our ever growing cities

Martin CULSHAW martin.culshaw2@ntlworld.com (UK)

31.2 Engineering geology in major infrastructure developments

Francisco DE JORGE francisco.dejorge@engeocons.com.br (Brazil)

31.3 Engineering geology in mining

Mark EGGLERS mark.eggers@psmconsult.com.au (Australia)

31.4 Engineering geology in managing risk from geohazards and impacts of climate change

Anders SOLHEIM anders.solheim@ngi.no (Norway)

31.5 Improving the development of geological models for engineering studies

Steve PARRY sparry@georisksolutions.com (Hong Kong, China)

31.6 Interaction of engineering geology and geomechanics

Phil PAIGE-GREEN ppaigegr@csir.co.za (South Africa)

Theme 32. Geoscience Information from Proximal and Remote Sensing Technologies

Coordinators: Tom CUDAHY thomas.cudahy@csiro.au (Australia), Adam LEWIS (Australia) and Carlos DE SOUZA FILHO (Brazil) [UNESCO- IUGS Geological Applications of Remote Sensing (GARS) program]

Symposia

32.1 Mineral exploration

Fred KRUSE fakruse@nps.edu (USA)

32.2 Mining and geometallurgy

Kai YANG kai.yang@csiro.au (Australia)

32.3 Energy: hydrocarbons, uranium and geothermal

Carlos DE SOUZA FILHO beto@ige.unicamp.br (Brazil)

32.4 Environmental monitoring in resource development

Tom CUDAHY thomas.cudahy@csiro.au (Australia) and Cindy ONG (Australia)

32.5 Earth's environment: geology, landforms, soils, water and biomass

Sabine CHABRILLAT chabri@gfz-potsdam.de (Germany)

32.6 Disaster management

Mike ABRAMS michael.j.abrams@jpl.nasa.gov (USA)

32.7 Second National Virtual Core Library (NVCL) Symposium

Jon HUNTINGTON jon.huntington@csiro.au (Australia)

Theme 33. History of the Geosciences

Coordinators: Barry COOPER barry.cooper@unisa.edu.au (Australia) and S F de M FIGUEIRÔA (Brazil) [37th Conference of the International Commission on the History of Geological Sciences - INHIGEO]

Symposia

33.1 Biographical studies of eminent geologists: a Symposium in honour of David Branagan

David OLDROYD doldroyd@bigpond.com (Australia)

33.2 The early history of continental drift: a centenary tribute to Alfred Wegener (1912)

Allan KRILL allan.krill@ntnu.no (Norway) and Homer Le GRAND (Australia)

33.3 Major achievements in 20th century geology

Carol BACON cbacon@mrt.tas.gov.au (Australia)

33.4 Geology in tropical regions

Bernie JOYCE ebj@unimelb.edu.au (Australia)

33.5 Geologists, resource exploration and development: an historical perspective

Ken MCQUEEN ken.mcqueen@canberra.edu.au (Australia)

33.6 General contributions on the history of geology

Barry COOPER barry.cooper@unisa.edu.au (Australia)



Theme 34. Major Geoscience Initiatives, Geosurveys and Maps

Coordinators: Ian LAMBERT ian.lambert@ga.gov.au (Australia) and Ian WITHNALL (Australia)

Symposia

34.1 Geological processes of the construction of Asia

Manuel PUBELLIER manupub.pubellier@gmail.com (France), REN Jishun (China) and JIN Xiaochi (China)

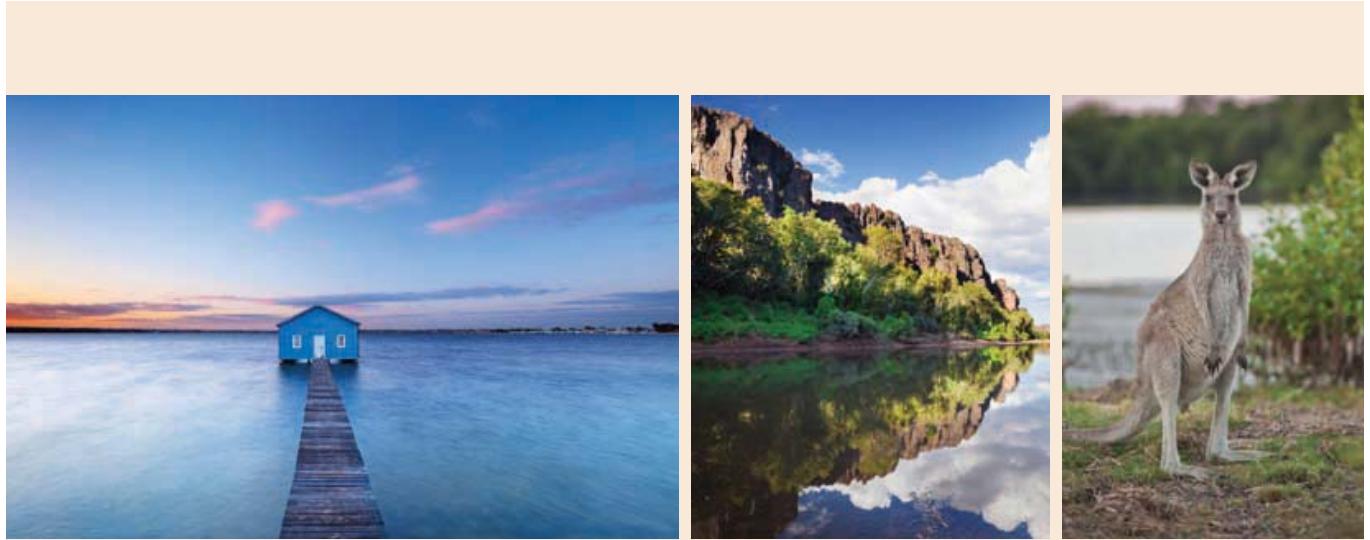
34.2 Geological and metallogenic responses to deep processes in eastern Asia and continental margins

DONG Shuwen dic@cags.ac.cn (China) and Oleg PETROV (Russia)

34.3 SinoProbe—deep exploration in China

DONG Shuwen dic@cags.ac.cn (China), LI Tingdong (China), Larry BROWN (USA) and LIU Mian (USA)





Theme 35. Geostandards

Coordinators: Colin SIMPSON simpsons@grapevine.com.au (Australia) and William CAVAZZA (Italy)

Note – The Geostandards sessions are organised by groups associated with the IUGS. Presentations may be by invitation of the convenors.

Symposia

35.1 GSSPs (Global boundary-stratotype section and point) as global geostandards

Stan FINNEY scfinney@csulb.edu (USA), Marco BALINI (Italy) and Jim OGG (USA)

35.2 International Subcommission on Precambrian stratigraphy: a chronostratigraphic division of the Precambrian: possibilities and challenges

Martin VAN KRANENDONK martin.vankranendonk@dmp.wa.gov.au (Australia)

35.3 International Subcommission on Neoproterozoic stratigraphy: Neoproterozoic chronostratigraphy and the evolution and diversification of metazoa and evolution of the Earth system

James GEHLING jim.gehling@samuseum.sa.gov.au (Australia)

35.4 International Subcommission on Cambrian stratigraphy: Cambrian chronostratigraphy and evolution and diversification of early Cambrian life

Shanchi PENG pengshanchi@hotmail.com (China) and Loren BABCOCK (USA)

35.5 International Subcommission on Ordovician stratigraphy: Ordovician intercontinental correlations: developing global and regional chronostratigraphy

David HARPER dharper@snm.ku.dk (Denmark) and Ian PERCIVAL (Australia)

35.6 International Subcommission on Devonian stratigraphy: the Devonian of Asia and Australia

Thomas BECKER rbecker@uni-muenster.de (Germany)

35.7 The Devonian-Carboniferous-Permian correlation chart

Manfred MENNING menne@gfz-potsdam.de (Germany)

35.8 International Subcommission on Quaternary stratigraphy: short-time divisions in the Quaternary; and onshore-offshore correlation during the Quaternary

Phil GIBBARD plg1@hermes.cam.ac.uk (UK)

35.9 Other geostandards

Colin SIMPSON simpsons@grapevine.com.au (Australia)

Theme 36. Regional, Thematic and Specialist Symposia

Coordinator: Ian LAMBERT ian.lambert@ga.gov.au (Australia) and Paul KAY (Australia)

These Symposia are organised by groups associated with the IUGS and other international and national associations. Oral presentations may be by invitation of the convenors.

Symposia

36.1 From the Caspian Sea to the Mediterranean Corridor: palaeoenvironmental change and human response from the Last Glacial Maximum into the future [International Union for Quaternary Research (INQUA) 0501 and IGCP 521]

Valentina YANKO-HOMBACH yalyan@avalon-institute.org (Canada), Olena SMYNTYNA (Ukraine) and Tamara YANINA (Russia)

36.2 Dust from geological sources: impacts on the economy, environment and society [IUGS – Commission on Geoscience for Environmental Management (GEM) Working Group on Dust]

Brian MARKER brian@amarker.freereserve.co.uk (UK) and Jose CENTENO (USA)

36.3 Natural hazards and ancient societies [IGCP 567]

Patrick NUNN pnunn3@une.edu.au (Australia), Bruce MCFADGEN (New Zealand), Iain STEWART (UK) and Manuel SINTUBIN (Belgium)

36.4 Environmental change and sustainability in karst systems: relations to climate change and anthropogenic activities (2011-2016) [IGCP Project 598]

Cheng ZHANG chzhang@karst.ac.cn (China), Chris GROVES (USA) and Augusto AULER (Brazil)

36.5 International perspectives on teaching geological mapping [GSA International Section]

Joann STOCK jstock@gps.caltech.edu (USA) and Anke FRIEDRICH (Germany)

36.6 Greater Altai – a unique rare-metal-gold-polymetallic province in central Asia [National Committee of Kazakhstan Geologists]

Ginayat BEKZHANOV bekzhanov@nursat.kz (Kazakhstan)

36.7 Overcoming geoscience challenges in the 21st century by developing and improving the skills of early-career geoscientists [YES Network]

Joanne VENUS ejhv@leeds.ac.uk (UK), Gabriela PERLINGEIRO (Australia) and Michelle COOPER (Australia)

36.8 Inclusions in minerals [International Mineralogical Association Working Group on Inclusions in Minerals]

Pei NI peini@nju.edu.cn (China), Ronald BAKKER (Austria) and Fanus VILJOEN (South Africa)

36.9 Uranium resources, supply and demand [IAEA-OECD/NEA Uranium Group]

Ian LAMBERT ian.lambert@ga.gov.au (Australia)

Theme 37. Alternative Concepts

Coordinator: Paul KAY paul.kay@ga.gov.au (Australia)

Note – these sessions will be arranged by the convenors listed and presentations may be by invitation.

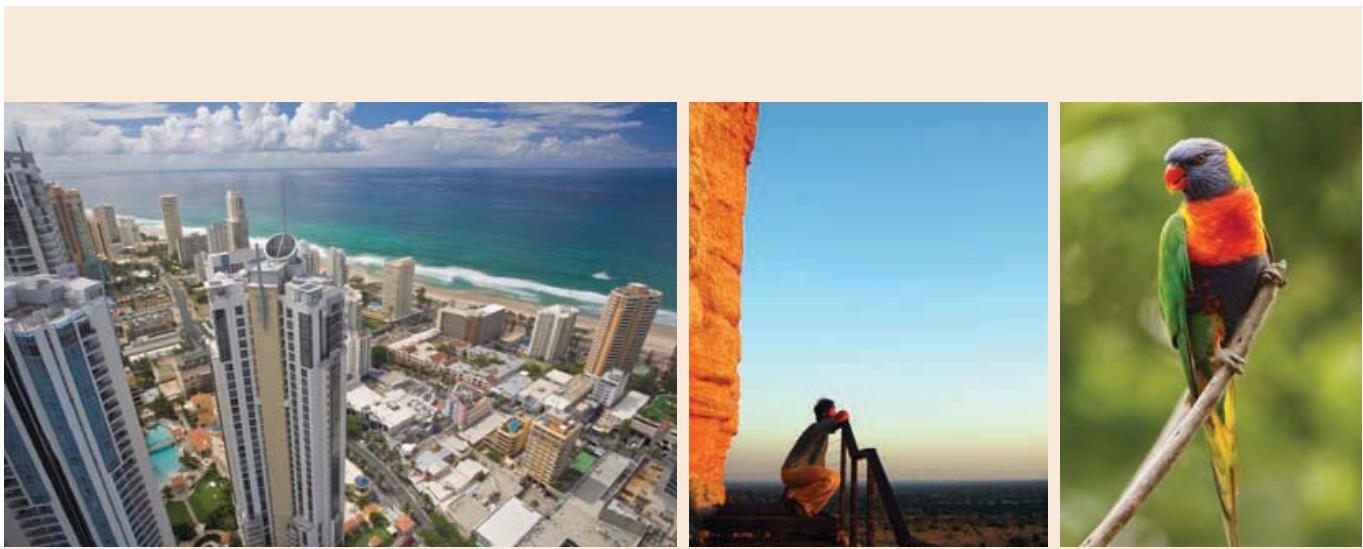
Symposia

37.1 Expanding Earth (Sam Carey Memorial)

Giancarlo SCALERA giancarlo.scalera@ingv.it (Italy), James MAXLOW (Australia), Cliff OLLIER (Australia) and Stefan CWOJDZINSKI (Poland)

37.2 Pursuit of a new global geodynamic paradigm

Dong CHOI raax@ozemail.com.au (Australia), Ismail BHAT (India) and Karsten STORETVEDT (Norway)



Other Major Forums

Further details will be given in the Third Circular.

F.1 YES Network – evening program

Gabriela PERLINGEIRO gabrielaperlingeiro@yahoo.com (Australia), Joanne VENUS (UK) and Michelle COOPER (Australia)

F.2 GeoSurvey directors' forum

Alex MALAHOFF a.malahoff@gns.cri.nz (New Zealand) and Chris PIGRAM (Australia)

F.3 Global Geoscience Initiative

Edmund NICKLESS edmund.nickless@geolsoc.org.uk (UK), John LUDDEN (UK), Pat LEAHY (USA) and Jack HESS (USA)

F.4 Planet Earth Institute (PEI) – successor to the International Year of Planet Earth initiative (IYPE)

Ed DE MULDER e.demulder@planet.nl (Netherlands), Wolfgang EDER (Germany), Sierd CLOETINGH (Netherlands), Sospeter MUHONGO (Tanzania)

F.5 Geological Society of America - International Section

Joann STOCK jstock@gps.caltech.edu (USA)

Business Meetings

Organisations wishing to conduct business meetings during the 34th IGC are invited to make a meeting request by visiting www.34igc.org and selecting the Program and then Business Meetings options. The closing date for meeting requests is 15 July 2011.

- Full day business meetings will need to be held on Sunday, 5 August 2012, between 10.00am and 5.00pm.
- Other business meetings will be held between 7.00pm and 10.30pm on the following evenings:
Monday, 6 August
Tuesday, 7 August
Wednesday, 8 August (note that the congress dinner will be held on this night)
Thursday, 9 August

Rooms will be provided in theatre style seating format at no charge. Any special room set up arrangements and/or audio visual and catering requirements will be at the cost of the meeting organisers and such arrangements will need to be made by meeting organisers directly with the convention centre.



Call for Abstracts

You are invited to submit abstracts for the 34th IGC scientific program via the 34th IGC abstract submission website at www.34igc.org. Please note that **abstract submission opens: Monday 23 May 2011**. All abstracts must be received by the cut-off date: **Friday 17 February 2012**.

Abstracts are limited to 250 words. Tables, figures, references and other graphics cannot be accepted in abstracts. Abstracts must be submitted by the presenting author (oral and poster). All abstracts will be reviewed by the appropriate Symposium convenors.

Summary of Abstract Submission Instructions

Abstracts should be submitted via the Symposia abstract submission tab of the IGC website: www.34igc.org. Authors should select the Symposium they wish to present (oral and poster) in from the drop down menu. If they are uncertain where their paper best fits, they should use the “Reviewer’s choice” category at the very bottom of the drop-down menu for each Theme.

Authors are permitted to submit only one presenting author abstract for oral presentation, but may also submit abstracts for poster papers and be non-presenting co-authors on other oral presentations. Keynote speakers and invited presenters in IUGS symposia/sessions in Themes 34 and 35 may submit an additional offered abstract for oral presentation.

Abstracts must be prepared and submitted in the required format. Please carefully read through the submission instructions below for preparing and submitting your abstract:

STEP 1. Download the Abstract Guidelines which describe how to prepare your abstract and the Abstract Template from www.34igc.org/submit-abstracts.php save as a .doc document to your computer.

STEP 2. Prepare your abstract exactly following instructions given in the Guidelines and Abstract Template. Abstracts must not exceed the 250 word limit.

STEP 3. Log onto the 34th IGC Abstract Submission website, enter the details of the presenting author, and nominate the number of abstracts to be submitted. ABSTRACT(S) MUST BE SUBMITTED BY THE PRESENTING AUTHOR. You will be required to pay a non-refundable A\$40 author abstract fee by credit card.

STEP 4. Enter the title of your abstract and nominate your preference for oral or poster presentation.

STEP 5. Carefully read and accept the terms and conditions of abstract submission.

STEP 6. Print a copy of the abstract submission form for your records prior to clicking “upload”. Attach/Upload your abstract.



Special Arrangements for Abstracts under the GeoHost Program

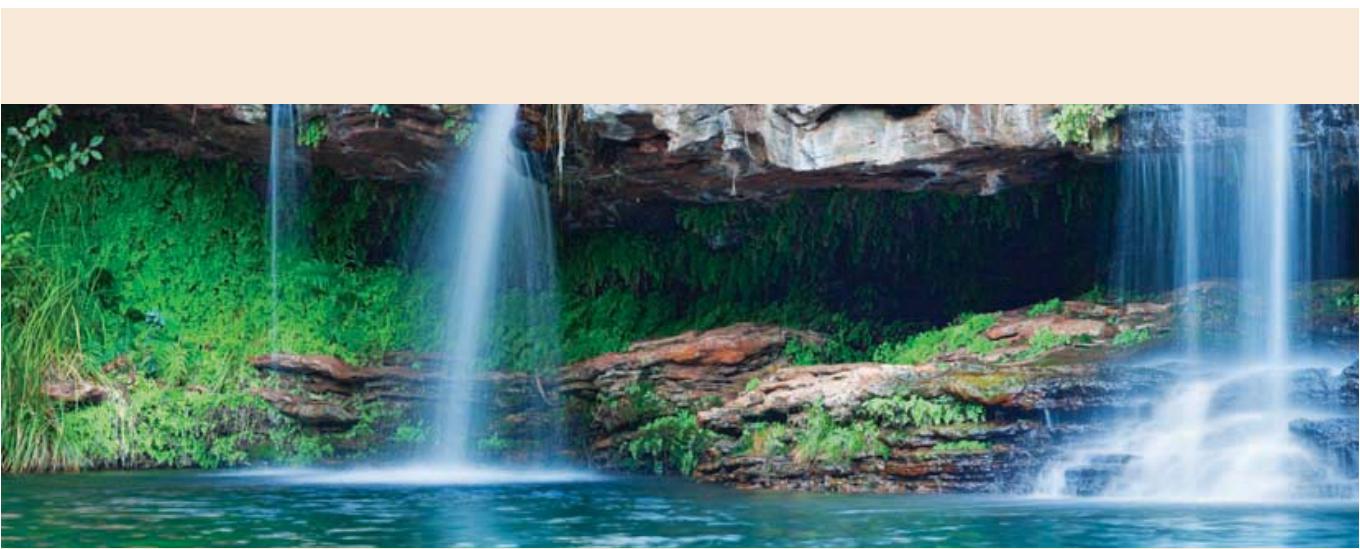
Young geoscientists and geoscientists from low income countries can apply for support under the GeoHost Funded Delegate Program. Successful applicants under this program will not be required to pay the abstract submission fee. The GeoHost support application form is available on the website: www.34igc.org - select the GeoHost Support Scheme option.

Publications

The 34th IGC will publish standard abstracts electronically at the time of the event, but will not publish papers presented. Symposium convenors and groups wishing to publish papers presented at the 34th IGC are free to enter independently into agreements with publishing houses.

The scientific sponsor of the IGC, the IUGS, has an arrangement with The Geological Society of London (GSL) Publishing House for the publication of books arising from its programs and other activities, including International Geological Congresses. GSL will approach selected IGC Symposia Convenors to encourage them to consider producing a *Geological Society Special Publication*. *Special Publications* are published online and as hardback books which will be included in ISI Web of Science and Scopus.

- The *Special Publications* do not have to be comprehensive treatments, but they do need to be balanced and have a strong subject focus. Ideally they comprise 18-25 papers, although there have been longer and shorter ones. More information can be found at www.geolsoc.org.uk/sp.
- Alternatively, Convenors are free to negotiate publication of their Symposia with other publishing houses, or to elect not to publish full papers.



Professional Development Workshops and Short Courses

The 34th International Geological Congress 2012 offers the opportunity to individuals, companies, institutions or organisations to run Professional Development Workshops and Short Courses in association with the Congress.

Four options for running Professional Development Workshops and Short Courses will be available:

- (a) **PRE-CONGRESS: At an alternative venue to the Congress.**
- (b) **EVENING: During the Congress, but after 6pm each day, at the Congress venue.**
- (c) **POST-CONGRESS: At an alternative venue to the Congress.**

Approved Professional Development Workshops and Short Courses will be included in the 34th IGC Program and Congress delegates will be invited to register for these workshops and courses. Note that participation in the workshops and short courses will be limited to persons registered to attend the 34th IGC as full delegates.

All pre-Congress and post-Congress Workshop organisers will need to arrange and pay for all costs associated with running their workshop. EVENING Workshops will be provided with a room free of charge, however all other requirements will need to be arranged by the organisers. In the case of pre- and post-Congress Workshops/Short Courses organised by international groups or individuals, the IGC can facilitate this process.

Where workshop/short course participation fees are applicable, these will be collected by the managers of the 34th IGC. These participation fees, as determined by the respective Workshop/Short Course organisers, will be listed in the Third Circular. The fees will be remitted to the workshop/short course organisers less the costs of handling, credit card transaction fees and Goods and Services Tax (where applicable).

Organisations and individuals interested in running a workshop or short course are requested to complete the on-line Professional Workshops and Short Courses Expression of Interest Form at www.34igc.org – select the “Professional Development Workshops” option.

Note that this form must be completed on or before 15 July 2011.

GeoHost Support Scheme



The 34th IGC Organising Committee is pleased to announce the GeoHost Support Scheme. This program will provide financial support to a limited number of young Earth scientists and scientists from low income countries to participate in the 34th IGC.

Two programs are available under the GeoHost Support Scheme:

GeoHost Training Workshop Program (TWP)

GeoHost Funded Delegate Program (FDP)

Applications are now open for both GeoHost programs. Applications can only be made using the online application process which can be found at www.34igc.org – select the “GeoHost Support Scheme” option.

About the GeoHost Support Scheme:

- Applications will close on 1 November 2011;
- Successful applicants will be notified in March 2012;
- All GeoHost applicants (under the FDP program) must be (i) the presenting author of an abstract that is selected for presentation at the 34th IGC; and/or (ii) a Symposium Convenor, as recognised in the scientific program published in the Second Circular and on the Congress website;
- Applicants can apply for support under either the Training Workshop Program (TWP) or the Funded Delegate Program (FDP), not both;
- The application process must be completed in full for an applicant to be considered. Non-compliant or incomplete applications will not be considered or acknowledged.

GeoHost Training Workshops Program (TWP)

The IGC Committee is developing four Training Workshops which will provide expert training in topics of importance to low income nations. The workshops are being scheduled immediately before the 34th IGC and will be held at the Queensland University of Technology, which is located in Brisbane's central business district.

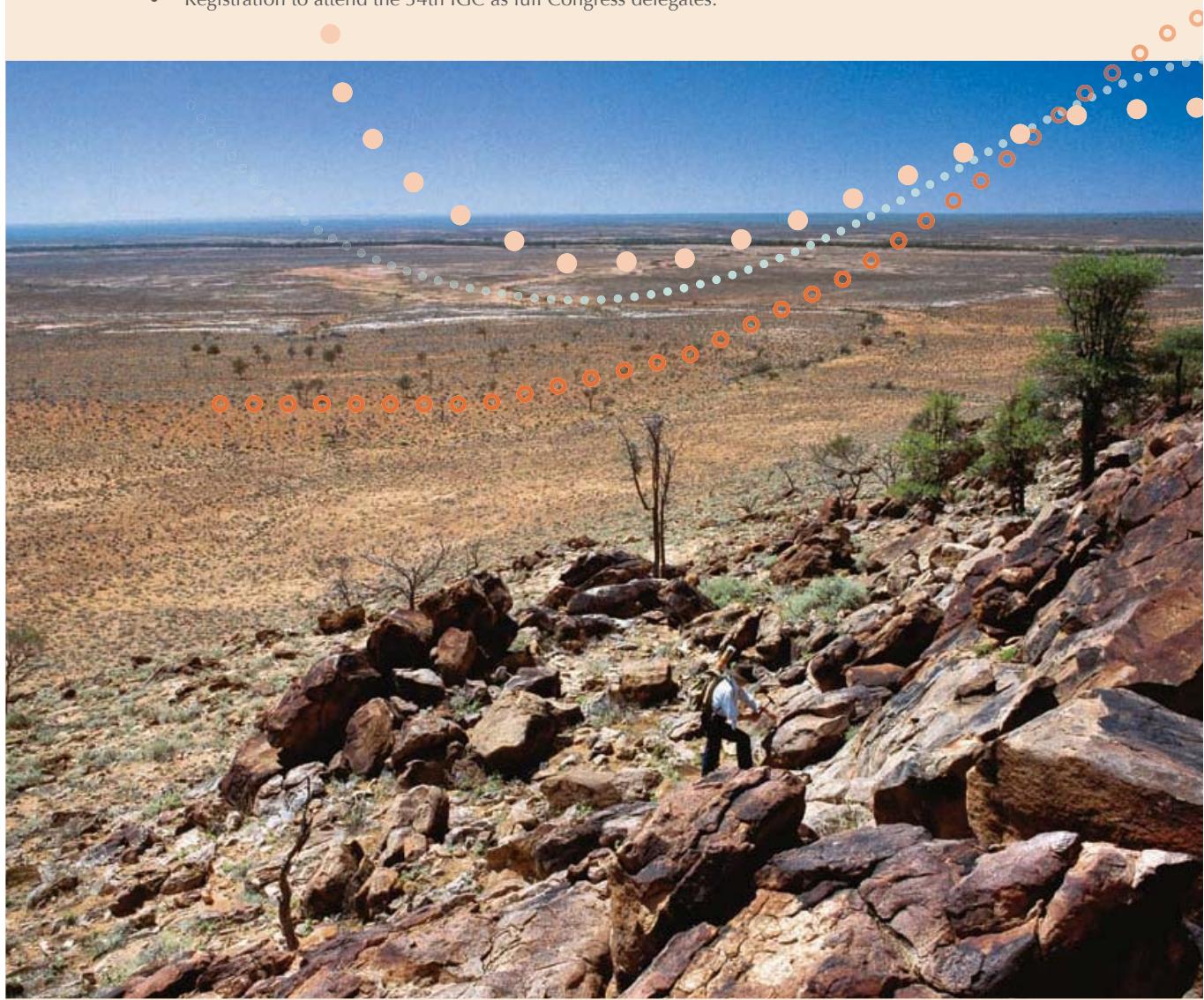
The IGC Committee is reasonably confident that support will be confirmed for each of the four Training Workshops (TW1-TW4), below. The final list of Training Workshops will be provided in the Third Circular and at www.34igc.org in September 2011.

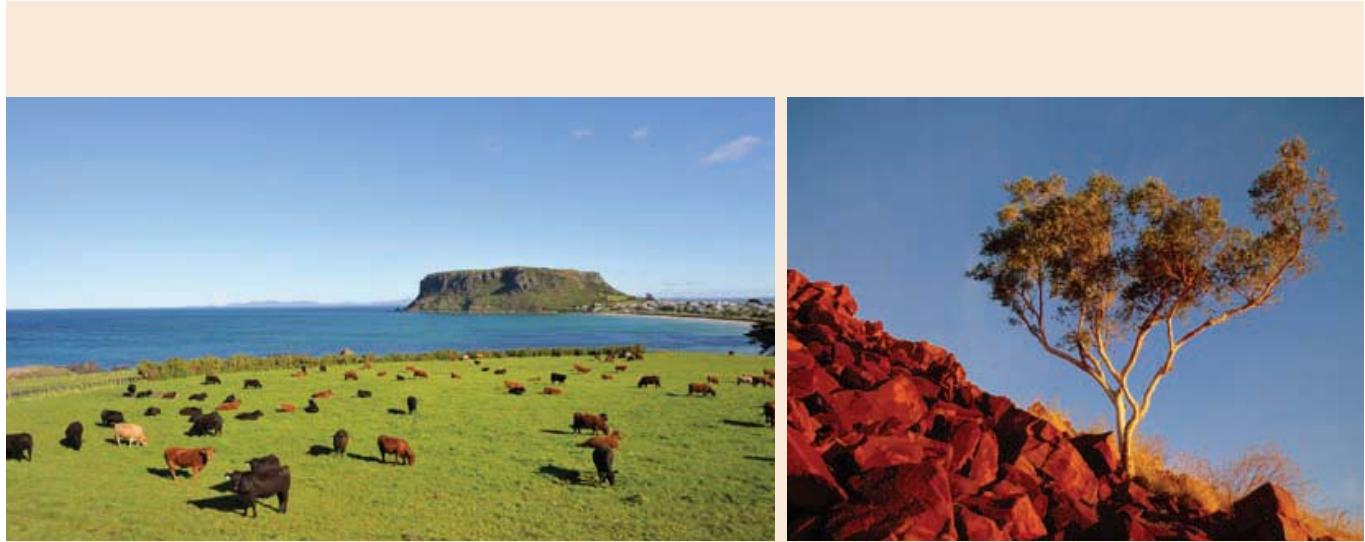
Applications are now invited for the GeoHost Training Workshop Program

- Individuals may only apply for one of the proposed Training Workshops.
- Applications must be made via the GeoHost Application Form which can be found at www.34igc.org – select the “GeoHost Support Scheme” option.
- It is essential that applicants demonstrate the relevance of their selected workshop to their employment situation.
- Applicants for TWP support are not required to submit an abstract for the 34th IGC.

Applicants will be selected through a competitive process. Successful applicants will receive the following support:

- Air travel from their home location to Brisbane and return (economy class and using the most direct routes possible).
- Accommodation in Brisbane for the duration of the workshop and the 34th IGC (hotel to be nominated by the Congress managers).
- Meals and/or an appropriate living allowance.
- Registration to attend the 34th IGC as full Congress delegates.





Workshop Topics:

TW1. Sustainable mining in Africa

Funding for this workshop has been agreed in principle under the Australian Government's AusAID agency's Australia-Africa Partnerships Facility.

The objective is to improve technical, environmental, social policy and regulatory skills with regard to sustainable mining for up to 90 African participants from many African countries. On the delegates' return to their respective nations they will have a heightened level of expertise in the promotion and regulation of mining, with a view to improved economic, social and environmental outcomes for mining projects.

TW2. Geological sequestration of carbon dioxide

This workshop will be supported by the Global Carbon Capture and Storage Institute.

A workshop on the geological storage of carbon dioxide will be held for some twenty delegates from developing countries around the world. Technical aspects relating to the long term geological storage of carbon dioxide in Earth's subsurface will include; site selection, reservoir characterisation, storage assessment, containment security, measurement, resource conflicts, monitoring and verification systems, along with dealing with uncertainty and risk.

TW3. Capacity building in risk modelling for natural hazards in the Asia-Pacific region

Funding for this workshop will be provided by the Australian Government's AusAID agency.

The objective is to increase participants' understanding of practical approaches to reducing and managing the impacts that disasters have on communities. It will increase the capacity to understand the potential impacts of tsunami, tropical cyclone, volcanic (ash) eruption, earthquake and changes to groundwater resources through the development of fundamental natural hazard modelling skills. It will also include a module on social impacts and communication of geohazards, including warnings.

TW4. Subsea exploration and production

This workshop is tentative pending negotiations for funding.

Subsea exploration and production of metals and petroleum is of increasing interest to nations in the Asia-Pacific region. The proposed workshop would improve understanding of the technologies involved, and appropriate regulatory and policy regimes.



GeoHost Funded Delegate Program (FDP)

The **Funded Delegate Program (FDP)** has been designed to assist young Earth scientists and geoscientists from low-income countries participate in the 34th IGC as full delegates. Applications are invited from young scientists (being under 35 years of age) and scientists who live and work or study in low-income countries. The number of delegates supported will be determined by the IGC budget and will not be confirmed until early 2012.

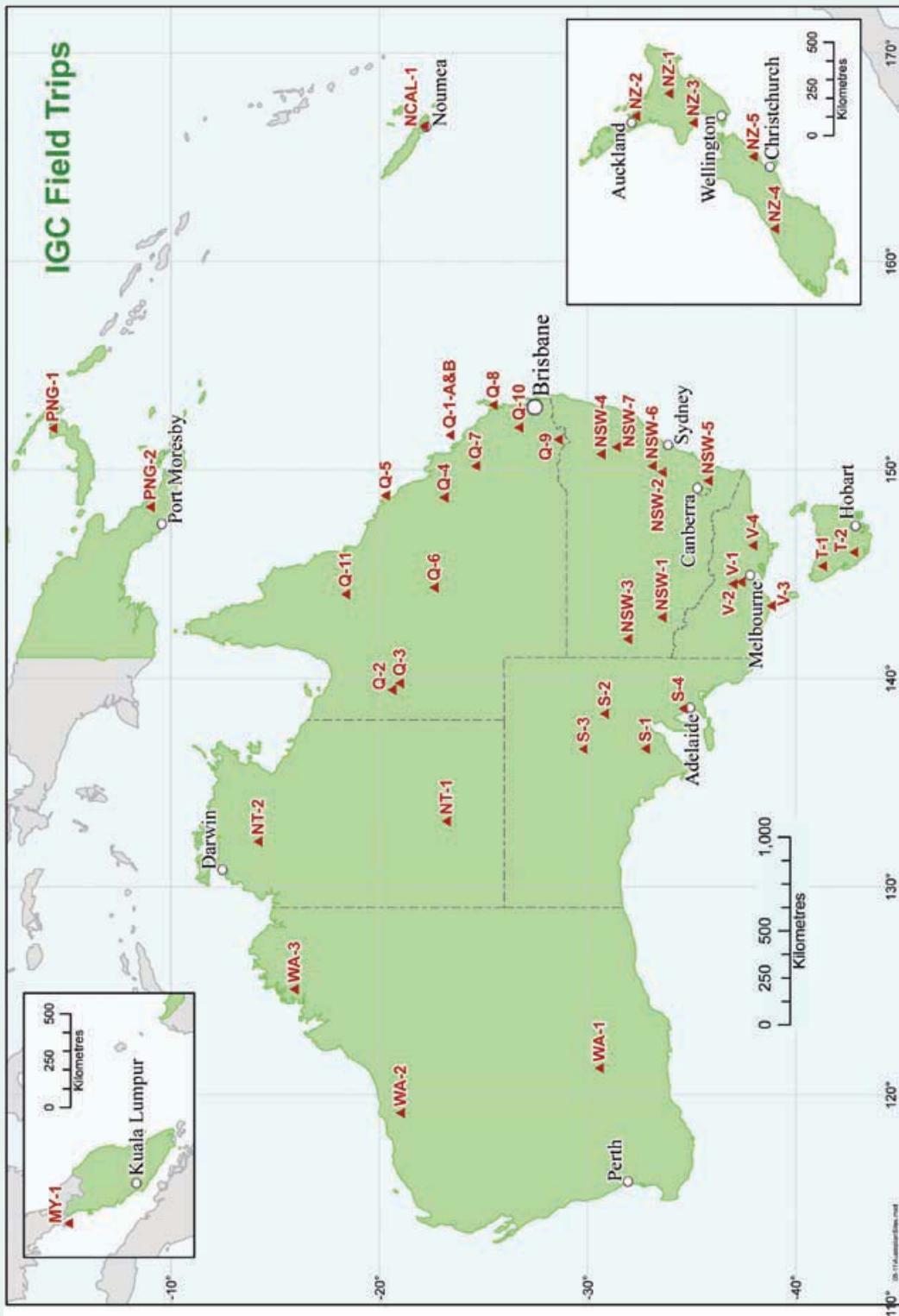
Successful FDP applicants will be offered one of the following levels of support. The determination of support level will be based on available funding and the selection panel's understanding of the applicant's support needs.

- FDP 1 A free registration to attend the 34th IGC as a full delegate
 A grant of \$1500 (Australian Dollars) towards travel and living expenses.
- FDP 2 A free registration to attend the 34th IGC as a full delegate.

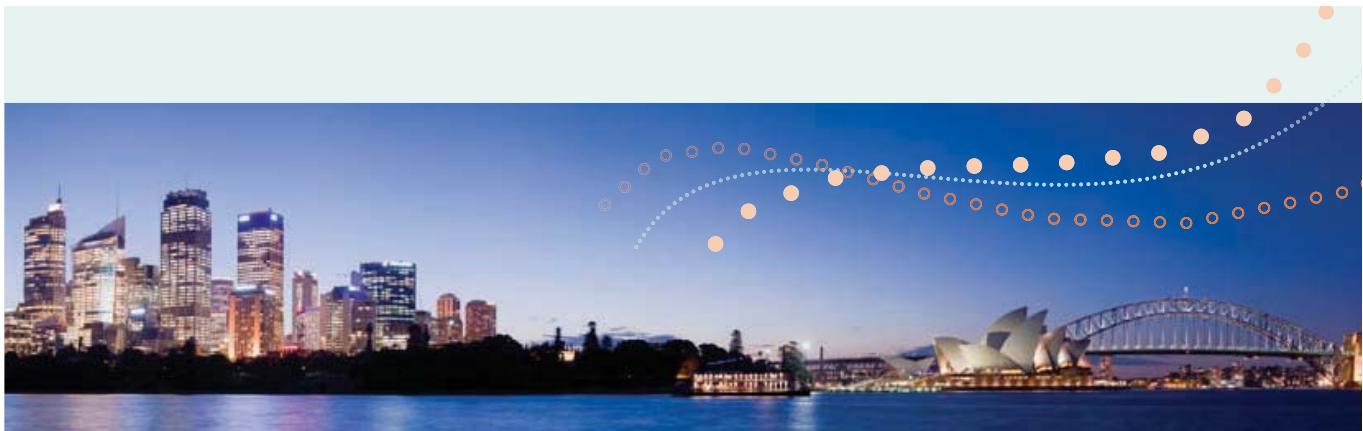
All applicants for FDP support must have an abstract accepted for oral or poster presentation at the 34th IGC. There will not be any fee for submission of abstracts under the FDP program.

For further information and to apply for these GeoHost programs, please go to www.34igc.org and select the "GeoHost Support Scheme" option.

Field Trips



The references on the map above show locations of one of the primary points of interest for each field trip.



The 34th IGC is an ideal opportunity for delegates to explore the fascinating geology of Australia, New Zealand and the Asia Pacific region.

Delegates will be able to select from an impressive range of pre- and post-Congress tours designed to cater to the many divergent interests of the geoscientific community.

Descriptions of each tour, together with the start and end points and duration, are provided over the following pages. Full tour itineraries and prices will be released in Third Circular (due in September 2011).

In-Congress Day Trips

QLD D-1 - Geology of Brisbane at Walking Pace

- This is a self-guided IGC tour with the Brisbane start and finish location up to the participant
- Tour does not have a maximum number of participants. Participants will undertake the tour at their own time and own pace
- Tour leader/s: Self-guided tour at own leisure
- Duration: up to 1 day
- From metamorphosed Palaeozoic deep sea sediments to Mesozoic ignimbrite, building stones on historical and heritage listed buildings to the Museum's collections of recently discovered dinosaurs, aboriginal artifacts, native animals, all within three kilometres of the conference centre. Bring a camera, no geological hammers, easy walking
- Points of interest: Brisbane River, Botanical Gardens, Queensland Museum

QLD D-2 - The Glasshouse Mountains: Geological Icons of Queensland

- This is a pre-IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 40 participants (limited by size of bus)
- Tour leader/s: Benjamin Cohen, Tony Ewart and Kurt Knesel
- Duration: 1 day
- The Glasshouse Mountains were named by Lieutenant James Cook in 1770, and have Aboriginal names like Tibrogargan, Coonowrin, Ngungun. The 27 million year old group of 15 hypabyssal plugs and laccoliths is composed of metaluminous trachytes and peralkaline rhyolites which exhibit unusual and extreme geochemical characteristics indicating intensive fractional crystallisation
- Points of interest: Glasshouse Mountains, hilly hinterland, subtropical rainforest



QLD D-3 - Stradbroke Island and Moreton Bay - Quaternary Sandcastles East of Brisbane

- This is a pre- or post-IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 20-30 participants (limited by size of bus)
- Tour leader/s: Kevin Walsh
- Duration: 1 day
- Stradbroke Island is one of the world's largest sand islands with 285 square kilometres of vegetated dunes. It has heavy mineral and pure quartz sand mining adjacent to National Park. Complex palaeoclimatic history, freshwater lakes, aeolian deposits and sand dunes formed by wind transport, longshore drift during Quaternary high and low sea levels
- Points of interest: Stradbroke Island - large sand island, Moreton Bay Marine Park and National Park, sand mining, wildlife

QLD D-4 - The Tweed Shield: Australia's Largest Cenozoic Volcano

- This is a pre or post IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 30 participants
- Tour leader/s: Benjamin Cohen, Warwick Willmott and John Jackson
- Duration: 1 day
- 100-km wide Tweed Volcano formed 25 to 23 million years ago. Stunning panoramic view points on edge of massive erosion caldera with vistas to Mt Warning at the volcanic core. 100-metre high waterfalls plunge over rhyolitic cliffs, with a chilled margin of perlite glass at their base
- Points of interest: Gold Coast hinterland. Part of World Heritage Listed Gondwana Rainforests of Australia



QLD D-5 - The Scenic Rim of Queensland: Volcanism, Xenoliths, Megacrysts, and Geomorphology of the Early Miocene Main Range Volcano

- This is a post-IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 40 participants
- Tour leader/s: Edwin Willey and Benjamin Cohen
- Duration: 1 day
- Miocene mafic volcanic units display nature of explosive and eruptive processes and mantle-derived materials with abundant xenocrysts and ultramafic xenoliths. Quarry outcrops display mafics ranging from hawaiites, olivine nephelenites, leucite basanites to nepheline benmoreites. Excellent and sometimes complex exposures
- Points of interest: Great Divide, Toowoomba (Garden City), Volcanic centres

QLD D-6 - Coal in Southeast Queensland

- This is a pre- or post-IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 30 participants
- Tour leader/s: Joan Esterle
- Duration: 1 day
- Late Jurassic to Triassic coal deposits in southeast Queensland occur in the Clarence Moreton Basin. The tour will include visits to outcrops demonstrating sedimentary structure and depositional environments as well as the coal mines. Most of Queensland's coal mines occur in the Permo-Triassic Bowen Basin in central Queensland
- Points of interest: Coal mines close to Brisbane, Clarence Moreton Basin

QLD D-7 - Engineering Geology in Southeast Queensland

- This is a pre- or post-IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 30 participants
- Tour leader/s: Ron Bathurst
- Duration: 1 day
- Visits to sites where infrastructure projects encounter difficult and demanding geological conditions. Like the "Moving Mountain", Wivenhoe Dam spillway and the vast gravel deposits in the Brisbane River, around the productive farmland in the Lockyer Valley west of Brisbane
- Points of interest: Moving Mountain, Lockyer Valley and Toowoomba bypass pilot tunnel

QLD D-8 - Toowoomba Industrial Minerals

- This is a pre-, post- or during IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to the number of participants on one large coach bus, or if fewer participants, a smaller coach bus can be organised
- Tour leader/s: John Siemon
- Duration: 1 day
- Visit a number of sites supplying clay and shale for making clay bricks, bentonite and palygorskite from lake deposits underlying Cenozoic basalt, and also the Triassic-Jurassic Helidon Sandstone used for many famous Queensland buildings
- Points of interest: Garden City of Toowoomba

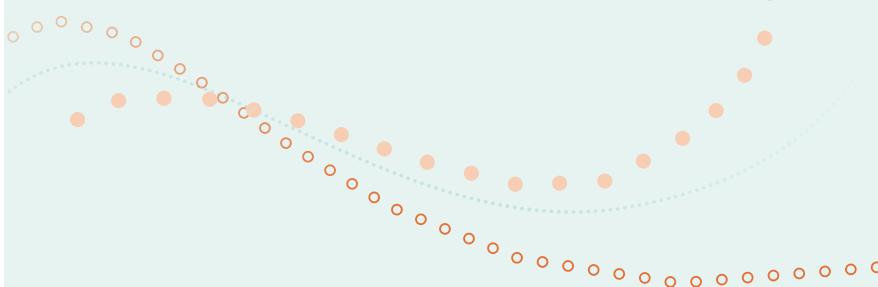
QLD D-9 - Sunshine Coast Construction Materials

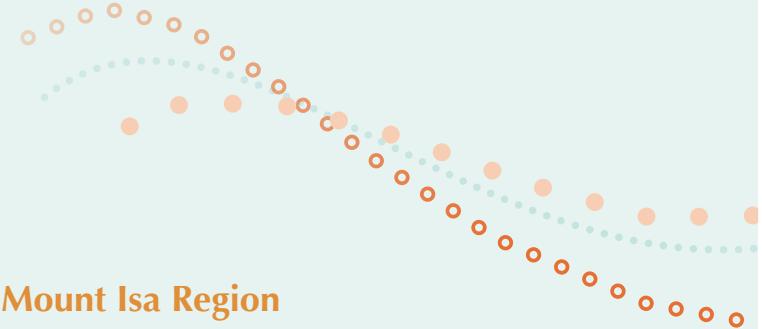
- This is a pre-, post- or during IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to the number of participants on one large coach bus, or if fewer participants, a smaller coach bus can be organised
- Tour leader/s: John Siemon and Kyle Waye
- Duration: 1 day
- Quarries supply major deposits of coastal/dune and riverine sand and also from Carboniferous-Permian greenstones, hornfelsed carboniferous sediments, and oligocene trachytes, as well as large quarries of Triassic rhyolites and andesites
- Points of interest: Sunshine Coast

Pre- and Post-Congress Field Trips

Q-1-A&B - Heron Island Carbonate Pre- and Post-IGC Field Trips

- This is a pre- and post-IGC tour that starts and finishes at the Gladstone Marina, Gladstone
- Tour is limited to 30 participants
- Tour leader/s: John Jell
- Duration: 6 Days
- Heron Island is part of the Capricorn-Bunker group located at the southern end of the Great Barrier Reef. The reef can be examined for reef zonation, reef-building processes during the Holocene, carbonate sediment types, their erosion and dispersal, carbonate facies distribution and early diagenetic phenomena
- Points of interest: Beautiful tropical Heron Island, cays, corals, and reefs, part of the World Heritage Listed Great Barrier Reef





Q-2 - Mineralisation of the Mount Isa Region

- This is a pre-IGC tour that starts and finishes in Mount Isa
- Tour is limited to 20 participants
- Tour leader/s: Laurie Hutton and Geoff Derrick
- Duration: 6 days
- The world-class mineral province includes major Cu, Pb, Zn, Ag, iron oxide Cu-Au, Mo, Re, phosphate and rare earth resources. Most mines are in Proterozoic host rocks and visits will cover origin, structure, and stratigraphy, with a comprehensive Time Space Chart detailing major events in the Mount Isa - Cloncurry region
- Points of interest: Mount Isa, major mines, outback Queensland, wildlife

Q-3 - Mount Isa Crustal Evolution

- This is a pre-IGC tour that starts and finishes at Mount Isa Airport, Mount Isa
- Tour is limited to 22 participants (including tour leaders)
- Tour leader/s: George Gibson and a staff member from Xstrata for Mount Isa Mines Leases Visit (Max Shawcross or Ben Young)
- Duration: 6 days
- Study crustal evolution of the Mount Isa region, with its Proterozoic sequences, its relationships to the Precambrian Rodinia and Nuna (Columbia) supercontinents. Examine aspects of regional structure, chronostratigraphy, magmatic history and basin architecture in the western and eastern successions
- Points of interest: Mount Isa, outback Queensland, wildlife, mine

Q-4 - Coal, Coal-seam Gas, Oil, Traditional Gas, Groundwater, and Carbon Capture and Storage in Queensland Sedimentary Basins

- This is a post-IGC tour that starts and finishes in Gladstone
- Tour is limited to 30 participants
- Tour leader/s: To be confirmed
- Duration: 4 days
- The most famous of Queensland's sedimentary basins, the Permo-Triassic Bowen Basin, with its huge coking coal, thermal coal and coal-seam gas resources will be explored for its depositional characteristics. Visit some large coal mines deposited under boreal conditions in between periods of compression within the fold belts of eastern Australia
- Points of interest: Gladstone - booming coal, CSG, LNG town, inland scenery

Q-5 - Cretaceous Volcanics and Tectonism of the Whitsunday Large Igneous Province

- This is a post-IGC tour that starts and finishes at Hamilton Island
- Tour is limited to 25 participants
- Tour leader/s: Scott Bryan
- Duration: 5 days
- This Early Cretaceous Silicic Large Igneous Province with its large extrusive volume led to a different style of volcanic rifted margin. Visit spectacular views of tilted and partly exhumed volcanic sequences. Unsuitable for people who suffer from motion sickness
- Points of interest: Great Barrier Reef World Heritage Area, Whitehaven Beach, yacht charter, marine life, shared accommodation space

Q-6 - Cretaceous Faunas, Events and Geology of the Northern Great Artesian Basin

- This is a pre-IGC tour that starts and finishes in Longreach
- Tour is limited to 48 participants
- Tour leader/s: Alex Cook
- Duration: 5 days
- Visit key Cretaceous (Aptian-Late Albian) dinosaur, marine reptile and invertebrate fossil sites in the Northern Eromanga Basin. Visit the Lark Quarry Dinosaur trackways and see specimens of *Australovenator*, *Diamantinasaurus* and *Kronosaurus*. Some collecting is permitted, but fossil experts from Australia need a letter of clearance
- Points of interest: Dinosaur fossils, Qantas Museum, Stockman's Hall of Fame, wildlife, outback hospitality

Q-7 - Plio-Pleistocene Faunas and Chronology of Southeast and Central Queensland

- This is a post-IGC tour that starts and finishes in Brisbane
- Tour is limited to 30 participants
- Tour leader/s: Gilbert Price
- Duration: 5 days
- Rich sites of the Darling Downs continue to provide new data on the late Neogene development of the biota. The unique faunas of the Plio-Pleistocene of southeast Queensland provide valuable insights into the development, diversity and demise of the Australian Megafauna, and the evolution of rainforest faunas during the Pleistocene
- Points of interest: Isla Gorge National Park, local wildlife

Q-8 - Fraser Island - Natural and Geological Beauty on the World's Largest Sand Island

- This is a pre- or post-IGC tour that starts in Brisbane and finishes in Hervey Bay
- Tour is limited to 30 participants
- Tour leader/s: Mark Reilly
- Duration: 4 days
- Fraser Island is the world's largest sand island and is a fantastic modern analogue for the formation of sand dominated sedimentary deposits - both onshore and offshore, including at abyssal depths. See parabolic dunes up to 5-km long, economic concentrations of ilmenite, rutile and zircon, perched lakes and coloured sands
- Points of interest: World Heritage Listed Fraser Island, Noosa, "Coloured Sands" lakes, rainforests, surf beaches, land and marine life

Q-9 - Granite Belt (including visits to wineries)

- This is a pre- or post-IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 30 participants
- Tour leader/s: Commercial tour operator
- Duration: 2 days
- Only three hours drive from the subtropical city of Brisbane is a very different landscape – the cool, mountainous Granite Belt. This region is home to Bald Mountain (Australia's "second largest rock monolith", as well as the large granitic intrusions of The Pyramids, Balancing Rock and Castle Rock. Involves an optional walk for about 5 km through Girraween National Park (some steep gradients). A good level of fitness is required
- Points of interest: Granite Belt scenery, Bald Mountain, Balancing Rock

Q-10 - Cracow-Gympie Gold

- This is a pre- or post-IGC tour that starts and finishes at the Brisbane Convention and Exhibition Centre
- Tour is limited to 30 participants
- Tour leader/s: Mike Erceg and Doug Young
- Duration: 3 days
- The trip visits the historic gold mining town of Gympie, discovered in 1867. Noted for its high-grade collector's quality nuggety gold in lateral quartz veins. Visit the historic mining areas of Kilkivan and the Esk Trough, a volcanic trough of Permian-Triassic age with examples of porphyry style copper-gold deposits at Boobyjan and Coalstoun. Visit the Cracow epithermal gold mine of low sulphidation style. Visit the Mt Rawdon gold deposit hosted by breccias and altered volcanics related to a dacite intrusive event of late Triassic age
- Points of interest: Cracow, Gympie, Mount Rawdon Mines, southeast Queensland scenery



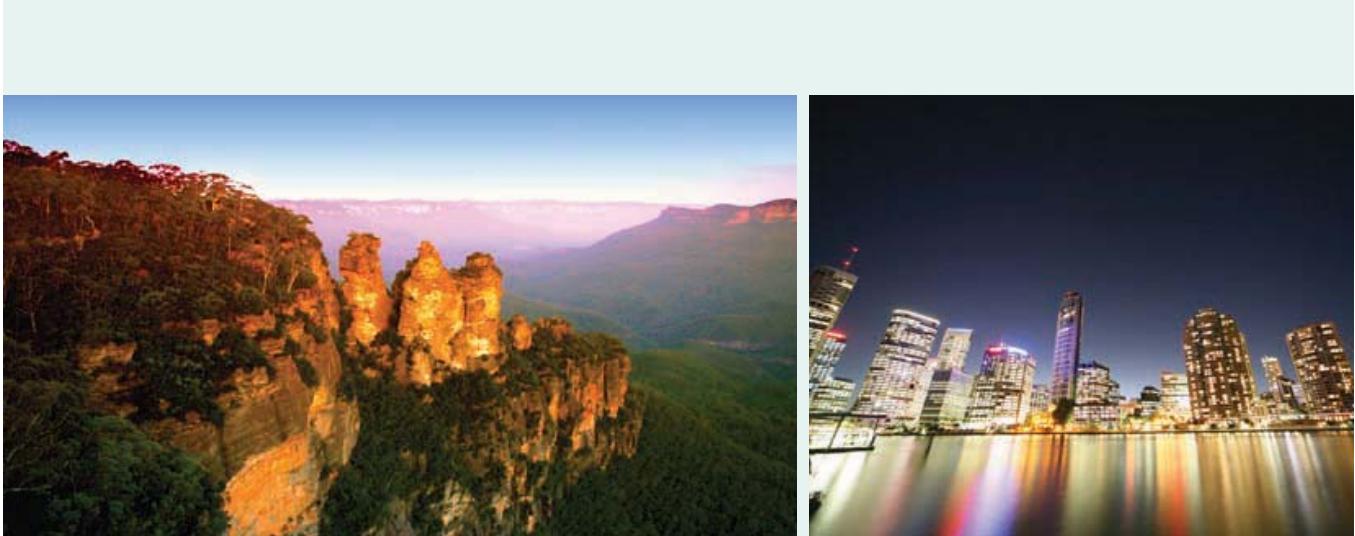
Q-11 - North Queensland: 1700 million years of Earth History on the Proterozoic-Phanerozoic Margin of Eastern Australia

- This is a post-IGC tour that starts in Cairns and finishes in Townsville
- Tour is limited to 30 participants
- Tour leader/s: Ian Withnall and Bob Henderson
- Duration: 5 days
- Traverse the Silurian to Devonian rocks of the Mossman Orogen in the scenic Cairns hinterland, cross the Tasman Line, a major north-south structure that separates largely Palaeozoic rocks to the east from the Proterozoic rocks of the North Australian Craton. The Palaeoproterozoic to Mesoproterozoic Etheridge Province, the Quaternary lavas at Copperfield Gorge, the world famous Undara Lava Tubes, the voluminous Carboniferous to Permian ignimbrite fields. Visit past and current mining at Chillagoe (gold and base metals) and Georgetown and Charters Towers (gold)
- Points of interest: Tropical rainforest to savannah woodland, wildlife, outback scenery and culture, world-famous Undara Lava Tubes, mining history

NSW-1 - Lake Mungo - Early Man, Regolith, Landform Evolution

- This is a pre- or post-IGC tour that starts and finishes in Sydney
- Tour is limited to 30 participants
- Tour leader/s: Commercial tour operator
- Duration: 4 days
- Scenic Lake Mungo, is in the Willandra Lakes World Heritage Area. The study of the regolith has also revealed a fascinating history of landform evolution and climate change. Initially a freshwater lake, water levels gradually receded and prevailing westerly winds shaped an extensive lunette on its eastern shore, which has since been eroded to form the spectacular "Walls of China". Aboriginal occupation of the area is believed to extend back at least 40 000 years. Fossils of extinct megafauna have also been found
- Points of interest: Indigenous History, Willandra National Park





NSW-2 - Lachlan Orogen, World Class Porphyries in the Macquarie Arc

- This is a post-IGC tour that starts in Brisbane and finishes in Sydney
- Tour is limited to 50 participants
- Tour leader/s: David Cooke, Dick Glen and Cam Quinn
- Duration: 6 days
- The Macquarie Arc has a rich mineral endowment consisting of world-class porphyry copper-gold deposits as well as other deposit styles. Examine the nature and geneses of some key deposits (Cadia, Northparkes, Cowal among others) within the tectonic framework of the evolution and then accretion of the arc. The Macquarie Arc system records ~50 million years of subduction-related development along the boundary between east Gondwana and the palaeo-Pacific plate
- Points of interest: Copper-gold mines, central New South Wales

NSW-3 - Broken Hill Mines and the New South Wales Proterozoic

- This is a post-IGC tour that starts and finishes in Broken Hill
- Tour is limited to 20 participants
- Tour leader/s: Ian Plimer
- Duration: 4 days
- The super-giant Broken Hill silver-lead-zinc deposit is hosted by the Palaeoproterozoic Willyama Supergroup. Examine the stratigraphy, mineralisation and regional structure of the Willyama Supergroup and also visit famous mining heritage sites including remnants of the outcropping gossan of the orebody. The Neoproterozoic Adelaidean cover to the Willyama Supergroup
- Points of interest: Broken Hill city and mines, outback New South Wales

NSW-4 - The New England Batholith - Felsic Magmatism and Lithophile Dominated Mineral Systems in a Primitive Continental Marginal Arc

- This is a pre-IGC tour that starts in Sydney and finishes in Brisbane
- Tour is limited to 20 participants
- Tour leader/s: Phillip Blevin and Bruce Chappell
- Duration: 5 days
- Trace the magmatic record present in the granites and volcanics in the New England Orogen and their metallogenesis. The southern New England Orogen contains an extensive record of Carboniferous to Triassic S-, I- and A-type plutonic-volcanic felsic dominated magmatism emplaced in a continental marginal arc setting. The southern portion of the Orogen is characterised by voluminous high-K, highly fractionated granites associated with lithophile dominated Sn, W, Mo, Au, Bi, Zn-Ag-In mineralisation
- Points of interest: New England scenery, mines

NSW-5 - Bega - Murrumbidgee Batholiths Pluton Construction Revealed: Looking Within and Below Batholiths

- This is a post-IGC tour that starts in Canberra and finishes in Sydney
- Tour is limited to 20 participants
- Tour leader/s: Bill Collins and Simon Richards
- Duration: 5 days
- This field trip will focus on two contrasting, classic batholiths in the Lachlan Orogen, the I-type Bega and S-type Murrumbidgee batholith of southeast Australia. Examine incremental growth and differentiation processes in plutons, including depositional features such as load casts, cross-beds, graded beds, collapsed rafts of roof and wall-rocks, magma mixing zones, syn-plutonic composite dykes, mafic enclave swarms in the making, and complex but spectacular migmatites plus a classic metamorphic complex
- Points of interest: Exquisite and rugged coastal and mountainous scenery of the southern New South Wales coast and highlands, passing through Canberra

NSW-6 - A Banquet of New South Wales Geology, Geohistory, Dead Fish and Great Wines!

- This is a post-IGC tour that starts and finishes in Sydney
- Tour is limited to 30 participants
- Tour leader/s: Monica Yeung (Gondwana Dreaming Pty Ltd) and local specialists including Alex Ritchie, Andrew Wooldridge
- Duration: 6 days
- View the geology and geohistory of four distinct regions, the Hunter Valley, the Blue Mountains, the Central West and the Canberra – Wee Jasper areas. See how the region's geology underpins its ecology, local history, industry, agriculture as well as every other aspect of life in these areas today. Travel into the Paleozoic Lachlan orogen with its extensive copper-gold deposits and famous Late Devonian Canowindra Fish Fossils. Participants can dig for fish fossils at a nearby quarry and enjoy the prizewinning wines of this region
- Points of interest: Hunter Valley, Blue Mountains, fish fossils, mines, wines, and Canberra



NSW-7 - Oroclinal Bending in the Southern New England Orogen

- This is a post-IGC tour that starts in Brisbane and finishes in Sydney
- Tour is limited to 25 participants
- Tour leader/s: Gideon Rosenbaum
- Duration: 5 days
- The southern New England belt, in the area between Brisbane and Sydney, is a Late Palaeozoic to Early Mesozoic subduction-related orogen. The field trip will explore the tectono-magmatic evolution of the orogen and the development of a series of tight oroclines. See the different components of the bent orogen and make observations on the multiple episodes of magmatism and deformation
- Points of interest: Spectacular coastal and mountainous scenery, fascinating geology, world-class wineries

V-1 - Factors Influencing Volcanic Eruption Styles, in the Intraplate, Basaltic, Late Cainozoic Newer Volcanics Province, Victoria and South Australia

- This is a pre-IGC tour that starts and finishes in Melbourne
- Tour is limited to 40 participants
- Tour leader/s: Ray Cas
- Duration: 5 days
- The Newer Volcanics Province is the youngest and arguably the only still active volcanic province in Australia. It last erupted 4,500 years ago and preserves some 400 eruption centres and lava flow plains, including some of the most spectacular maars worldwide. Visit some of the best preserved volcanoes and volcanic successions in the province, en route to Mt Gambier in South Australia, the youngest volcano in Australia. Return via the Great Ocean Road and to visit a Tertiary surtseyan volcanic succession
- Points of interest: Great volcanology, great scenery, some great Australian wines, and the opportunity to see different native animals

V-2 - Central Victorian Historical Gold Mines and Recent Wines

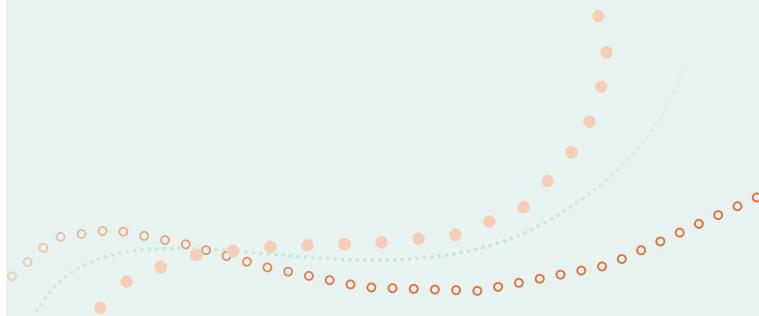
- This is a post-IGC tour that starts and finishes in Melbourne
- Tour is limited to 20 participants
- Tour leader/s: Adele Seymour
- Duration: 5 days
- The central Victorian region is one of the classic orogenic gold provinces of the world. The 19th century gold boom left an indelible economic legacy on the Australian economy, the results of which can be seen in the many beautiful and historic towns and cities. Trace the Palaeozoic evolution of the region, with an overview of the structure, mineralogy and alteration products of gold mineralisation through visits to road cuttings, historic workings and underground mines in the Bendigo region
- Points of interest: Eureka Stockade show, Bendigo mines, and wines

V-3 - Otway Basin Carbon Capture and Storage

- This is a post-IGC tour that starts and finishes in Melbourne
- Tour is limited to 15 participants
- Tour leader/s: Rob Langford and Peter Tingate
- Duration: 4 days
- Investigate the carbon capture and storage activity and research in the Otway Basin. View the energy and environmental aspects of the region including the carbon capture and storage facility at Port Campbell, methane storage, gas processing, CO₂ production at Boggy Creek, as well as geothermal and wind operations. Drive along the scenic coastal Great Ocean Road and pass through the Pliocene-Pleistocene volcanoes in the Kanawinka Global Geopark
- Points of interest: Great Ocean Road, Kanawinka Global Geopark

V-4 - The Brown Coal Mines of Gippsland

- This is a post-IGC tour that starts and finishes in Melbourne
- Tour is limited to 20 participants
- Tour leader/s: Boyd B. Dent
- Duration: 5 days
- The massive brown coal deposits of the Latrobe Valley (Gippsland Region, Victoria) are mined for just-in-time supply of base load power for the state. The 3 mines excavate seams up to 130 m thick. The lignite lithotypes and degree of coalification have sufficiently affected properties of the various seams that the boilers of each power station are attuned differently to the local fuel feeds
- Points of interest: Yallourn, Hazelwood/Morwell, Loy Yang Mines; immersion in an industrial-rural landscape; historic Walhalla Gold Mine and town; superb natural timber and scenic landscapes





T-1 - North Coast Tectonic and Sedimentary Sequences

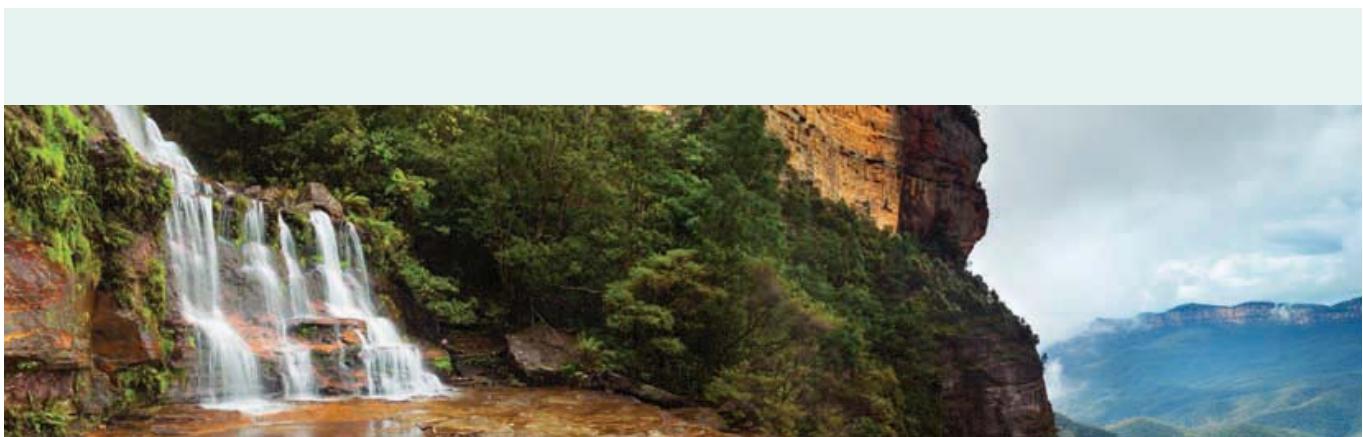
- This is a post-IGC tour that starts and finishes in Launceston
- Tour is limited to 20 participants
- Tour leader/s: Ron Berry and Stuart Bull
- Duration: 5 days
- The trip provides an overview of the late Proterozoic to late Palaeozoic geology of Western Tasmania Terrane. There are Late Proterozoic shallow water sedimentary rocks, Middle Cambrian ophiolite obduction, middle Cambrian volcanic and sedimentary sequences. To the east a deep water clastic sequence forms the East Tasmania Terrane and this transition is exposed in northern Tasmania
- Points of interest: Cave Tour (Ordovician limestone) and a winery visit in the Tamar River region. Spectacular coastal, highland and forest scenery

T-2 - Ore Deposits of Tasmania

- This is a post-IGC tour that starts in Brisbane and finishes in Hobart
- Tour is limited to 24 participants
- Tour leader/s: Geoffrey Green
- Duration: 5 days
- Visit the highly mineralized and scenic Cambrian Mt Read Volcanics which host the Mt Lyell copper deposits, the Rosebery, Hercules and Hellyer Pb/Zn/Cu/Au deposits, and the Henty gold deposit. See the Renison and Mt Bischoff tin deposits, the new Avebury Nickel mine, and the Savage River magnetite deposits
- Points of interest: Spectacular mountain and forest scenery, abundant and unusual wildlife, and a colourful mining-related history, Cradle Mountain National Park

S-1 - Insights into the Archaean and Proterozoic Geology of the Gawler Craton: a Field Trip through the Southern Gawler Craton

- This is a pre-IGC tour that starts in Adelaide and finishes at Ceduna (on the west coast of Eyre Peninsula). Participants will have the option of flying back to Adelaide from Ceduna or returning via road. The journey back to Adelaide will take 8 hours and will be a whole day
- Tour is limited to 16 participants.
- Tour leader/s: Martin Hand and Anthony Reid
- Duration: 7 days
- Early Mesoproterozoic mineralisation in the eastern Gawler Craton encompasses an IOCG-U province and a Au-dominated province. Investigate lithological, structural, metamorphic and metallogenetic features covering a c. 1600 million year history of the Gawler Craton across the beautiful Yorke and Eyre Peninsulas of South Australia
- Points of interest: Spectacular coastal outcrops, semi-arid grazing lands and wheat-sheep farming country



S-2 - Arkaroola - Flinders Ranges - Astrobiology and Planetary Geology

- This is a pre- or post-IGC tour that starts and finishes in Adelaide
- Tour is limited to 20 participants
- Tour leader/s: Matilda Thomas, Jonathan Clarke, Malcolm Walter and/or Vic Gostin
- Duration: 6 days
- The spectacular Mt Painter Inlier is host to some of the oldest rocks in Australia and some of the earliest signs of life. Visit a range of interesting planetary/geology sites as: Pichie Richie Gorge, Bunyeroo Gorge, the Brachina Gorge, Paralana radioactive hot springs, stromatolite occurrences, the Mt Gee fossil hydrothermal system, Mt Fitton talc occurrence, stony deserts, sand dunes
- Points of interest: Spectacular Mount Painter topography, stony deserts, sand dunes, springs and gorges.

S-3 - Uranium Geology of South Australia

- This is a pre- or post-IGC tour that starts and finishes in Adelaide
- Tour is limited to 12 participants (which includes two trip leaders)
- Tour leader/s: Martin Fairclough and Steve Hore
- Duration: 3 days
- This trip will be a transect through the ages of a uranium-rich mineral system originating in the earliest Mesoproterozoic of South Australia. The field trip will examine various uranium-mineralised areas in the context of Mineral Systems, and the relationship between each type. See various breccia-hosted, iron oxide-copper-gold and sediment hosted systems in a sequence from older to younger to illustrate (re)mobilisation of metal. The importance of structural controls, even on younger systems, will be demonstrated
- Points of interest: Gawler and Curnamona provinces, charter flights over vast areas of South Australia

S-4 - Ediacaran-Cambrian of South Australia

- This is a pre-IGC tour that starts and finishes in Adelaide
- Tour is limited to 25 participants
- Tour leader/s: Jim Gehling, Jim Jago, John Paterson, Glen Brock, Elinor Alexander, David McKirdy and Guy Narbonne
- Duration: 7 days
- Examine the oldest preserved multicellular organisms in the Ediacaran of the Flinders Ranges, as well as some of the spectacular Cambrian biodiversity of South Australia. Visit the fossiliferous carbonate successions at Ajax Mine and Mt Scott Range, plus a visit to the lower Cambrian Emu Bay Shale Lagerstätte on Kangaroo Island, which preserves a diverse marine biota including soft-bodied animals
- Points of interest: Spectacular scenery, wildlife and geology

NT-1 - Geology of Uluru - Alice Springs Region, Ayers Rock, Meteorite Crater

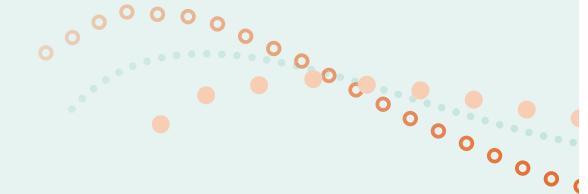
- This is a post-IGC tour that starts and finishes in Alice Springs
- Tour is limited to 20 participants
- Tour leader/s: Christine Edgoose
- Duration: 5 days
- Traverse through the entire Amadeus Basin sequence, including Neoproterozoic carbonates and glacials and Devonian foreland basin deposits. See the complex structural interaction between basement and cover in Ormiston Gorge and producing gas fields at Mereenie or Palm Valley. Visit Gosses Bluff, which forms the exposed remnants of the central uplift of a Cretaceous comet impact, Kings Canyon, which will combine spectacular scenery and geomorphology with an opportunity to view well-exposed Ordovician fluvial and marine deposits. The trip will end at the iconic Uluru and Kata-Tjuta (Ayers Rock and the Olgas) which preserve arkoses and conglomerates that were deposited in a deep foreland basin during the late Neoproterozoic to Cambrian
- Points of interest: Uluru, Kings Canyon, indigenous culture, wildlife

NT-2 - Geology of Kakadu-Litchfield, Aboriginal Culture

- This is a pre- or post-IGC tour that starts and finishes in Darwin
- Tour is limited to 20 participants
- Tour leader/s: Andrew Wygralak and Julie Hollis
- Duration: 6 days
- This trip combines the world heritage wetlands, scenery and indigenous culture of Kakadu National Park with an opportunity to visit one of Australia's premier Palaeoproterozoic mineral fields. View the geology and mineral deposits of the Pine Creek Orogen, the Ranger unconformity-related uranium mine in Kakadu, the historical Rum Jungle uranium and polymetallic mineral field and the Pine Creek goldfield. See the Palaeoproterozoic geology and tectonic evolution of the Pine Creek Orogen, including Archean basement
- Points of interest: Kakadu National Park, wetlands, indigenous culture, aboriginal art

WA-1 - Yilgarn Craton: Geological Setting of Gold and Nickel Deposits in the Eastern Goldfields

- This is a post-IGC tour that starts and finishes in Kalgoorlie
- Tour is limited to 20 participants
- Tour leader/s: Stephen Wyche
- Duration: 5 days
- The Eastern Goldfields Superterrane of the Yilgarn Craton hosts world-class gold and komatiite-hosted nickel deposits within classic Neoarchean granite-greenstones. See the historic gold mining town of Kalgoorlie. Visit major mines and examine their geological setting. The Yilgarn is covered by a thick regolith blanket that includes salt lakes defining a vast palaeodrainage system, transported material, extensive laterite hosting huge nickel resources, and deeply weathered in-situ rock
- Points of interest: Kalgoorlie, Super Pit, Western Australia outback and wildlife



WA-2 - A Billion Years of Earth History: a Geological Transect through the Pilbara Craton and the Mount Bruce Supergroup

- This is a pre-IGC tour that starts and finishes in Perth
- Tour is limited to 17 participants
- Tour leader/s: Arthur Hickman and Martin Van Kranendonk
- Duration: 6-7 days
- The world's best preserved early Archean rocks and the oldest fossils occur east Pilbara granite-greenstones which contain significant mineral deposits that include iron ore, gold, base metals, tin, tantalum, and barite. Sections illustrate the development of Earth's crust between 3520 and 3420 Ma. The North Pole 3500-3420 Ma stromatolites provide our best evidence for Earth's earliest life and the ancient environments. Examine late Archean to early Proterozoic Fortescue and Hamersley Basins which host the huge Pilbara iron ore mines
- Points of interest: Pilbara Craton, Marble Bar, Fortescue and Hamersley Basins, Meteorite impact crater

WA-3 - Geology of the Kimberley. Paleoproterozoic Tectonics and Mineralization, Neoproterozoic Glaciations, Devonian Barrier Reef

- This is a pre-IGC tour that starts and finishes in Broome
- Tour is limited to 24 participants (including trip leaders). Not suitable for children
- Tour leader/s: Ian Tyler, Roger Hocking and Peter Haines
- Duration: 8 days
- Cross the Kimberley Plateau to Kununurra and to Halls Creek, the scene of Western Australia's first gold rush. See the Palaeoproterozoic granites, gabbros and metamorphic rocks, and overlying sandstones. Visit Neoproterozoic glacial deposits, the Devonian barrier reef complex at Windjana Gorge and the sandstone karst landscapes of the Bungle Bungle Range. Mineralization includes diamonds, Argyle, iron ore, Ni-Cr-PGE, Cu-Zn VHMS deposits and gold, Zn-Pb MVT deposits, and hydrocarbons in the Canning Basin
- Points of interest: Unique plants and wildlife, aboriginal history and culture, spectacular scenery

NZ-1 - North Island: Active Volcanism, Neotectonics, Geothermal Activity

- This is a post-IGC tour that starts and finishes in Auckland
- Tour is limited to 20 participants
- Tour leader/s: Hamish Campbell, Tony Christie and Alex Malahoff
- Duration: 6 days
- Examine the Taupo Volcanic Zone (TVZ) of the central North Island. Visit White Island, New Zealand's most active volcano. Other highlights will be the Newmont Martha epithermal gold mine in Waihi, the Wairakei Geothermal Field near Taupo, Lake Taupo occupying the Taupo Caldera, New Zealand's "super volcano"; geothermal hot springs at Waimangu and Wai-O-Tapu near Rotorua; Ruapehu, Ngauruhoe and Tongariro volcanoes; tectonic deformation and basement geology and geological history of New Zealand
- Points of interest: Whakatane, White Island, Taupo, Wellington, Te Papa (National Museum), GNS Science

NZ-2 - North Island - Auckland Volcanic Field

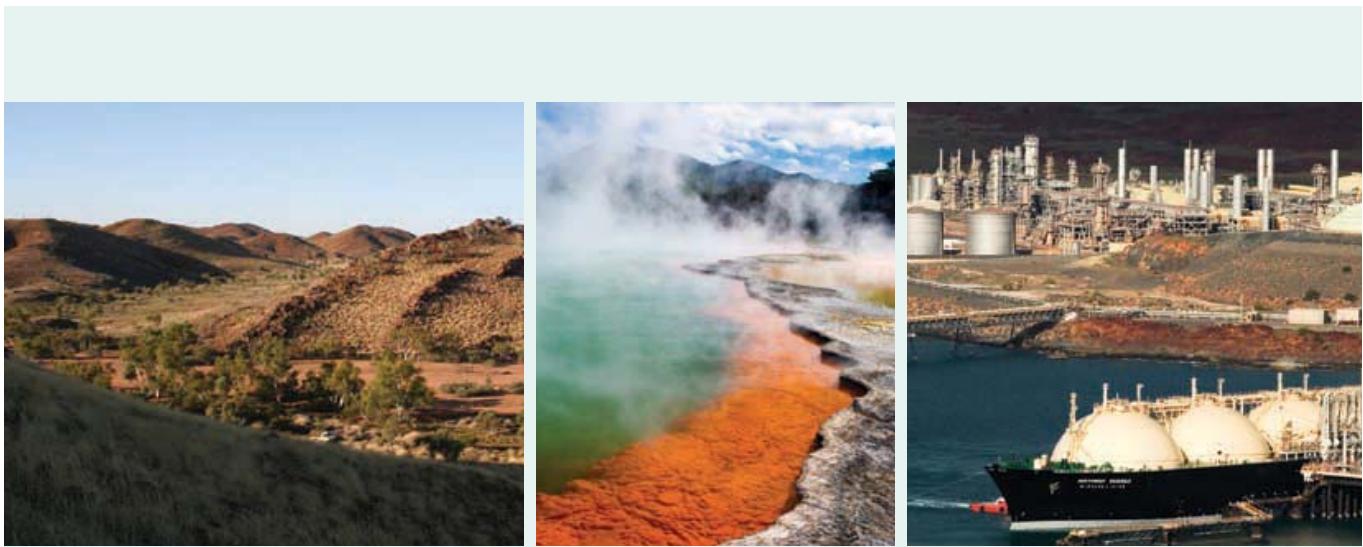
- This is a pre-IGC tour that starts and finishes in Auckland
- Tour is limited to 20 participants
- Tour leader/s: Jan Lindsay
- Duration: 1 day
- Auckland is built on an active volcanic field comprising about 50 basaltic cones and maars, the youngest of which is only 600 years old. Visit the Auckland War Memorial Museum's newly built volcano exhibit for an overview of the geological, economic, and social situation. Tour some of the most prominent cones. The tour would end with a visit to the city's and region's Civil Defence and Emergency Management services
- Points of interest: Auckland Museum, Auckland City of Volcanoes

NZ-3 - Pliocene to Miocene Shelf to Basin Floor Sequences of Wanganui and Taranaki Basins, New Zealand

- This is a post-IGC tour that starts and finishes in Auckland
- Tour is limited to 30 participants
- Tour leader/s: Greg Browne, Peter King, Malcolm Arnot and Kyle Bland
- Duration: 4 Days
- Examine all aspects of Taranaki oil and gas exploration and production: Cretaceous-Cenozoic stratigraphy, sedimentology, structure, source rocks, reservoir rocks, cap rocks. The major source of hydrocarbons (oil and gas) is coal of Late Cretaceous to Eocene age. The Wanganui Basin demonstrates Plio-Pleistocene integrated stratigraphy, and a superb marine Pleistocene record
- Points of interest: Waitomo Caves, New Plymouth, Mount Taranaki, Wanganui, Wellington, Te Papa (National Museum), GNS Science

NZ-4 - South Island: Plate Boundary Structure, Alpine Fault, Glaciation

- This is a post-IGC tour that starts and finishes in Auckland
- Tour is limited to 20 participants
- Tour leader/s: Rupert Sutherland and Virginia Toy
- Duration: 5 Days
- The Alpine Fault moves approximately 8 m in magnitude 8 earthquakes every 200-400 years and accommodates nearly three quarters of the 39 mm/yr plate motion through South Island. Oblique strike-slip deformation has uplifted the Southern Alps, offset glacial and fluvial landforms, and exhumed a classic section of fault rocks (cataclasites and mylonites) from up to 35 km depth. See the geomorphic expression of the Alpine Fault, the geological setting and fault rocks, and visit proposed sites for scientific drilling
- Points of interest: Southern Alps, Mt Cook, West Coast, Hokitika, Fox Glacier, Franz Josef Glacier



NZ-5 - South Island: Cretaceous-Cenozoic Climates and Biota

- This is a post-IGC tour that starts and finishes in Auckland
- Tour is limited to 30 participants
- Tour leader/s: Chris Hollis, James Crampton and Ian Raine
- Duration: 6 Days
- This excursion will explore Late Cretaceous – Paleogene sedimentary sequences of Zealandia. Visit localities in the picturesque northern South Island within the West Coast, Canterbury and East Coast Basins. These sequences represent a unique non-marine to deep-marine transect across a mid-latitude Southwest Pacific continental margin. They are an exceptional record of the regional response to global biotic and climatic events, including the Cretaceous-Paleogene boundary mass extinction, the Paleocene-Eocene thermal maximum, and other Paleogene climatic and oceanographic events
- Points of interest: Fantastic alpine and west coast scenery and forests

MY-1 - Lankawi Geopark, Malaysia

- This is a pre-, post- or during IGC tour that starts and finishes at Langkawi Airport or Hotel housing participants
- Tour is limited to 38 participants
- Tour leader/s: Lee Chai Peng
- Duration: 4 days
- This field trip is designed to appeal to delegates passing through southeast Asia. Langkawi that has been declared a member of the UNESCO global Network of National Geoparks in June 2007. There are over 90 interesting geosites in the 99 islands within the geopark. The Palaeozoic sequence includes the Cambro-ordovician shallow marine clastic Machinchang Formation accessible by cable car, fossiliferous limestones of the Ordovician-Silurian Gondwana-derived glacial-marine pebbly mudstones of the Carboniferous-Permian and Permian Limestone with some intruded by Triassic and Cretaceous granites
- Points of interest: Spectacular island karst, beautiful beaches with interesting geomorphological features, tropical jungle and friendly villagers with lots of interesting local legends

NCAL-1 - New Caledonia Subduction/Obduction System, HP-LT Complex, Ophiolites, Syntectonic Basins. Neogene Tropical Weathering and Nickel Resources Holocene Landforms, Barrier Reef, Neotectonics, Isle of Pines.

- This is a pre-IGC tour that starts and finishes in Brisbane
- Tour is limited to 15 participants
- Tour leader/s: Dominique Cluzel and Pierre Maurizot
- Duration: 6 days (8 days including air travel)
- See an integrated view of the subduction/obduction system and subsequent supergene evolution that led to the formation of the nickel ores of New Caledonia. Visit the blueschist-eclogite belt of northern New Caledonia to see the tectonic relationships between subducted and exhumed mélange with foreland basins and ophiolite. Visit an operating nickel mine with ultramafic protoliths and tropical oxidised soils which host the nickel ore and the famous garnierite crack seals
- Points of interest: Amedee lighthouse, Isle of Pines, World Heritage Lagoon, coral reefs, nickel mine

PNG-1 - Rabaul Caldera - Historical and Prehistorical Volcanism

- This is a post-IGC tour that starts and finishes in Rabaul, Papua New Guinea
- Tour is limited to 14 participants
- Tour leader/s: Herman Patia, Steve Saunders and Ima Itikarai
- Duration: 2 days
- Rabaul Caldera is one of 15 active volcanoes in Papua New Guinea. Rabaul Town is located within this active caldera complex, which measures 14km N-S and about 9km S-W. During the latest caldera-forming eruption about 1,400 years ago much of the southeastern part of the volcano was removed, forming the deepwater Simpson Harbour. In Rabaul Town there is ongoing vulcanian-type activity
- Points of interest: Rabaul volcano, harbour, township

PNG-2 - Port Moresby - Popondetta - Kokoda - Madang - Accretionary Prism Subduction Complex and Ophiolites

- This is a post-IGC tour that starts and finishes in Port Moresby, Papua New Guinea
- Tour is limited to 12 participants
- Tour leader/s: Hugh Davies, Russell Perembo and Leo Jonda
- Duration: 6 days
- Visit a road exposure of a thrust-faulted sequence of Paleocene and Eocene deep marine fine siliciclastic sediments, interpreted as a Late Eocene or Early Oligocene accretionary complex. Further west the complex is juxtaposed with accreted Oligo-Miocene slope sediments. Examine exposures of PUB ophiolite and Owen Stanley Metamorphics along the Popondetta-Kokoda road. These rocks record a Paleocene (58 Ma) arc-continent collision. Visit the Ramu NiCo Mine
- Points of interest: Great mountain scenery, colourful cultural events and opportunities to visit some of the historic sites of the World War 2 Kokoda campaign

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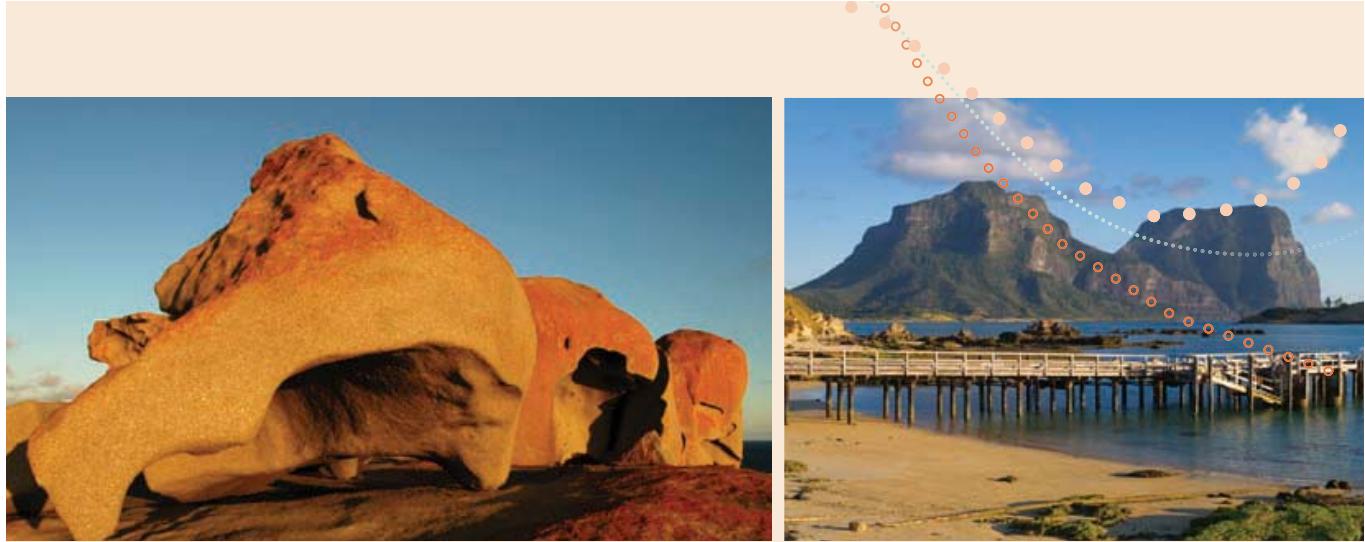
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Exhibition and Sponsorship Opportunities

The 34th IGC provides an ideal opportunity for industry, corporations, research organisations, geosurveys, professional societies, scientific publishers, government agencies and others to engage with the global geoscience community. A range of sponsorship and exhibition opportunities, to suit varying needs and budgets, have been designed to facilitate access to this major event.

The GeoExpo will be held during the 34th IGC and will be a focal point of interest for all delegates. GeoExpo will be conveniently located in Exhibition Halls 1 and 2 at the Brisbane Convention and Exhibition Centre, immediately adjacent to the auditoria and meeting rooms that will house all 34th IGC sessions.

GeoExpo space is now available – book early

A detailed Exhibition Opportunities proposal is now available and can be downloaded at www.34igc.org – select the “GeoExpo” option.

GeoExpo and Sponsorship enquires:

Kristie Zoller
GeoExpo and Sponsorship Coordinator
Email: Kristie@ccm.com.au
Tel: + 61 7 3368 2644
Fax: + 61 7 3369 3731

Sponsor Opportunities

A variety of excellent sponsorship opportunities are available at the 34th IGC. These are detailed in the Sponsorship Prospectus which is available by contacting Kristie@ccm.com.au

General Information

34th IGC Contact Details

The latest congress information is always available at www.34igc.org

Please visit the site and join the mailing list to ensure you receive notice of updates to the site.

The 34th IGC office is available to assist you with all congress enquiries:

General enquiries info@34igc.org

Registration enquiries register@34igc.org

Accommodation enquiries accommodation@34igc.org

Scientific program enquiries program@34igc.org

Abstract enquiries abstract@34igc.org

Sponsorship enquiries sponsor@34igc.org

GeoExpo (Exhibition) enquiries exhibit@34igc.org

Student enquiries student@34igc.org

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The Red Hill Centre
152 Musgrave Road
RED HILL QLD 4059
AUSTRALIA

Visas to enter Australia

International delegates please note - You will need a visa to enter Australia and it must be obtained before you travel. We recommend that you apply not less than six (6) weeks prior to your departure date.

Delegates from all countries will need to apply for and obtain a visa to enter Australia. The only exceptions are citizens of Australia and New Zealand travelling on passports issued by these countries.

Delegates from some countries will need an official letter of invitation and/or confirmation of congress registration to be provided with their visa application. These letters can only be provided after clearance of registration fee payment.

The visa application process differs depending on your country of residence and the location of the nearest Australian embassy, consulate or high commission. For citizens of some countries, applying for an Australian visa is a simple and quick on-line process. In other cases, application forms and an interview may be involved. Please visit the Australian Government's Department of Immigration website at the address shown below – there you will find detailed information on the visa application process applicable to you.

www.immi.gov.au/visitors/event-organisers-participants/iecn.htm



Travelling to Australia

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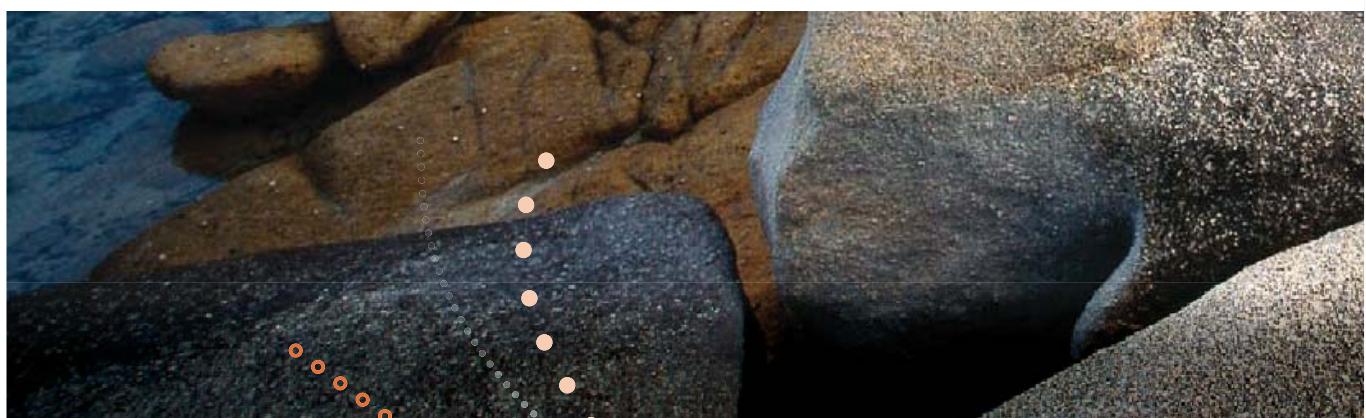
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2011-2012 William L. Fisher Congressional Geoscience Fellow

The 2011-2012 William L. Fisher Congressional Geoscience Fellow is Aisha Morris. Aisha received her Bachelor of Science in Geology from Duke University and her Masters in Marine Geology and Geophysics from the University of Hawaii. She completed her Doctoral degree in Planetary Geology at the University of Hawaii under the tutelage of Peter Mouginis-Mark. The focus of her doctoral degree was "Topographic and geomorphologic studies of volcanic and impact-

related landforms on Earth and Mars". She is currently a post-doctoral fellow for the Alliance for Graduate Education and the Professoriate (AGEP) at Syracuse University. Aisha serves as an instructor for undergraduate geology courses and for the Research Scholars High School STEP program. She also works with Girls Eyes Only (GEO), a science enrichment program and Girls Get It!, a science camp; both for middle school girls in the Syracuse area.

Bureau of Reclamation Predicts Dry Future for Western River Basins

A report (<http://www.usbr.gov/climate/SECURE/docs/SECUREWaterReport.pdf>) released in April by the Bureau of Reclamation found that climate change will likely reduce western major river basin flows by as much as 20% by the end of the century. Largely based on existing research from the U.S. Geological Survey (USGS), the National Oceanic and Atmospheric Administration, and the Army Corps of Engineers, this report uses new global circulation models (GCM's) to predict future snowpack, runoff, and precipitation in seven major western river basins. The northwestern Columbia River Basin, Upper Colorado River Basin, Missouri River

Basin, and Sacramento-San Joaquin River Basin will generally see increases in precipitation though the more southern Klamath River Basin, Upper Rio Grande Basin, Tuckee River Basin, and the Lower Colorado River Basin will see decreases in precipitation, runoff, and snowpack. While western water management and infrastructure is designed for hydrological variability, the report warns warmer conditions could present dynamics these systems might not be prepared for. The report, titled Climate Change and Water, is required in section 9503(c) of the SECURE Water Act of 2009 which was part of the Omnibus Public Land Management Act (PL 111-11).

Congress Passes Budget for Fiscal Year 2011

After many months of contentious debates and seven continuing resolutions, Congress passed a budget for fiscal year 2011 with about six months left in the year (H.R. 1473). The President signed the legislation into law (Public Law 112-10). The budget will cut about \$61 billion from the overall federal budget. Among the science agencies, there are significant cuts to their overall budgets and targeted cuts for work related to climate change. An AGU Policy Alert (http://www.agu.org/sci_pol/asla/alerts/2011-11.shtml) summarizes the cuts in tabular form for geoscience-related agencies. The overall cuts include National Science Foundation (-\$66 million), U.S. Geological Survey (-\$26 million), National Aeronautics and Space Administration (-\$224 million), National Oceanic and Atmospheric Administration (-\$253 million),

Energy Department's Office of Science (-\$20 million) and the Environmental Protection Agency (-\$1.5 billion). The agencies are still working out specific cuts to specific programs, so some details are not known.

Some of the known impacts include a reduction in research grants from the NSF, delays or terminations of satellite missions with concomitant data loss or data gaps at NASA and NOAA, and reductions in research programs within the Department of Energy and the U.S. Geological Survey.

The American Association for the Advancement of Science (AAAS) R&D Budget and Policy Program has a summary of the FY2011 research budgets within all federal agencies. It can be viewed at <http://www.aaas.org/spp/rd/fy2011/>.

Call for Geoscientists to attend GEO-CVD in September

The American Geological Institute (AGI), in collaboration with many other geoscience societies, invites geoscientists to come to Washington, DC for the annual Geosciences Congressional Visits Day (GEO-CVD) on September 20-21, 2011. Decision makers need to hear from geoscientists. Become a citizen geoscientist and join many of your colleagues for this two-day event uniting geoscience researchers, professionals, students, educators, engineers, and execu-

tives in Washington, DC to raise visibility and support for the geosciences.

A constructive visit from citizen geoscientists about the importance and value of geoscience (and geoscience-related engineering) research and education is the most effective way to inform and impact federal science policy.

To learn more about this important event, go to <http://www.agiweb.org/gap/events/geocvd/index.html>

Congress Votes on EPA Regulations

In early April, the Senate and the House voted on language that would stop the Environmental Protection Agency (EPA) from regulating greenhouse gas emissions. In the Senate, four different amendments to limit EPA's authority were offered to a small business bill (S. 493) but were all defeated. The four amendments, offered by Senators James Inhofe (R-OK), Jay Rockefeller (D-WV), Max Baucus (D-MT), and Debbie Stabenow (D-MI), varied in the limitations placed on EPA. The Inhofe amendment, which would have stripped EPA of its ability to regulate heat-trapping emissions from stationary sources, garnered fifty votes while the other three amend-

ments received fewer than 13 votes each. Every Republican senator (except for Senator Susan Collins of Maine) plus four moderate and conservative Democrats voted for the Inhofe amendment.

The next day, on April 8, the House voted on an identical measure to the Inhofe amendment, the Energy Tax Prevention Act of 2011 (H.R. 910). After defeating 9 different Democratic amendments, the vote passed 255-172 with nineteen Democrats joining the Republicans.

Hazards Legislation Moves in Congress

Representative David Wu (D-OR) has reintroduced the Natural Hazards Risk Reduction Act (H.R. 1379) that would reauthorize the National Earthquake Hazards Reduction Program (NEHRP) through fiscal year 2015, support the National Windstorm Risk Reduction Program and establish an interagency hazards committee. NEHRP is a long-standing cooperative program involving the National Science Foundation, the U.S. Geological Survey, the National Institute of Standards and Technology and the Federal Emergency Management Agency to understand earthquakes, monitor and analyze earthquakes and prepare and mitigate earthquake risks. The bill is identical to S. 646 introduced by California Senators Barbara Boxer and Dianne Feinstein last month.

On April 7, the Subcommittee on Technology and Innovation, of which Wu is Ranking Member, held a hearing to review efforts supporting the development of earthquake hazard

reduction measures. Director of NEHRP, Dr. Jack Hayes told the committee, "our challenge is to see that the new knowledge and experience gained through NEHRP continues to be developed and applied to domestic practices and policies that foster a more resilient American society." Hayes testified alongside Jim Mullen, President of the National Emergency Management Association; Chris Poland, Chairman of the NEHRP Advisory Committee; and Vicki McConnell, Oregon State Geologist.

The Senate Commerce, Science and Transportation Committee held a hearing on disaster preparedness on May 3, which focused on the recent damaging tornadoes in Alabama and elsewhere with some coverage of earthquake hazards related to nuclear power plants in California. On May 5, the committee marked up and approved the Natural Hazards Risk Reduction Act (S.646). The Hurricane Research Initiative (S.692) was also considered and approved in the form of an amendment.

Earthquake Prediction Council Releases Report on New Madrid

National Earthquake Prediction Evaluation Council, a federal advisory committee established in legislation authorizing the National Earthquake Hazards Reduction Program, has issued a new report (http://earthquake.usgs.gov/aboutus/nepec/reports/NEPEC_NMSZ_expert_panel_report.pdf) that confirms the threat of significant seismic hazards in the New Madrid Seismic Zone. The New Madrid Seismic Zone encompasses parts of Alabama, Kentucky, Mis-

sissippi, Tennessee, Illinois, Indiana, Arkansas and Missouri. Three strong earthquakes struck the area in 1811-1812 and though no significant seismic activity has occurred since, the council still concludes the fault zone "is at significant risk for damaging earthquakes that must be accounted for in urban planning and development." More information on the council and the report can be found on the council's website <http://earthquake.usgs.gov/aboutus/nepec/>.

Three House Bills to Expedite Offshore Oil and Gas Leasing

A trio of bills was introduced in April that would speed up offshore lease sales for oil and gas production. The bills, the Putting the Gulf of Mexico Back to Work Act (H.R. 1229), the Restarting American Offshore Leasing Now Act (H.R. 1230) and the Reversing President Obama's Offshore Moratorium Act (H.R. 1231), were passed by the House Natural Resources Committee. Together, the bills would give the Department of the Interior (DOI) 30 days to act on drilling proposals in the Gulf and would require DOI to offer future leases in areas with at least 2.5 billion barrels of oil or 7.5

trillion cubic feet of natural gas according to a 2006 Minerals Management Service assessment. DOI would be required to hold four lease sales over the next year at a site off the coast of Virginia and three more sales in the Gulf that were originally postponed after the BP oil spill last year. The Reversing President Obama's Offshore Moratorium Act will head to the floor for consideration while the Putting the Gulf of Mexico Back to Work Act has been referred to the House Judiciary Committee. The Restarting American Offshore Leasing Now Act passed the House on May 5.



Declining U.S. Academic Fleet Could Impede Polar Research

The National Academy of Sciences released a finding (<http://dels.nas.edu/Report/report/13081>) this month that recommends a coordinated national plan to revitalize the nation's declining ocean research infrastructure. Most notably, it highlighted the grim future for America's polar icebreaker fleet – currently only three ships and expected to decline to two soon. These polar icebreakers, operated by the Coast Guard, are used in the Arctic and can address urgent

issues such as climate change, offshore energy usage, tsunami prediction, and sustainable fisheries. If infrastructure needs are not met in the near future, the federal government may have to resort to leasing icebreaking vessels or working with other nations to resupply its Antarctic research bases and conduct science missions at high latitudes. In 2007, the National Research Council released a report (http://www.nap.edu/catalog.php?record_id=11753#toc) with similar warnings.

Rare Earth Bills Introduced in March and April

Four different rare earth bills were introduced in late March and April, while a draft of a fifth bill was made available for public comment. Representative Hank Johnson's (D-GA) RARE Act of 2011 (H.R. 1314) would direct the Secretary of the Interior, through the U.S. Geological Survey (USGS), to submit a comprehensive report on global rare earth element resources and potential future global supplies of such resources. The report would have to include recommendations on areas needing geological research related to rare earth elements and other critical materials. Johnson's bill has been cosponsored by Representatives Ed Markey (D-MA), John Garamendi (D-CA), Daniel Lipinski (D-IL), and others.

Sponsored by Mike Coffman and other western and mid-western Republicans, the RESTART Act of 2011 (H.R. 1388) would create a task force of representatives from government agencies to find ways of accelerating the completion of projects to increase investment in, exploration for, and development of rare earth elements. Whereas Johnson's RARE Act would require the USGS to only report on global resources and recommend future research opportunities, the RESTART

Act would establish a research and development rare earths materials program at the USGS to explore, discover, and recover rare earth materials; improve methods of extraction; identify and test substitute materials; and to collect, catalog, and disseminate information on rare earths. Furthermore, it is the only bill introduced in April that would require a federal stockpile of specific materials and alloys.

Representative Brad Miller's (D-NC) Energy Critical Elements Renewal Act of 2011 (H.R. 952) has been referred to the Subcommittee on Energy and Environment of the, House Science, Space and Technology Committee, where Miller is Ranking Member. It is similar to Representative Leonard Boswell's (D-IA) legislation, the Rare Earths and Critical Materials Revitalization Act of 2011 (H.R. 618). The two bills would each establish a program at the Department of Energy to fund research and development of rare earths. Miller's bill would include other "energy critical elements" that are not rare earths, such as cobalt, lithium, gallium, and indium. Both bills would provide for temporary loan guarantees under the Energy Policy Act of 2005.

Draft Proposal for Stream Protection Draws Disagreement

In April 2010, the Office of Surface Mining (OSM) published in the Federal Register a Notice of Intent to conduct an Environmental Impact Statement for the Stream Protection Rule, which will replace the Bush Administration's Stream Buffer Zone Rule. Provisions under consideration in the new rule include requiring coal mining companies that elect to mine through or bury streams to gather more specific baseline data on a proposed mine site's hydrology, geology, and aquatic biology; finalizing a definition of the term "material damage to the hydrologic balance" of watersheds outside the permit area; and developing more effective requirements for mine operators that disagree with the requirement that mined areas be reclaimed to their approximate original contour. In January of 2011, an Associated Press report published in the Charleston Gazette disclosed government documents that estimated job losses in the thousands as a result of the proposed changes. In April, a group of bipartisan senators from coal states asked for a congressional investigation of possible job losses as a result

of the new rule. Senators John Barrasso (R-WY), Joe Manchin (D-WV), and Rand Paul (R-KY) sent a letter to Chairman Jeff Bingaman (D-NM) of the Energy and Natural Resources Committee requesting a hearing. As of May 6 2011, no hearing has been scheduled.

House Republicans had the chance to question OSM Director Joe Pizarchik on April 7 at a budget hearing. Representative Bill Johnson (R-OH), who has sponsored a House amendment to stop OSM's efforts to draft the proposal (H. AMDT. 131), and Subcommittee on Energy and Mineral Resources Chairman Doug Lamborn (R-CO) were particularly vocal about their disagreement with the proposals. Even the lone environmentalist witness disagreed with OSM's draft proposals and suggested the Obama Administration instead should reinstate the rule promulgated during the Reagan Administration.

The previous policy related articles were originally published as part of the AGI Monthly Review. If you are interested in receiving the complete policy newsletter each month, email AGI's Government Affairs Program at govt@agiweb.org to be placed on the mailing list. Previous newsletters can be viewed at <http://www.agiweb.org/gap/email/updates.html>.

An Open Letter of Appreciation to AGI's Member Societies

As the fall 2010 AAPG/AGI Geoscience and Public Policy intern, I would like to thank the member societies of AGI for their support of the Government Affairs Program. Working in DC this fall has been an exciting, educational, and rewarding experience, and I look forward to building on what I have learned through a career in science and in public policy.

I arrived in DC in September of 2010, after completing an Earth and Planetary Sciences degree at Washington University in St. Louis. While there, I researched terrestrial carbon sequestration in restored tallgrass prairies. I also completed a research experience for undergraduates (REU), studying greenhouse gas fluxes from urban turfgrass soils at University of California Irvine.

My work at AGI, though not research-oriented, connected me to a research community and a coalition of earth scientists interested in policy outcomes. AGI's signature event, the Geoscience Congressional Visit Days, introduced me to state geologists, university professors, and to the nuances of meeting politicians during a crowded legislative session. I accompanied Bob Swenson, the state geologist of Alaska, and Chuck Podolak of Johns Hopkins University to meet with a legislative assistant for Senator Mark Begich of Alaska. We thanked him for Begich's continued support of the geosciences, and asked if Begich would consider supporting the Reauthorization of America COMPETES, a bill to increase funding for federal science agencies. I also accompanied Nick Tew, the state geologist of Alabama, and Jim Connors of the University of Southern Alabama during their visit with Representative Jo Bonner.

My understanding of Congress developed through these visits and through congressional hearings as well. As a representative of AGI, I attended hearings on authorizations bills, nuclear energy, investment in the sciences and other issues. Notably, I had the chance to attend a markup of a rare earth element (REE) research and development bill at the time that REE exports were being held up in Chinese ports. I have continued to research REE policy in the U.S., including the distribution of significant deposits, the international response to supply constraints, and the history of REE and critical materials programs in the U.S. As a capstone to this project, I had the chance to meet and discuss the REE issue with two of my representatives, Senator Claire McCaskill and Congressman Russ Carnahan of Missouri.

While at AGI, I have enjoyed having policy discussions outside of Congress as well. In November, I attended the meeting of the National Oil Spill Commission, through which I learned a great deal about the geologic and technical context of drilling on the outer continental shelf. The events that led up to the BP Deepwater Horizon oil spill and the continuing effects are tragic, but there are great lessons to be learned from identifying the root causes of the spill and the geologic environment of the Gulf. By attending this and other events not only did I develop a better understanding of energy issues, but I also established contacts with a range of industry, non-profit, academic, and agency personnel.

I expect these dialogues to be instructive as I continue to develop my understanding of the energy field and the policy surrounding geoscience issues. I understand that policy depends a great deal on the relationships between individuals, and I have appreciated the chance to get a closer view of the connections that drive policy discussions.

With much appreciation,

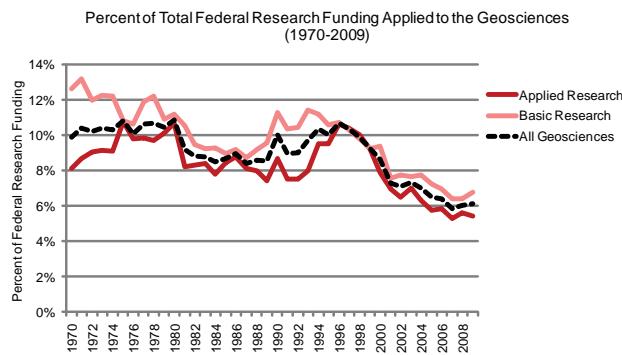
Matthew Ampleman
Fall 2010 Intern
Government Affairs Program
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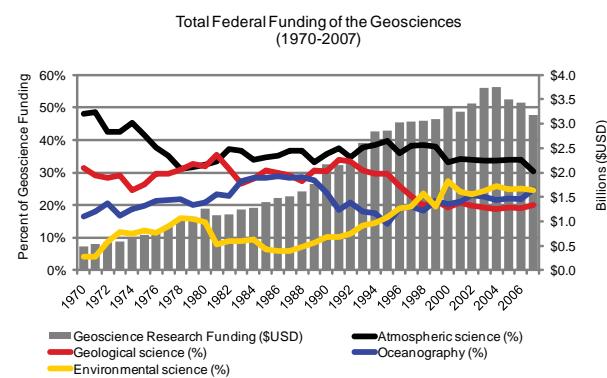
No. 41
04 March 2011

Declines in Federal Funding of Geoscience Research

The percentage of all federal funding for research and development applied to the geosciences decreased from nearly 11% in 1996 to 6% in 2007, where it has held steady ever since. The total amount of federal research funding for geoscience research steadily increased between 1970 and 2004, peaking at \$3.74 billion dollars. Since 2004, funding has steadily decreased, and in 2009 total federal research funding for geoscience research was \$3.35 billion dollars. Since 2000, the proportions of funding for atmospheric, geological, environmental, and ocean science research have remained relatively steady.

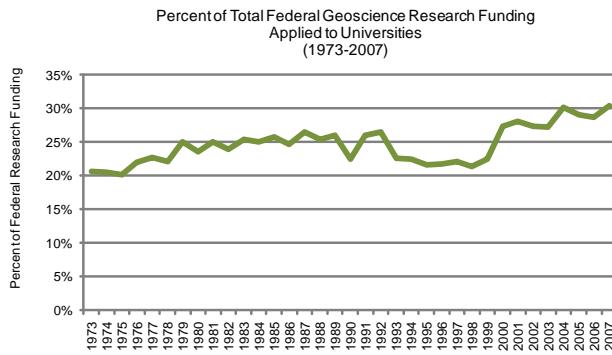


Source: AGI Geoscience Workforce Program, data derived from NSF/SRS Survey of Federal Funds for Research & Development

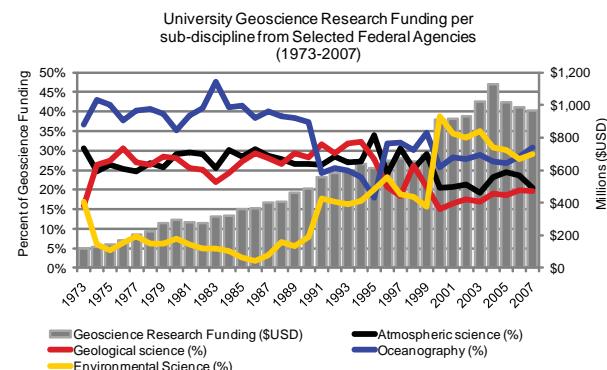


Source: AGI Geoscience Workforce Program, data derived from NSF/SRS Survey of Federal Funds for Research & Development

Since 2004, federal funding of geoscience research in universities continues to remain near 30% of total federal geoscience research funding. Total funding for geoscience research at universities peaked in 2004 at \$1.1 billion dollars and decreased to \$966 million dollars in 2007. In 2006, oceanographic research surpassed environmental science research as the geoscience discipline receiving the largest proportion of geoscience research funds at universities.



Source: AGI Geoscience Workforce Program, data derived from NSF/SRS Survey of Federal Funds for Research & Development



Source: AGI Geoscience Workforce Program, data derived from NSF/SRS Survey of Federal Funds for Research & Development

- Leila Gonzales

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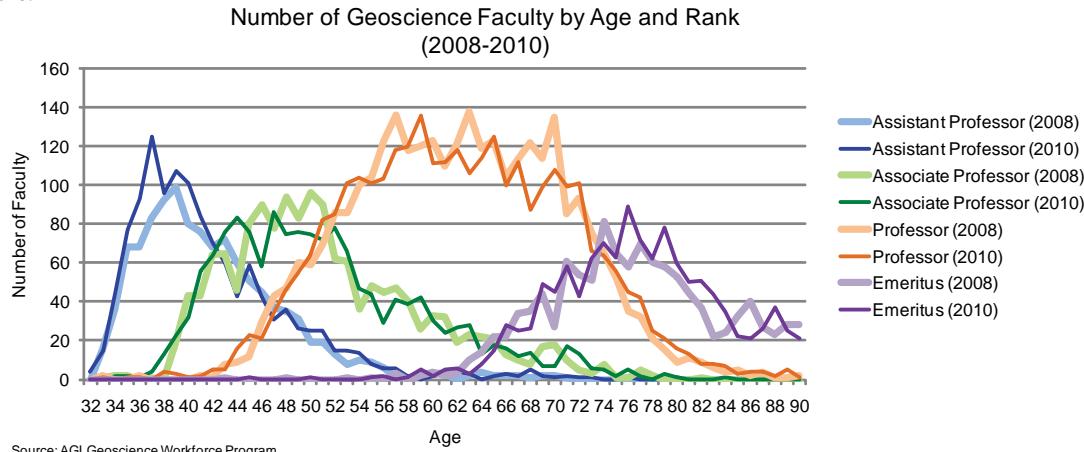
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American Geological Institute GEOSCIENCE CURRENTS

No. 42
11 March 2011

2010 Geoscience Workforce Age Demographics

The majority of geoscientists in the workforce are within 15 years of retirement age, and data from federal sources, professional societies, and industry indicate a growing imbalance in the age of geoscientists in the profession. Over the past three years, marked shifts in the age demographics for geoscientists in academia and the federal government have been witnessed. Between 2008 and 2010, there was an overall expansion in the ranks of assistant professors (10%) and in professor emeriti (6%). Furthermore, there was an overall decrease in the number of full professors with a marked 9% decrease in the number of full professors over 60 years old. The number of associate professors have remained steady over this time period. Retirements are expected to continue to accelerate over the next 10 to 15 years.

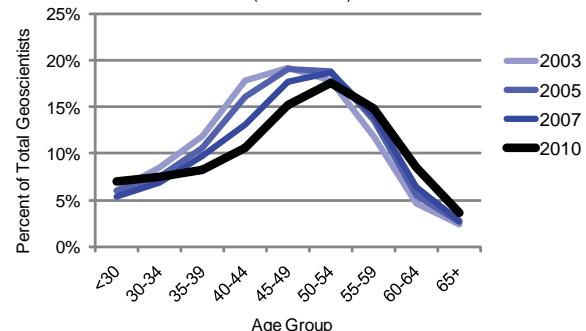


In the federal government, the percentage of geoscientists 50 years old or older has increased since 2007, with a concurrent contraction of 5% or more for geoscientists in the 40-49 year old age group. Additionally, the majority of geoscience occupations in the federal government show no marked increase in the percentage of early-career geoscientists under the age of 40.

2007 to 2010 Change in Percentage of Federal Geoscience Workforce Age Distribution

	30's	40's	50 or older	Percent of 2010 workforce 50 yrs or older
Mining Engineering	0%	-12%	5%	78%
Geodesy	2%	-8%	7%	76%
Petroleum Engineering	6%	-12%	1%	62%
Geology	2%	-4%	-1%	62%
Geophysics	3%	-5%	-1%	59%
Oceanography	-2%	-1%	3%	57%
Hydrology	0%	-4%	4%	48%
Environmental Engineering	0%	-9%	7%	47%
Meteorology	-4%	1%	2%	34%

Age Distribution of Geoscientists in the U.S. Government
(2003-2010)



Source: AGI Geoscience Workforce Program. Data derived from the Office of Personnel Management fedscope database.

- Leila Gonzales

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American Geological Institute GEOSCIENCE CURRENTS

No. 43
28 March 2011

Key Issues from the Earth Systems Science Education Summit

The American Geological Institute (AGI) hosted the first Earth System Science (ESS) Education Summit in Houston, Texas, at BP Exploration's new Helios Plaza meeting facility on February 8-11, 2010. The Summit was supported by a grant from the National Science Foundation, as well as by funding from AGI, the American Association of Petroleum Geologists and the Geological Society of America. Forty-two representatives of AGI member societies and key partners met to discuss and address key issues facing the K-12 geoscience education community.

Key issues included:

- Perception of high school ESS as a non-rigorous, non-laboratory course;
- Status of the preparation and continuing education of ESS teachers;
- Inclusion of ESS alongside other sciences in the new national science education standards;
- Lack of an ESS advanced placement course;
- Challenges to ESS in schools by the creationist and Intelligent Design movements; and
- Role of the International Earth Science Olympiad in raising the profile of ESS.

Summit participants aimed to establish a formal consensus about key challenges, identify initiatives and individuals to address challenges, form teams to work on specific projects, identify possible funding sources for projects, and plan for U.S. participation in the International Earth Science Olympiad. In addition to affirming the priority issues listed above, the meeting resulted in five chaired Working Groups, as well as lists of Big Ideas and Action Items.

Big Ideas

Participants substantively agreed:

1. The geoscience community must speak with a common voice.
2. The geoscience community needs a public relations campaign for ESS education.
3. ESS education needs to be inclusive.
4. Teacher professional development for ESS must be organized nationwide.
5. There needs to be a state-level network to deal with crises in ESS education.
6. A nationwide campaign is needed to encourage institutions of higher learning to accept ESS high school courses as laboratory science courses.
7. The geoscience community must be politically savvy in ensuring ESS inclusion in national and state standards.
8. The geoscience community needs to work with guidance counselors and parents to raise the profile of ESS in schools for subject literacy and as a career option.
9. An AP Earth Science Exam can legitimize ESS in schools.
10. Look to the International Earth Science Olympiad as a public relations opportunity for ESS education and a chance to engage students at all levels in solving local geoscience problems.

Action Items

Participants made a shared commitment to:

1. Collect baseline data on existing ESS teacher pre- and in-service programs in the U.S.
2. Collect baseline data on four-year institutions that do and do not accept a high school ESS course for admission.
3. Update AGI's Pulse of Earth Science web site to reflect states that both require a course in ESS and that accept a course in ESS for high school graduation.
4. Review the draft version of the new national science education standards and provide feedback.
5. Seek funding support for a Center for Geoscience Understanding.
6. Seek funding and explore potential partnerships for the International Earth Science Olympiad.

- Ann Benbow
Education, Outreach and Development Director

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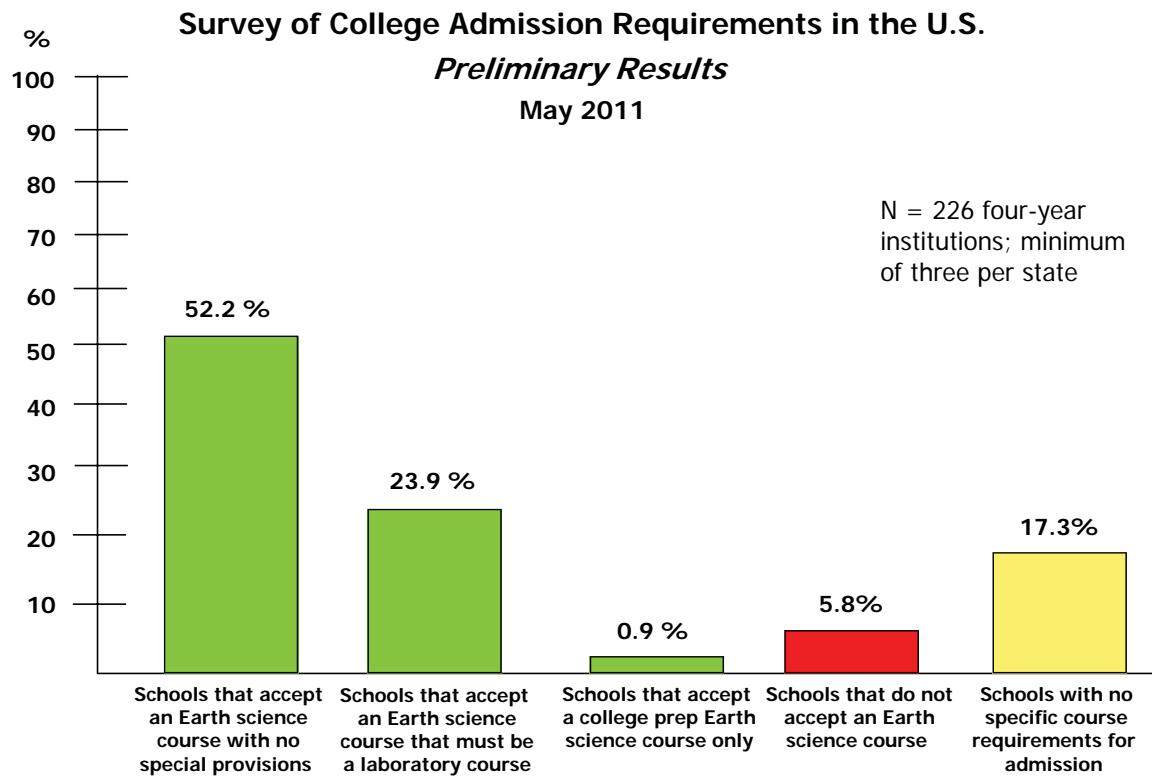
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No. 44
20 May 2011

College Admissions Survey: Acceptance of High School Earth Science Courses

AGI contacted 262 four-year institutions of higher learning to determine whether or not they accept a high school Earth science course for admission. At least three schools were contacted per state (state schools as well as private institutions). As of May 8, 2011, 226 schools responded. (This study is ongoing.) The preliminary results indicate that 77.0% of the surveyed institutions accept high school Earth science courses, but there can be conditions on that acceptance. Almost 1/3 of those schools stating they accept an Earth science course for admission require that it must be "laboratory-based." To date, only 5.8 percent of schools responding to the survey do not accept an Earth science course for college admission.



American Geological Institute, 2011

Some reasons given by four-year institutions for not accepting high school Earth science courses included:

1. Earth science is not a laboratory course, according to the institutions' definitions of what a laboratory course must include.
2. There is no Earth science Advanced Placement examination.
3. Earth science is perceived as not being as "rigorous" as biology, chemistry, and physics.

- Ann Benbow
Education, Outreach and Development Director

www.agiweb.org/workforce/



workforce@agiweb.org

GeoCalendar

Below is a list of upcomiing meetings and events in teh geosciences. To view the complete GeoCalendar or to submit you own meeting, workshop, or event notice please visit <http://www.agiweb.org/calendar/>.

July 2011

- 5 Jul - 8 Jul 2011: GI_Forum 2011. University of Salzburg. Salzburg, Salzburg, Austria
<http://www.gi-forum.org>
- 11 Jul - 15 Jul 2011: Inter/Micro: 62nd Applied Microscopy Conference. Chicago, Illinois, United States McCrone Research Institute.
<http://www.mcri.org/home/section/101/inter-micro>
- 31 Jul - 4 Aug 2011: TSOP-CSCOP Joint Meeting: Unconventional Resources, Clean Coal, and Off-shore Resources. World Trade and Convention Center. Halifax, NS, Canada
The Society for Organic Petrology
<http://www.tsop.org/2011Halifax/halifax2011.php>

August 2011

- 1 Aug - 5 Aug 2011: 10th International Congress for Applied Mineralogy. Radisson Blu Royal Garden Hotel. Trondheim, Norway
International Council for Applied Mineralogy.
<http://www.icam2011.org/index.html>
- 2 Aug - 6 Aug 2011: Deciphering Paleoclimatic Signals from Continental Succession. Truro, Nova Scotia, Canada
Society for Sedimentary Geology
<http://www.sepm.org/pages.aspx?pageid=242>

- 6 Aug - 12 Aug 2011: Carbonate Geochemistry: Reactions and Processes in Aquifers and Reservoirs. Crowne Plaza Hotel. Billings, Montana, United States
Karst Waters Institute
http://www.karstwaters.org/conferences/carbonate_geochemistry.php

- 8 Aug - 12 Aug 2011: 8th Annual Meeting of the Asia Oceania Geosciences Society (AOGS 2011). Taipei International Convention Center. Taipei, Taiwan
Asia Oceania Geosciences Society.
<http://www.asiaoceania.org/aogs2011/public.asp?page=home.htm>

- 8 Aug - 9 Aug 2011: Groundwater: Cities, Suburbs, and Growth Areas. Hilton Los Angeles Airport. Los Angeles, California, United States
National Ground Water Association.
<http://info.ngwa.org/events/5026aug11.cfm>

- 14 Aug - 19 Aug 2011: Goldschmidt 2011. Prague Congress Centre. Prague, Czech Republic
The Geochemical Society.
<http://www.goldschmidt2011.org/>

- 19 Aug - 22 Aug 2011: 21st Canadian Paleontology Conference. University of British Columbia. Vancouver, British Columbia, Canada
<http://132.156.108.208/cpc>

- 21 Aug - 23 Aug 2011: Sulfur in Magmas and Melts and Its Importance for Natural and Technical Processes. Goslar, Germany
Mineralogical Society of America.
<http://msasulfurinmelts.org>

- 30 Aug - 2 Sep 2011: 3P Arctic: The Polar Petroleum Potential Conference and Exhibition. World Trade and Convention Centre. Halifax, Nova Scotia, Canada.
American Association of Petroleum Geologists.
<http://www.3parctic.com/>

September 2011

- 1 Sep - 2 Sep 2011: Dynamic Topography: a key surface record of deep Earth processes. The Geological Society of London. London, United Kingdom.
The Geological Society of London.
<http://www.geolsoc.org.uk/events>
- 4 Sep - 7 Sep 2011: GeoMunich 2011. Ludwig-Maximilians-Universitat Munchen Main Building. Munich, Germany.
Geological Society of America.
<http://www.geosociety.org/meetings/2011munich/>
- 5 Sep - 9 Sep 2011: Mathematical Geosciences at the Crossroads of theory and practice. Salzburg University, Natural Science Building Freisaal, Hellbrunner Strasse 34. Salzburg, Salzburg, Austria.
ÖAW (Austrian Academy of Science), GIScience, CoGeo, Z_GIS.
<http://www.iamg2011.at>
- 5 Sep - 9 Sep 2011: 53rd Photogrammetric Week. University of Stuttgart. Stuggart, Germany.
Institute for Photogrammetry.
<http://www.ifp.uni-stuttgart.de/phowo/index.en.html>

- 10 Sep - 13 Sep 2011: AIPG-AIH 2011 National Conference - Geosciences: The Road to a Sustainable Future. Hilton Indian Lakes Resort. Bloomingdale, Illinois, United States.
American Institute of Professional Geologists.
<http://www.aipg.org/2011/AIPG-AIH.htm>
- 13 Sep 2011: Protect Your Ground-water Day, United States.
National Ground Water Association.
<http://www.ngwa.org/public/PYGD/pygd.aspx>
- 18 Sep - 22 Sep 2011: Soil Science in a Changing World (First Wageningen Conference on Applied Soil Science). Hof van Wageningen (<http://www.hofvanwageningen.nl/>). Wageningen, Netherlands.
International Union of Soil Sciences, Wageningen University, The Netherlands. <http://www.wageningenoilmeeting.wur.nl>.
- 18 Sep - 21 Sep 2011: U2011 Uranium Symposium and Trade Show. Casper Events Center. Casper, Wyoming, United States.
Central Wyoming Chapter of SME.
<http://www.u2011.org/>
- 19 Sep - 24 Sep 2011: 54th AEG Annual Meeting. Hilton Anchorage. Anchorage, Alaska, United States.
Association of Environmental & Engineering Geologists.
<http://www.aegweb.org>
- 19 Sep - 20 Sep 2011: Environmental Forensics. Hotel Albuquerque at Old Town. Albuquerque, New Mexico, United States.
National Ground Water Association.
<http://info.ngwa.org/events/183sep11.cfm>
- 19 Sep - 21 Sep 2011: The International Congress: Natural Cataclysms and Global Problems of the Modern Civilization. Istanbul Lutfi Kırdar Convention & Exhibition Centre. Istanbul, Turkey.
World Organization for Scientific Cooperation.
<http://www.2011.geocataclysm.org/>
- 20 Sep - 24 Sep 2011: Joint Meeting of the German Crystallographic Society (DGK), the German Mineralogical Society (DMG) and the Austrian Mineralogical Society (ÖMG). University Salzburg. Salzburg, Austria.
<http://www.salzburg2011.org>
- 25 Sep - 30 Sep 2011: Clay Minerals Society Annual Meeting. Harvey's Harrahs. Lake Tahoe, NV, United States.
<http://www.clays.org/>
- 25 Sep - 27 Sep 2011: AAPG Eastern Section Annual Meeting. Hyatt Regency Hotel. Crystal City, VA, United States.
American Association of Petroleum Geologists
<http://www.gswweb.org/aapg>
- 26 Sep - 27 Sep 2011: NGWA Focus Conference on Fractured Rock and Eastern Groundwater Regional Issues . Hilton Burlington. Burlington, Vermont, United States.
National Ground Water Association.
<http://info.ngwa.org/events/5017sep11.cfm>
- 27 Sep 2011: Tuesdays with Ian: The Use of 15N and 13C to Trace NO₃- and NH₄⁺ Contamination, United States.
National Ground Water Association.
<http://info.ngwa.org/events/835sep11.cfm>
- 4 Oct - 7 Oct 2011: The New MODFLOW Course: Theory and Hands-on Applications. Nassau Inn. Princeton, New Jersey, United States.
National Ground Water Association.
<http://info.ngwa.org/events/259oct11.cfm>
- 9 Oct - 12 Oct 2011: Geological Society of America 2011 Annual Meeting. Minneapolis Convention Center. Minneapolis, Minnesota, United States.
Geological Society of America.
<http://www.geosociety.org/meetings/2011/>
- 16 Oct - 19 Oct 2011: ASA, CSSA, SSSA Annual Meetings. San Antonio, Texas, United States.
American Society of Agronomy, Crop Science Society of America, Soil Science Society of America.
<https://www.agronomy.org/meetings>
- 17 Oct - 18 Oct 2011: Applications of Groundwater Geochemistry. Holiday Inn Express Nashville Downtown. Nashville, Tennessee, United States.
National Ground Water Association.
<http://info.ngwa.org/events/485oct11.cfm>
- 17 Oct - 18 Oct 2011: Site Characterization in Support of Fractured Rock. Hampton Inn & Suites, Denver Downtown. Denver, Colorado, United States.
National Ground Water Association.
<http://info.ngwa.org/events/502oct11.cfm>
- 21 Oct 2011: 42ND ANNUAL OHIO RIVER VALLEY SOILS SEMINAR. MILLENNIUM HOTEL CINCINNATI. Cincinnati, Ohio, United States.
Geo-Institute of the American Society of Civil Engineers.
<http://sections.asce.org/cincinnati/ORVSS-Papers.pdf>
- 28 Oct - 30 Oct 2011: 2011 International Conference on Environmental Protection Engineering (CEPE). Shanghai, China.
<http://www.engii.org/cet2011/cepe2011.aspx>
- 31 Oct - 2 Nov 2011: Environmental Geochemistry of Metals: Investigation and Remediation, United States.
National Ground Water Association.
<http://info.ngwa.org/events/576oct11.cfm>

October 2011

- 4 Oct - 7 Oct 2011: The New MODFLOW Course: Theory and Hands-on Applications. Nassau Inn. Princeton, New Jersey, United States.
National Ground Water Association.
<http://info.ngwa.org/events/259oct11.cfm>
- 9 Oct - 12 Oct 2011: Geological Society of America 2011 Annual Meeting. Minneapolis Convention Center. Minneapolis, Minnesota, United States.
Geological Society of America.
<http://www.geosociety.org/meetings/2011/>

November 2011

- 1 Nov - 2 Nov 2011: Monitored Natural Attenuation: Mechanisms, Site Characterization, Evaluation, and Monitoring. Wyndham Garden Hotel Newark Airport. Newark, New Jersey, United States. National Ground Water Association. <http://info.ngwa.org/events/147nov11.cfm>
- 3 Nov - 4 Nov 2011: Advanced Data Analysis Techniques for Evaluating and Quantifying Natural Attenuation. Wyndham Garden Hotel Newark Airport. Newark, New Jersey, United States. National Ground Water Association. <http://info.ngwa.org/events/579nov11.cfm>
- 29 Nov - 2 Dec 2011: 2011 NGWA Ground Water Expo and Annual Meeting. Las Vegas, Nevada, United States. National Ground Water Association. <http://www.ngwa.org/expo>

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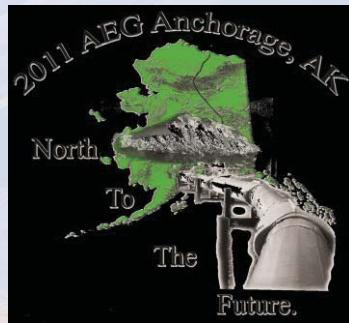
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Career Opportunities

SCIENCE CENTER DIRECTOR U.S. GEOLOGICAL SURVEY PACIFIC SOUTHWEST SURVEY PACIFIC COASTAL AND MARINE SCIENCE CENTER

The U.S. Geological Survey (USGS) invites applications for a full-time permanent position located in Santa Cruz, California. The USGS seeks an established scientist of national reputation with demonstrated ability to develop, lead, and administrate a coastal and marine research center. The Pacific Coastal and Marine Science Center conducts a broad spectrum of research to develop scientific understanding of coastal and marine geologic systems of interest to the Nation as they affect the health, safety and welfare of the public.

Ph.D. or equivalent experience is required. Candidates need a strong background in the use of state-of-the-art approaches and technologies in marine research focused on processes and mapping in deepwater and coastal seafloor environments. Candidates need to be knowledgeable in the use of state-of-the-art acoustic, optical, and other seafloor and coastal mapping technologies. Familiarity with data analysis and digital geologic map (GIS database) construction is advantageous.

For detailed vacancy announcement, including specific qualification requirements and application procedures for this opportunity go to: <http://www.usajobs.gov/> Applicants must be a United States Citizen to apply.

Refer to: Vacancy Announcement: WR-2011-0070 open to all U.S. citizens. WR-2011-0071 open only to current/former Federal employees

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HYDROGEOLOGIST – NORTH DAKOTA STATE WATER COMMISSION

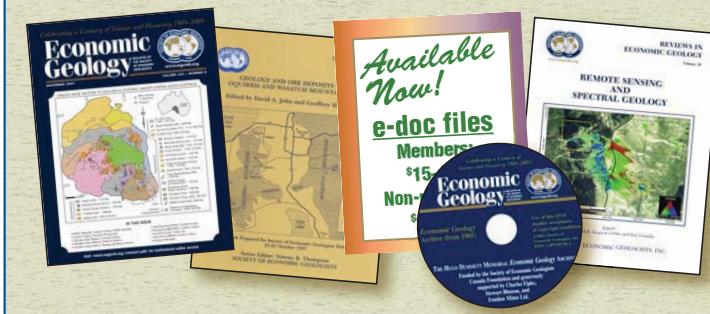
The North Dakota State Water Commission, Bismarck, North Dakota, is seeking to fill a full-time Hydrologist III position. The individual shall have at minimum, a master's degree in geology, hydrology, engineering or a closely related field. Significant course work in hydrogeology is required to oversee the exploration, development, and management of ground water resources throughout North Dakota. The individual should possess a fundamental understanding of the occurrence, movement and quality of ground water, a working knowledge of standard ground-water analytical methods (aquifer-test analysis), and computer modeling of ground-water flow. In addition, the individual should possess basic computer skills (OSX and Windows available) with working knowledge of word processing, spreadsheet and graphics software and GIS. Please visit www.swc.nd.gov (click employment) to learn specific information regarding the minimum and preferred qualifications and application procedures.

AAPG-EXECUTIVE DIRECTOR SEARCH

The American Association of Petroleum Geologists (AAPG) and the American Association of Petroleum Geologists Foundation (AAPG Foundation) are searching for an individual for the office of Executive Director for both of those organizations.

AAPG is the world's largest professional geological society, with an international membership of more than 35,000. The purpose of AAPG is to advance the profession of petroleum geology and, in so doing, also foster scientific research, advance the science of geology, promote technology, and inspire high professional conduct. The AAPG

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Foundation is a separate, 501(c) (3) organization chartered to support the mission and goals of the Association and public service. The AAPG Foundation engages in scientific, charitable, and educational activities related to petroleum geology and other Earth sciences.

The Executive Director of AAPG is the chief administrative official of AAPG, and is in charge of the Association headquarters and staff personnel (more than 70 people), as authorized by the AAPG Executive Committee. The Executive Director of the AAPG Foundation is the chief administrative official of the AAPG Foundation, reports to the Foundation Trustees, and works to maximize donor participation, fund growth and assure appropriate and strategic allocation of Foundation assets.

To be considered for the posi-

tion, a candidate must have: excellent communication skills (oral and written), industry management experience, strong interpersonal skills, executive experience managing collaboratively with internal and external committees and multicultural project teams, directing organization resources to achieving both immediate and strategic objectives, a proven success as a fundraiser, proven success in working effectively in a non-profit organization environment (especially in trade or professional organizations), experience in dealing with non-profit organization boards of directors, an international perspective on issues facing AAPG, experience in global travel and in dealing with international customs and relationships, and a reputation as an original thinker. Preference will be given to those applicants who have at least a bachelor's degree in geosciences,

and have worked as professional geologists. Successful candidate must be willing to relocate to Tulsa.

The search for an individual to fill this position will commence on March 15, 2011, and will continue until an appropriate candidate is hired. Candidates should submit a resume, names of three references, and a personal statement to searchcommittee@aapg.org.

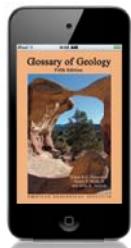
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Thomas D. Barrow, 86, Passes Away

AGI mourns the loss of longtime supporter and AGI award recipient, Dr. Thomas D. Barrow, who passed away on January 27, 2011.

Barrow received both a B.S. in petroleum engineering and a M.A. in geology from the University of Texas and a Ph.D. in geology from Stanford University. He was an active duty member of the U.S. Navy from 1943 to 1956 and served as part of the Naval Reserves until 1961. Dr. Barrow joined Humble Oil in 1951 where he later became President and Director. He then served as Senior Vice President and Director of Exxon Corporation and Chairman and CEO of Kennecott Corporation. From there, he worked as Vice Chairman of Standard

Oil Company (Ohio). At the time of his death he was President of Thomson-Barrow Corporation.

Dr. Barrow was active in many geoscience organizations including several AGI Member Societies. He was a member of the American Association of Petroleum Geologists, the American Geophysical Union and the Society of Mining Engineers. He was also a Fellow for the Geological Society of America and the American Association for the Advancement of Science. In addition, he was a former Chairman and a life member of the Geology Foundation Advisory Council of the Jackson School of Geosciences.

In 2007, Dr. Barrow received one

of AGI's highest honors, the William B. Heroy Jr. Award for Distinguished Service to AGI. He also received the Distinguished Achievement Award from both the Offshore Technology Conference and the National Ocean Industries Association. Dr. Barrow was named Chief Executive of the Year for the Metals and Mining Industry in 1998. In 2010, the American Association of Petroleum Geologists gave Dr. Barrow their Pioneer Award.

Dr. Barrow is survived by his wife, Janice Hood and four children.

AGI Mourns the Passing of Dr. James V. Taranik

On June 21, 2011, the geosciences lost a renowned member of the community. Dr. James V. Taranik was a week away from retirement from the University of Nevada, Reno, Mackay School of Earth Sciences and Engineering at the time of his death.

Dr. Taranik received a B.S. in geology from Stanford University and a PhD in Geology from the Colorado School of Mines. His illustrious career led in many directions. He served the Iowa Geological Survey where he created the Iowa Remote Sensing Laboratory. Later, he worked for the USGS as the Principal Remote Sensing Scientist for Geological Applications at the Earth Resources Observation Systems Data Center in Sioux Falls, South Dakota.

His career path also took to NASA

where he worked as senior scientist and chief of NASA's non-renewable resources division. He was also NASA's program scientist for two shuttle missions. Because of his service to NASA he was awarded the Exceptional Scientific Achievement Medal for leading the shuttle science team.

Much of his career was spent at the Mackay School of Mines where he began as Dean in 1982, a role he served until 1987 when he was named as President and CEO of the Desert Research Institute. He became DRI Emeritus in 1998 when he returned to Mackay where he held the Arthur Brant Endowed Chair for Geophysics. In 2003 he became Acting Dean and later was named the first Director of the Mackay School of Earth Sciences and Engineering.

Dr. Taranik also was active on the Board of Directors for the Newmont Gold Company. He served as Director from 1986 to 1998 and Director of Newmont Mining Corporation from 1998-2010. At the time of his death, he was also the Director for Klamath Basin Geopower, Inc.

Dr. Taranik was a longtime AGI Trustee and esteemed member of many of AGI's Member Societies. He was a fellow of the Geological Society of America and a certified professional geological scientist of the American Institute of Professional Geologists. He was also active in the American Society of Photogrammetry and Remote Sensing, the American Association for the Advancement of Science and the Explorers Club.