The 2017 Committee

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The following is a preliminary list of short courses (SC) and field trips (FT) scheduled for 2017. SEG reserves the right to cancel courses or modify speakers, topics, and locations.

Official registration information will be available about three months prior to the courses. Visit segweb.org/events for the latest updates on courses and events!

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<th>SEG SC/FT Dates</th>
<th>Conference Dates</th>
<th>Venue/Location</th>
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<td>SC Mineral Resource Estimation: An Introduction</td>
<td>February 4–5</td>
<td>Mining Indaba February 6–9</td>
<td>Cape Town, South Africa</td>
<td>Duggan</td>
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<td>SC World-Class Gold Deposits: How Do They Form and What Do We Need to Know to Find Them?</td>
<td>March 3–4</td>
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<td>Toronto, Ontario Canada</td>
<td>Goldfarb, Simmons, Monecke</td>
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<td>SC Global Exploration Targeting</td>
<td>April 5–7</td>
<td>N/A</td>
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<td>SC Society of Economic Geologists Mapping Course</td>
<td>May 3–7</td>
<td>ProExplo 2017 May 8–10</td>
<td>Yanacocha, Peru</td>
<td>Chávez, Petersen</td>
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<tr>
<td>FT SEGF Student Field Trip to Carlin-Type Gold Deposits of Northern Nevada, USA</td>
<td>July 15–24</td>
<td>N/A</td>
<td>Nevada, USA</td>
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<td>SC Senior Exploration Management</td>
<td>November 28–December 1</td>
<td>N/A</td>
<td>Littleton, Colorado</td>
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<td>WS1 Porphyry Copper, Gold and Molybdenum Deposits</td>
<td>September 16–17</td>
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<td>WS2 The Geology, Discovery, and Determination of Epithermal Gold-Silver Deposits</td>
<td>September 16–17</td>
<td>SEG 2017 September 17–20</td>
<td>China University of Geosciences, Beijing, China</td>
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<td>WS3 A Global Perspective of Sediment-Hosted Zn-Pb and Cu Deposits from Genesis to Exploration</td>
<td>September 16–17</td>
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<td>China University of Geosciences, Beijing, China</td>
<td>Leach, Hitzman, Song</td>
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<td>WS4 Potash Deposits: Exploration, Orebody Geometries, and Global Setting</td>
<td>September 16–17</td>
<td>SEG 2017 September 17–20</td>
<td>China University of Geosciences, Beijing, China</td>
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<td>WS5 Uranium Deposit Systems and Implication for Exploration</td>
<td>September 16–17</td>
<td>SEG 2017 September 17–20</td>
<td>China University of Geosciences, Beijing, China</td>
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<td>WS6 Magmatic Sulfide Deposits: From Research to Exploration</td>
<td>September 16–17</td>
<td>SEG 2017 September 17–20</td>
<td>China University of Geosciences, Beijing, China</td>
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<td>WS7 Spectral Sensing Solutions to Mineral Exploration and Mining Challenges</td>
<td>September 16–17</td>
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<td>China University of Geosciences, Beijing, China</td>
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<td>WS9 Application of Fluid Inclusion Studies in Economic Geology</td>
<td>September 16–17</td>
<td>SEG 2017 September 17–20</td>
<td>China University of Geosciences, Beijing, China</td>
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Please note that the 2017 calendar is provisional. Dates, locations, and courses subject to change. For up-to-date information, see www.segweb.org/events.
### SEG Short Course/Field Trip

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<td><strong>Understanding Orogenic Gold Deposits: Global- to Deposit-Scale Features and Exploration Criteria</strong></td>
<td>September 21–22</td>
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<td>China University of Geosciences, Beijing, China</td>
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<td><strong>Skarn Deposits</strong></td>
<td>September 21</td>
<td>SEG 2017 September 17–20</td>
<td>China University of Geosciences, Beijing, China</td>
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<td><strong>Volcanogenic Massive Sulfide Deposits</strong></td>
<td>September 21–22</td>
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<td><strong>Carlin-Type Gold Deposits, Geology, and Models</strong></td>
<td>September 21–22</td>
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<td><strong>Deformation Processes and Structural Analysis in Fracture-Controlled Hydrothermal Ore Systems</strong></td>
<td>September 21–22</td>
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<td>China University of Geosciences, Beijing, China</td>
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<tr>
<td><strong>Omchak Gold District – Giant Lode and Related Deposits of Eastern Russia</strong></td>
<td>September 10–15</td>
<td>SEG 2017 September 17–20</td>
<td>Starts and finishes in Magadan, Russia</td>
<td>Goryachev</td>
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<td><strong>Epithermal Au Mineralization and Associated Mineral Alteration in Southern Kyushu</strong></td>
<td>September 10–16</td>
<td>SEG 2017 September 17–20</td>
<td>Starts and finishes at Kagoshima Airport, Kirishima, Kagoshima Prefecture, Japan</td>
<td>Watanabe</td>
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<td><strong>Porphyry Cu-Au and Cu-Mo Deposits of Southern Mongolia</strong></td>
<td>September 12–15</td>
<td>SEG 2017 September 17–20</td>
<td>Starts and finishes in Ulaanbaatar, Mongolia</td>
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<td><strong>Carlin-Like Gold Deposits in SW Guizhou Province, China</strong></td>
<td>September 14–17</td>
<td>SEG 2017 September 17–20</td>
<td>Begins in Guiyang and ends in Beijing China</td>
<td>Xia, Zhang, Liu</td>
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<td><strong>Jiaodong Gold Deposits</strong></td>
<td>September 13–16</td>
<td>SEG 2017 September 17–20</td>
<td>Starts and ends at Beijing International Airport, Beijing, China</td>
<td>Fan, Qiu, Taylor</td>
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<td><strong>Mineral Deposits of Indiana</strong></td>
<td>September 21–27</td>
<td>SEG 2017 September 17–20</td>
<td>Departs from Beijing and returns to Kunming International Airport</td>
<td>Wang, Zhao, Zong</td>
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<td><strong>Middle-Lower Yangtze Valley Cu-Fe-Au-Te Skarn, Lode, and Related Deposits</strong></td>
<td>September 21–26</td>
<td>SEG 2017 September 17–20</td>
<td>Begins in Beijing and ends in Hefei</td>
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<td><strong>Jinchuan Ni-Cu Field Trip</strong></td>
<td>September 21–24</td>
<td>SEG 2017 September 17–20</td>
<td>Departs from and returns to Beijing</td>
<td>Song, Jiao, Suo, Wang</td>
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<td><strong>Giant W-Cu, Sn, and Pb-Zn Deposits, NW Jiangxi Province</strong></td>
<td>September 21–26</td>
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<td>Starts in Beijing and ends in Nanchang</td>
<td>Jiang</td>
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<td><strong>Porphyry and Epithermal Systems of the Sunda Banda Arc, Indonesia</strong></td>
<td>September 21–26</td>
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<td>Departing from and returning to Bali, Indonesia</td>
<td>Zhang, Harrison, Orovan, Rompo</td>
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<td><strong>The Metallogenic Provinces of Myanmar (Burma)</strong></td>
<td>September 21–29</td>
<td>SEG 2017 September 17–20</td>
<td>Departs from Beijing and ends at Yangon International Airport, Yangon, Myanmar</td>
<td>Robb, Mitchell, Gardiner</td>
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<td><strong>Late Paleozoic Metallogeny of the Altai-Tagyyn, Northeastern Kazakhstan</strong></td>
<td>September 21–27</td>
<td>SEG 2017 September 17–20</td>
<td>Starts in Beijing and ends in Almaty, Kazakhstan</td>
<td>Naumov</td>
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Mineral Resource Estimation: An Introduction
The University of Cape Town | Rondebosch, South Africa • February 4–5, 2017

DESCRIPTION
This SEG 2-day workshop will be held at the University of Cape Town on February 4–5, 2017, prior to the Mining Indaba meeting. The workshop will focus on the fundamentals of geology and sampling that are required for robust mineral resource estimation and will include an introduction to variography and kriging. Industry geologists, mine managers and investors, as well as upper level undergraduate and graduate students in economic geology, will find the workshop relevant and useful.

Day 1
• Introduction to Mineral Resource Management (MRM);
• Geology models for mineral resource estimation;
• Drilling and sampling;
• Data validation, QA/QC, statistics.

Day 2
• Exploratory Data Analysis (EDA) and an introduction to geostatistics;
• Spatial analysis (modelling variograms);
• Kriging;
• Mineral resource classification and an introduction to non-linear geostatistics.

REGISTRATION
Online at segweb.org/events#17RMRUCT

Early Registration
(through January 15, 2017)
Member: US$695
Non-member: US$795
Student: US$295
Student Non-member: US$345

Late Registration
(after January 15, 2017)
Member: US$795
Non-member: US$895
Student: US$345
Student Non-member: US$395

Please note that SEG reserves the right to cancel this event should minimum attendance numbers not be met by January 15, 2017. For further information on cancellation policy, event photography, and dietary restrictions, visit www.segweb.org/tc.

PRESENTER
Sean Duggan
Sean has more than 30 years of international experience in mineral exploration and mineral resource evaluation. Currently he is enjoying working as a Z* consultant evaluating mineral resources. He was previously employed by De Beers, Namdeb, and Anglo American in various capacities, estimating and classifying mineral resources. His main focus is currently on diamonds and base metals.

Specialties: mineral resource estimation, mineral resource classification, evaluation and mining of marine diamond placers, optimizing drilling and sampling programs, resource geology, evaluation of diamond placers, mineral resource valuation, mineral resource due diligence, and technical reviews.
SEG EVENTS | segweb.org/events

SEG at PDAC 2017

World-Class Gold Deposits: How Do They Form and What Do We Need to Know to Find Them?

Organizer: Society of Economic Geologists (SEG)

Two days: Friday, March 3, 2017 | 8:00 AM - 5:00 PM
Saturday, March 4, 2017 | 8:00 AM - 5:00 PM

Location: Toronto, Ontario, Canada

DESCRIPTION

This two-day-long workshop will focus on the most widespread mineral deposit types that host much of the current global gold resource. Leading experts will provide descriptions of some of the most important Precambrian and Phanerozoic examples of gold deposit types formed in island and continental arcs, evolving metamorphic belts, and subduction settings. Detailed material will be provided on tectonic and structural controls, geological characteristics, geochemical and geophysical signatures, and exploration strategies. Specific settings in the geological record, both in space and time, will be compared and contrasted to indicate what type of gold resources are likely to be discovered in various provinces. Case studies will document key features that have led to successful discovery of deposits. The course is aimed at geoscientists from both industry and academia, as well as students of economic geology who desire a comprehensive understanding of modern concepts on the geology of gold deposits. Emphasis will be on the characterization of deposits representative of the following types:

- Orogenic gold deposits
- Low and high sulfidation epithermal gold deposits
- Gold-rich porphyry deposits
- Intrusion-related gold systems
- Volcanogenic massive sulfide ores

PRESENTERS

Richard Goldfarb, Colorado School of Mines & China University of Geosciences
Richard was a research geologist with the Minerals Program of the U.S. Geological Survey for 35 years. His expertise is in the geology and geochemistry of orogenic gold deposits, regional metallogeny of the North American Cordillera and of China, and tectonic controls on mineral deposits. He has senior- and co-authored more than 220 refereed publications in Economic Geology. Richard currently is a research professor at the Colorado School of Mines and the China University of Geosciences Beijing, as well as a global consultant on the exploration for gold resources in metamorphic environments (rgoldfarb@mac.com).

Stuart Simmons, University of Utah, Earth and Geoscience Institute
Stuart is a research geoscientist at EGI-University of Utah and a consulting geoscientist, with >30 years’ experience in hydrothermal processes, epithermal mineralization, and geothermal resources. Much of his professional career was spent in New Zealand, at the Geothermal Institute, University of Auckland. As a consultant, Stuart serves clients around the Pacific Rim in the exploration and development of gold-silver and geothermal resources (website: www.hotso-lutions.co.nz).

Thomas Monecke, Colorado School of Mines
Thomas’s focus is on the formation of base and precious metal deposits in modern and ancient volcanic arcs. He has more than 20 years’ experience in research and mineral exploration and has authored or co-authored approximately 80 journal papers, book chapters, government publications, and field guides. Thomas holds a Ph.D. from the University of Freiberg, Germany and did postdoctoral research at the Institute of Marine Sciences in Kiel, Germany, the University of Ottawa, and the Geological Survey of Canada. Thomas received the 2006 Waldemar Lindgren Award from SEG and in 2008, he joined the Colorado School of Mines, where he currently teaches economic geology.

REGISTRATION

www.segweb.org/events#17PDACSEG

ATTENTION SEG MEMBERS

You must complete the SEG Member Registration Form to receive the member rate for this workshop. No discounts are offered on PDAC 2017 registration. www.segweb.org/17PDACSEG-Form

www.segweb.org/events#17PDACSEG

ATTENTION SEG MEMBERS

You must complete the SEG Member Registration Form to receive the member rate for this workshop. No discounts are offered on PDAC 2017 registration. www.segweb.org/17PDACSEG-Form

Level of Comprehension: Intermediate
Course Fee (including course material, continental breakfast, three-course lunch, and refreshments):

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<th>PDAC or SEG Member</th>
<th>Non-member</th>
<th>Student Member</th>
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<td>Early Registration (through February 3, 2017)</td>
<td>C$799</td>
<td>C$999</td>
<td>C$399</td>
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<td>Late Registration (after February 3, 2017)</td>
<td>C$999</td>
<td>C$1,099</td>
<td>C$399</td>
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Please note that SEG/PDAC reserves the right to cancel this event should minimum attendance numbers not be met by February 3, 2017.
Global Exploration Targeting
Targeting at the Global Scale
April 5–7, 2017 | Society of Economic Geologists Course Center
Littleton, Colorado

COURSE DESCRIPTION

This three-day, practical course on the business of exploration is primarily aimed at early career geologists. In providing an overview of the targeting process, the course will examine two gold deposit types—orogenic gold and porphyry Cu-Au systems. Participants will examine, first, the geological criteria for development of these deposit types. Secondly, the focus will then turn to developing criteria for scoring and rating areas (polygons) created using public domain maps and other available data.

COURSE OUTLINE

Day 1 (8:30 am – 5:30 pm):
Introduction and Context
1. Introduction and discussion of context
2. Group workshops on critical context questions (CCQ)
3. Group presentations on CCQ
4. Load data to laptops
Polygon Definition and Findability
1. Presentation and discussion of polygons
2. Group workshops on polygon parameter definition (PPD)
3. Group presentations on (PPD)
4. Development of findability factors (F)
Evening function (5:30 pm – 6:30 pm)

Day 2 (8:30 am – 5:30 pm):
Key ingredients for Global Business Area selection: Part 1
1. Development of geological factors (G) for porphyry Cu-Au and orogenic Au (requires prior review of literature)
2. Discussion of weighting and ranking (WR)
3. Group workshops on GF-WR and matching scoring framework (porphyry/orogenic Au)
4. Group presentations of GF-WR: Porphyry Cu-Au
5. Group presentations of GF-WR: Orogenic gold

Day 3 (8:30 am – 2:00 pm):
Key ingredients for Global Business Area selection: Part 2
1. Group workshops: Using database and maps/score using GF-WR
2. Group presentations of final scoring outcomes

PRESENTER
Rael Lipson was employed by Gold Fields for 36 years, first in SEDEX base metal exploration, then in gold, with more than 3 years as chief geologist of a Witwatersrand gold mine. He also was a member of the Tarkwa feasibility study. After transferring from Johannesburg to Denver in 1999 as Gold Fields chief exploration geologist, he oversaw areas of international project reviews as well as strategic planning. His interests include paleo-placer and orogenic-type gold. Currently working as a consultant, Rael established RDLGEO Consulting, Inc., in 2013.

REGISTRATION
Online at segweb.org/events#17RGET

Early Registration (through March 15, 2017)
Member: US$990
Non-member: US$1,090

Late Registration (after March 15, 2017)
Member: US$1,090
Non-member: US$1,190

All course attendees must complete and submit the non-disclosure agreement.

Please note that SEG reserves the right to cancel this event should minimum attendance numbers not be met by March 15, 2017. For further information on cancellation policy, event photography, and dietary restrictions, visit www.segweb.org/tc.
El Comité Organizador del ProExplo2017 conjunto con el Society of Economic Geologists ofrece un curso de mapeo profesional en el distrito minero Yanacocha, Perú con el auspicio de Newmont Mining. Utilizando un mapeo detallado (1:500) conjunto con aplicación práctica de geoquímica, este curso enfatiza observaciones en alteración-mineralización con el objetivo de explicar las asociaciones mineralógicas y su importancia en la exploración minera.

El curso empezará en Cajamarca a las 18:00 horas el 3 de mayo, y terminará la mañana del domingo, 7 de mayo; se programará el fin del curso de tal manera de permitir participantes de regresar a Lima por la mañana.

El costo del curso incluye habitación tipo doble, transporte por bus ida/vuelta Cajamarca-Yanacocha-Cajamarca los 4-5-6 de mayo, desayunos, alumerzos en terreno, y las hojas de mapeo. Participantes son responsables por su transporte ida/vuelta Cajamarca, transporte aeropuerto (CJC) al hotel y vuelta, cenas, gastos personales, y el costo de un examen médico requerido por Newmont Mining (aprox. US$35) que se ofrece en Cajamarca el 3 de mayo.

Se ofrecerá el curso en el español y el inglés.

El curso está restringido a quince participantes para asegurar una calidad de enseñanza, con plazos por hasta dos estudiantes con un costo rebajado.

The ProExplo2017 Organizing Committee and the Education and Training Committee of the Society of Economic Geologists is offering a professional-level Mapping Course at Newmont Mining Corporation’s Yanacocha mine near Cajamarca, Perú. Detailed (1:500) mapping of alteration-mineralization in a high-sulfdation epithermal environment is combined with applied geochemistry to explain and interpret mineral associations and their importance in mineral exploration.

The course begins on Wednesday, 3 May in Cajamarca at 6:00PM, and ends on Sunday morning, 7 May, with participants able to return to Lima for the start of ProExplo2017 that Sunday afternoon.

Course registration cost includes double-occupancy lodging, bus transportation from Cajamarca to and from Yanacocha on 4-5-6 May, breakfasts, field lunches, and mapping base sheets. Participants are responsible for their travel to and from Cajamarca, transportation Cajamarca (CJC) airport to and from the hotel, dinners, incidental expenses, and the cost of a required medical exam (about US$35) that will be offered in Cajamarca on Wednesday, 3 May to all participants.

The course will be instructed in Spanish and in English.

To maintain high quality instruction, the course is limited to fifteen participants, with space for up to two students at a discounted rate.

**LÍDERES DEL CURSO**

William X. Chávez, Jr.  
New México School of Mines  
Socorro, New México  
wchavez@msn.com

Erich U. Petersen  
University of Utah  
Salt Lake City, Utah  
eupetersen@gmail.com

**REGISTRO**

Se puede matricular al curso por medios del website del ProExplo2017  
Course registration through the ProExplo2017 website  
Conference Website: www.proexplo.com.pe/2017

**Rates in US dollar and includes 18% IGV (tax)**

- **Member:** US$795  
- **Non-member:** US$895  
- **Student:** US$400  
- **Student Non-member:** US$450
The Organizing Committee is pleased to invite you to the SEG 2017 Conference, *Ore Deposits of Asia: China and Beyond* (SEG 2017), September 17–20, in Beijing, China. The conference is jointly hosted by the Society of Economic Geologists and the China University of Geosciences, Beijing (CUGB), at the conference center and hotel complex of the CUGB.

Asia comprises almost one-third of the world’s land area and is home to 60% of the world’s population. As the Asian countries have grown in the past decades, so has their demand for resources, which has been met by new brownfields and greenfields discoveries in eastern Russia, central Asia, China, and southeast Asia. The SEG 2017 Conference, our first ever held in Asia and the largest SEG conference to date, will focus on recent developments in our understanding of the evolution of eastern Asia and formation of its many world-class mineral deposits.

We expect at least 1,200 attendees from throughout the world, including managers in the resource industry, exploration and mine site geologists, government earth scientists, and academics from dozens of universities. The technical program will include a dedicated student forum on September 17, followed by three days of technical sessions. Beginning with a plenary session including addresses from globally recognized leaders in the areas of resource exploration and geology, the program will subsequently include three parallel sessions over the next two and a half days, as well as dedicated poster session periods.

The technical program will be preceded and followed by an exceptional offering of field trips and workshops. Within China, trips will include visits to the giant Jiaodong lode gold deposits, the Carlin-like deposits of Guizhou, the Yangtze River porphyry-skarn province, the famous Sn-W ores of the southeast, the world-class Jinchuan Ni-Cu ores, and the complex Himalayan ores of Yunnan. Other excursions will include travel to Oyo Tolgoi and other porphyry systems in Mongolia, the gold-VMS-pegmatite province of the Rudny Altai in Kazakhstan, epithermal deposits of Japan, metallogeny of Myanmar, and giant Au and Cu systems in Indonesia. Workshops by world experts will include offerings on porphyry, epithermal, skarn, orogenic gold, Carlin-type, magmatic sulfide, uranium, potash, VMS, and sedimentary rock-hosted base metal deposits, as well as spectral techniques, LA-ICP-MS applications, and applied structural geology.

The venue for SEG 2017 is the conference center of the CUGB, with a modern Western-style hotel attached to the meeting facilities. A wide variety of restaurants are within easy walking distance of the CUGB. Social events will include a dinner, an evening at a microbrewery, and an end-of-meeting overnight train trip to the Terra Cotta Warriors in Xi’an. During the meeting, guest activities will include day visits to the Great Wall, Forbidden City, and Silk Markets.

Preliminary details on the conference, as well as sponsorship and exhibition opportunities, can be found at seg2017.org and on the following pages of this *Newsletter*. The weather in late September in Beijing is generally the nicest of the year. We look forward to seeing you in China this September.

Jun Deng (SEG 2015) and Richard J. Goldfarb (SEG 1989 F),

**Chairs**
PRE-CONFERENCE WORKSHOPS

**WS01**

**Porphyry Copper, Gold and Molybdenum Deposits**

**DATE** September 16–17, 2017

**LOCATION** China University of Geosciences, Beijing (CUGB)

**PRESENTER** David R. Cooke

**Description**
This workshop will provide a comprehensive review of porphyry copper, gold, and molybdenum deposits, covering their geodynamic setting, intrusive complexes, mineralization and alteration assemblages, zonation patterns, overprinting relationships, associated breccias, and supergene modifications. It will also review the development of the porphyry copper model and its role in mineral exploration. Case studies of major porphyry districts from around the world and new advances in porphyry exploration will be discussed.

Early Registration ends July 31, 2017

| ATTENDEE MAXIMUM: 200 |

| SEG Member | EARLY | $595 |
| Non-member | EARLY | $695 |
| Non-member | LATE  | $795 |
| SEG Student Member | EARLY | $295 |
| SEG Student Member | LATE  | $345 |
| Student Non-member | EARLY | $345 |
| Student Non-member | LATE  | $395 |

Students may not exceed 20% of total participants

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**WS02**

**The Geology, Genesis, and Discovery of Epithermal Gold-Silver Deposits**

**DATE** September 16–17, 2017

**LOCATION** China University of Geosciences, Beijing (CUGB)

**PRESENTER** Stuart Simmons

**Description**
Epithermal deposits host substantial resources of gold and silver that are often blind and sometimes very high grade. This workshop covers their geologic setting and ore-forming processes, as well as the exploration methods used to discover them. Emphasis is placed on interpreting hydrothermal alteration patterns to understand the depth level of exposure and proximity to upflow zones in which epithermal deposits form. Many deposits are described and the case histories of discoveries are reviewed, covering the spectrum of geological, geochemical, and geophysical exploration methods. All types of epithermal deposits will be covered.

Early Registration ends July 31, 2017

| ATTENDEE MAXIMUM: 60 |

| SEG Member | EARLY | $595 |
| SEG Member | LATE  | $695 |
| SEG Student Member | EARLY | $295 |
| SEG Student Member | LATE  | $345 |
| Student Non-member | EARLY | $345 |
| Student Non-member | LATE  | $395 |

Students may not exceed 20% of total participants

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**WS03**

**A Global Perspective of Sediment-Hosted Zn-Pb and Cu Deposits from Genesis to Exploration**

**DATE** September 16–17, 2017

**LOCATION** China University of Geosciences, Beijing (CUGB)

**PRESENTERS**
- David Leach
- Murray Hitzman
- Yucai Song

**Description**
The workshop will focus on Mississippi Valley-type (MVT) and clastic-dominated (CD) zinc-lead deposits and sediment-hosted copper (SHC) deposits. Presentations on the geologic and tectonic controls on the distribution of these ores in the Earth’s crust through time will provide insight into where and how these deposits form. The workshop will briefly review the origin of the ore fluids, metal solubility, and transport and precipitation mechanisms and their exploration implications. In addition to describing the global occurrences of the deposits, the workshop will describe the varied styles of these ores in China and other parts of Asia.

Early Registration ends July 31, 2017

| ATTENDEE MAXIMUM: 100 |

| SEG Member | EARLY | $595 |
| SEG Member | LATE  | $695 |
| SEG Student Member | EARLY | $295 |
| SEG Student Member | LATE  | $345 |
| Student Non-member | EARLY | $345 |
| Student Non-member | LATE  | $395 |

Students may not exceed 20% of total participants
Food production needs to more than double by 2050 in order to feed our growing world. Potash, along with other fertilizers, will be a major component to increase farm productivity in the future. Twenty-first century mining and mineral exploration companies need to understand the tools to minimize the expense and increase the success of a potash exploration strategy.

“Mega” potash deposits are the result of the evaporation of seawater and crystallization of potassium salts. Deposits may only be a few to several tens of meters thick but tend to be laterally continuous—individual potash beds can be traced along strike for many kilometers. These “rock salt” deposits are a mixture of sylvite (KCl) and common salt (NaCl).

The workshop will cover the following topics:

- Why companies report using the NI 43-101 or JORC guidelines.
- How to differentiate between mineral resources and reserves and how to properly report them.
- At a high level, understand the economics of a potash project—what makes a project financially feasible.

Early Registration ends July 31, 2017

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Students may not exceed 20% of total participants.

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**WS05**

**Uranium Deposit Systems and Implication for Exploration**

**DATE** September 16–17, 2017  
**LOCATION** China University of Geosciences, Beijing (CUGB)  
**PRESENTER** Michel Cuney

**Description**
During the first day, the workshop will give a general overview of the physical and chemical properties of uranium and thorium and their application to the exploration and understanding of ore-forming processes. The new descriptive (International Atomic Energy Agency) and genetic classifications of uranium deposits will be presented, together with an overview of the world’s uranium resources. The evolution through time of ore-forming processes and uranium deposit types will be introduced. Then, the presentation on the fractionation of uranium during magmatic processes will define the best uranium sources and the mechanisms of formation of the uranium deposits essentially related to igneous processes.

On the second day, the other main genetic types of uranium deposits will be reviewed: hydrothermal U veins associated with granites, volcanic rocks and IOCG deposits, hydrothermal diagenetic deposits with intra- and interformational and basement/basin redox control, hydrothermal metamorphic and hydrothermal metasomatic deposits, deposits related to meteoric water infiltration, and synsedimentary deposits.

Early Registration ends July 31, 2017

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Students may not exceed 20% of total participants.

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**WS06**

**Magmatic Sulfide Deposits: From Research to Exploration**

**DATE** September 16–17, 2017  
**LOCATION** China University of Geosciences, Beijing (CUGB)  
**PRESENTERS** Chusi Li, Indiana University  
Edward Ripley, Indiana University  
Steve Barnes, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

**Description**
The following will be covered during the workshop: fundamentals, basic concepts, and classification; modeling; mantle partial melting, parental magma estimation, fractional crystallization; sulfur content at saturation in magma, initial PGE concentrations in magma, R-factors, sulfide liquid differentiation; physical processes in magmatic Ni sulfide systems: fluid dynamics, time and length scales, intrusion geometry and emplacement mechanisms; komatiite-related Ni deposits; intraplate magmatic Ni-Cu-(PGE) deposits; magmatic Ni-Cu deposits in convergent tectonic settings; sulfide-silicate textures, breccia ores, and sulfide melt migration; PGE deposits in
large layered intrusions; and application of Re-Os, Cu, and multiple S isotopes.

Early Registration ends July 31, 2017

ATTENDEE MAXIMUM: 60

SEG Member $595 $695
Non-member $695 $795
SEG Student Member $295 $345
Student Non-member $345 $395

Students may not exceed 20% of total participants

WORKSHOPS

WS07
Spectral Sensing Solutions to Mineral Exploration and Mining Challenges

DATE September 16–17, 2017
LOCATION China University of Geosciences, Beijing (CUGB)
PRESENTERS Carsten Laukamp
Jon Huntington
Sasha Pontual

Description
Spectral sensing technologies can provide detailed mineralogical information throughout the mining life cycle, from exploration through to mine planning and operation. Reflectance spectroscopy can rapidly characterize mineral assemblages across different ore deposit styles, such as epithermal, porphyry, and skarn systems.

Building on a strong background in mineral spectroscopy theory, this workshop aims to improve skills for identifying the appropriate spectral sensing technologies for the exploration or mining challenge. Case studies of a variety of deposit styles will be presented and various visible, near-, shortwave, and thermal infrared spectral sensing applications will be discussed. Furthermore, solutions to information extraction, product generation, and integration with geochemical and other geoscience datasets will be explored. For this, hands-on case studies will be undertaken using The Spectral Geologist (TSG) software.

WS08

DATE September 16–17, 2017
LOCATION China University of Geosciences, Beijing (CUGB)
PRESENTERS Brian Rusk
Jan Marten Huizenga
Lorena Ortega

Description
Laser ablation-based microanalysis is rapidly revolutionizing our understanding of ore deposits by enabling precise trace element and isotopic analyses with high spatial resolution and high sensitivity. LA-ICP-MS trace element and isotopic analyses yield insight into a range of processes relevant to ore deposit formation, such as fluid, metal, and magma sources; fluid and magma compositional evolution; fluid-rock reaction pathways; ore and gangue mineral precipitation mechanisms; and metal partitioning among fluids, melts, and minerals. The purpose of this one-day workshop is to show how LA-ICP-MS can be applied to understanding ore deposit genesis and exploration. The workshop will include practical advice on conducting an LA-ICP-MS study along with examples, scenarios, and case studies to illustrate the usefulness of LA-ICP-MS to understanding ore deposit formation. Discussion will consider trace element and isotopic analyses of minerals, fluid inclusions, and melt inclusions. Lectures will detail instrumentation and application of LA-ICP-MS techniques to solving problems relevant to ore deposit genesis.

Early Registration ends July 31, 2017

ATTENDEE MAXIMUM: 30

SEG Member $595 $695
Non-member $695 $795
SEG Student Member $295 $345
Student Non-member $345 $395

Students may not exceed 20% of total participants
WS10
Understanding Orogenic Gold Deposits: Global- to Deposit-Scale Features and Exploration Criteria

DATE: September 21-22, 2017
LOCATION: China University of Geosciences, Beijing (CUGB)
PRESENTERS: Richard J. Goldfarb, David I. Groves

Description:
This two-day workshop is for geologists from academia and industry who want to improve their understanding about the geology and genesis of gold deposits in metamorphic rocks. The workshop will provide a comprehensive overview of all aspects of the geology of gold ores in Phanerozoic and Precambrian metamorphic terranes, including the most important provinces throughout China. Aspects of the geology, geochemistry, mineralogy, alteration, structure, tectonics, and exploration approaches will be covered.

Early Registration ends July 31, 2017
ATTENDEE MAXIMUM: 200

SEG Member $595 $695
Non-member $695 $795
SEG Student Member $295 $345
Student Non-member $345 $395

Students may not exceed 20% of total participants

WS11
Skarn Deposits

DATE: September 21, 2017
LOCATION: China University of Geosciences, Beijing (CUGB)
PRESENTERS: Larry Meinert, Zhaoshan Chang

Description:
Skarn deposits are some of the largest ore deposits in the world but can be complicated in the field. This one-day workshop is designed to help explorers understand skarn deposits with common sense exploration concepts and easy-to-apply mineralogical guides. We will clarify the basic concepts and terminology, explain the current understanding of skarn-forming processes, and summarize the general characteristics of major skarn types. The focus will be on the zonation patterns in skarns that are useful in exploration, with a discussion of how the zonation pattern varies in different environments. The workshop will cover the following topics: (1) Introduction, definition and mineralogy; (2) Classification and terminology; (3) Skarn-forming processes and evolutionary stages; (4) General characteristics of major skarn types (Au, Cu, W, Sn, Pb-Zn, Fe, Mo, and others); (5) Zonation in skarn systems; (6) Factors affecting the formation of skarns and zonation patterns; and (7) Skarn exploration techniques.

Early Registration ends July 31, 2017
ATTENDEE MAXIMUM: 40

SEG Member $395 $495
Non-member $495 $595
SEG Student Member $195 $245
Student Non-member $245 $295

Students may not exceed 20% of total participants

WS12
Carlin-Type Gold Deposits, Geology, and Models

DATE: September 21-22, 2017
LOCATION: China University of Geosciences, Beijing (CUGB)
PRESENTER: Jean Cline

Description:
The Carlin-type gold deposits in northeastern Nevada, USA, comprise one of the most productive gold districts in the world, with gold production now in excess of 135 million...
ounces. Mining and research since discovery of the Carlin deposit in the 1960s have generated detailed descriptions of deposit geology, including recognition of features that are common to deposits across northern Nevada, though no single, widely acceptable genetic model has been developed. This two-day workshop will focus on (1) the geologic evolution of northeastern Nevada that produced an ideal geologic architecture for the deposits, (2) geologic processes in the late Eocene that were critical to deposit formation, (3) geologic models for deposit formation, and (4) the geology of Carlin-like deposits in Guizhou Province, China, including a comparison with the Nevada deposits. Presentations will include detailed descriptions of deposit geology and implications for exploration and research.

Early Registration ends July 31, 2017

ATTENDEE MAXIMUM: 100

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Students may not exceed 20% of total participants

Deformation Processes and Structural Analysis in Fracture-Controlled Hydrothermal Ore Systems

DATE September 21–22, 2017
LOCATION China University of Geosciences, Beijing (CUGB)
PRESENTER Stephen F. Cox

Description
The workshop is designed to provide exploration and mining geoscientists with a robust understanding of structural analysis and ore targeting in fracture-controlled hydrothermal ore systems, including orogenic gold and intrusion-related systems. Within the context of high fluid flux seismogenic systems, the workshop will examine how the formation of fracture-controlled flow systems and their structural styles are influenced by fluid pressure regimes, stress states, and fluid flow. We will explore the processes controlling why and where permeability enhancement and high fluid flux are localized in faults and examine how deformation processes influence the geometry of high fluid flux pathways and ore deposits formed within fault zones and fracture networks. Lectures will be supplemented by simple practical exercises that will further develop participants’ expertise in structural analysis and ore targeting.

Early Registration ends July 31, 2017

ATTENDEE MAXIMUM: 60

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Students may not exceed 20% of total participants

SEG reserves the right to cancel workshops or field trip events should minimum attendance numbers not be met by July 31, 2017. Refer to www.seg2017.org/registration.html#policy for cancellation policy.

All information subject to change. Visit seg2017.org for the latest updates and changes.
FIELD TRIPS

The number of places is limited for the following events. Preference will be given to SEG 2017 Conference registrants. Non-attendees wait-listed prior to July 31. Learn more at www.seg2017.org/field-trips.html. Flights/Airfare not included in cost of trip unless noted.

PRE-CONFERENCE FIELD TRIPS

**FT01**
Omchak Gold District—Giant Lode and Placer Gold Deposits of Eastern Russia

**DATE**
September 10–15, 2017

**LOCATION**
Departing from and returning to Magadan, Russia

**FIELD TRIP LEADER**
• Professor Nikolay A. Goryachev, Senior Scientist of North East Interdisciplinary Scientific Research Institute, Far East Branch of the Russian Academy of Sciences

**Description**
The Omchak gold district is located in south-eastern part of the famous Yana-Kolyma gold belt, a belt that has yielded 3,100 t Au from orogenic gold deposits and related placers during the past 85 years. The Omchak district includes three major lode deposits, with past production of about 300 t Au and reserves of >800 t Au at Natalka and Pavlik. The Late Jurassic-Early Cretaceous deposits consist of low-grade disseminated and high-grade quartz vein ore styles by Late Permian volcanoclastic sequences along a major regional-scale fault. Natalka is the largest gold deposit in eastern Russia (>612 t Au), with the main orebody being 4 km long, 1 km wide, and 500 m deep. This trip will allow participants to develop a thorough understanding of the great gold resources and future potential of this part of eastern Russia.

Participants must have warm and waterproof field clothing. The temperature in the Omchak area in mid-September typically ranges from +5° to –5°C. Transportation from Magadan to Omchak will be by all-terrain vehicle. The distance is 400 km and will require one day of travel. Daily flights to Magadan depart from Moscow, Khabarovsk, and Vladivostock, with connections through Seoul-Incheon, Tokyo-Narita, Hong Kong, and Beijing to Khabarovsk and/or Vladivostok.

**Early Registration ends July 31, 2017**

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**FT02**
Epithermal Au Mineralization and Associated Hydrothermal Alteration in Southern Kyushu

**DATE**
September 10–16, 2017

**LOCATION**
Starts and finishes at Kagoshima Airport, Kirishima, Kagoshima Prefecture, Japan

**FIELD TRIP LEADER**
• Yasushi Watanabe, Faculty of International Resource Sciences, Akita University, Japan

**Description**
This field trip will provide the opportunity to observe the young epithermal gold mineralization and associated hydrothermal alteration in the Ryukyu volcanic arc, Japan. The trip includes visits to the Hishikari low-sulphidation deposit and the Kasuga and Akeshi high-sulphidation deposits in southern Kyushu. This trip also will allow observation of advanced argillic alteration, steam-heated alteration, an active geothermal system, and an active volcano (Kirishima or Sakurajima).

**Early Registration ends July 31, 2017**

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*Student discounts not available.

**FT03**
Porphyry Cu-Au and Cu-Mo Deposits of Southern Mongolia

**DATE**
September 12–15, 2017

**LOCATION**
Departing from and returning to Ulaanbaatar, Mongolia

**FIELD TRIP LEADER**
• Jargalan Sereenan, Mineral Resources Research Group, School of Geology and Mining Engineering, Mongolian University of Science and Technology

**Description**
South Mongolia is rich in various types of mineral deposits, including Cu-Au and Cu-Mo porphyry deposits and occurrences located within the middle to late Paleozoic island arc terranes of the Central Asian orogenic belt. This trip will visit the Tragaan Suvarga, Kharmagtai, and giant Oyu Tolgoi deposits. We will observe different styles of porphyry mineralization at the various occurrences. At the Tsagaan Suvarga Cu-Mo deposit (240 Mt at 0.53% Cu and 0.018% Mo), ore-related sericitic alteration can be observed overprinting the dominant potassic (K-feldspar) alteration of the main syenogranite. Chlorite-epidote alteration associated with Cu-Au mineralization overprints potassic (biotite-magnetite) alteration at Kharmagtai, with much of the mineralization related to a large tourmaline breccia system. The visit to the Cu-Au-Mo–mineralized quartz monzonitoid intrusions at the Oyu Tolgoi group of deposits (43 million tonnes Cu, 1,850 t Au) will include examination of muscovite- and pyrophyllite-bearing alteration associated with Cu-Au mineralization that was subsequently upgraded by advanced argillic alteration at the Hugo Dummett orebody.

**Early Registration ends July 31, 2017**

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Guiyang, China

Au mineralization in carbonaceous shale and Xuman and Bianyang formations, with minor carbonaceous siltstone of the Middle Triassic. The Jinfeng deposit (165 t Au at 4.7 g/t) is hosted in calcareous siltstone and along a major unconformity. Orebodies also hosted in calcareous siltstone in Permian bioclastic limestone, with minor dominated by auriferous pyrite disseminated 5 g/t), controlled by the Huijiabao anticline, are the world's most important Carlin-like Au deposits. During this field trip into the southwestern Guizhou Province, we'll visit the scenic karst region of SW China, we'll visit the largest Carlin-type Au deposits of each type. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) is controlled by faults, and typically occurs in the carbonate-siliciclastic rock of the Middle Triassic Xuman and Bianyang formations, with minor Au mineralization in carbonate shale and K-feldspar-rich sandstone.

Early Registration ends July 31, 2017
ATTENDEE MAXIMUM: 17

| SEG Member | $ 965 | $1,095 |
| Non-member | $1,095 | $1,195 |
| SEG Student Member | $ 595 | $ 645 |
| Student Non-member | $ 645 | $ 695 |

Description
Carbonate-bearing sedimentary sequences in southwestern Guizhou Province host China's most important Carlin-like Au deposits. Combined proven gold reserves in these deposits exceed 650 tonnes. Deposits can be divided into strata-bound and the fault-controlled ores. During this field trip into the scenic karst region of SW China, we'll visit the largest Carlin-type Au deposits of each type. The Shuiyindong Au deposits (263 t Au at 5 g/t), controlled by the Huijiabao anticline, are dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity. The Jinfeng deposit (165 t Au at 4.7 g/t) controlled by the Huijiabao anticline, is dominated by auriferous pyrite disseminated in Permian bioclastic limestone, with minor orebodies also hosted in calcareous siltstone and argillite, and along a major unconformity.

Early Registration ends July 31, 2017
ATTENDEE MAXIMUM: 18*

| SEG Member | $ 995 | $1,095 |
| Non-member | $1,095 | $1,195 |
| SEG Student Member | $ 595 | $ 645 |
| Student Non-member | $ 645 | $ 695 |

*Students may not exceed one-third of total participants.

Flights/Airfare included in the cost of trip

Early Registration ends July 31, 2017
ATTENDEE MAXIMUM: 21

| SEG Member | $ 995 | $1,095 |
| Non-member | $1,095 | $1,195 |
| SEG Student Member | $ 695 | $ 745 |
| Student Non-member | $ 745 | $ 795 |
**Middle-Lower Yangtze Valley**

**Cu-Fe-Au Porphyry, Skarn, and Related Deposits**

*LOCATION* Departing from and returning to Hefei, China

**FIELD TRIP LEADERS**
- Taofa Zhou, Director of School of Resources and Environmental Engineering, Hefei University of Technology
- Yu Fan

**Description**

The Middle-Lower Yangtze River Valley is one of the most important metallogenic belts in China, and is located at the northern margin of the Yangtze craton. It hosts a series of ore districts, such as Edong, Jiurui, Anqing-Guichi, Luzong, Tongling, Ningwu, and Ningzhen, with about 200 Cu-Fe polymetallic deposits, including Cu-Fe skarns, Cu-Au porphyries, and magnetite-apatite ores.

For our field excursion, we will visit six large deposits in the Tongling and Ningwu districts, which are most typical of deposits in the belt in regard to their geological characteristics and mineralization styles. The first two days, we will visit the Tongling district in the center of the metallogenic belt. Mesozoic igneous rocks (140–135 Ma) are widespread in the district, including more than 70 intrusions consisting of pyroxene diorite, quartz diorite, monzodiorite, and granodiorite, which are closely related to skarn and porphyry mineralization. The next two days, we will visit NingWu district on the eastern side of the metallogenic belt to examine the important magnetite-apatite deposits associated with pyroxene diorite plutons (130 Ma). The last day we will travel to the Huang Mountain, enjoying the beautiful scenery and granite geology.

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**Jinchuan Ni-Cu Field Trip**

**DATE** September 22–25, 2017

**LOCATION** Departing from and returning to Beijing, China

**FIELD TRIP LEADERS**
- Xie-Yan Song, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang
- Jian-Gang Jiao, Changan University, Xian
- Wen-De Suo, Jinchuan Group Ltd, Jinchang, Gansu
- Yong-Cai Wang, Jinchuan Group Ltd, Jinchang, Gansu

**Description**

Jinchuan is one of the largest Ni-Cu-(PGE) deposits in the world. It is in Gansu Province, NW China, and contains >500 million tonnes of sulfide ores (avg. 1.1 wt % Ni, 0.7 wt % Cu), mainly in three huge orebodies that are now mined underground. The ~830 Ma Jinchuan intrusion comprises mainly lherzolite and dunite and is divided into four segments by a series of faults; we will visit the three main orebodies. The huge lens-shaped No. 1 orebody that we will visit occurs at depths between 200 and >1,100 m, is 1,500 m long and up to 120 m wide, and comprises disseminated and net-textured sulfides. It contains ~50% of the total Ni, Cu, and PGE reserves of the Jinchuan deposit. We will also visit the No. 2 orebody, which contains disseminated and net-textured sulfides as well as small massive sulfide veins that locally contain xenoliths of ultramafic rocks and metamorphosed country rocks. The tabular-shaped No. 24 orebody shows sulfides concentrated in the base of the thickest part of the body and a sulfide-poor upper unit.

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**Giant W-Cu, Sn, and Pb-Zn Deposits, NW Jiangxi Province**

**DATE** September 21–26, 2017

**LOCATION** Departing from and returning to Nanchang, China

**FIELD TRIP LEADERS**
- Shao-Yong Jiang, China University of Geosciences, Wuhan
- Xinkui Xiang

**Description**

The Jiangxi Province in south China hosts world-class Sn, W, and base metal deposits that are all related to late Mesozoic granitic intrusions. Participants will visit open pits and underground mines and examine drill core samples at a number of the more important deposits. Different types of magmatic rocks and hydrothermal alteration assemblages will be examined in these deposits. Ore types to be observed at the Dahutang W-Cu deposit, one of the world’s largest W deposits with an estimated WO₃ reserve of 2 million tonnes, include disseminated, veinlet, quartz vein, greisen, and hydrothermal brecias in highly fractionated S-type granites. Ore minerals include wolframite, scheelite, chalcopyrite, and molybdenite. At the Pengshan Sn deposit and Zhangshiba Pb-Zn deposit, ore types we will see include stratiform skarn, greisen, and quartz veins containing cassiterite, sphalerite, and galena.
FIELD TRIPS

**FT10**

**Porphyry and Epithermal Systems of the Sunda Banda Arc, Indonesia**

**DATE** September 21–26, 2017  
**LOCATION** Departing from and returning to Bali, Indonesia

**FIELD TRIP LEADERS**  
- Adi Maryono  
- Lejun Zhang, Centre of Excellence in Ore Deposits (CODES)  
- Rachel Harrison (CODES)  
- Iryanto Rompo, Independent Consultant Geologist

**Description**  
This field trip will introduce participants to the geology and mineralization that characterizes the Sunda-Banda arc. The trip will start with a site visit to the Tujuh Bukit project, where the 30.1-Moz Au Tumpangpitu porphyry Cu-Au-Mo and high-sulfidation epithermal (HSE) Au-Ag deposits were discovered in 2010, making it one of the largest recent discoveries in SE Asia. The project also offers the opportunity to examine a world-class exposure of telescoped HSE mineralization onto an outcropping island of porphyry mineralization at Pulau Merah. A transect by boat and foot along the coastline will allow participants to observe exposures of upper and lower facies of a diatreme breccia body, as well as proximal to distal hydrothermal alteration of host rocks associated with high-sulfidation mineralization. A visit to the island of Lombok will include field exposures of lithocap, intermediate-sulfidation epithermal (ISE), HSE, and porphyry mineralization with a focus on exploration techniques in the lithocap environment. Drill core from the Brambang and Selodong porphyry prospects will be examined. The trip will end with a visit to the Batu Hijau porphyry Cu-Au mine (20.05 Moz Au), where participants will have the opportunity to examine porphyry mineralization in drill core from Batu Hijau, as well as from other nearby deposits, including Elang (25 Moz Au).

**Early Registration ends July 31, 2017**

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*Student discounts not available.

**FT11**

**The Metallogenic Provinces of Myanmar (Burma)**

**DATE** September 21–29, 2017  
(tentative)  
**LOCATION** Departing from and returning to the Yangon Airport

**FIELD TRIP LEADERS**  
- Laurence Robb, Oxford University, UK  
- Andrew Mitchell  
- Nick Gardiner

**Description**  
Myanmar contains a broad diversity of mineral deposits, including tin, tungsten, copper, gold, zinc, lead, silver, and nickel, as well as an abundance of colored gemstones. This diversity is related to a complex geological history linked largely to Tethyan orogenesis. Myanmar can be divided into three principal metallotects, namely (1) the Wuntho-Popa Arc, comprising subduction-related granites and porphyry-epithermal styles of mineralization; (2) the Mogok-Mandalay-Mergui Belt, comprising orogenic gold mineralization and significant tin-tungsten mineralization associated with crustal granites; and (3) the Shan Plateau, containing massive sulfidetype base metal deposits. Recent social and political change in Myanmar has created opportunities for resource-related exploration and development. This field trip is aimed at providing an overview of the metallogenic characteristics and the resource potential of this fascinating country.

**Early Registration ends July 31, 2017**

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**FT12**

**Late Paleozoic Metallogeny of the Altai Region, Northeastern Kazakhstan**

**DATE** September 21–27, 2017  
**LOCATION** Departing from and returning to Almaty, Kazakhstan

**FIELD TRIP LEADER**  
- Evgeniy Naumov, Institute of Geology and Mineralogy, Siberian Branch, Russian Academy of Sciences

**Description**  
The late Paleozoic terranes of the Altai Mountains in Kazakhstan are well recognized for their variety of world-class mineral deposits. This field trip will visit some of the most significant orogenic gold (Akzhal and a few others like it), VMS (Artemievskoe), and rare metal granite-hosted (Yubileynoe) deposits throughout this part of the Central Asian orogenic belt. For most of western countries, a visa to visit Kazakhstan is required.

**Early Registration ends July 31, 2017**

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All information subject to change. Visit seg2017.org for the latest updates and changes.
SEG at GSA 2017

October 22–25, 2017     Seattle, WA, USA
SEG Meeting Coordinator, Garth Graham (U.S. Geological Survey)

Short Course – One-day, Saturday, October 21, 2017 (immediately pre-meeting)

Environmental Geology of Some North American Mineral Deposits

Coordinators: Bob Seal and Rob Bowell
Contributors: Heather Jamieson, Kirk Nordstrom, Laura Ruhl and others to be confirmed
Description: The aim of the course is to present the environmental implications from the geology and geochemistry of the most common mineral deposits in North America and, through this, examine the implications for these deposits in design, operation, and closure with respect to minimizing environmental impacts.

Proposed SEG-Sponsored/Co-Sponsored Sessions

T148. System-Scale Zonation of Ore Systems: Insights into 3-D Architecture from Lateral and Deep Exposures Due to Mining and Structural Deformation
Carson A. Richardson (University of Arizona) • Simone E. Runyon (University of Arizona) • Eric Seedorff (University of Arizona)

T213. Integrated Approaches to Deciphering Major Crustal Boundaries in Polyphase Orogenic Settings
James V. Jones III (USGS) • James J. Ryan (GSC) • Jonathan Caine (USGS) • Benjamin Drenth (USGS)

T225. New Perspectives on Cordilleran Tectonics, Paleogeography, and Metallogeny
Luke P. Beranek (Memorial University of Newfoundland) • Justin V. Strauss (Dartmouth College)
SEG Mapping Course
Mineral Park Mine | Ithaca Peak District, Arizona
November 5–11, 2017

DESCRIPTION

This advanced- to professional-level mapping course is offered by the Education and Training Committee of the Society of Economic Geologists. Working at the Mineral Park Cu-Mo porphyry system in northwest Arizona, participants will map at detailed 1:240 to 1:480 scales, with emphasis on mapping veinlet styles, densities, and alteration mineralogy. In-the-field discussions of the geochemistry of porphyry systems and the development of alteration assemblages and associated hypogene and supergene ore minerals will complement our mapping of rock types and mine-scale structures.

This course is appropriate for geologists seeking to enhance their understanding of detailed mapping methods and the geochemistry of large hydrothermal systems, and graduate-level students who desire to enhance their skills at detailed mapping.

Participants will assemble at the Car Rental Center in Las Vegas, Nevada, on Sunday, 5th November, and depart Las Vegas late Saturday morning, 11th November. The course fee covers group transportation from the Car Rental Center to the mine and return, lodging for six nights in Kingman, Arizona, breakfasts, field lunches, base maps, and Certificate of Completion. Participants are responsible for their travel to and from Las Vegas, dinners, and incidental expenses, and must provide safety gear and Brunton compass.

INSTRUCTORS

- Dr. William X. Chávez, Jr.
  A professor of geological engineering at the New Mexico School of Mines since 1985. Dr. Chávez has instructed field and in-class workshops for the Society of Economic Geologists involving a variety of ore deposit types, with emphasis on the practical application of geochemistry to mineral exploration.

- Dr. Erich U. Petersen
  A professor of geology and geophysics at the University of Utah in the Latin American Studies Program. Dr. Petersen’s geographical regions of interest include Central and South America. He has worked closely with the Society of Economic Geologists over the years through several field trips, short courses, and workshops.

REGISTRATION

Online at www.segweb.org/events#17RMAPAZ

Early Registration (through September 25, 2017)
- Member: US$1,195
- Non-member: US$1,295
- Student: US$595
- Student Non-member: US$645

Late Registration (after September 25, 2017)
- Member: US$1,395
- Non-member: US$1,495
- Student: US$695
- Student Non-member: US$745

The course is limited to 15 participants.
Student participants are limited to 2 at the attendee minimum or 3 at attendee maximum.

Please note that SEG reserves the right to cancel this event should minimum attendance numbers not be met by September 25, 2017. For further information on cancellation policy, event photography, and dietary restrictions, visit www.segweb.org/t&c.
Senior Exploration Management Course

SEG Course Center | Littleton, CO, USA
November 28–December 1, 2017, 8:30am – 5:00pm

Organizer: Society of Economic Geologists (SEG)
Presenter: Western Mining Services (WMS)

SCOPE

This four-day training course covers the principles and practices of effective mineral exploration management. The curriculum focuses on the broad spectrum of technical and business issues that senior exploration managers typically face.

- Mineral exploration at the strategic scale – the roles of greenfields and brownfields exploration in development and implementation of corporate growth strategies
- The design and management of exploration programs and portfolios
- The importance of group structure, program design, process discipline, and effective people management in achieving exploration group objectives
- Opportunity generation including the exploration search space concept, targeting science, and the application of targeting models
- How to negotiate land and minerals access deals, identify and manage nontechnical project risks, engage in early stage evaluation of project economics, and maintain the important social license to operate exploration projects in varied risk environments

The course format utilizes lecture and workshop and stresses interactive thinking and problem solving. Participants work in teams to design solutions for exploration management challenges and present their results to the larger group.

WHO SHOULD ATTEND?

This course is ideal for regional and country exploration managers, for senior project managers who are on track to move into positions of senior responsibility, and for geoscientists who aspire to senior exploration management roles. The course is also recommended for commercial managers who participate in mineral exploration programs as well as government and academic professionals who interact with the mineral exploration industry.

This SEG-sponsored course in November-December 2017 will be the twelfth public presentation of the SEM Course. WMS has also presented numerous in-house SEG Courses to major mining companies, each tailored to the needs of the individual client.
Senior Exploration Management Course
SEG Course Center | Littleton, CO, USA | Nov. 28–Dec. 1, 2017

FACULTY

• Jon Hronsky (BAppSci, Ph.D., MAIG, FSEG)
  With more than 30 years of experience in mineral exploration, Jon has worked across a diverse range of commodities, including discovery of the West Musgrave nickel sulfide province in Western Australia. Prior to joining Western Mining Services (WMS), he served as Manager of Strategy & Generative Services for BHP Billiton Mineral Exploration and as Global Geoscience Leader for WMC Resources Ltd. He is chairman of the board of the Centre for Exploration Targeting in WA.

• Steven Bussey (BA, M.Sc, PhD)
  At WMS, Steve’s focus is on framework studies, mineral exploration targeting, and project due diligence. He has more than 35 years’ experience in mineral exploration. Before joining WMS in 2007, Steve worked in a number of senior exploration roles, including principal geoscientist for WMC Resources Ltd.

• Brad Margeson (BA, M.Sc., SME, FSEG)
  Brad held several senior management roles for WMC Resources Ltd. prior to co-founding WMS in 2005. At WMC, he was global manager of exploration projects, leading teams that discovered gold deposits in Canada. With 35 years’ experience in the industry, Brad’s focus is on exploration strategy/planning, greenfield and brownfield exploration targeting, and due diligence.

• Jeff Welborn (BA, JD)
  Jeff is a co-founder and partner at WMS and has more than 40 years’ experience as a mining, oil & gas and natural resources lawyer. His experience covers a broad range of commercial, legal, and risk management matters in mineral exploration and mining. He assists WMS clients globally with commercial strategy development, program design and planning, deal analysis and negotiation, and minerals and land access.

CURRICULUM

Day 1
• Course overview; Introduce Exploration Strategy Exercise
• Mineral Exploration: Business Environment; Key Concepts
• Mineral Exploration: Principles and Philosophies
• Strategy, Business Planning and Portfolio Management

Day 2
• Minerals Access and Deal Making
• Commercial Risk Management (CRM)
• CRM Group Exercises and Discussion
• Mineral Exploration: Targeting

Day 3
• Group Discussion
• Mineral Exploration: Targeting
• Mineral Exploration: Tactics
• Mineral Exploration: Culture and People

Day 4
• Strategy Exercise: Presentations, Group Discussion Awards
• Group Discussion Course Feedback Wrap-up

Registration (early deadline: November 10, 2017)
Register online: segweb.org/events#17RWMS
Member (Early / Late) – US$3,200 / US$3,400
Non-member (Early / Late) – US$3,500 / US$3,700

Please note that SEG reserves the right to cancel this event should minimum attendance numbers not be met by November 10, 2017. For further information on cancellation policy, event photography, and dietary restrictions, visit www.segweb.org/tc.