OCT
14-17
2018

Geothermal Resources Council
GRC

42nd GRC ANNUAL MEETING & EXPO

PEPPERMILL
RESORT SPA CASINO
RENO, NEVADA, USA

Preliminary Program

GRC ANNUAL MEETING & EXPO

OCT 14-17 2018

PEPPERMILL
RESORT SPA CASINO
RENO, NEVADA, USA

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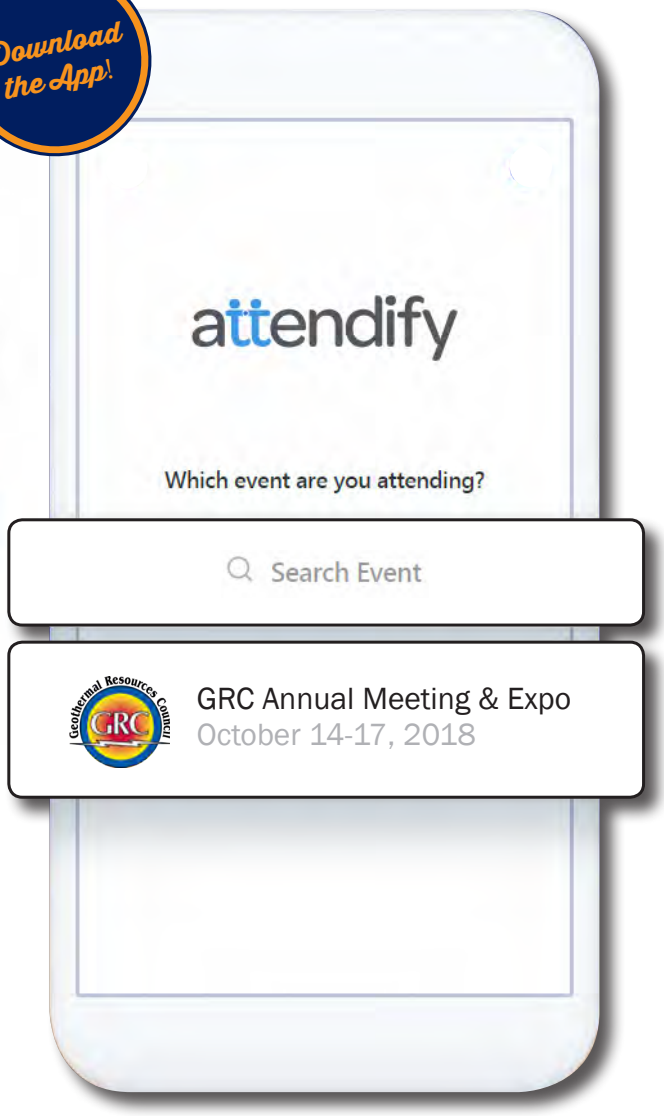

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Come join the global geothermal energy community in

Reno

The GRC Annual Meeting and Expo promises to be the geothermal energy event of the year. Don't miss it!

Connect for the latest news and event information on GRC's website at geothermal.org

REGISTER ONLINE AT: www.geothermal.org

Registration Now Open

Register by September 30 and save up to $150

GRC Annual Meeting & Expo Features:

Workshops
- Evolution of Geothermal Resource Models: From Surface Exploration to Field Development and Reservoir Management (2-days)
- Project Development Strategy and Economic and Investment Evaluations (2-days)
- Geothermal 101 (2-hour special workshop open to the public)

Fieldtrips
- Long Valley Caldera (3-day pre-conference)
- Steamboat Springs geothermal field (1-day pre-conference)
- Fly Ranch Geyser and San Emidio geothermal plant (1-day post-conference)
- Searching for Blind Geothermal Systems utilizing Play Fairway Analysis (1-day post-conference)
- The Peppermill Resort direct use geothermal heating system (Various tours during the meeting)

Annual Charity Golf Tournament
Opening Session
Opening Reception
Expo
International Luncheon
International Session
Technical Sessions
Mixer - Trivia Game Night!
Poster Session & Expo Networking Reception
Membership Meeting

The Geothermal Resources Council (GRC) once again invites you to be part of one of the biggest annual geothermal energy conferences and expo in the world.

Promoting *"Geothermal's Role in Today's Energy Market,"* the 2018 GRC Annual Meeting & Expo will be held October 14-17 at the Peppermill Resort Spa Casino, Reno, Nevada, USA.

This is the 42nd Annual Meeting of the Geothermal Resources Council (GRC) and over five decades we have visited Reno more than a dozen times. There is a good reason for that; Reno and the Northern Nevada region is one of the best hotspots for geothermal energy in the world, let alone in the USA. The special geology of the Great Basin creates an ideal underground environment for geothermal energy - indeed the locals sometimes call the area the "Saudi Arabia of geothermal energy"! The locals are fairly knowledgeable about the clean, dependable renewable energy powering their homes and businesses - it feels like a home away from home for the geothermal energy industry.

Here are some of the highlights of the geothermal energy event of the year:

There are very good reasons to arrive early. Before the main event of the GRC Annual Meeting & Expo, there will be two workshops, both over two days:

The *Project Development Strategy and Economic and Investment Evaluations* workshop, led by Henry Veizades, Manon Stöver, and Dr. Dan Hoyer of Veizades & Associates, Inc. will focus on commercial development strategies for well field, resource production facilities, power production facilities, and infrastructure for geothermal energy projects.

The *Evolution Of Geothermal Resource Models: From Surface Exploration To Field Development and Reservoir Management* workshop, led by Jeff Witter and Bastien Poux will present the methodologies employed in the industry to accurately build resource models at the different stages of the exploration and development of a geothermal field.

A special Geothermal 101 workshop led by Gene Suemnicht on Wednesday will be open to the public, preceded by a tour of the Expo.

As always, the fieldtrips will be popular. This year the GRC has a choice of five excursions, all led by knowledgeable experts. It is a very good idea to book early before all the seats are taken!

Before the main event a three day fieldtrip will explore the geological wonderland of the Long Valley Caldera, visiting the Casa Diablo geothermal power plants, a steaming Hot Creek, the impressive Inyo Caters, returning via the stark scenery of Mono Lake and the ghost town of Bodie.

A short five-hour fieldtrip on Sunday will take attendees to the Steamboat geothermal power plant complex, located just south Reno, which currently produces enough renewable energy to meet the residential electrical needs of the city of Reno.

During the meeting, on Monday through Wednesday, the GRC and the Peppermill Resort Spa & Casino will provide tours of the geothermal wells and engineering facilities of the only resort in the United States whose heating source is totally provided from geothermal energy produced on the immediate property.

Fieldtrips are a great way to wind-down after a hectic Annual Meeting & Expo. There are two excursions on offer on Thursday, the day after the event. A special one-day trip to San Emidio geothermal power plant and the Fly Ranch geyser will offer dedicated opportunities for photography in addition to geological and geothermal sight-seeing. For the more scientific-minded a one -day trip out into the Great Basin will explain how Play Fairway Analysis helps in the search for blind geothermal systems in Western Nevada.

A superb networking event, the annual GRC Charity Golf Tournament will be held on Sunday at the Sunridge Golf Club in Carson City, a short drive from the Peppermill Resort Spa Casino. Prepare yourself for an unparalleled golfing experience. The Sunridge Golf course is a pleasure for golfers of any skill level to play. The course will challenge you while providing a relaxing, picturesque backdrop of the Sierra Nevada. Only 100 spots are available so sign-up early! Proceeds from the tournament will go to the GRC Scholarship Fund. Registration is now open for this popular networking event.

All the events of the GRC Annual Meeting & Expo will be held at the luxurious Peppermill Resort Spa & Casino. The highlight of the meeting is the Opening Session on Monday morning, featuring distinguished keynote speakers from around the world.

Over the next three days the attendees will enjoy the community of the geothermal energy world, whether getting informed of the latest scientific updates at the Technical Sessions or visiting exhibitors in the Expo, one of the largest gathering of geothermal energy vendors in the world.

Don't forget the fun Trivia Night on Monday evening. The GRC Student Committee promises a memorable time!

With GRC's strong track record of bringing together the people and issues most relevant in the industry, attendees will find tremendous value in the GRC Annual Meeting & Expo.

For more information visit our website at www.geothermal.org or call (530) 758-2360.

GRC Annual Meeting Committee

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The online **GRC Library** offers thousands of technical papers as downloadable PDF files. www.geothermal-library.org

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A Special Thanks to Our Sponsors & Contributors

The success of the Geothermal Resources Council Annual Meeting depends on the generous sponsorships and contributors of corporate and individual members. The GRC would like to thank the following for their generous support.

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A complete list will be posted at the Annual Meeting and on the Event App. If you would like to make a contribution to the GRC 2018 Annual Meeting, please contact Anh Lay at (530) 758-2360 ext. 100 or E-mail at alay@geothermal.org. We are still accepting sponsorships and contributions!

Award Presentations

The GRC will present various awards throughout the Annual Meeting.

GRC Awards
- Joseph W. Aidlin Award
- Geothermal Pioneer Award
- Henry J. Ramey, Jr. Geothermal Reservoir Engineering Award
- Ben Holt Geothermal Power Plant Award
- Geothermal Special Achievement Award

GRC Scholarship Awards
- 3x GRC Undergraduate Awards
- 5x GRC Graduate Awards

Annual Amateur Geothermal Photo Contest
- 1st place ($150)
- 2nd place ($100)
- 3rd place ($75)

The time and location for the presentation of these awards has not been decided yet. Look for further information in the coming months. The latest information will be posted to the Event App and the GRC Website.

Hotel Accommodation

All the events and accommodation are in one location, the luxurious Peppermill Resort Spa Casino, the only resort in the United States whose heating source is totally provided from geothermal energy produced on the immediate property.

The GRC has contracted with the Peppermill for a discounted block of rooms for a limited time. There is a choice of rooms with a king, queen or double beds starting at $89 a night, excluding taxes and fees.

MAKE YOUR HOTEL RESERVATION THRU THE GRC WEBSITE:

geothermal.org

The discount ends September 19.

• **We strongly recommend making your hotel reservations on-line** through a dedicated webpage. The preferred rate is automatically applied.

OR

• If you make your reservations over the phone make sure you mention you are part of the **Geothermal Resources Council group** to get the special rate.

Choose from three room styles at discounted rates:
North & West Wings
The remodeled Peppermill North and West Wings are separate from the main resort, and located across the skywalk on the third floor of the Peppermill Tower or adjacent to the Tuscany Tower via an outdoor covered walkway. The North and West Wings at Peppermill Reno offer comfortable hotel rooms with approximately 300 sq. ft. of space with mahogany furnishings and marble bathrooms. One King Bed or Two Double Beds can be requested and are based upon availability. **Rooms starting at $89**

Peppermill Tower
Award winning luxurious tower rooms offer panoramic views of the majestic Sierra Nevada mountains. These richly appointed rooms are designed in a spacious 365 sq. ft. floor plan that offers smoking or non smoking rooms. One King Bed or Two Queen Beds available on request. **Rooms starting at $109**

Tuscany Tower
The Crown Jewel of a $400 million expansion is represented in the lavish accommodations you will find in the new Tuscan suite. Hand painted Italian art and private foyers provide an elegant and personal space. From custom made pillow top king beds and 42 inch plasma television to the spacious marble bathroom with European soaking tub, separate marble shower and high def television, you are sure to find true elegance. One King or Two Kings available upon request. **Rooms starting at $149**

Why Stay at the Conference Hotel?
GRC strongly encourages you to stay at the Peppermill Resort Spa & Casino to gain the benefits of networking with colleagues, being close to the event venue, and relaxing in nice hotel properties.

We make every effort to negotiate the best possible rates. When you stay at the conference hotels, you help the GRC meet our contractual obligations, avoid paying financial damages for this meeting, secure suitable venues and preferred dates-and-rates for future conferences.

IMPORTANT: Other companies may try to contact attendees offering a discount on hotel rooms.

We are not affiliated with these companies and believe it is a scam. Do not provide any credit card or payment information!!!

Use the dedicated website for GRC hotel room reservations available from the GRC website at geothermal.org. The preferred rate is automatically applied.

FRIDAY & SATURDAY, OCTOBER 12 & 13

Project Development Strategy and Economic and Investment Evaluations

Room: TBD **8am - 5pm**
Cost: $550 (Member), $600 (Non-Member), $175 Student
Led by: *Henry Veizades, Manon Stöver, and Dr. Dan Hoyer of Veizades & Associates, Inc*

Join us for a 2-day workshop focusing on commercial development strategies for well field, resource production facilities, power production facilities, and infrastructure. Participants will develop economic and investment decision processes and a computer model using capital cost estimates, operating and maintenance costs, and revenue from power sales to drive the calculations of internal rate of return, net present value, and payback period. A case study for a successful project will be presented using a USTDA-funded feasibility study along with other real-world experiences shared by participants and instructors.

Who Should Attend?
The workshop is designed for students, engineers, geoscientists, drillers and project managers tasked with advancing geothermal projects from the exploration stage to commercial power generation.

Day 1 - Geothermal Project Development Strategies:
Maximizing the success of Geothermal Projects requires a methodical, science lead, and engineering supported planning that will drive the economic model. The challenges in developing geothermal projects in the USA and foreign countries will be highlighted with a step by step approach to minimize risk, shorten project schedules, and maximize success. The presentation will be broken into five 1-hour blocks with questions and answer periods after each block.

1. Identification of Geothermal Area, Exploration Planning, Early Financing Evaluation, and Permitting Owner Staffing Requirements
2. Site investigations, Civil Engineering Requirements, Procurement Schedule, Staffing and Management Requirements
3. Exploration Drilling, Flow Testing, Data Interpretation, Power Cycle Selection, and Project Feasibility Report
4. Exploitation Drilling, Construction Planning, Contracting Plan, Procurement and Logistics, and Construction Financing
5. Construction, Quality Control, Inspection Staff, Owner Construction Staff, Start-up and Commissioning.

Day 2- Economic and Investment Evaluation:
Preparing the economic and investment evaluation is critical to obtaining management approval, construction financing, and long-term equity investments. This session will focus on the development and use of commonly used metrics of cash flow to determine the value of the investment and the sensitivities of the primary investment drivers. The presentation will be broken into blocks with questions and answer periods after each block. **Bring your computer as the workshop participants will have hand on participation.**

1. Definition and development of Net Present Value, Internal Rate of Return, and Payback
2. Capital investment cash flow
   a. Optimization of well size and number
   b. Capital investment comparison due to power cycle selection
   c. Satellite separation vs one separation station
3. Operation and maintenance (O&M) expense and electric power sales revenue
4. Sensitivity due to:
   a. Schedule
   b. Cost of money
   c. Success of development drilling
   d. Capacity factor and changes in electric sale price
   e. O&M expense
5. Case study summary

SCHEDULE SUBJECT TO CHANGE.

FRIDAY & SATURDAY, OCTOBER 12 & 13

Evolution of Geothermal Resource Models: From Surface Exploration to Field Development and Reservoir Management

Room: TBD 8am - 5pm
Cost: $550 (Member), $600 (Non-Member), $175 Student
Led by: *Bastien Poux, Gene Suemnicht, Jeff Witter and Matthew Minnick*

With a focus on the graphical aspects, this workshop will present the methodologies employed in the industry to accurately build resource models at the different stages of the exploration and development of a geothermal field. This workshop will follow the typical development order of any geothermal project; starting from the initial conceptual models resulting from the surface exploration phase, to the integration of sub-surface data in three-dimensional models during the development phase and the use of advanced numerical models to manage the reservoir during the production phase. During this workshop, numerous case studies from around the world will be studied in detail with the participants, including some of the world's largest geothermal fields located in the United States, Indonesia and Iceland.

PART 1: Initial Conceptual Models after Reconnaissance Studies

Speakers: *Gene Suemnicht, Kerry McCallum*

- Regional scale studies
- Aerial Imagery
- Satellite data
- Hot springs locations
- Heat flow map
- Simple structural/ geological surface map

PART 2: Updated Conceptual Models After Focused Exploration

Speakers: *Jim Stimac, Jeff Witter*

- Exploration data
- Geophysics
- Geochemistry
- Geology
- TGH
- Cores

PART 3: Refined Conceptual Models And Initial State Reservoir Models After Exploration Drilling

Speakers: *Jim Stimac, Bastien Poux, Jeff Witter*

- Deep well data (slim hole / full-size)
- Thin section/ XRD/ other lab analysis (permeability/ porosity/density/clays etc...)
- Well logging data (temperature/pressure/fluid entries/ geophysics/ ABI ...)
- Possible simple flow test

PART 4: Numerical Reservoir Models During The Field Development

Speakers: *John Murphy, Jeremy O'Brien*

- More deep well data, incl. well logging
- TFT results
- Short/long term flow tests
- Interference tests

PART 5: Comprehensive Resource And Reservoir Models For Field Capacity Increase

Speakers: *Jeff Witter, Bastien Poux*

- Data from high number of deep wells
- Historical production/injection data
- Additional surface and sub-surface studies over the years
- Seismicity data

Bring your computer as the workshop participants will develop and present computer models.

Costs for both of the above workshops include lunch on Friday and Saturday and a workshop reception on Friday from 5:00pm-6:30pm.

WEDNESDAY, OCTOBER 17

Geothermal 101 - Open to the Public

Room:* TBD *9:00-11:00am
Cost: Free to the general public and GRC Annual Meeting & Expo registrants

Presented by: Gene Suemnicht, EGS, Inc.

- 9:00 -10:00am - Visit the Expo to understand the practical applications of geothermal energy.

- 10:00 -11:00am - Workshop in room TBD, explaining the basics of clean, dependable, renewable geothermal energy.

Nevada legislators, energy regulators and their staff, educators, students and the general public are invited to a special workshop explaining the many benefits of geothermal energy.

Geothermal energy has been described as the most reliable renewable and a sustainable green energy. What does it take to discover and develop a high enthalpy resource? How does it fit into the mix of renewable electricity generation for the future?

FRIDAY, OCTOBER 12 - SUNDAY, OCTOBER 14

Long Valley Caldera Field Trip

Depart noon on Friday, returning to the Peppermill by 5:30pm on Sunday
Cost: $625
Led by: *Gene Suemnicht and Duncan Foley.*

Join us for a field trip to one of the best-studied Quaternary calderas in the world. The tour route follows the Walker Lane on the eastern side of the Sierra Nevada passing the Steamboat Springs geothermal field and thermal areas at Bridgeport and Fales Hot Springs.

The field trip will highlight the volcanic history of Long Valley caldera and the evolution of the geothermal system including spectacular overviews of the caldera and the eastern Sierra crest.

Tour stops will include the geothermal power plants at Casa Diablo, surface manifestations at Hot Creek, the ultradeep DOE magma drilling site within the caldera's resurgent dome and a hike to the Inyo Craters.

The return trip to Reno will stop at the Mono Craters, Mono Lake and the epithermal mineral system at the historic ghost town of Bodie.

A field trip guide will cover technical information about the Long Valley region and participants are invited to join the discussion of the exploration history of Long Valley during the GRC Conceptual Modeling workshop on Friday morning.

Field trip guides Gene Suemnicht of EGS Inc. and Duncan Foley of Pacific Lutheran University will provide interpretive commentary during the trip.

Included in the cost of the fieldtrip is transportion, continental breakfast and lunch on Saturday and Sunday, two nights lodging (double occupancy required) at the Mammoth Mountain Inn and all the eastern Sierra beauty you can stand!

SCHEDULE SUBJECT TO CHANGE.

SUNDAY, OCTOBER 14

Steamboat Springs Geothermal Field

9am-12noon Cost: $60
Led by: *Matthew Sophy*

Ormat's Steamboat Geothermal Power Plant Complex, located just south of the city of Reno, currently produces enough renewable energy to meet the residential electrical needs of the city of Reno.

Located in Washoe County, Nevada, Steamboat consists of six power plants with a combined generating capacity of 73 MW; Steamboat 2/3, Burdette (Galena 1), Steamboat Hills, Galena 2, and Galena 3 . Except for Steamboat Hills, which utilizes a single flash system, all of the projects in the Steamboat complex utilize a binary system.

The electricity generated by the complex is sold to NV Energy and Southern California Public Power Authority under separate long-term power purchase agreements.

The tour will highlight the unique geology associated with the Steamboat surface manifestations and reservoir as well the Steamboat geothermal power plant complex. This will include the state-of-the-art Galena III recuperated integrated two-level unit and Steamboat Hills single flash unit. Knowledgeable field trip guides will provide expert commentary during the trip.

Cost includes transportation only. Make sure you have breakfast before you leave!

MONDAY – WEDNESDAY, OCTOBER 15-17

Geothermal Direct Use Tours of the Peppermill Resort

Compliments of the Peppermill Resort & GRC
Geothermal Direct Use Tour
Monday-Wednesday
Oct. 15-17, 2018

Located at the north end of the Moana Hot Springs thermal anomaly, the Peppermill's pools, hot tubs, domestic water for showers and mechanical systems, generate all of their heating energy from their geothermal operation 24 hours a day seven days a week. In addition to pumping the naturally heated water from the ground, the resort has also installed a reinjection well that returns the geothermal fluids back underground, to be reheated by the volcanic energy after it has heated the property. The tour will highlight the geothermal wells and engineering facilities. Our knowledgeable guides will provide an interpretive commentary during the trip, and you won't even need to leave the hotel. Sign-ups for the tour will be available at the GRC registration desk.

GRC**Fieldtrips**

Schedule:
Monday: 12:30pm-1pm, 3:10pm-3:40pm
Tuesday: 9:40am-10:10am, 12:30pm-1pm, 3:10pm-3:40pm
Wednesday: 9:40am-10:10am, 12:30pm-1pm

Tours will depart and return to the Tuscany Ballroom foyer. (Limited to 30 participants per tour)

The tour will highlight the geothermal wells and engineering facilities. Knowledgeable field trip guides will provide interpretive commentary during the trip, and you won't even need to leave the hotel.

The direct use tours will depart from and return to the Tuscany Ballroom registration area. (Limited to 30 participants per tour)

No advanced registration required, however a sign-up sheet will be available at the GRC registration desk.

THURSDAY, OCTOBER 18

San Emidio Geothermal Power Plant and the Fly Ranch Geyser - Power, Potential and Pictures

A one-day trip to San Emidio geothermal power plant and the Fly Ranch geyser, with dedicated opportunities for photography

Depart from the Peppermill at 8am and return about 7pm.
Cost: $475

Led by: ***Roy Mink, Duncan Foley, Ian Warren and a guide from Friends of Black Rock, as we explore geothermal systems near the Black Rock Desert in western Nevada.***

Our tip will start with a drive from Reno to the San Emidio geothermal power plant. We will drive past Pyramid Lake, with a stop to look over the lake. We then will tour the San Emidio geothermal power plant, from production wells, through power production to injection wells. After an introduction to site geology and a plant tour, we will take a few minutes to discuss photographic opportunities at the site, and then allow time for people to photograph at various spots.

After we finish at San Emidio, we will drive to Gerlach, where a representative from Friends of Black Rock will introduce us to the unique challenges faced at the playa and its surrounding areas, as every year nearly 70,000 people gather around the end of summer for the week-long celebration of art and community known as Burning Man.

Fly Ranch, site of the often-pictured Fly Ranch Geyser, is now owned by the Burning Man organization. In addition to geothermal wells, the ranch site has several geothermal ponds. As of this writing, the Burning Man organization is still trying to figure out what power-producing and direct use options exist for geothermal development. Our guide will lead us around the site, lead our discussion of geothermal development options, and give us time to photograph the geyser and surrounding features.

Cost includes transportation, continental breakfast, lunch and snacks. The weather could range from warm and sunny to cold and wet, so come prepared. We will not be walking on rugged trails, so hiking boots are not required.

Searching for Blind Geothermal Systems utilizing Play Fairway Analysis, Western Nevada

Depart from the Peppermill at 7 am and return about 7-8 pm.
Cost: $475
Led by: ***Jim Faulds, Jason Craig, and Nick Hinz (University of Nevada, Reno)***

This trip will visit southern Gabbs Valley in western Nevada, where a blind geothermal system was recently discovered through application of the play fairway analysis. The geothermal play fairway concept involves integration of multiple parameters indicative of geothermal activity as a means of identifying promising areas for new development.

On this trip, we will review the play fairway methodology applied to Nevada, discuss a new geothermal potential map for the region, and assess the geologic, geophysical, and geochemical evidence for a blind geothermal system in southern Gabbs Valley, including positive results from recently completed temperature-gradient drilling.

Visit the GRC Annual Meeting Web Page for Fieldtrip Schedules: www.geothermal.org/meet-new.html

Please note: Fieldtrip itineraries are subject to change. Full schedules are available on the GRC Website.

All GRC off-site Field Trips depart from the Tuscony Foyer in the Peppermill Resort Spa & Casino. Check-in is required 30 minutes before departure.

Please arrive early to check-in and get continental breakfast (when applicable).

SCHEDULE SUBJECT TO CHANGE.

GRC Annual Meeting Schedule

SUNDAY, OCTOBER 14

GRC Annual Charity Golf Tournament

9:30am - 4pm
Sunridge Golf Club
Cost: $150 per individual or $500 per foursome.

Prepare yourself for an unparalleled golfing experience. The Sunridge Golf course is a pleasure for golfers of any skill level to play. The course will challenge you while providing a relaxing, picturesque backdrop of the Sierra Nevada.

Only 100 spots are available so sign-up early!

- 8:30 am - Registration and Breakfast
- 9:30 am - Shotgun Start
- 2:30 pm - Lunch and Awards presentations
- 4:00 pm - Return to the Peppermill

The tournament is a four-man scramble. Awards will be given for 1st, 2nd and 3rd place teams. Men's and Women's closest to hole, longest drive and hole-in-one.

Tournament Fee Includes: Green Fee, Shared Cart, Range Balls, Tournament Service, Continental Breakfast and Awards Lunch.

Sunridge Golf course has 8 sets of rental clubs, which are both men's and women's right hand & left hand. If you do not plan on bringing your own clubs, contact the GRC or Andy Tiedeman as soon as possible to reserve them while supplies last. Rental Clubs will cost $20 per set. Please notify the GRC at the time of registration if you will need a set of rental clubs.

Awards Luncheon Raffle
Each player will receive two (2) Raffle Tickets for participating in the Tournament. Additional Raffle Tickets will be sold for $10 each. There is no limit on Raffle Ticket purchases!

We encourage teams to bring a raffle prize! All proceeds will go to support the GRC Scholarship Fund.

Proceeds from the 2017 GRC Annual Charity Golf Tournament helped fund the following scholarships:

- GRC Undergraduate Awards ($1500 each): **Travis Broadhurst** (University of North Carolina—Chapel Hill) and **John Grill** (Montana Tech of the University of Montana)
- GRC Graduate Awards ($2500 each): **Jon Golla** (University of New Mexico), **Steven Sewell** (Victoria University) and **Daniel "Burke" Brunson** (University of North Dakota)
- GRC Project Award ($4500): **Emma McConnville** (University of Nevada – Reno)

Transportation (only if sponsored!): The Sunridge Golf course is 29 miles from the hotel. A shuttle will be provided for transportation to the golf course. The shuttle will pick golfers up at the front of the Peppermill Hotel at 7:45am. If you're driving yourself, plan on arriving at least 45 minutes early to check in, grab some breakfast and head out for some practice swings before the 9:30am SHOTGUN START!

Questions? Contact the GRC's Golf Tournament Coordinator: Andy Tiedeman, E-mail: andrew.tiedeman@navy.mil

Opening Reception

6 - 8pm
Room: Tuscany Ballroom
Cost: Free with full conference registration

On Sunday evening, all registered meeting attendees are encouraged to join colleagues, friends and old acquaintances at this grand reception hosted in the Expo Hall.

Sponsored by Power Engineers

MONDAY, OCTOBER 15

Opening Session

8:30am - 12 Noon
Room: Capri Ballroom
Cost: Free with Registration

The opening plenary session will serve discussion of the industry's major topics by federal, state, and local governments, key players in the energy market, and the geothermal industry.

International Luncheon

12 Noon - 1:30pm
Room: TBA
Cost: Free with full conference registration

The 10th annual International Luncheon will bring together experts from around the world with U.S. private and public sector stakeholders to discuss geothermal energy developments in developing markets. Attendees will be able to meet and greet these experts, and explore partnership opportunities.

- *International Geothermal Development: New Financing Opportunity in Mexico* **Christiaan Gischler Blanco** – Inter American Development Bank.

- *DOE Vision study and an overview of the future for geothermal within the Department of Energy,* **Jeff Winick** – National Renewable Energy Laboratory (NREL).

SCHEDULE SUBJECT TO CHANGE.

Sponsored by Power Engineers

International Session

Updates on International Geothermal Development

1:30pm - 5:00pm
Room: TBA
Cost: Free with Registration

Experts from around the world present the latest geothermal energy developments in regional markets: Australasia, Indonesia, Philippines, Japan, Middle East, Europe, South America, Central America, and North America.

Featured Speakers: (as of August 1):

- *Austral/Asia Region –Innovation Down-under,* **Andrea Blair** - GNS
- *Africa: An Update on the Region*, **Meseret Teklemariam Zemedkun** – United Nations Environmental Program (UNEP), Manager (ARGeo)
- *Japan – Renewed Emphasis,* **Kasumi Yasukawa**, Research Manager, Advanced Industrial Science and Technology (AIST)
- *Iceland: Update on Domestic and International Development,* **Olufar Flovenx** – Director of ISOR
- Canada- Renewable Developments, **Catherine Hickson**, Tuya Terra Geo Corp
- *Middle East Region – Expanding generation (1 GW of installed capacity),* **Tevfik Kaya**, GeothermEx/ Schlumberger
- *Central America Region – Added Generation and Future Plans,* **Salvador Espindola** – Grupo ENAL
- *South America Region – Investing in Opportunity,* **Gonzalo Torres** – EDC Chile
- *Update on Indonesia Geothermal Activities,* **Abadi Poernomo** - Indonesian Geothermal Association
- *African and Latin American Geothermal Risk Mitigation Facilities: Comparison and Update,* **Warren T. Dewhurst** – Geothermal Development Facility for Latin America, Fund Manager

MONDAY, TUESDAY & WEDNESDAY, OCTOBER 15, 16 & 17

Technical Sessions

Monday 1:30 - 5:00pm
Tuesday 8am - 4:00pm
Wednesday 8am - 5:00pm

Rooms: TBD
Cost: Free with Registration

The Preliminary Technical Session schedule will be posted online upon completion. For more information on the topics, schedule and associated speakers go to the GRC Website at www.geothermal.org.

Expo

Monday 12 Noon - 5pm
Tuesday 9am - 6pm
Wednesday 9am - 1:30pm

Room: Tuscany Ballroom
Cost: Free with Registration

One of the worlds' largest gathering of vendors providing support for geothermal resource exploration, characterization, development, production and management. See page 19 for a listing of exhibitors.

SCHEDULE SUBJECT TO CHANGE.

GRCAnnual Meeting Schedule

MONDAY, OCTOBER 15

GRC Mixer - Game Night!

Presented by the GRC Student Committee

6:00pm - 9:00pm
Room: The Edge Night Club
Cost: $75-Attendee; $140 Trivia Contest Individual Registration (Free for Students); $700- Trivia Team Contest Registration

Networking opportunities galore, this event promises to be one of a kind – mingle with conference attendees and industry leaders in a superb setting.

Cost:

- $700 for a team of up to five (5) or
- $140 for an individual (will be placed in a team of 5), and
- $75 to mingle with other attendees and watch the competition.
- Students are free with a GRC Annual Meeting registration

What: Join us for a great evening at the Peppermill Edge Night Club. The Trivia contest is hosted by the GRC Student Committee and all proceeds from this events will go to fund upcoming Student Committee events and activities. Join in on the fun and a chance for prizes and most importantly, bragging rights! This event promises to be one of a kind with plenty of networking opportunities! Price includes beverages and appetizers.

Who: You and up to 5 colleagues against teams (plus a student paired by the GRC) from all over the world representing every sector of the industry.

Why: Enjoy friendly academic competition while contributing to the development of geothermal students across the globe! All proceeds will go to the GRC Student Committee to fund future student events and activities.

How: Sign-up at my.geothermal.org with a GRC Annual Meeting & Expo registration. Cost is $700 for a team of up to five (5) or $140 for an individual (will be placed in a team of 5), and $75 to watch and mingle in the competition. Students are free with a GRC Annual Meeting registration.

Prizes:

1. **1st place team:** 10x10 booth for the 2019 GRC Annual Meeting, picture in the GRC Bulletin & bragging rights!
2. **2nd place team:** 2019 GRC Individual membership for each person
3. **3rd place team:** Gift card to each person

TUESDAY, OCTOBER 3

Poster Session and Networking Reception

4pm - 6pm
Room: Tuscany Ballroom
Cost: Free with Registration

Meet with colleagues in the global geothermal community and view this year's selection of Posters. **Please note:** The posters are also available for viewing at all times during Expo opening hours.

WEDNESDAY, OCTOBER 4

Annual Membership Meeting

Time: TBD
Room: TBD
Cost: Free with registration

The GRC will honor the best and brightest of the global geothermal community at its Annual Membership Meeting.

OTHER EVENTS

WING Events

MONDAY, OCTOBER 15

Yoga

6:00 - 7:00am
Room: Peppermill Fitness Center
Cost: Free

Come join in on a yoga session to relax prior to all the GRC events! Any level of experience are welcome to attend. If possible, please bring your own yoga mat and we recommend you also bring water.

TUESDAY, OCTOBER 16

WING Fun Run

6:00 - 7:00am
Meet outside the Tuscany Foyer at the Peppermill
Cost: Free

Get out and explore Reno on foot with an early morning fun run! WING will provide the guide and a route, you just need to bring yourself ready to run!

WING Imposter Syndrome Workshop

12 Noon - 1pm
Room: TBA
Cost: Free

Join us Tuesday, after you pick up your lunch, for an Imposter Syndrome Workshop! Curious of what Imposter Syndrome is? Stop by the WING booth at the Expo to find out!

WING Scarf/Tie Exchange

4pm - 6pm
Room: Tuscany Ballroom
Cost: Free with Registration

Bring a scarf and/or tie to the WING booth within the Expo for a fun/quick networking event!

Women in Geothermal (WING) aims to promote the education, professional development and advancement of women in the geothermal industry. All are welcome. We need our WING men!

SCHEDULE SUBJECT TO CHANGE.

REGISTER NOW FOR THE FIRST ANNUAL GRC

TRIVIA NIGHT & MIXER!

PRESENTED BY THE GRC STUDENT COMMITTEE

Challenge Your Colleagues In A Game Of Knowledge!

How Much Do You Know About Geothermal Energy?

PRIZES:

1. 10x10 booth for the 2019 GRC Annual Meeting, picture in the GRC *Bulletin* & bragging rights!
2. 2019 GRC Individual membership for each person.
3. Gift card to each person.

WHO: You and up to 5 colleagues against teams (plus a student paired by the GRC) from all over the world representing every sector of the industry.

WHAT: An exhilaration game of team trivia, complete with prizes for the top finishing teams.

WHEN: Monday, October 15th 2018 @ 6pm - 9pm

WHERE: The Edge Night Club at the Peppermill Resort Spa Casino, Reno NV, USA

WHY: Enjoy friendly academic competition while contributing to the development of geothermal students across the glove! All proceeds will go to the GRC Student Committee to fund future student events and activities.

HOW: Sign-up at my. geothermal.org with a GRC Annual Meeting & Expo registration. Cost is $700 for a team of up to five (5) or $140 for an individual (will be placed in a team of 5), and $75 to mingle and watch the competition. Students are free with a GRC Annual Meeting registration. Registration includes entry into mixer, appetizers and drinks.

40th Annual GRC Amateur Photography Contest

Do you work somewhere beautiful? Is your site too amazing to keep to yourself? Do you have an eye for steam? The GRC is looking for your pictures of geothermal energy: areas of geological interest, well testing, drilling, geothermal equipment, power plants, EGS, direct use, and geothermal heat pumps.

1st Place - $150 prize; 2nd Place - $100 prize; 3rd Place - $75 prize; Honorable Mention - Certificate

The purpose of the contest is to showcase quality photography featuring geothermal energy around the world. All entries and the winning photos will be displayed in the Tuscany Ballroom registration area throughout the meeting.

Awards for the winners will be presented at the GRC Annual Meeting. **Entries must be received by the GRC office no later than August 24**, to qualify for this year's contest. More information including an Entry Form can be found at: www.geothermal.org/Annual_Meeting/photo.html

Last year's winners:

Northern lights over a well protection dome in Hellisheidi and the Nesjavellir power plant by Bastien Poux

The Geothermal Cloud
by Victor Hernan Abarca Gonzalez

Hells Kitchen 2 by Darrell Cornett

	TRACK 1	TRACK 2	TRACK 3
	INTERNATIONAL SESSION **Chair: Warren Dewhurst**	**DRILLING PANEL 1** **Moderator: Patrick Walsh**	**DEEP DIRECT USE 1** **Session Chair: Arlene Anderson**
1:30	*Austral/Asia Region - Innovation Down Under* (Andrea Blair, GNS)	Panel Speakers: • John De Wardt, De Wardt and Company • J Ford Brett, Petroskills • Fred DuPreist, Texas A&M • Tony Pink, NOV *Over the last decade, there has been a revolution in drilling time and cost performance, safety improvements, and environmental compliance. We have invited a distinguished panel of speakers to provide insight on what is happening within and outside the geothermal industry and the benefits these advances can have on geothermal drilling performance.*	*Program Overview* (Arlene Anderson)
1:50	*Africa: An Update on the Region* (Meseret Teklemariam Zemedkun, UNEP)		*Development of 3D Geological Model of Tuscarora Sandstone, West Virginia* (Raymond McCleery et al.)
2:10	*Japan - Renewed Emphasis* (Kasumi Yasukawa, AIST)		*Earth Source Heat (ESH): Deep Direct-Use (DDU) of Geothermal Energy on the Cornell Campus* (J Olaf Gustafson et al.)
2:30	*Iceland: Update on Domestic and International Development* (Olufar Flovenx, ISOR)		*Reservoir Analysis for Deep Direct-Use Feasibility Study in East Texas* (Maria Richards et al.)
2:50	*Canada - Renewable Developments* (Catherine Hickson, Tuya Terra Geo Corp)		
3:10	3:10 – 3:40 Break		
	INTERNATIONAL SESSION **Session Chair: Warren Dewhurst**	**DRILLING PANEL 2** **Moderator: Patrick Walsh**	**DEEP DIRECT USE 2** **Chair: Arlene Anderson**
3:40	*Middle East Region - Expanding Generation (1 GW of Installed Capacity)* (Tevfik Kaya, GeothermEx/ Schlumberger)	Panel Speakers: • John De Wardt, De Wardt and Company • J Ford Brett, Petroskills • Fred DuPreist, Texas A&M • Tony Pink, NOV *These special drilling sessions will cover:* • *DATA: Topics will cover recent trends in using digital data in drilling management and how data analytics has changed the way the drilling industry is operating today. We will cover the data transformation occurring today and the potential it has to disrupt the geothermal drilling industry.* • *TOOLS: Topics will cover tools of today, and what the future of drilling could be, reviewing the use of drilling technology being used such as automation and purpose-built rigs developed, the use of sensor technology can go beyond today's limits, and how the geothermal drilling industry could benefit from these advances in technology.*	*Controls on Deep Direct-Use Thermal Energy Storage (DDU-TES) in the Portland Basin, Oregon, USA* (Erick Burns et al.)
4:00	*Central America Region - Added Generation and Future Plans* (Salvador Espindola, Grupo ENAL)		*Feasibility of a Deep Direct-Use Geothermal System at the University of Illinois Urbana-Champaign* (Andrew Stumpf et al.)
4:20	*South America Region - Investing in Opportunity* (Gonzalo Torres, EDC Chile)		*Deep Direct-Use Geothermal Production Side Analysis for the Hawthorne, Nevada Area* (Andy Sabin et al.)
4:40	*Update on Indonesia Geothermal Activities* (Abadi Poernomo, Indonesian Geothermal Association)		*Deep Direct-Use Geothermal: Development of a Demand Side Model for the Hawthorne, Nevada Area* (Ray Arguello et al.)
5:00	*African and Latin American Geothermal Risk Mitigation Facilities: Comparison and Update* (Warren T. Dewhurst, Geothermal Development Facility for Latin America)		

Adjournment 5:20

"Please note all schedules are tentative and will likely change between now and the event."

	TRACK 4	TRACK 5
	NEW TECHNOLOGY 1 **Chair: Will Osborn**	**SUPERHOT GEOTHERMAL SYSTEMS 1** **Chair: Egbert Jolie**
1:30	*Improving Geothermal Economics by Utilizing Superhot and Supercritical Systems to Produce an Integrated Combination of Electricity, Hydrogen, and Minerals.* (Wilfred Elders)	*Status of Japanese Supercritical Geothermal Project as of FY2017* (Hiroshi Asanuma et al.)
1:50	*Supercritical Geothermal Cogeneration: Combining Leading-Edge, Highly-Efficient Energy and Materials Technologies in a Load-Following Renewable Power Generation Facility* (Jim Shnell)	*Toward Super Hot EGS: The Newberry Deep Drilling Project* (Alain Bonneville et al.)
2:10	*A Modular and Vacuum Based ORC for Low-Temperature Geothermal* (Ruben Havsad)	*European Research Efforts on Engineered and Superhot Geothermal Systems Under H2020* (David Bruhn et al.)
2:30	*Solar Thermal and Geothermal Hybrid Binary Power Plant with Solar Steam Topping Turbine* (Kevin Kitz et al.)	*Expanding the Resource Base for Geothermal Power Production in Iceland* (Ólafur Flóvenz)
2:50	*A New Air-Cooled Condensing System for Both Geothermal Steam and Conventional Steam Power Plants* (Kevin Kitz)	*Geothermal Comparison Study* (Kristinn Ingason et al.)
3:10	*3:10 – 3:40 Break*	
	NEW TECHNOLOGY 2 **Chair: Fred Manuel**	**SUPERHOT GEOTHERMAL SYSTEMS 2** **Chair: Egbert Jolie**
3:40	*An Overview of Growth and Electrical Submersible Pump Capabilities in Geothermal Applications* (Taylor Mattie)*	*Concepts of Soft Stimulation Treatments in Geothermal Reservoirs* (Ernst Huenges)
4:00	*High Temperature ESPs for Geothermal Production: The Ideal Pump* (Brandon Curkan et al.)	*Krafla Magma Testbed (KMT): Understanding and Using the Magma-Hydrothermal Connection* (John Eichelberger et al.)
4:20	*Ejector for Geothermal Well Lifetime Increase* (Alexander Gutsol)	*Krafla Magma Testbed (KMT): Engineering Challenges of Drilling into Magma and Extracting its Energy* (Sveinbjorn Holmgeirsson et al.)
4:40	*An Experimental Test of Deep Downhole Heat Exchanger in Tianjin, China* (Chuanshan Dai et al.)	*The Hydrology of 'Superhot' and 'Supercritical' Geothermal Resources in Magma-Driven Geothermal Systems* (Samuel Scott et al.)
5:00		*Laboratory Investigation on Cryogenic Fracturing of Hot Dry Rock Under Triaxial-Confining Stresses* (Ruiyue Yang et al.)

Adjournment 5:20

"Please note all schedules are tentative and will likely change between now and the event."

*Paper is also a poster presentation.

	TRACK 1	TRACK 2	TRACK 3
	ICELAND GEOTHERMAL **Chair: Juliet Newson**	**GEOPHYSICS** **Chair: Paul Schwering**	**FORGE RESEARCH 1** **Chair: Lauren Boyd**
8:00	*Detailed Fracture Study, and Geo-Stress Analysis Using Acoustic Borehole Images, Case Study: Well X-1, Þingeyjarsveit, Northeastern Iceland* (Tito Perdana et al.)	*Geophysical Investigations of a Blind Geothermal System in Southern Gabbs Valley, Nevada* (Tait Earney et al.)	*Update on the Stratigraphic and Structural Framework of the Proposed Fallon FORGE Site, Nevada* (Jim Faulds et al.)
8:20	*Geophysical Data Integration for Uncertainty Quantification in 3D Geologic Models of the Krafla Geothermal System* (Samuel Scott et al.)	*Satellite Observations of Surface Deformation at the Coso Geothermal Field, California* (Mariana Eneva)	*New Data Yield New Geologic Insights at the Fallon FORGE Site, Carson Sink Region, Nevada* (Drew Siler et al.)
8:40	*Theistareykir Geothermal Power Plant, a Sustainable Construction* (Valur Knútsson et al.)	*Injection-induced Microearthquakes for Reservoir Characterization in Darajat Geothermal Field, Indonesia* (Chris Nelson et al.)	*2D and 3D Potential Field Mapping and Modelling at the Fallon FORGE site, Nevada, USA* (Jeff Witter et al.)
9:00	*Theistareykir Geothermal Power Plant, Challenges in a Weak Electrical Grid* (Freyr Harðarson et al.)	*Imaging Fracture Zones at Eleven-Mile Canyon Using Anisotropic Least-Squares Reverse-Time Migration* (Yunsong Huang et al.)	*Conceptual Reservoir Design at Fallon FORGE using Geomechanical Models with Natural and Induced Fractures* (William Pettitt et al.)
9:20	*GEORG, Geothermal Research Cluster Joint Effort In Geothermal Energy Research* (Hjalti Ingolfsson et al.)	*Passive Seismic Emission Tomography Applied to Mapping of Permeability In Geothermal Systems* (Ian Warren et al.)	*Continuum Thermal-Hydrological-Mechanical Modeling of the Fallon FORGE Site* (Eric Sonnenthal et al.)
9:40	*9:40 – 10:10 Break*		
	GEOTHERMAL ENERGY IN CANADA **Chair: CanGEA**	**REGULATORY AND POLICY** **Chair: Aaron Levine**	**FORGE RESEARCH 2** **Chair: Lauren Boyd**
10:10	*Unearthing Potential: Economic Opportunities for Geothermal Energy Production and the Canadian Policy Gap* (Kayla Wilson-Layton et al.)	*Environmental Concerns and Mitigation Associated with Geothermal Resource Confirmation Drilling Activities* (Aaron Levine et al.)	*The Utah Frontier Observatory for Geothermal Research (FORGE): Results of Recent Drilling and Geoscientific Surveys* (Joe Moore et al.)
10:30	*Direct Use Geothermal Projects State of the Nation in Canada 2018* (Andrea Zaradic)	*How American Federal Energy Subsidies Hinder Development of Geothermal and Other Renewable Energy: Lessons for Other Countries and Their Policies on Climate Change* (Michael Grainey)	*Lithology and Mineralogy of the Utah FORGE EGS Reservoir: Beaver County, Utah* (Clay Jones)
10:50	*An Overview of Borealis GeoPower Projects and Community Engagement* (Katherine Huang et al.)	*Geothermal Selection in California Resource Planning: Preliminary Results from the CPUC's IRP Tools and Recommendations for Future Eevelopment and Analysis* (Paul Thomsen)	*Geophysical Surveys of the Milford, Utah, FORGE site: Gravity and TEM* (Christian Hardwick)
11:10	*Geothermal Studies in Yukon – Collaborative Efforts to Understand Ground Temperature in the Canadian North* (Tiffani Fraser et al.)	*Legal and Regulatory Issues in Mineral Extraction from Geothermal Fluids in the Western U.S.* (Kathleen Callison)	*Seismic Reflection Profiling at the FORGE Utah EGS Laboratory* (Rick Allis et al.)
11:30		*Risk assessment for chemical stimulation of EGS reservoirs: application to EGS geothermal projects in the Upper Rhine Graben* (Abigaëlle Peterschmitt et al.)	

11:50-1:30 Lunch

"Please note all schedules are tentative and will likely change between now and the event."

	TRACK 4	TRACK 5
	NEW TECHNOLOGY 3 Chair: Roland Weyman	**GEOCHEMISTRY Chair: Travis McLing**
8:00	*Advanced Long-Term Flow Monitoring Solution for High Temperature Geothermal Wells* (Matt Francis et al.)*	*A Disruptive Approach to Preventing Silica Deposition and New Business Opportunities* (James Johnston et al.)
8:20	*Fiber Optical Sensors for Geothermal Purposes* (Juan Carlos Cerda Chacon et al.)	*Applications of Geothermal Calcium Silicates for Environmental Remediation* (Mathew Cairns et al.)
8:40	*Breakthrough in Permanent Cooling of Instrumentation Electronics – Results of Systematic Experimental & Analytical Refrigerant Selection, Dynamic Seals Evaluation and Robust Engine Design* (Benedict Holbein)	*Addressing Clogging Risks When Injecting Geothermal Water in Sandstone Aquifers: Lessons Learnt in Australia* (Martin Pujol et al.)
9:00	*H2S Scrubbing From Noncondensable Gas In After Condensers* (Kenneth McIntush et al.)	*The Effect of Spent Geothermal Liquid on Ground Water Quality at the Menengai Geothermal Field, Kenya* (Fridah Nkatha et al.)
9:20	*Cost Effective Technology to Helps Geothermal Power Plant Reduce Hydrogen Sulfide Emissions by 98+%.* (Jasbir Gill et al.)	*Using Principal Component Analysis to Aid in Visualization and Interpretation of Geothermal Solute Chemistry: An Application to Yellowstone Thermal Waters* (Jon Golla)
9:40	*9:40 – 10:10 Break*	
	NEW TECHNOLOGY 4 Chair: Will Osborn	**RESERVOIR ENGINEERING, FIELD OPERATIONS AND MANAGEMENT Chair:**
10:10	*New Techniques for Acid Brine Corrosion Control in Geothermal Wells* (Paul von Hirtz)	*Application and Value of Geothermal Well Reliability Data* (Todd Zahacy)
10:30	*Managing Silica Deposits in Geothermal-Pros and Cons of pH Mod versus Silica Inhibitor* (Jasbir Gill et al.)	*Detecting Changes in Production of Fluctuating Wells through High Frequency Surface Pressure Monitoring* (John Joeffrey Somera)
10:50	*Removing Silica from Geothermal Water - Year One of Pilot Plant Operation with a Focus on Carbonate and Silica Analysis* (Thomas Borrmann et al.)	*Experience Learnt from a Successful Soft Stimulation and Operational Feedback after 2 Years of Geothermal Heat and Power Production in Rittershoffen and Soultz-Sous-Forêts Plants (Alsace, France)* (Clément Baujard et al.)
11:10	*Lamella Separators for Recovering Nano-Structured Calcium Silicate Hydrate from Geothermal Brine* (Michael Schweig et al.)	*Measuring Formation Strain to Determine Hydraulic Connectivity Using Fiber Optic Distributed Acoustic Sensing* (Nicky Oliver et al.)
11:30	*Thermodynamic Analysis of Superheated Geothermal Steam Scrubbing Using Aqueous Potassium Carbonate Solution* (Vijay Chauhan)	*Carbon Dioxide Injection Field Pilot in Umurlu Geothermal Field, Turkey* (Ismet Yucetas et al.)

11:50-1:30 Lunch

	TRACK 1	TRACK 2	TRACK 3
	ENVIRONMENTAL & COMMUNITY ENGAGEMENT Chair:	**SESSION: DRILLING 3 Chair: Kate Young**	**FORGE RESEARCH 3 Chair: Lauren Boyd**
1:30	*Environmental Impacts of Offshore Geothermal Energy* (Lakshman Ravi Teja Pedamallu et al.)	*Baseline Metric for Domestic Geothermal Drilling Rates* (Zachary Frone et al.)	*Thermal Characteristics of the FORGE Site, Milford, Utah* (Rick Allis et al.)
1:50	*Sharing Best Practices in Community Engagement for Geothermal Development – Kenya/New Zealand Partnership* (Jennifer Oduor et al.)*	*Development of a Downhole Piston Motor Power Section for Geothermal Directional Drilling* (David Raymond)	*Rock Properties of FORGE Well 58-32, Milford, Utah* (Mark Gwynn et al.)
2:10	*Saint Lucia Geothermal Exploration Environmental and Social Impact Assessment: Drilling Target Area Concept* (Susanne Heim et al.)	*Heat Transfer Study of Liquid Nitrogen Jet Impinging on Granite Rocks* (Ran Li et al.	*DFIT and Fracture Modeling of the Utah FORGE Site* (Siavash Nadimi et al.)
2:30	*Stakeholder Engagement Strategies for Nomads and Projects Affecting Multiple Communities* (Susanne Heim)	*Numerical Simulation and Experimental Research on Application of Percussion Drilling Technology in Geothermal Wells* (Hengyu Song et al.)	*Earth Modeling of the Utah FORGE Site* (Rob Podgorney et al.)
2:50	*Study of Geothermal Energy Resources of Yemen for Electric Power Generation* (Abdulrahman Al-Fakih et al.)	*Germany`s Deepest Hydro-Geothermal Doublet, Drilling Challenges and Conclusions for the Design of Future Wells* (Daniel Lackner et al.)	*FORGE Panel Discussion*
3:10	*Update on The Use of Geothermal Energy in Zimbabwe* (Elia Chipfupi et al.)	*Drilling and Well Completion Challenges in the Los Humeros Geothermal Field, Mexico* (Michal Kruszewski et al.)	*FORGE Panel Discussion*
3:30		*Calcium- Silicate-Cement Based Blends with Natural Zeolites - Self-Healing Performance under Conditions of High-Temperature Geothermal Wells* (Tatiana Pyatina et al.)	*FORGE Panel Discussion*

Adjournment 3:50

Poster Session 4:00 - 6:00

"Please note all schedules are tentative and will likely change between now and the event."

**Paper is also a poster presentation.*

	TRACK 4	TRACK 5
	DISTRIBUTED GEOTHERMAL & WHERE CAN IT BE IMPLEMENTED Chair: Hezy Ram	**EXPLORATION AND RESOURCE ASSESSMENT 1 Chair: Mary Mann**
1:30	*Distributed Geothermal Generation: An Emerging Opportunity for Growth* (Hezy Ram et al.)	*Technical Requirements for Geothermal Resource Confirmation* (Koenraad Beckers et al.)
1:50	*A Modular Solution for Distributed Geothermal Power In Iceland* (Ruben Havsad)	*LiDAR Analysis over the Coso Volcanic Field, CA* (Kelly Blake)
2:10	*Organic Rankine Cycle Technology as a Viable Solution for Distributed Geothermal Power Generation on Small Islands and Remote Areas: The Pico Alto Case Study* (Claudio Spadacini et al.)*	*The Relationship Between Geothermal Fluid Flow and Geologic Context: A Global Review* (Irene Wallis et al.)*
2:30	*Staged Development – Commercial Advantages of Implementing a Wellhead Generation Strategy* (Alexander Richter)	*A Baseline Thermal Infrared Survey of Ground Heating Around the Casa Diablo Geothermal Plant, Mammoth Lakes, CA* (R. Greg Vaughan et al.)
2:50	*The Binary Revolution, how the ORC Technology can Successfully and Cost Effectively be Applied to Resources that have been Traditionally Considered Prerogatives of Steam Cycles* (Clotilde Rossi et al.)	*Mapping Sinter and Travertine Outcrops in the State of Nevada* (Lianza Yap et al.)
3:10	*Field Hopping: Modular Turbine Experience from Central America (William Harvey et al.)**	*Geothermal Activities Near Surprise Hot Springs, California* (Chester Robertson et al.)
3:30		*3D Geophysical Characterization of the Bouillante Geothermal Resource* (Lara Owens et al.)

Adjournment 3:50

Poster Session 4:00 - 6:00

"Please note all schedules are tentative and will likely change between now and the event."

**Paper is also a poster presentation.*

EXPO HALL 4-6PM
Chair: Roland Horne

DISTRIBUTED GEOTHERMAL & WHERE CAN IT BE IMPLEMENTED

Development of a Low Temperature, Low Flow Hot Spring for Technology Demonstration in Eastern Surprise Valley, Cedarville, CA (Lisa Safford Kuscu et al.)

Field Hopping: Modular Turbine Experience from Central America (William Harvey et al.)*

Organic Rankine Cycle Technology as a Viable Solution for Distributed Geothermal Power Generation on Small Islands and Remote Areas: The Pico Alto Case Study (Claudio Spadacini et al.)*

EARTH MODELING OF GEOTHERMAL SYSTEMS

Comparing GPS-Constrained Forward and Inverse Models of Volume Change at The Geysers, CA (Rachel Terry et al.)*

EGS

Experimental Study of Thermal-Crack Characteristics on Hot Dry Rock Impacted by Liquid Nitrogen Jet (Shikun Zhang et al.)

EGS COLLAB

Geologic Model of the EGS Collab Testbed at the Sanford Underground Research Facility in Lead, South Dakota (Ghanashyam Neupane et al.)*

ENVIRONMENTAL AND COMMUNITY ENGAGEMENT

Investigation on Social Acceptance of the Geothermal Energy Utilization in China (Hejuan Liu et al.)

Sharing Best Practices in Community Engagement for Geothermal Development – Kenya/New Zealand Partnership (Jennifer Oduor et al.)*

EXPLORATION AND RESOURCE ASSESSMENT

A Summary of Tracer and Thermal Tests Conducted at the Altona Field Laboratory (Adam Hawkins et al.)*

The Relationship Between Geothermal Fluid Flow and Geologic Context: A Global Review (Irene Wallis et al.)*

Update of Heat Flow Data in the Geothermal Areas of Tuscany, Italy (Stefano Bellani et al.)

FORGE RESEARCH

Geologic Setting of the Utah FORGE Site Based on New and Revised Geologic Mapping (Stefan Kirby et al.)

GEOCHEMISTRY

Comparison of a Portable Field Spectrometer and Automated Imaging on Geothermal Drill Core: A Pilot Study (Kurt Kraal et al.)

GEOTHERMAL PRODUCTION FROM OIL & GAS FIELDS

A Design of Downhole Thermoelectric Generation for Horizontal Oil Wells (Kai Wang et al.)*

Design of New Oil and Gas Wells Fit for Geothermal Applications (Hussain Al Ramis et al.)*

Investigation on Well Integrity During Geothermal Production from High Temperature Oil Wells (Fei Yin et al.)

NEW TECHNOLOGY

Advanced Long-Term Flow Monitoring Solution for High Temperature Geothermal Wells (Matt Francis et al.)*

An Overview of Growth and Electrical Submersible Pump Capabilities in Geothermal Applications (Taylor Mattie)*

Earth to Air Heat Exchanger Temperature Potential for a Colombian Climate. (Sergio Pennaloza et al.)

POWER GENERATION

Potential Benefits and Opportunities for Load Following Geothermal Power Plants in California (Kevin Hernandez et al.)

RESERVOIR ENGINEERING, FIELD OPERATIONS AND MANAGEMENT

Improvement of Condensing Equipment in ORC Geothermal Power Generation System (Dawei Guo)

SPANISH LANGUAGE POSTERS

Aplicación de Técnicas de Procesamiento Digital de Imágenes de Satélites de Observación Terrestre en la Estimación de Modelos de Temperatura Superficial Como Apoyo a la Exploración Geotérmica en Colombia (J. Camilo Matiz-León et al.)

Aplicativo Para Consulta Pública de la Información de Manantiales Termales de Colombia (Claudia Alfaro et al.)

Creación de Aplicativo Para la Reducción de Datos de Gravimetría y Magnetometría Terrestre (Jhon Galindo)

Estándar Cartográfico Para Información Geotérmica del Servicio Geológico Colombiano - SGC (J. Camilo Matiz-León)

Exploración Geotérmica en los Andes Colombianos. Caso de Estudio: Área Geotérmica de San Diego, Colombia. (Jesús Rueda et al.)

Modelo Conceptual del Sistema Geotérmico de Paipa, Boyacá (Colombia) (Claudia Alfaro et al)

SUPERHOT GEOTHERMAL SYSTEMS

Laboratory Measurements on Electric and Elastic Properties of Fractured Geothermal Reservoir Rocks under Simulated EGS Conditions (Kazuki Sawayama et al.)

Numerical Simulation of Effects of Multilateral Wells on Thermal Characteristics of a Fractured EGS Based on a Thermal-hydraulic-mechanical Coupling Model (Yu Shi et al.)

	TRACK 1	TRACK 2	TRACK 3
	BEST PRACTICE MANAGEMENT OF GEOTHERMAL RESOURCES **Chair: Paul Siratovich**	**GEOTHERMAL PRODUCTION FROM OIL & GAS FIELDS** **Chair: Kai Wang**	**EGS COLLAB 1** **Chair: Tim Kneafsey/Doug Blankenship**
8:00	*First Time in Indonesia, CTU Clean Out Totally Plugged Scale : Risks, Mitigations, and Lessons Learned* (Redha Putra et al.)	*Hydra-Jet Methods Enhancing Geothermal Production from Abandoned Oil/Gas Wells* (Zhongwei Huang et al.)	*EGS Collab Project Experiment 1 Overview and Progress* (Tim Kneafsey et al.)
8:20	*Four Decades of Service – Kizildere Reservoir, Units and Management* (Matt Fishman et al.)	*Design of New Oil and Gas Wells Fit for Geothermal Applications* (Hussain Al Ramis et al.)*	*The EGS Collab Hydroshear Experiment at the Sanford Underground Research Facility – Siting Criteria and Evaluation of Candidate Sites* (Pat Dobson et al.)
8:40	*GW MAKER: A Graphical User Interface for Geothermal Wellbore Simulation* (John Murphy)	*CO2 Plume Geothermal (CPG) – Innovative, Dispatchable Geothermal Power Production Using Non-Water Working Fluids* (Jimmy Randolph)	*The EGS Collab Hydrofracture Experiment at the Sanford Underground Research Facility - Campaign Cross-Borehole Seismic Characterization* (Paul Schwering et al.)
9:00	*Examining The Tradeoff Between Sustainability And Profitiability For EGS* (Thomas Lowry et al.)	*Radiowave Method for Monitoring Steam Injection for Enhanced Oil Recovery (EOR) and for Finding Sources of Geothermal Heat* (Gordon Stove et al.)	*Collab Fracture Characterization: Preliminary Results from the Modeling and Flow Testing of Experiment 1* (Earl Mattson)
9:20		*A Design of Downhole Thermoelectric Generation for Horizontal Oil Wells* (Kai Wang et al.)*	*Geologic Model of the EGS Collab Testbed at the Sanford Underground Research Facility in Lead, South Dakota* (Ghanashyam Neupane et al.)*
9:40	*9:40 – 10:10 Break*		
	MODELING & SIMULATION **Chair:**	**GEOLOGY & GEOPHYSICS** **Chair:**	**EGS COLLAB 2** **Chair: Tim Kneafsey/Doug Blankenship**
10:10	*The Impact of Fracture Roughness on the Thermal Performance of Enhanced Geothermal Systems* (Esuru Rita Okoroafor et al.)	*Tracking Shallow Hydrological Changes in Siliceous Sinter During Pre-Eruptive Cycles of Old Faithful Geyser Vent, Yellowstone National Park, USA* (Bridget Lynne et al.)	*Toward Real-Time Microearthquake Event Detection and Location in Anisotropic Media Using a Multiscale Approach for EGS Collab Experiments* (Yu Chen)
10:30	*Uncertainty Analysis of Forecasting with the Ohaaki Reservoir Model using PEST* (Julian McDowell et al.)	*Formation and Fracture Characterization of the Muara Laboh Geothermal System, Sumatera, Indonesia* (Marino Baroek et al.)	*Mechanistically Modeling of Hydraulic Fracture Opening, Closure and Residual Fracture Permeability During Cyclic Flow Injection Tests* (Hai Huang et al.)
10:50	*Development of Geothermal Reservoir Simulator for Predicting Three-Dimensional Water-Steam Flow Behavior Considering Non-equilibrium State and Kazemi/MINC Double Porosity System* (Sumire Fujii et al.)	*Geothermal Geology of the Outflow Zone of the Ribeira Grande Geothermal System, São Miguel Island, Azores* (António Franco et al.)	*EGS COLLAB Panel Discussion*
11:10	*Numerical Simulation of Heat Extraction Performance in EGS with Cryogenic Fracturing* (Hongyuan Zhang et al.)	*Least-squares reverse-time migration of walkaway VSP data from the Raft River geothermal field (Benxin Chi)*	*EGS COLLAB Panel Discussion*
11:30	*Particle Deposition in Porous Geothermal Reservoir* (Haiyan Lei et al.)	*Anisotropic Seismic-Waveform Inversion and Least-Squares Reverse-Time Migration of Surface Seismic Data from the Soda Lake Geothermal Field* (Wenyong Pan et al.)	*EGS COLLAB Panel Discussion*

11:50-2:00 Lunch

	TRACK 4	TRACK 5
	EARTH MODELING OF GEOTHERMAL SYSTEMS 1 **Chair: Rob Podgorney/Jeremy O'Brien**	**EXPLORATION & RESOURCE ASSESSMENT 2** **Chair:**
8:00	*Geospatial Inconsistency Issues in Geothermal Analysis* (Amber Thomas et al.)	*Geothermal Exploration in the Republic of Panama* (Lisa Safford Kuscu et al.)
8:20	*Combined Models: Integrated Geothermal Resource Assessment Using Multi-Variate 3D Models* (Jeremy O'Brien et al.)	*Nevis N-4 Confirmation Drilling Results* (Robert Stacey)
8:40	*Adding a 4th Dimension to 3D Geomodeling – using Numerical Simulation* (Dennis Kaspereit et al.)	*Geothermal Potential of the Umatilla Indian Reservation, Oregon: Evidence from Detailed Geophysical Investigations* (Brent Ritzinger et al.)
9:00	*Early stage 3D Model Construction for Well Planning: A Case Study from Barrier Volcanic Complex, Kenya* (Jeremy O'Brien et al.)	*Exploration and Development of the Mt. Ida Geothermal Project, Çanakkale Province, Western Turkey* (James Lovekin et al.)
9:20	*Geophysical Imaging of Geothermal Systems Spanning Various Geologic Settings* (Jared Peacock et al.)	*A Summary of Tracer and Thermal Tests Conducted at the Altona Field Laboratory* (Adam Hawkins et al.)*
9:40	*9:40 – 10:10 Break*	
	EARTH MODELING OF GEOTHERMAL SYSTEMS 2 **Chair: Rob Podgorney/Jeremy O'Brien**	**ASSESSMENT AND OPTIMIZATION** **Chair:**
10:10	*Which Geologic Factors Control Permeability Development in Geothermal Systems? The Geologic Structure of Dixie Valley* (Drew Siler et al.)	*A Proactive Approach to Risk Mitigation in Geothermal Wells* (Aaron Adamczyk)
10:30	*Geothermal Play Fairway Analysis, Phase 3: A Provisional Conceptual Model of the Camas Prairie, Snake River Plain, Idaho* (John Shervais et al.)	*Innovative Tool for Life-cycle CO2 Emissions Calculation of Geothermal Plants in Upper Rhine Valley* (Astu Sam Pratiwi et al.)
10:50	*Discovery of a Blind Geothermal System in Southern Gabbs Valley, Western Nevada, through Application of the Play Fairway Analysis at Multiple Scales* (Jim Faulds et al.)	*Modeling of Space Cooling System Coupled with Underground Energy Storage* (Guoxiang Zhao et al.)
11:10	*A Geophysical Characterization of the Structural Framework of the Camas Prairie Geothermal System, South Central Idaho* (Jonathan Glen et al.)	*Application of BP Neural Network PID Control in Expansion Machine of Organic Rankine Circulation system* (He RuiJie)
11:30		*Preliminary Assessment of Off Shore Geothermal Resource Potential of Portugal - The Case of Azorean Deep-Sea Hydrothermal Vents* (Lakshman Ravi Teja Pedamallu et al.)

11:50-2:00 Lunch

**Paper is also a poster presentation.*

	TRACK 1	TRACK 2	TRACK 3
	REGULATORY AND BUSINESS DEVELOPMENT Chair:	**INDUSTRIAL DIRECT USE Chair: Andy Blair**	**EGS Chair: Patrick Dobson**
2:00	*The Increasing Comparative Value of Geothermal in California – 2018 Edition* (Paul Thomsen)	*Updates from New Zealand's Kawerau Industrial Complex: the World's Largest Industrial Geothermal Direct Use Operations* (Jaime Quinao et al.)	*Temperature Signature of Permeable Fracture Zones in Geothermal Wells of Soultz-Sous-Forêts in the Upper Rhine Graben* (Jeanne Vidal et al.)
2:20	*Market Implications of Thermal Brine Mineral Recovery* (Anna Wall)	*Installation and testing of the iiDEA Geothermal Food Dehydrator in the Domo de San Pedro Nayarit Mexico geothermal field* (Héctor Miguel Aviña-Jiménez et al.)	*Use of SWIR Spectroscopy for the Exploration of Permeable Fracture Zones in Geothermal Wells at Rittershoffen (Alsace, France)* (Jeanne Vidal et al.)
2:40	*Geothermal Energy in Mining - A Renewable and Reliable Energy Solution* (Kyle Boynton et al.)	*Deep Direct-Use for Industrial Applications: Producing Chilled Water for Gas-Turbine Inlet Cooling* (Craig Turchi et al.)	*Overview of Results and Lessons Learned from the PoroTomo project at Brady Hot Springs, Nevada: Poroelastic Tomography by Adjoint Inverse Modeling of Data from Seismology, Geodesy, and Hydrology* (Kurt Feigl)
3:00	*Disconnects in Geothermal Valuation Expectations and Market Implications* (Anna Wall et al.)	*Heat Extraction Performance of a Downhole Coaxial Heat Exchanger Geothermal System by Considering Fluid Flow in the Reservoir* (Rui Zheng et al.)	*Optimization of Enhanced Geothermal Systems under Geological and Reservoir Stimulation Uncertainty* (Ahinoam Pollack et al.)
3:20	*Benefits Of A Relational Database Management Systems (RDBMS) For The Geothermal Resources Department (GRD) Of Uganda* (Robert Kennedy et al.)	*Numerical Study on Heat Extraction Performance of an Open Loop Geothermal System in a Single Well* (Gaosheng Wang et al.)	*Experimental Study on Hydro-Shearing Propagation of an Embedded Fracture in Hot Dry Granite Rock* (Mao Sheng et al.)

Adjournment 3:40

*Paper is also a poster presentation.

	TRACK 4	TRACK 5
	EARTH MODELING OF GEOTHERMAL SYSTEMS 3 **Chair: Rob Podgorney/Jeremy O'Brien**	**RISK MITIGATION SCHEMES** **Chair: Virginie Schmidle-Bloch**
2:00	*3D Modeling of the Hellisheiði Geothermal Field, Iceland, using Leapfrog* (Bastien Poux)	*The Existing Funds in France for Geothermal Risk Mitigation* (Christian Boissavy)
2:20	*Numerical Modeling of Cold Water Injection into Supercritical Geothermal Reservoirs* (Riley Newman et al.)	*Swiss Risk Mitigation Schemes* (Nicole Lupi)
2:40	*Comparing GPS-Constrained Forward and Inverse Models of Volume Change at The Geysers, CA* (Rachel Terry et al.)*	*Lessons Learned from the German Risk Mitigation Schemes and Concepts for Different Geothermal Play Types* (Horst Kreuter)
3:00	*Thermal Prospection of Geothermal Reservoirs by Using Thermoluminescence of Quartz* (Álvaro Amaya et al.)	*Overview of the Existing Geothermal Risk Mitigation Schemes in Eastern Africa* (Peter Omenda)
3:20		*Risk Mitigation and Insurance Schemes Adapted to Market Maturity: The Right Scheme for My Market* (Thomas Garabetian et al.)

Adjournment 3:40

"Please note all schedules are tentative and will likely change between now and the event."

EXPO

Every year, the Expo hosts one of the world's largest gathering of vendors providing support for geothermal resource exploration, characterization, development, production and management.

The Expo provides a unique opportunity for exhibitors to showcase their projects, equipment, services and state of the art technology to the geothermal community. More exhibitors are expected. For more information about exhibiting please visit the Exhibitor Portal.

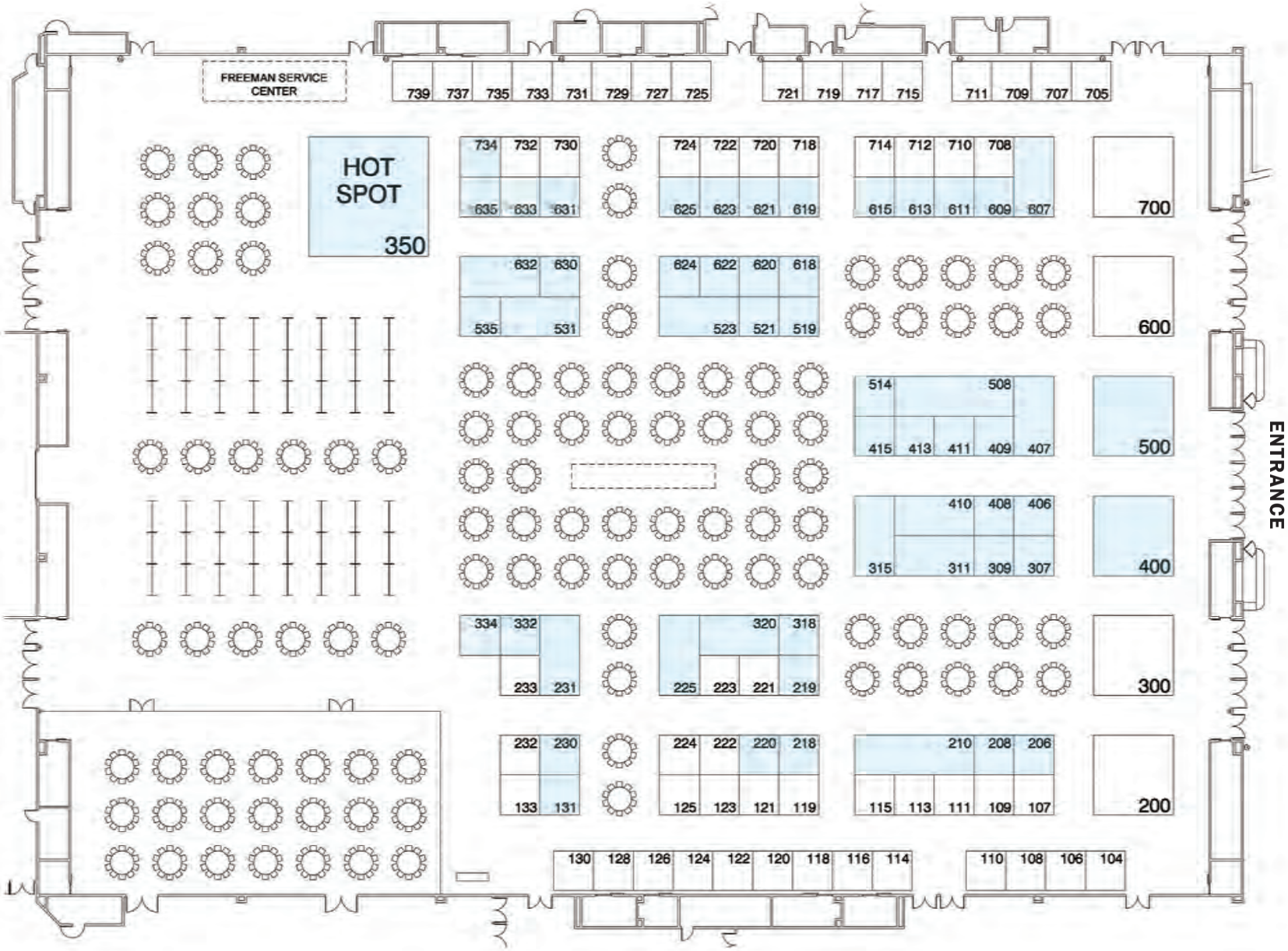
List of Exhibitors (as of August 3). Please check on the GRC website for current information:

EXHIBITOR	BOOTH #	EXHIBITOR	BOOTH #
A.W. Chesterton Company	620	Mitsubishi Hitachi Power Systems / Turboden	508 & 510 & 512
AMSA	521	Nalco	311 & 313
BS&B	206	Navy Geothermal Program	635
Case M&I	535	Nevada Div. of Minerals	406
C-Fer Technology	320 & 322	Ormat	400
CGG Multi-Physics	621	Paul Graham Drilling / Resource Cementing	410 & 412
CICESE	609	PCC Metals Group	309
Coastal Technologies Inc	415	Phoenix Geophysics Ltd	615
Cooling Tower Depot	318	Pioneer Petrotech Services Inc.	208
Croll-Reynolds Co/ Tsurumi Pump	531 & 533	PM International Suppliers	Table Top
DOE GTO	218 & 220	Power Engineers	514
Dewhurst	525 & 523	PowerChem	324 & 225
Energy and Geoscience Institute	633	Quantec Geoscience	619
EnergyNet	611	Rexa, Inc.	623
Ethos Energy Group	631	Rotork	624
EvapTech	307	Scientific Drilling	500
Exergy	409	Seequent	613
Exprogroup	231 & 330	Sinclair Well Products	519
Fuji	414 & 315	Suez Renewable	630
Gardner Denver Nash	411	Thermochem	706 & 607
GeoDeep	219	TIX-IKS Corporation	131
Geologica Geothermal Group Inc.	618	TNG Energy	210 & 212 & 214
Geothermal New Zealand	734	Toshiba	230
Geothermal Resource Group	Hot Spot Café	U.S. Bureau of Land Management	408
GeothermEx	506 & 407	Veizades & Associates, Inc.	413
Horizon Well Logging	334	Well Analysis Corporation	632 & 634
Iceland Geothermal	622		
Indar Electric, S.L.	332		
Mill Man Steel Inc.	625		

GRC Expo 2018

October 14-17

Peppermill - Tuscany Ballroom - Reno, Nevada



OCT
14-17
2018

GRC 2018 ANNUAL MEETING & EXPO

REGISTRATION FORM

OCTOBER 14 - 17 | RENO, NEVADA | PEPPERMILL RESORT SPA CASINO

REGISTRATION INFORMATION

FIRST & LAST NAME

NAME ON BADGE

NAME OF COMPANY OR INSTITUTION

ADDRESS

CITY STATE/PROVINCE POSTAL CODE

COUNTRY

PHONE FAX

E-MAIL

Full Conference Registration Options:
(Includes access to the Technical Sessions, Expo Hall, Sunday Night Opening Reception and lunches for the days selected. Only 3-day passes will include Transactions, Vol. 42 Flash Drive)

☐ 3-Day: Current GRC Member (Does NOT include 2019 Membership Dues)
Don't Forget to Renew Your Membership on the Next Page!
(early bird) $880 $_____
(after Sept. 30) $1030 $_____

☐ 3-Day: Non-GRC Member (Includes 2019 membership dues)
☐ Do not want membership
(early bird) $1080 $_____
(after Sept. 30) $1230 $_____

☐ 3-Day: Student Registration (must fax a copy of current academic identification/class schedule)
(Includes Monday Mixer Ticket & 2019 membership dues)
(early bird) $150 $_____
(after Sept. 30) $175 $_____

☐ 1-Day: ☐ Monday ☐ Tuesday ☐ Wednesday
(Does NOT include 2019 membership dues)
(early bird) $425 *per day* $_____
(after Sept. 30) $525 *per day* $_____

Guest Option: Full Conference Passes include up to 2 complimentary guest pass(es) to the Expo only (does not include lunch). Guest passes must be picked up by paid registrant. Please include the names of the accompanying guest(s) if any:_____

Expo Only Registration Options:
(Includes access to the Expo Hall only. Lunches are NOT included)

☐ 3-Day Registration (includes Sunday Night reception) $325 $_____

☐ 1-Day ☐ Sunday Night Reception $100 $_____
☐ Monday $175 $_____
☐ Tuesday $175 $_____
☐ Wednesday FREE *(Open to the public)* FREE

Additional Lunch Tickets & Transactions Flash Drive Options:

Additional Lunch Tickets at $35 per ticket (include number of tickets for each day):
☐ _____Monday ☐ _____Tuesday ☐ _____Wednesday $35*ea* $_____

Additional copies of Transactions, Vol. 42 on Flash Drive: (picked up only at registration counter)
(Post-meeting price is $50) Quantity:_____ $35*ea* $_____

Page 1 SUBTOTAL: _____

CONTINUED ON NEXT PAGE...

REGISTER EARLY!

As of October 1, registration will require an additional fee of up to $150 per person.

On-site registration will be charged an additional $50 late fee.

Early Bird Registration Expires: September 30, 2018
(must be postmarked or faxed by 9/30/18)

5 EASY WAY TO REGISTER:

1. my.geothermal.org
2. Fax: 530.758.2839
3. Phone: 530.758.2360 ext. 100
4. Email: alay@geothermal.org
5. Mail: GRC, PO Box 1350, Davis, CA 95817

REGISTRATION FORM

OCTOBER 14 - 17 | RENO, NEVADA | PEPPERMILL RESORT SPA CASINO

2019 MEMBERSHIP RENEWAL

☐ Regular	$130	$_____
☐ Retired	$65	$_____
☐ Benefactor	$230	$_____
☐ Company/Institutional	$650	$_____
☐ Supporting	$1,300	$_____
☐ Sustaining	$2,275	$_____
☐ Patron	$3,250	$_____
☐ PC Membership	please call	

FOUNDATION DONATION

☐ Education ☐ Public ☐ Pioneer $_____

OPTIONAL EVENTS:

Provide total based on number of persons.

Monday, Oct. 15, 6:00pm-9:00pm

GRC Trivia Night & Mixer

☐ Mixer Attendee	$75	$_____
☐ 50/50 Raffle Ticket	$10 per ticket	$_____
☐ Trivia Contest Individual Registration *(FREE for Students)*	$140	$_____
☐ Trivia Contest Team Registration	$700	$_____

Names of additional teammates:_____

_____

FIELD TRIPS:

Provide total based on number of persons.

Fri., Oct. 12 - Sun., Oct 14 (2 nights)

(Overnight accomodation are double occupancy - some meals included)

☐ Long Valley Caldera	$625	$_____

Sun., Oct. 14

☐ Steamboat Springs Geothermal Field	$60	$_____

Thur., Oct. 18

☐ Searching for Blind Geothermal Systems	$475	$_____
☐ Fly Ranch Geyser & San Emidio Geothermal Plant	$475	$_____

Mon., Oct. 15 - Wed., Oct 17

☐ Peppermill Resort Direct Use Tour **FREE**

(sign up at on-site registration counter)

Return Completed Registration Form to:

GEOTHERMAL RESOURCES COUNCIL
PO Box 1350
Davis, CA 95617-1350

Phone: (530) 758-2360 x100
Fax: (530) 758-2839

E-mail: alay@geothermal.org

Website: www.geothermal.org

WORKSHOPS:

Friday & Saturday, Oct. 12-13

Project Development Strategy & Economic and Investment Evaluations

	By Sept. 30:	Starting Oct. 1	
☐ Member	$550	$650	$_____
☐ Non-Member	$600	$700	$_____
☐ Student	$175	$225	$_____

Evolution of Geothermal Resource Models

	By Sept. 30:	Starting Oct. 1	
☐ Member	$550	$650	$_____
☐ Non-Member	$600	$700	$_____
☐ Student	$175	$225	$_____

DIETARY RESTRICTIONS:

☐ Check here if you would like vegetarian meals.

☐ Other dietary restrictions:_____

_____

Total This Page	**$**_____
Total Previous Page	**$**_____
TOTAL ENCLOSED	**$**_____

PAYMENT INFORMATION:

Pre-payment by one of the following methods must accompany this form. The GRC cannot bill participants.

☐ Check payable to Geothermal Resources Council in U.S. currency through a U.S. bank.

☐ Government Purchase Order *(please enclose)*

Please charge my:

☐ VISA ☐ MasterCard ☐ American Express

NAME ON CARD (please print)	
BILLING ADDRESS	
CREDIT CARD NO.	EXPIRATION DATE
SIGNATURE	

CANCELLATIONS: *If you must cancel your registration for the GRC Annual Meeting, Optional Events or Field Trips, please notify the GRC by September 1st in order to receive a refund (minus a $100.00 handling fee). Cancellations received after September 1 can not be refunded. Substitution(s) can be made at any time, with prior approval.*