

PENROSE CONFERENCE



CONVENERS:

John Holbrook
Texas Christian University
Fort Worth, Texas 76129

Rick Allis
Utah Geological Survey
Salt Lake City, Utah 84114

Derek Elsworth
Penn State University,
University Park, Penn. 16802

Sidney Green
Schlumberger / Univ. of Utah
Salt Lake City, Utah 84105

Joseph Moore
Energy & Geoscience Institute
University of Utah
Salt Lake City, Utah 84108

Predicting and Detecting Natural and Induced Flow Paths for Geothermal Fluids in Deep Sedimentary Basins

19–23 October 2013 • Park City, Utah, USA

<http://www.geosociety.org/penrose/13utah.htm>

<http://www.sedheat.org/>

[National Science Foundation Sponsored Conference]

OBJECTIVE:

Deep, high heat-flow sedimentary basins potentially have geologic formations with sufficient natural permeability to provide reservoirs suitable for geothermal power generation. New technologies of permeability enhancement that have transformed the oil and gas industry in recent years also have the potential to transform the geothermal power industry. The goal of this Penrose Conference is to gather together experts in both earth science and engineering science, and from academia, government, and industry, to focus on particular basic sciences challenges for developing deep, hot stratigraphy reservoirs for geothermal power. Namely, what controls long fluid pathways in sedimentary basins and how can these be predicted and/or enhanced? How can heat be swept from the large reservoir volumes required for geothermal power generation? How can the large flow rates of hot water required from production wells be sustained for decades?

Thermal Resources Beneath The Eastern United States Continental Margin

David D. Blackwell

Southern Methodist University

**Power in Texas, Wyoming, Mississippi, and North
Dakota**

**GSA Penrose Conference
Park City, Utah**



NSF WORKSHOP: TRACKING AN ENERGY ELEPHANT

November 7th- 9th, 2011 | Salt Lake City, Utah

Sunday, 11/6

- 3:00 PM Hotel Check-In begins
7:00 PM **Welcome Reception begins** (Ballroom Atrium 1st floor)

Monday, 11/7

- 7:00 AM Breakfast – Marriott Restaurant
9:00 AM **Welcome and Overview of Goals and Logistics for the Workshop**
9:30 AM **University Welcome** (Amphitheater)
9:45 AM **Multi-disciplinary Opportunities for Geothermal Energy - the NSF Perspective**
Tim Killeen (Assistant Director, Geosciences Directorate, NSF)(via Webinar link)
10:15 AM Break
10:45 AM **Introduction and Overview of Geothermal Resources**
David Blackwell (Southern Methodist University Geothermal Program)
11:15 AM **Chasing the Geothermal Elephants in Sedimentary Basins**
Rick Allis (Utah State Geologist, Utah Geological Survey)
11:45 AM **Geothermal Energy and Public Policy**
Allyson Anderson (U.S. Senate Energy Committee)
12:15 PM Lunch – Marriott (Ballroom 3)
1:00 PM **Breakout 1 Topic: SEDIMENTARY BASIN ARCHITECTURE AND THERMAL REGIMES**
Topic leader & Keynote: *John Holbrook (Texas Christian University)*
1:30 PM ** **Breakout 1 - Sedimentary Basin Architecture & Thermal Regimes**
2:30 PM **Breakout 1 - Report & Discussion Period**
3:15 PM Coffee Break
3:45 PM **Discussion Topic : CYBERINFRASTRUCTURE FOR A MULTIDISCIPLINARY RESEARCH AND EDUCATION**
Topic leader & Keynote: *Walter Snyder (Boise State University)*
4:15 PM **Open Discussion & Day's wrap-up comments**
Dinner - on own

Tuesday, 11/8

- 7:00 AM Breakfast – Marriott Restaurant
8:00 AM **Introduction to the day's activities** (Amphitheater)
8:15 AM **Breakout 2 Topic: PERMEABILITY AND FLUID FLOW IN SEDIMENTARY BASINS – GEOFLUIDS IN NATIVE AND ENGINEERED CONDUITS**
Topic leader: *Charles Fairhurst (University of Minnesota)*
Keynote: *Stuart Simmons (Colorado School of Mines)*
8:45 AM ** **Breakout 2 - Permeability & Fluid Flow**
9:45 AM Coffee Break
10:15 AM **Breakout 2 - Report & Discussion Period**

** Go to assigned Breakout Session (Aspen, Connor or Amphitheater). Webinar attendees will receive further instructions.

Our Sponsors:





NSF WORKSHOP: TRACKING AN ENERGY ELEPHANT

November 7th - 9th, 2011 | Salt Lake City, Utah

Tuesday, 11/8 Cont.

- 11:00 AM **Breakout 3 Topic: ENGINEERING CHALLENGES FOR GEOTHERMAL RESOURCES OF SEDIMENTARY BASINS**
Topic leader: Herbert Einstein (Massachusetts Institute of Technology)
Keynote: Will Pettitt (Itasca Consulting Group)
- 11:30 AM Lunch – Marriott (Ballroom 3)
- 12:30 PM** **Breakout 3 - Engineering Challenges**
- 1:30 PM **Breakout 3 - Report & Discussion Period**
- 2:15 PM **Breakout 4 Topic: IMAGING DEEP SEDIMENTARY RESERVOIRS**
Topic leader: Mila Adams, Keynote: Kasper VanWijk (Boise State University)
- 2:45 PM Coffee Break
- 3:15 PM** **Breakout 4 - Imaging Deep Sedimentary Reservoirs**
- 4:15 PM **Breakout 4 - Report & Discussion Period**
- 6:00 PM Board Bus for Snowbird
- 6:15 PM Bus leaves for Snowbird
- 7:00 PM Dinner - Snowbird
- 10:00 PM Bus leaves to return back to hotel

Wednesday, 11/9

- 7:00 AM Breakfast – Marriott Restaurant
- 7:50 AM **Introduction to the day's activities** (Amphitheater)
- 8:00 AM **Breakout 6 Topic: EDUCATION AND DIVERSITY RELATED TO RESEARCH AND CAREERS**
Topic leader & Keynote: Karin Block (City College of New York)
- 8:30 AM** **Breakout 6 - Education and Diversity**
- 9:30 AM **Breakout 6 - Report & Discussion Period**
- 10:15 AM Coffee Break
- 10:30 AM **Summary Session: AN NSF INITIATIVE ON GEOTHERMAL ENERGY OF SEDIMENTARY BASINS**
Introduction: John Holbrook
- 10:40 PM *Keynote: Jack Hess (Executive Director, GSA) & Howard Harper (Executive Director, SEPM) on the "STEPPE Coordination Office"*
- 11:10 AM **Comments: Robert Detrick (Director, Earth Sciences Division, NSF) & Rick Fragaszy (Program Officer, Mechanical & Manufacturing Innovation)**
- 11:30 AM **Open Discussion, Wrap-up Comments & Action Items**
- 12:30 PM Lunch – Marriott (Ballroom 3)

Thursday, 11/10

- 7:00 AM Breakfast – Marriott Restaurant
- 12:00 PM Check Out

** Go to assigned Breakout Session (Aspen, Connor or Amphitheater). Webinar attendees will receive further instructions.

A special thanks to our host Energy & Geoscience Institute

Our Sponsors:





Introduction and Overview of Geothermal Resources

**David Blackwell & Maria Richards
SMU Geothermal Laboratory**

**NSF Workshop: Geothermal Potential of
Sedimentary Basins
Salt Lake City
November 7, 2011**