



# FOUR CORNERS GEOLOGICAL SOCIETY NEWSLETTER

September 2007

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## Next Meeting and Presentation

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# Four Corners Geological Society

## September Meeting and Presentation

**DATE:** Friday, September 21, 2007

**SPEAKER:** Dr. Paul Belanger, Exploration Geologist, Elk Resources, Denver, Colorado

**TOPIC:** Is Global Warming Natural or Man-Made, or both? The issues and hopefully some answers.

**PLACE:** Fort Lewis College, 1000 Rim Drive, Durango, Colorado (970) 247-7010

**AGENDA:**

5:30 PM- Social Hour, **“Extreme Room”**, downstairs in the College Union Building

6:30 PM- Dinner – Buffet of grub

7:30 PM- Presentation

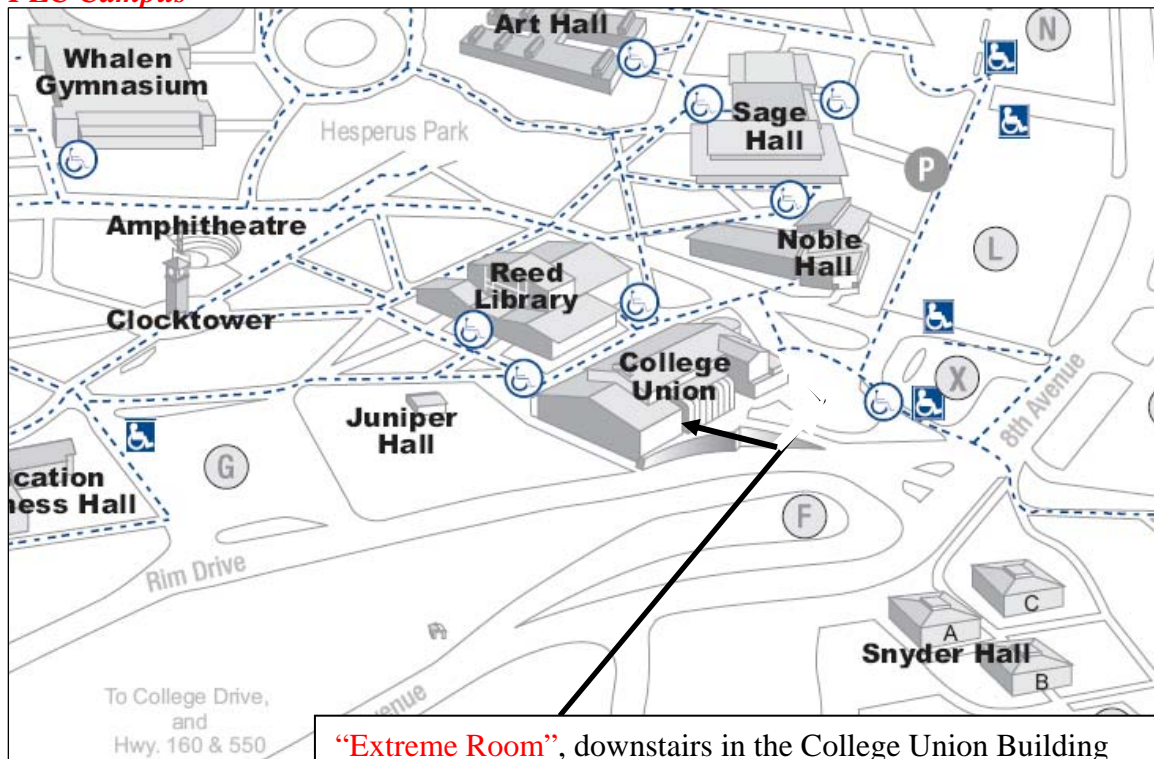
**COSTS:** \$20.00 per person (dinner and talk), \$2.00 per person (talk only), student’s free (talk only)

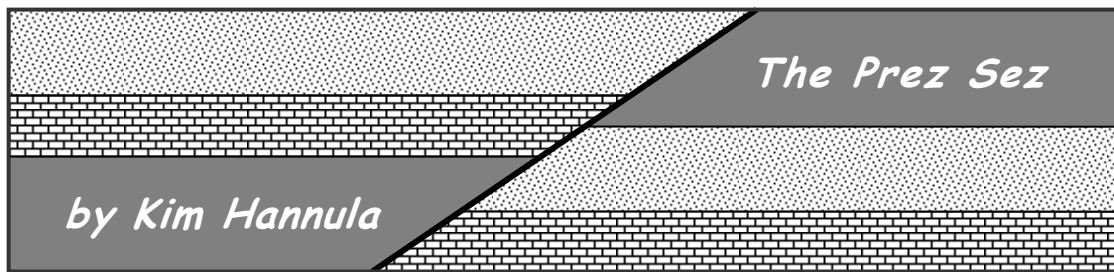
**Reservations** for this months meeting and presentation should be made by Wednesday, Sept. 19.

**Farmington Contact:** Chip Head – email: [charles.f.head@conocophillips.com](mailto:charles.f.head@conocophillips.com) phone: (505) 326-9772

**Durango Contact:** Kim Hannula – email: [hannula\\_k@fortlewis.edu](mailto:hannula_k@fortlewis.edu) phone: (970) 247-7463

### *FLC Campus*





Welcome back to a new year of FCGS meetings! Classes have been going on for two and a half weeks at Fort Lewis, and the twenty seniors working on research projects really appreciate the support that FCGS members have given them. We would particularly like to thank the FCGS Foundation and the FCGS members who participated in the horseshoe tournament at this year's picnic for supporting student research projects. Students are already talking about presenting their research at the Rocky Mountain Section of GSA this coming spring.

Chip Head has been working hard on putting together a speaker schedule for this year. In addition to Paul Belanger's talk this month in Durango, he's scheduled Dave Clark to speak in Farmington in October and FLC history professor Duane Smith to speak in Durango in November. In the spring, you can look forward to hearing from Tanya Atwater (UC Santa Barbara) and Ron Blakey (Northern Arizona University), as well as some of the FLC seniors (and maybe an AAPG speaker, depending on their tour schedules). The Geology Club at FLC will also be sponsoring or co-sponsoring some talks. Doug Yeager will be talking early this fall about mining reclamation work in the Silverton area, and we've scheduled a Mineralogical Society of America speaker, Lukas Baumgartner, to visit in March.

I hope to see you all on September 21 in the lower level of the College Union Building on the Fort Lewis campus!

Kim



## **Is Global Warming Natural or Man-made, or both? The issues and hopefully some answers.**

### **ABSTRACT**

Our planet has experienced natural warming and cooling cycles several times in its history. Scientific data show that carbon dioxide and methane levels have often been at higher levels than they are today. So what makes our current warming trend different? What has become clear is that in the past 200 years, CO<sub>2</sub>, attributable to burning fossil fuels, has increased CO<sub>2</sub> levels that are 30% higher than has ever been achieved in natural variability during the past 800,000 years. Similar figures exist for methane. One third of this increase occurred between 1800 and 1960; the other two thirds of that increase have occurred since 1960. What this rapid rate on increase means with respect to short-term or long-term impacts on the planet's natural processes is at the heart of the public debate. The ongoing rate of change is exponential on a geologic time scale. That does not mean that population growth and the energy resources needed for our sustainability are not of equal or greater impact.

At the heart of the issue is whether or how much has the carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and other GW gases that man has introduced into the atmosphere influenced short-term GW versus natural influences for which solar variability or other influences may also be causative. Longer-term climate changes are controlled by higher-order influences such as ocean-circulation and orbital parameters. Rarely discussed is that it might be a combination of both man-made and natural influences to the short-term GW, for the proponents of either side focus on their end-member favorite, natural vs. man-made, and reported by the media in those extremes.

Geologists generally have a longer-term geologic time-scale perspective about the Earth and climate change that is in stark contrast to the general public's perspective. I will discuss climate change and controls, both short-term and long-term, discuss varying viewpoints and hope to leave you better informed about the on-going debate – especially in geologic petroleum circles. I would hope that it bring you to a better understanding on what controls climate change; what are the caveats in collecting climate proxy data and measurements; and separating hype, media-misrepresentation and politics in deciding whether to adapt, mitigate, or do nothing. It is my hope that all can keep an open mind and stay flexible in their opinions.

## SPEAKER BIO

### **Dr. Paul Belanger**

Although I am currently exploring for oil and gas with Elk Resources, my Ph.D. Dissertation from Brown University (1981) was focused on paleoceanographic/paleoclimate studies in Micropaleontology (foraminifera) and Stable Isotopes involved in CLIMAP (Climate and Mapping of the world 18,000 years ago – a multi-institutional endeavor) and other studies in the Norwegian-Greenland Sea through the Miocene.

I also had a National Research Council Post-doc at the USGS in Woods Hole and was the foram paleontologist and stable isotope stratigraphic geochemist for ODP (Ocean Drilling Program) Leg 161 in the western Mediterranean in 1995 – studying the origins of organic-rich-layers (sapropels) for the past 5 million years.

I am a local geologist – here in Denver for the past five years. Following my post doctoral fellow I worked for Arco and then Amoco in Houston as a biostratigrapher, geologist and stable isotope geochemist as applied in oil and gas exploration in domestic (onshore and offshore Texas/Louisiana, Michigan, W. Texas, and international ventures (Trinidad, Venezuela, North Sea, etc.). I then did a stint with ODP (Mediterranean) Leg 161, post-cruise research (through an adjunct research position at the University of Oregon in Eugene). Following that I taught high-school science for 5 years (3 in Houston, 2 in Austin), before moving up here and working for Thomason Partners Associates and Aspect Energy before my past year here at Elk.

I've led a couple workshops on paleo-climate and a talk at the WIPS (Western Interior Paleo Society) on Stable Isotopes – what they can tell us about the atmosphere and oceans at extinction events.



## General Announcements/News from other Geo-Societies

### **American Association of Petroleum Geologists**

The 2007 Rocky Mountain Section Meeting of the AAPG will be held October 6-9 at Snowbird, Utah. The meeting will be hosted by the Utah Geological Association. The technical program co-chairs are David Lamber, [GL1253@msn.com](mailto:GL1253@msn.com)/ (801) 953-3373 and Rich Newhart, [richardnewhart@questar.com](mailto:richardnewhart@questar.com)/ (801) 324-2090.

### **Arizona Geological Society**

The Ores & Orogenesis Symposium will be held September 24-30, 2007 at The Hilton Tucson El Conquistador Resort. The abstract deadline has now passed and on-line registration is open, but early registration has passed. Go to [www.agssymposium.org](http://www.agssymposium.org) for more information.

### Canadian Society for Unconventional Gas

The CSUG, sponsored by Halliburton, is holding their 9th annual Unconventional Gas Conference, November 14-16 at the Telus Convention Center in Calgary, Canada. There will be two days of technical presentations on unconventional gas exploration, focusing on geology, completions, stimulation and drilling. In addition, there will be six concurrent, 1/2 day sessions that will be taught by industry experts targeted to senior engineers and geologists (cutting edge), entry level to intermediate engineers and geologists (developing expertise) and non-technical support staff. For registration questions contact: *e=mc2 event management inc.* Toll free in North America at 1-866-851-3517, phone direct: (403) 770-1385.

E-mail: [conference@emc2events.com](mailto:conference@emc2events.com).



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### Geological Society of America

The GSA Annual Meeting will be held October 28-31, 2007 at the Colorado Convention Center in Denver, Colorado. For more information visit [www.geosociety.org](http://www.geosociety.org)

### Geothermal Resources Council

The GRC is holding their annual meeting on September 30-October 3, 2007. The theme of the meeting is, Renewable Baseload Energy: Geothermal Heat Pumps to Engineered Reservoirs. For more information visit <https://www.geothermal.org/meet.html>. Or write to GRC / P.O. Box 1350 / Davis / California 95617, or call (503) 758-2360, or e-mail [grc@geothermal.org](mailto:grc@geothermal.org)

### **Rocky Mountain Association of Geologists**

The RMAG is holding the last of three On the Rocks field trips September 29th, which will look at Pegmatites along the South Platte, by Pete Modreski. Sign up with Dan Plazak, [Plazak@cs.com](mailto:Plazak@cs.com) or call (303) 525-9902.

David V. Grey Geologist/Geophysicist	
<b>UPSTREAM ENERGY CONSULTANTS, LLC</b> Geology, Geophysics, Reservoir & Economic Analysis 970-731-2908	
60 JJ Junction Pagosa Springs, CO 81147	Cell: 970-946-5787 dgrey1129centurytel.net

### **RMAG Fall Symposium**

The RMAG/PTTC Fall Symposium “Structural Concepts and Applications in Rocky Mountain Hydrocarbon Plays” on September 14, 2007 at the Grand Hyatt, 1750 Welton St., Denver, CO will have a morning session summarizing current structural concepts and introducing new tools, and an afternoon session with presentations of specific petroleum applications. The keynote luncheon speaker will be Dr. Victor A. Ramos of the University of Buenos Aires Laboratorio de Tectonica Andina, who will discuss “Andean insights into the Rockies - the interplay between ridge collision, arc magnetism, basin formation and deformation.”

There will be an optional field on, September 15 to the Rocky Mountain Front Range between Boulder and Golden to view the complex thrust and triangle zone structures of a typical Laramide basin boundary”

**The Denver Prospect Fair and Technofest Exhibition** will be held Monday, November 5, 2007, at the Colorado Convention Center in Denver, Colorado. The RMAG, the Denver Association of Petroleum Landmen, the Denver Geophysical Society, the Independent Petroleum Association of Mountain States, and the Society of Petroleum Engineers Denver Section invite prospect exhibitors, software developers, data vendors, and service companies to share their ideas, technologies, and services. Call Sandi Pellissier at RMAG, Voice (303) 573-8621, Fax (303) 628-0546, e-mail: [RMAGdenver@aol.com](mailto:RMAGdenver@aol.com)

### **Western States Seismic Policy Council**

The Annual conference of the Western States Seismic Policy Council and International Code Council will be held September 30-October 3, 2007, at the Grand Sierra Resort in Reno, Nevada. The theme of the meeting is Risk Communication, Building Codes and Consequences: The Future of Earthquake Safety in the U.S. For more information go online to [www.wsspc.org](http://www.wsspc.org), or write to WSSPC, 801 K. St., Ste. 1436, Sacramento, California 95814. Or Call (916) 444-6816.

### **West Texas Geological Society**

The 2007 Fall Symposium will be held October 24-26, 2007, at the Midland Center in downtown Midland, Texas, with technical sessions and poster sessions. The theme is Structure and Stratigraphy of the Permian Basin - Understanding the Fundamentals of Conventional and Unconventional Plays. For more information, contact Executive Director Paula Mitchell at the WTGS office at (432)683-1573, [wtgs@basinlink.com](mailto:wtgs@basinlink.com) or General Chairman David Grace (432) 694-3000, [david@henrypetroleum.com](mailto:david@henrypetroleum.com) For information on technical sessions, contact Stonnie Pollock at [stonniep@forl.com](mailto:stonniep@forl.com)

**2007 NPS Field Trip:** Neogene Geology & Geothermal Resources of Western Nevada Basins: September 22-23, 2007. Saturday, Sept 22: Honey Lake Basin where the hydrocarbon potential will be examined. Sunday, Sept 23: Verdi: the basal part of the Neogene Hunter Creek Formation and the Verdi fossil flora locality. West Reno and Steamboat Hills Geothermal. For more information, contact the NPS Homepage: <http://www.nbmng.unr.edu/nps/>

## **FCGS August 2007 Picnic**

### **Members-**

**Thanks for all your support this year! We raised \$350.00 for the Fort Lewis College Senior Research Program between horseshoe entry fees and donations. Dr. Rob Blair swept the field and is the new society champ – Congrats! (below Rob in championship form with Ed Heath wondering what just happened...)**



Thanks to Steve Hayden for donated this handmade Drop Point Mesquite Knife for the 1<sup>st</sup> Place Prize!

**Advertising rates for the Four Corners Geological Society newsletter:**

Full Page Ad (7½" x 9½") \$100/mo. or \$1000/yr.    Half Page Ad (7½" x 4½") \$50/mo. or \$500/yr.  
¼ Page Ad (3½" x 4½") \$25/mo. or \$250/yr.    Business Card (3½" x 2") \$10/mo. or 100/yr.

Odd sizes are \$3.50 per column inch per month, minimum \$10.00

**For more information, please contact the FCGS Treasurer. Proceeds will go toward the further development of the Society (i.e., offset meeting costs, publications, etc.).**

**Four Corners Geological Society**

P.O. Box 1501, Durango, CO 81302

[www.fourcornersgeologicalsociety.org](http://www.fourcornersgeologicalsociety.org)

**2007-08 Officers**

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**President-Elect** – Charles Head: Phone: 505.326.9772, e-mail: [chip.f.head@conocophillips.com](mailto:chip.f.head@conocophillips.com)

**Secretary** – Stephanie Johnson: Phone: 970.247.1064, e-mail: [twilightgeo@frontier.net](mailto:twilightgeo@frontier.net)

**Treasurer** – James Hornbeck: Phone: 505.325.8874, email: [jmh@bmgdrilling.com](mailto:jmh@bmgdrilling.com)

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