



SEG Student "Something"*

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Introducing the New SEG Student Newsletter!

Welcome to the first edition of the newly-revived SEG Student Newsletter! This year, the SEG has made significant strides in bringing to you many new programs, activities, and resources tailored just for SEG student members. You will find some of these activities described in this newsletter, but we encourage you to get online and view the new "SEG Student Connection" WEB page for more detail.

As an SEG student member, you receive many benefits such as reduced member fees, free admission to the Annual SEG Meeting, scholarship opportunities, reduced tuition to SEG continuing education courses, and much more. But most of all, through your association with your fellow SEG members, you have an opportunity to develop professional contacts and

industry ties and receive important career tips and guidance in this very important phase of your early career.

Each and every one of you are important to SEG. After all, you are the future of our profession! During your career in the geosciences, you will participate in or witness many technological innovations and important discoveries. What a wonderful life you have ahead of you!

Again, my most hearty welcome to all of you!

Kay Dautenhahn Wyatt
Chairman, SEG Student Section/Academic
Liaison Committee

And the winners of the 1998-99 Geo-Applet contest are.....



1st prize

Kimmo Korhonen, Helsinki University of Technology, Finland
Geomagnetic Field Contour Map

2nd prize

Alejandro E. Murillo, University of Colorado, USA
Seismic Modeling and Migration

3rd prize

Christian Scullard, University of British Columbia, Canada
Ground Penetrating Radar

Prize winning and honorable mention applets can be found at
<http://contest.seg.org/applets>

For information on the 1999-2000 contest, see pg. 6.



Student Section Spotlight: Colorado School of Mines

The Society of Student Geophysicists (SSG) at the Colorado School of Mines is an active club that introduces students to the many facets of geophysics. The SSG was created October 8, 1947 and was the first student chapter officially chartered by the SEG on March 16, 1948. Since then, the SSG has set up two relaxing student workrooms that have access to seven donated computers and a server that runs our homepage: <http://ssg.mines.edu>. These student workrooms are a place where geophysics students can be found at all times of the day working on their projects. These workrooms serve as a place where students can get together and discuss their problems with those in other classes. We feel that a concept is never fully understood until the student can explain it to his fellow peers.

The SSG has been involved in many activities to increase the student body's awareness of geophysics. We displayed an interactive gravity modeling program, a mobile inertial navigation system for determining survey location, and a first hand demonstration of a Ground Penetrating Radar survey searching for pipes.

In addition, the SSG gives seniors the option of attending the Annual International Meeting of the SEG free of charge. The annual meeting is a great place to network with the industry's best as well as a way to see and learn about new developments in geophysics. SSG helps sponsor a senior trip during spring break. Seniors will pick a place to go conduct a geophysical survey and SSG donates as much money as possible. Last year the seniors spent five days on the Big Island of Hawaii where they learned about the various geophysical methods used in the study of volcanoes. They also explored coral reef deposits and learned about the formation of the Hawaiian Islands. The year ends with our annual Geophysics Day sponsored by the SSG, where we honor geophysics faculty, students, and staff, and reminisce about past years.

The SSG receives its funding from the generosity of oil and geophysical companies and individuals. Last year the SSG was fortunate to receive nearly \$10,000 in contributions, which allowed more opportunities than ever before.

David Stillman
President, SSG



SEG Student Newsletter

Want to see your school highlighted?

Have an issue you'd like to raise?

Want to know about employment opportunities?

This is YOUR newsletter, tell us what you'd like to see!

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The Student Connection is the place to look for all SEG student activities, programs, and events. Here are just a few of the subjects covered:

- o Scholarship Applications
- o Job & Employer Info
- o Contest Links
- o Electronic Mentors
- o Geophysical Slide Set
- o Student Paper Guidelines
- o Student Message Board
- o Section Links
- o Electronic Newsletter
- o And Much, Much More!!

<http://students.seg.org>

1998-1999 Student Paper Competition

Don't forget to register your SEG Annual Meeting paper or poster for this year's, 1999-2000 contest. Awards include:

- \$750 for Best Student Oral Paper
- \$750 for Best Student Poster
- \$500 for Award of Merit (three)

To register, see the Student Connection Online.

Best Student Oral Presentation

"Separating aeromagnetic anomalies using wavelet matched filters"
Mr. Thomas A. Ridsdill-Smith, University of W. Australia

Best Student Poster Presentation

"Comparison of imaging in anisotropic media using P-Wave and S-Wave data"
Ms. M. Graziella Kirtland-Grech, University of Calgary

Honorable Mention for Oral Presentation

"Focusing of inversion images"
Mr. Oleg N. Portniaguine, University of Utah

"Improving seismic resolution with nonstationary deconvolution"
Ms. Alana R. Schoepp, University of Calgary

Honorable Mention for Poster Presentation

"Land vertical cable acquisition and analysis: results from the Black-foot high-resolution 3-C seismic survey"
Mr. Jitendra S. Gulati, University of Calgary

A re-occurring column designed to bring you information on graduate schools providing a curriculum in geophysics.

Where to Go?

GEOPHYSICS at KU

(submitted by Dr. Don Steeples)

The graduate program in Geophysics at The University of Kansas has formally been in operation since 1979. Dozens of students have completed graduate degrees with emphasis in geophysics in the KU Department of Geology over the past 20 years, and we are proud to report that all of them have been able to obtain professional employment immediately upon the completion of their degrees. Our program and our students have earned the confidence of the petroleum and environmental industries. KU is a leader in the development of high-resolution seismic techniques for use in petroleum, engineering, groundwater, and environmental applications.

Research Opportunities

Geophysics faculty members at KU are actively engaged in a variety of research projects. Recently, Don Steeples and his students have been developing shallow seismic reflection techniques for use at depths of less than 3 meters and comparing the seismic data interpretations that they acquire to ground-penetrating radar data interpretations of data gathered along the same line. They have also been developing methods of planting large numbers of geophones automatically with a prototype device called the "autojuggie." Applications of these techniques include mapping the near-surface structure of fault traces, delineating the structure and stratigraphy near igneous intrusive bodies, and mapping water-table topography laterally. New research projects are under way in near-surface 3-component seismology, multimode seismic analysis, and near-surface seismic anisotropy.

Ross Black is studying the structure of the Earth's crust in areas including eastern California, southern Nevada, and central Iowa using seismic reflection and tomographic techniques, as well as potential-field information. Geographic information systems (GIS) technology is being used to facilitate the geophysical modeling of the area surrounding the Coso geothermal area of California. Vibroseisä reflection methods have been used to study neotectonic processes in Long Valley, California, and to study the relationship between strike-slip and detachment faulting in regional extension in the Las Vegas area, Nevada. In Iowa, high-resolution reflection data were used to study the Manson Impact structure. Students are currently working on processing and modeling techniques for wavefields in anisotropic media in the North Sea region, regional gravity

studies in the Basin and Range, and applications of three-dimensional visualization to GIS systems.

Carl McElwee is leading an effort to quantify our understanding of the interrelationships among heat flow, fluid flow, and compaction in the development and evolution of sedimentary basins. This research involves both computer modeling and comparing the computer-generated results with the Kansas sedimentary section. Carl also works extensively in the areas of modeling flow through porous media and designing variable-rate pumping tests of aquifers.

Rick Miller's work in shallow seismic reflection methods encompasses data acquisition, data processing, software development, and field-equipment design and testing. His experience is widely published in the refereed literature. Over the past decade, his seismic reflection field surveys include work in more than 30 US states and several foreign countries. He and his students and colleagues have recently made substantial progress in the use of surface-wave inversion using a large number of seismic channels.

Research Equipment

The University of Kansas is possibly better equipped for shallow, high-resolution seismic surveys than any other university in the world. We have six state-of-the-art seismographs with 60 to 96 channels each, all with 24-bit analog-to-digital conversion. A considerable range of high-resolution geophones and cable configurations is available.

Our large selection of high-resolution seismic energy sources includes vibroseis, MinisOSIE, Betsy seisgun, weight drops, the .50 caliber rifle, the auger gun, buffalo guns, 30.06 and .22 caliber rifles, sledge hammers, and the lowly spark plug. Support vehicles include several ATVs used for work along a seismic line, a seismic truck equipped with a special-

ized hydraulic system, 4-wheel drive passenger vehicles, and semi-tractor trailers to haul equipment.

Seismic processing facilities include ProMax along with five Seismic Processing Workshop systems produced by Parallel Geosciences that operate on PowerMac computers or PCs. Data can also be processed using Pentium-based microcomputers equipped with WINSEIS, a commercial common-midpoint (CMP) processing package written at KU under the direction of Rick Miller and Don Steeples. WINSEIS has been sold commercially in approximately 30 countries and is particularly suitable for quality-control processing of CMP seismic data or radar data within hours of data collection. Also, specialized processing can be done on Sun



workstations using the Seismic Unix package provided free of charge to other schools by the Colorado School of Mines. Our network of 10 Sun Workstations and several dual Windows/Linux computers also includes 150 Gbyte storage, an E-size color inkjet plotter, tape drives of several types, various printers, CD-ROM drives, and scanners.

Other relevant equipment includes a Sensors and Software Pulse Ekko 1000 Ground-Penetrating Radar Unit, two gravity meters (La Coste and Romberg, Model D), and two portable proton-precession field magnetometers. Confirmation drilling can be done with rotary drilling equipment with a 2,500-foot drilling capability or an auger drilling rig with a 110-foot drilling capability.

Degree Requirements

Students pursuing the Master of Science degree with an emphasis in geophysics must take a minimum of 30 graduate-level credit hours, of which at least 24 must be in formal course work; the remaining hours include credit for thesis research. Each Ph.D. student arranges an individual curriculum in consultation with an advisory committee. Ph.D. examinations include a comprehensive oral examination as well as an oral defense of the dissertation.

Geophysical research and teaching at the University of Kansas are centered in the Department of Geology and the Department of Physics and Astronomy. Both departments have graduate programs leading to the Master of Science and Doctor of Philosophy degrees, with emphasis in geophysics. The Kansas Geological Survey, which is a research division of the University, contributes significantly to research, teaching, and student support. Some geophysics students take advantage of the strong radar program in the Department of Electrical Engineering and Computer Science. Our graduate geophysics curriculum provides students with a strong foundation in geology and physics as well as advanced education in theoretic-

cal and applied geophysics both in the classroom and in the field. Most of our incoming students have undergraduate degrees in geology, physics, or geophysics, but we encourage students with backgrounds in mathematics, computer science, and engineering to apply as well.

The University of Kansas has complementary programs in hydrogeology, petroleum engineering, meteorology, astronomy, and electrical engineering.

Details concerning the curriculum and information about admission requirements and financial aid can be obtained from:

For Exploration, Environmental and Engineering Geophysics

Director of Graduate Studies
Department of Geology
The University of Kansas
Lawrence, Kansas 66045

For Atmospheric and Space programs:

Director of Graduate Studies
Department of Physics and Astronomy
The University of Kansas
Lawrence, Kansas 66045

For more information, check out:

<http://www.ku.edu>

Karaoke Fun at the Annual Meeting!

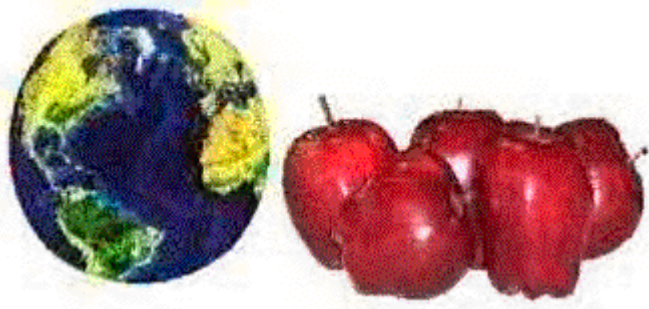
**Monday, November 1
6-10 pm
Westin Galleria Hotel**

Be sure to attend the Student Reception at the Westin Galleria Hotel on Monday night, November 1, from 6-10 pm during the SEG Annual Meeting and International Exposition in Houston. There will be lots of good food and drink and some great entertainment.

For a special treat this year, you have an opportunity to participate that evening in a Karaoke contest. A special trophy will be awarded that night to the school or university that shows the most creativity and ingenuity in their performance. And no need to worry if you think you can't sing. President Brian Russell and President-Elect Bill Barkhouse have volunteered to begin this fun event with their special singing talents, for the "Battle of the B's"!

Don't miss this super event!

1999-2000 SEG/EAGE Geo-Applet Contest



<http://contest.seg.org/applets>

Join the fun and enter your Applet in the SEG/EAGE's 1999-2000 Geo-Applet contest. Your JAVA Geo-Applet should demonstrate a geophysical principle or an application of a general physical principle. The competition is open to full-time students of all ages, to science and mathematics teachers, and to SEG or EAGE members. Deadline for electronic submission of your Geo-Applet is February 1, 2000. Winners will be announced in May, and will receive cash and/or scholarship awards totaling \$4,000 USD.

Eligibility and Prizes

Prize	Award	Eligibility
1st Prize	\$1500 Scholarship and \$500 Cash	Full-time students of any age
2nd Prize	\$750 Scholarship and \$250 Cash	Full-time students of any age
3rd Prize	\$500 Scholarship and \$200 Cash	Full-time students of any age
Honorable Mention	\$300 (Three cash awards of \$100 each)	SEG or EAGE members and Science/Math Teachers

How to Enter and Contest Rules

Your entry must be written entirely in Java. It is highly recommended that you adhere to Sun Microsystem's "100% Java" standards to assure software portability.

- The Java Applet must run under both Netscape and Microsoft Explorer
- The Java source code must be included in your entry (as a tar file)
- The Java source code must be well documented
- Instructions for using the Java Applet must be included
- The Java Applet must be your own original work
- For 1st, 2nd, and 3rd prizes, the entrant must be an individual and not a team

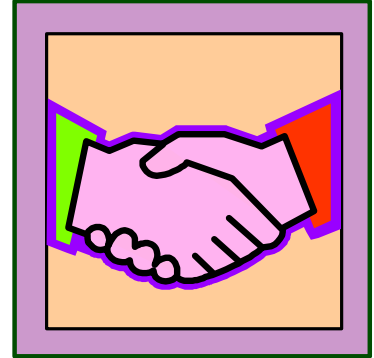
To enter the Geo-Applet Contest, email your entries to kdw@ppco.com. For more information, please refer to the above web site.

While the Society of Exploration Geophysicists (SEG) and the European Association of Geoscientists and Engineers (EAGE) do not claim a right of ownership in your entry, by submitting an entry you grant the SEG and EAGE a nonexclusive, royalty-free, unrestricted license to the entry. The SEG and EAGE will not use any entry without crediting the author.

MAKE THE CONNECTION

AAPG/SEG Student Expo

October 10-12, 1999
Houston, TX



Interested in a career with the petroleum industry?

Make plans today to attend the Expo where geology/geophysics students and oil industry representatives network about internships and full-time employment opportunities. Students throughout North America can showcase their work in poster sessions, while oil industry representatives will have recruiting booths and E&P related exhibits.

Networking is a critical part of finding a job. Don't miss this opportunity!

The conference will be held October 10-12, 1999, in the Grand Hall of the Rice Student Center at Rice University in Houston. Various events scheduled are:

- Iceberg Breaker Bar-B-Q
- Student Expo Poster Session and Industry Exhibition
- Interviews & Speakers
- Shadowing (with Geoscientists at their companies)
- Workshops

For more information on registration, poster guidelines, travel and accommodations, and last year's expo... check out our web page:

students.seg.org/expo



Check it out:

www.seg.org/museum/VM/home.html

Launched just this year, this is an excellent resource for any student. Tour the museum's categorized items, read up on the biographies of our geophysical pioneers, and get a taste of the rich and wonderful history behind our profession.

