



THE FILTER PRESS

Newsletter of the Georgia Section of the American Chemical Society

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Dr. Paul Philp, University of Oklahoma Environmental Forensics, or Who Was Responsible for the Spill? Thursday, February 16, 2006

As soon as organic compounds are spilled into the environment, compositional changes will start as a result of weathering process. For example with crude oils changes will range from evaporation and loss of light ends to extensive biodegradation and loss of many of the compounds typically used for correlating spilled oils with their original source. As a result of these weathering processes, it is often difficult to correlate the spilled oils with their suspected sources. It is essential that these correlations be made to determine who is responsible for the spill and who pays for the clean-up process. There are a number of sophisticated techniques available for this type of forensic geochemistry which can be used for correlating weathered samples with their respective source materials. In this talk specific emphasis will be directed towards the most recent technique for use in this area namely gas chromatography combined with isotope ratio mass spectrometry (GCIRMS). Examples will be presented to demonstrate that the isotopic composition of individual compounds in complex mixtures, such as crude oils, can be used to correlate them with their weathered counterparts. It is clear from the results that GCIRMS is a powerful new tool in forensic geochemistry particularly when combined with the more traditional techniques such as GC and GCMS. Other applications will be described to demonstrate that GCIRMS can also be used to determine the source of leaks from underground storage tanks and sources of gases from leaking pipelines. Variations in the isotopic composition of the MTBE added to gasolines also provides the opportunity of using GCIRMS as a means of monitoring, and determination of the source of, gasoline spills from underground storage tanks. Applications are many and varied as this relatively new technique provides the ability to correlate heavily weathered samples with their unweathered counterparts, providing forensic geochemistry with a new dimension and elevating it to a new level.

Dr. Philp received his Ph.D. in organic chemistry from the University of Sydney (Australia) in 1972 and more recently his D.Sc. degree from the same University in 1998. He spent 1.5 years as a post-doctoral fellow with Professor G. Eglinton at the University of Bristol (England) undertaking research in various aspects of organic geochemistry including the application of analytical techniques (such as GCMS) to this area of research. Following this, Dr. Philp spent four years at the University of California, Berkeley, as a research associate, directing the organic geochemistry research group of Professor Melvin Calvin. He returned to Sydney in 1977 to join the CSIRO, Fuel Geoscience Unit, now part of the Division of Fossil Fuels, where he studied various aspects of petroleum geochemistry as a principal research scientist. In June 1984, he joined the faculty at the University of Oklahoma. The major theme of his research during the past 15 years has been directed to the application of organic chemistry to fossil fuel research. A second major area of research has been the characterization of source rocks, coals, and oil shales using microscale pyrolysis techniques combined directly with GCMS. More recently a large amount of his work has been concerned with environmental studies, particularly investigating the use of stable carbon isotopes as a means of monitoring and tracking pollutants in the environment. Professional activities include: associate editor of Chem. Geol.; chairman of the Geochemistry Division of the American Chemical Society, Dec. 1993.

NOMINATIONS for the Georgia Section Herty Award are being accepted now—electronically! go to <http://chemistry.gsu.edu/ACS/herty/> for additional information. **Deadline: February 28, 2006.** Councilor Rig Hernandez is heading up the nominations committee.

Georgia Section 2006 Election Results

Update: **Shahab Shamsi**, *Georgia State University*, has been appointed to fill the remainder of the term of Member-at-Large, formerly held by **Justin Gallivan** of *Emory University*. The Georgia Section ACS thanks Justin for his contribution, and welcomes Shahab to the Executive Committee.



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School of Chemistry & Biochemistry

High School chemistry teachers: Spring 2006 National ACS meeting in Atlanta

from Stacey Lowery Bretz, co-chair for the Division of Chemical Education program

Each ACS national meeting offers a program of activities for high school chemistry teachers, organized by the Division of Chemical Education. Two local teachers (Diane Lunaberg and Suzanne Keel of South Cobb High School in Austell, GA) have volunteered to arrange the program AND to fundraise to cover the costs of the program (~ \$2-3K for printing, materials/supplies for the activities/demos/labs, refreshments, door prizes and the ever popular high school-college interface luncheon). There is a complete program of activities focused on high school education.

Teachers will be able to register for the low price of \$69 which not only provides registration for the high school program, but also gives them access to the rest of the meeting, including the exposition. **The Georgia ACS local section will fund up to 10 scholarships for teachers to attend this event.** Past-chair **Lillian Butterworth** will be coordinating this for the Georgia local section. A short summary of the program follows:

Edible chemistry: teaching chemistry with food.

JCE Classroom Activities: How to use them and how to publish one.

James Bryant Conant Award Winner address & luncheon

AP Chemistry redesign of curriculum and exam.

CHED and the high school chemistry teacher.

Preparing for first-year college chemistry

JCE: A high school teachers' best friend.

Introducing an ACS advanced high school exam that does not require calculators.

See **you** in Atlanta, March 25-30, 2006. For more information, contact:

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THE FILTER PRESS

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February Meeting: Thurs, February 16**Environmental Forensics, or
Who Was Responsible for the Spill?
Dr. Paul Philp, University of Oklahoma**

Time: 6:30 - 7:00 PM Arrive
7:00 - 8:00 PM Dinner
8:00 - 9:00 PM Meeting and Presentation

Location: **Golden Buddha, Buckhead
3861 Roswell Road, Atlanta, 30342
Phone: 404-261-3777**

Selection will include: Mongolian Beef, Sweet & Sour Pork, Szechwan Chicken, or Fresh Broccoli with Shrimp

Also: White, Brown, Fried Rice, or Lo Mein Noodles

Price includes eggrolls and water or tea.

For more information, go to their website
[http://www.momoyaga.com/gh/welcome12.aspx?
restaurant=2&location=buckhead¬e=1](http://www.momoyaga.com/gh/welcome12.aspx?restaurant=2&location=buckhead¬e=1)

Cost: \$20 per person; \$15 for high-school teachers or full-time students with ID. Payment should be made to the "Georgia Section ACS" and will be collected at the door.

RSVP: Holly Davis, 404-676-2980 or hldavis@na.ko.com (preferred). Deadline for reservations or cancellations is 5PM, Monday, February 13, 2006.

Member Survey A Big Success!

Rigoberto Hernandez and Don Hicks, ISACCommittee

When closed on December 15 last year, the 2005 Georgia Section Member Survey had more respondents than voters in the last election. Thus, it appears to be a big success! The officers sincerely appreciate the outstanding effort by all who shared their opinions.

Preliminary results indicate that almost one-fourth of the participants volunteered to serve our Section, and there was a good mix of responses from various demographic groups. The overall pool included about 20% younger chemists, 46% mid-career chemists, and 34% late career chemists. Also, 58% of responders had an industry- government lab-university research institute connection, 36% were in the students-faculty-teachers sample group, and 6% were unclassified.

Although 50% had attended a Section special event such as regional ACS meeting or mini-symposium at some time, only 45% had attended a regular Section meeting in the last three years.

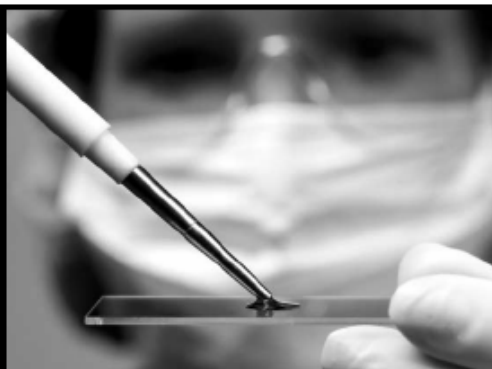
Analysis of the survey responses continues and will appear in a future report.

Coming soon—the National ACS meeting is being held in Atlanta this March 25-30, 2006.

The Georgia Section will host the National ACS Meeting to be held in Atlanta March 26-30, 2006. The Chair of the Section Host Committee, Don Hicks, is looking for a few more volunteers to staff the welcoming booth. Please contact Don at dhicks34@bellsouth.net if you (or spouse or friend) can spare a couple of hours or more anytime from Saturday afternoon, March 25 through Wednesday afternoon, March 29. The job is easy and just requires your help to pass out copies of pamphlets and a special Filter Press issue. These will provide information about local attractions, restaurants, transportation, shopping, and unique historical highlights of the Georgia Section which has served southeastern chemists for more than a century. Related to the recently begun "Essential-2-Living" public image TV advertising campaign of the American Chemistry Council, we plan to produce some magnetic car bumper stickers with slogans like "It's All Chemistry!" and "Chemists-R-Essential" or "Chemistry Is Essential." Using the three most common teenage words was considered for a slogan such as "Chemistry Is Like, Totally Awesome!" Booth volunteers can pass these out to visiting conferees. Our plan also includes enlisting the aid of area high school chemistry teachers and their students plus undergraduate chemistry clubs to display the promotional bumper stickers. The aim is to have 2000-3000 cars driving around Atlanta that week (at least) showing off the bumper sticker slogans. Because famous Georgia chemist Charles Herty has been nominated to receive the very first ACS Historical Chemical Breakthrough Publication Award, we hope to decorate our booth with life-size displays about Dr. Herty's contributions to chemistry and society.

A **charity golf tournament for both men and women** is being held on Wednesday, March 29 at 1:30 PM at the Bobby Jones Golf Course, to benefit young women chemist graduate and undergraduate students. In its third year, this event raises money that provides travel support to a national meeting where these promising candidates make a presentation of their work. Contact Lissa Dulaney for a registration form and/or to provide your sponsorship logo for one of the 18 holes, at lissa2005@mindspring.com. We've determined that it's a perfect way to conclude a week of seminars and presentations, and benefit a good cause. Fore!

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