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## European Association for Geochemistry

### EAG NEWS AND ANNOUNCEMENTS

#### 16<sup>th</sup> Annual V.M. Goldschmidt Conference 2006



The 2006 V.M. Goldschmidt Conference is to be held 27 August to 1 September at the Melbourne Convention Centre, Melbourne, Australia. This marks the first time this meeting will be held in the Southern Hemisphere. Australia's unique, plate-scale natural laboratory will form the backdrop for the presentation of new ideas on a diverse range of geochemical topics. State-of-the-art conference facilities will provide us with

an unparalleled occasion to enjoy stimulating science, some of the finest wines and dining opportunities, and a gateway to the wealth of Australia's geological record.

Please join us in Melbourne for what promises to be an exciting conference. Information about the meeting can be found at its website [www.goldschmidt2006.org/](http://www.goldschmidt2006.org/)

#### Recent Chemical Geology Special Issues

*Chemical Geology* is the official journal of the European Association for Geochemistry. Members of the EAG can subscribe to *Chemical Geology* at discount member rates. *Chemical Geology* publishes both top-rate manuscripts in all areas of geochemistry and regular special issues on emerging and/or hot topics in our field. Information on the two most recent special issues follows.

**Solid Solutions: From Theory to Experiment**, edited by Udo Becker and Manolo Prieto (volume 225, issue 3–4, pages 173–410, 31 January 2005). The underlying scheme of this special issue is how the combination of computational sciences and laboratory experiments can lead to a comprehensive understanding of thermodynamic, structural and other physicochemical properties of solid solutions. To achieve this goal, contributions were invited from experts in the field to obtain a complementary collection of papers. This special issue explores the shortcomings of the present state of knowledge and outlines the challenges for future research. For example, theoreticians will need more thermodynamic data from experimentalists to verify their computational data, and advances in theoretical work will have to be based on accurate quantum mechanical calculations. Experimentalists studying solid solutions have made great progress in understanding ordering processes at smaller and smaller scales, leading to an exciting future for research in this field.

**Special Issue in Honour of R. K. O'Nions**, edited by Gideon M. Henderson, David R. Hilton and Derek Vance (volume 226, issue 3–4, pages 77–352, 28 February 2006). This volume marks Keith O'Nions' 60<sup>th</sup> birthday and contains contributions from scientists who have worked closely with Keith over the years. The issue presents a suite of sixteen research articles from top international geochemists and focuses on the evolution of geochemical systems ranging from soils to the Earth's mantle.

### THIRD INTERNATIONAL WORKSHOP ON HIGHLY SIDEROPHILE ELEMENT GEOCHEMISTRY



The 3<sup>rd</sup> International Workshop on Highly Siderophile Element Geochemistry will be held at Durham University, UK, 5–7 July 2006. Session themes range from low-temperature processes and

environment/health issues to meteorites, planetary accretion, and core formation. The conference is organised by Ambre Luguet, Graham Pearson and David Selby (Durham), together with Abdelmouhcine Gannoun (The Open University) and Bernhard Peucker-Ehrenbrink (WHOI). For details, see [www.dur.ac.uk/earth.sciences/conferences/](http://www.dur.ac.uk/earth.sciences/conferences/) or e-mail [highly.siderophile@durham.ac.uk](mailto:highly.siderophile@durham.ac.uk)

### EXTENDED ABSTRACTS OF THE 7<sup>th</sup> SYMPOSIUM ON THE GEOCHEMISTRY OF THE EARTH'S SURFACE (GES-7) NOW AVAILABLE

The 103 extended abstracts presented during the 7<sup>th</sup> Symposium on the Geochemistry of the Earth's Surface (GES-7) at Aix-en-Provence, France, August 23–27, 2005 have been published as a special issue of the *Journal of Geochemical Exploration* (volume 88, issue 1–3, January–March 2006). This extended abstract volume was edited by Jean Dominique Meunier, Catherine Keller, Olivier Radakovitch and Jérôme Rose. The GES meetings focus mainly on processes operating at the surface of the Earth rather than on deep crustal geochemical processes. The GES-7 meeting placed particular emphasis on the multiscale environmental

biogeochemistry of the Earth's surface. Abstracts from the meeting cover the following six themes: (1) Environmental impact of waste management; (2) Water cycle and resources: geochemical tracers and contaminants; (3) Biogeochemical processes in soils and ecosystems: from molecular to landscape scale; (4) Weathering: processes, rates and age; (5) Coastal biogeochemistry: from land to continental slope; and (6) Global element cycles and climate change through Earth history (in honor of Prof. Fred Mackenzie). The next meeting in this series (GES-8) will be organised by Mark Hodson and held in England during 2008.

### CALL FOR NOMINATIONS FOR EAG OFFICERS

The European Association for Geochemistry (EAG) is calling for nominations of dynamic, visible, and motivated geochemists for the posts of Councilor and of Vice President. One Vice President and up to five new Councilors will be named this year. The starting term of each post is **1 January 2007**. EAG Councilors normally serve for a three-year term. The post of EAG Vice President is a six-year commitment, the first two serving as Vice President, the second two years as President, and the final two years as Past President. Duties of EAG officers include participating in semi-annual council meetings, developing new programs to serve the European geochemical community, and contributing to EAG committees.

Nominations, including a curriculum vitae of the nominee, should be sent to either **Susan Stipp** ([stipp@geol.ku.dk](mailto:stipp@geol.ku.dk)) or **Philippe Van Cappellen** ([pvc@geo.uu.nl](mailto:pvc@geo.uu.nl)).

## European Geochemical News Briefs

## NEW DANISH RESEARCH PROGRAM APPLYING NANOTECHNOLOGY TO IMPROVE OIL RECOVERY

A new research program, sponsored by the Danish National Advanced Technology Fund, aims at increasing interplay between industrial development and academic research. It recently offered support to a joint venture between Copenhagen University (KU) and Mærsk Olie og Gas AS (Maersk Oil). The five-year effort, with a total research value of 60 million Danish kroner (8 million; \$10 million) will combine investigations of fundamental physical and chemical processes with innovation, with the goal of developing a product or a process that will improve ultimate oil production from chalk reservoirs. The venture, "Improving Oil Recovery through Nanotechnology: A New Approach to an Old Challenge," will combine the expertise of a diverse team, including physicists, chemists, molecular biologists, geologists, mineralogists and engineers. "We have a super group of people and a unique opportunity to apply absolutely fundamental research to a very practical problem," says the project leader Susan Stipp, who describes herself as a NanoGeoScientist.



Oil platform, North Sea, Mærsk Olie og Gas AS

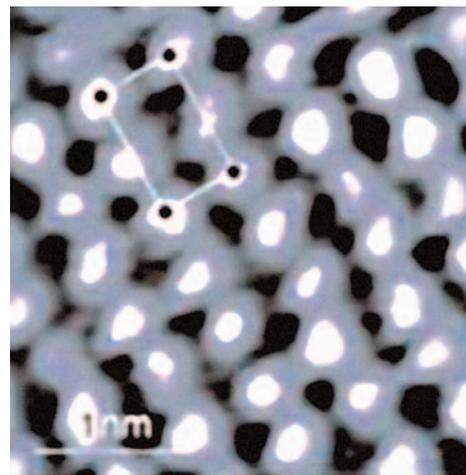
Current methods for extracting oil from chalk leave behind from 25% to as much as 75% of the oil in some oil fields. It remains as small droplets in pore spaces or as thin films on particle surfaces. This oil cannot be recovered at present, but if a method could be developed to extract even some of it, then the economic impact would be significant. "It would give us a few more years of hydrocarbon reserves to allow development of alternative, more sustainable energy forms," says Susan Stipp.



A coccolithosphere is produced by some species of marine algae, in this case, *Emiliania Huxleyi*. These one-celled, photosynthetic organisms cover themselves with disc-shaped coccoliths. Each of the spokes in the wheel is an individual calcite crystal. The sphere is about 10 micrometers in diameter. Chalk is made up predominantly of coccoliths. PHOTO YOUNG AND HENRIKSEN

Trapped oil has driven 30 years of chalk research, and although relationships among residual oil, particle size, wetting, mineral character and sediment compaction are defined, fundamental controls on chalk-oil interaction remain relatively unknown. Nanotechnology is revolutionising our understanding of complex systems in other fields; it also has promising potential for improving oil recovery.

The Nano-Chalk team will attack this old problem with the most advanced methods. Molecular-scale studies of chalk will identify the key parameters defining surface properties, and then nanotechnology will allow design of methods to modify particle surfaces to release more oil. The fundamental understanding of calcite properties is expected to generate spin-off projects on other aspects of calcite behaviour and application. Examples are improved environmental safety with groundwater resources and waste disposal, and more efficient production of fillers and pigments for paper, paint and pharmaceuticals. The work will lead to new paths to follow in the quest for



An atomic force microscope (AFM) image from the end of one of the spokes. The unit cell is  $5 \text{ \AA} \times 8.1 \text{ \AA}$ , indicating a {104} calcite surface. A set of AFM images can be used to define orientation, so we know the spokes are crystals with scalenohedral form. PHOTO HENRIKSEN AND STIPP

understanding biomineralisation, which is a key in designing new treatments for kidney stones, arthritis and osteoporosis.

As a result of the project, facilities will be added to an instrument park and positions will be offered to at least nineteen young scientists, starting from early fall 2006. "The Nano-Chalk venture is a positive, new partnership we have established with Maersk Oil, which I see as important for the broadening of both research and teaching in nanotechnology," says the leader for Copenhagen University's Nano-Science Center, Professor Thomas Bjørnholm.

**Please send any news items for inclusion in future 'European Geochemical News Briefs'**

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MEMBERSHIP INFORMATION:  
[www.eag.eu.com/membership.html](http://www.eag.eu.com/membership.html)

**Goldschmidt 07**

**August 19 to 24, 2007**  
**Cologne, Germany**  
[www.goldschmidt2007.org](http://www.goldschmidt2007.org)