

NEWSLETTER Nº 09

ACE

European Association of Chemistry and the Environment

<http://www.research.plymouth.ac.uk/ace/>

October 2007

1. EDITORIAL

Dear ACE members,

ECL goes from strength to strength!



The success of Environmental Chemistry Letters (ECL), now in its fifth year, has exceeded all expectations. The journal now publishes high quality papers in all areas of environmental chemistry and expert reviews appear regularly. In addition, the submission rate and quality of manuscripts is constantly increasing.

ECL is now considered in the Science Citation Index Expanded and its first impact factor (IF) of 0.814 was recently released. This is an excellent IF at this stage of the journal's existence and places ECL at position 98 of the 144 journals in the field of environmental science. This reflects the quality of ECL papers.

An electronic manuscript submission system for ECL was implemented in April 2007. Now, manuscript submission, editorial work and the review process are handled on-line (<https://www.editorialmanager.com/ecl/default.asp>). This will considerably decrease the time taken for review and publication of manuscripts.

I look forward to receiving your manuscripts and hope to report further good news on the success of ECL in the coming months.

Jan Schwarzbauer (ACE President and ECL Editor-in-Chief)

2. MEETINGS

8th European Meeting of Environmental Chemistry (EMEC8), Inverness – December 2007

Dear colleagues,

It is my great pleasure to invite you to Scotland to participate in the 8th European Meeting on Environmental Chemistry (EMEC8). The event will be held in Inverness from 4-7th December, 2007 and will be hosted by the Environmental Research Institute of the UHI Millennium Institute. With this meeting we move EMEC from recent events in central and southern Europe to its North Western fringe on the Atlantic Margin.



Inverness is the self-proclaimed "Capital of the Highlands" of Scotland. It sits on the banks of the River Ness just to the north of Loch Ness (best known for the sightings of the legendary Loch Ness Monster, "Nessie") and has been a natural focus for lines of communication to and through the Highlands for most of the last two thousand years.

Inverness is Scotland's smallest and 'newest' city (being granted city status by the Queen in December 2000). With continuing new investment in traditional industries and new hi-tech industries it is regarded as the fastest growing city in Western Europe. Today's Inverness is a diverse and bustling city with a compact and attractive centre. The River Ness still provides a key focus, and attractions like the castle, the cathedral and the Eden Court Theatre can all be found on its banks; together with some

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of the city's many restaurants, hotels and other accommodation providers (from simple bed and breakfasts, to luxury hotels).

Further information on Inverness may be found at www.inverness-scotland.com. If you wish to spend a little time in Scotland before or after the conference, further information can be found at www.visithighlands.com/ and www.visitscotland.com.

EMEC8 hosts

EMEC8 will be hosted by the Environmental Research Institute (ERI). The ERI has a wide portfolio of research activities addressing contemporary environmental issues through innovation, excellence and strategic dialogue with other institutions and stakeholders. It is also a component of UHI Millennium Institute (UHI).

UHI is the emergent 'University of the Highlands and Islands' of Scotland and provides university-level education through a distinctive educational partnership of colleges and research institutions across the Highlands and Islands region. Research is promoted through various research centres across the region and includes established activity in the environmental and marine sciences.

EMEC8 venue

EMEC8 will be based at Eden Court theatre on the banks of the River Ness. The theatre is currently undergoing a major refurbishment and expansion which will incorporate the two existing listed buildings, with a striking modern extension combining to providing a contemporary and light conference venue.

As with previous EMECs, EMEC8 will provide a forum for exchange of ideas on recent advances in research and development in environmental chemistry and technology and their links to other disciplines. The scientific programme will be based round a range of contemporary themes of relevance to industry, research and academia.

Provisional outline programme:

5th – 7th December: Scientific programme, Eden Court Theatre, Inverness

4th of December: Welcome reception

5th December: Civic Reception, Town House, Inverness

6th December: Conference dinner and ceilidh (a traditional Scottish gathering with music and dance), Newton Hotel, Nairn

The web site for the conference is live at <http://emec8.uhi.ac.uk> and will shortly be populated with information on the scientific and social aspects of the meeting as well as travel details.

Travelling to Inverness

Inverness has a regional airport served by British Airways, Flybe, Easyjet, BMI, Eastern Airways, Ryanair, AerArann and Highland Airways. You can also fly to Glasgow, Edinburgh or Aberdeen and complete your journey with a scenic overland journey to Inverness by coach, car or train.

Inverness railway station is located in the City Centre. There are direct services to Edinburgh, Glasgow and London from the south and Aberdeen from the east. If you're travelling from London, the 'sleeper train' is an excellent way to travel.

Inverness is about 3 hours drive from Edinburgh or Glasgow, Coach services and connections operate from a number of major cities through Citylink, Megabus and National Express.

I very much hope that you will join us for EMEC8 and I look forward to welcoming you to Inverness to enjoy the scientific programme social events and wonderful scenery.

Stuart Gibb, Chairman of EMEC8, the 8th European Meeting on Environmental Chemistry (Stuart.Gibb@thurso.uhi.ac.uk)

3. FORTHCOMING MEETINGS

December 2008 – 9th European Meeting on Environmental Chemistry (EMEC9)

GIRONA, SPAIN

Dr. Isabel Villaescusa

December 2009 – 10th European Meeting on Environmental Chemistry (EMEC10)

LIMOGES, FRANCE

Dr. Jean-Claude Bollinger

4. CHEMISTRY CONFERENCE ANNOUNCEMENT

5th Symposium on Chemistry and the Environment, Serbia

The Serbian Chemical Society, Environmental Chemistry Section, is

organizing its 5th Symposium on Chemistry and the Environment, a national conference with international participation, on 27th - 30th May 2008 in the beautiful setting of the Tara mountain in Western Serbia.



The conference is traditionally organized by the Society with the aim of gathering the country's scientists and other professionals who work in the field of environmental chemistry and environmental protection, in a place where they can exchange ideas, make acquaintances and initiate collaboration, with each other and with guests and participants from abroad. The number of participants is estimated at around 150 or more.



Both scientific and professional contributions are welcomed, focused around the following topics:

- Methods of determining and monitoring environmental pollution.
- Transformation and dispersion of harmful substances.
- Effects of harmful substances on biochemical processes.
- Effects of pollutants on materials.
- Mitigation of negative anthropogenic effects on the environment.

- Scrubbing systems, novel clean technologies and equipment.
- Radiochemical pollution.
- Environmental protection and education.
- Current problems and handling of environmental protection in industry.
- Standards, legislation, and terminology in environmental protection.

One round-table discussion is planned, about environmental topics of current interest to the region. All contributions will be published in a book of abstracts.

Chairman of the Conference is Bojan Radak. The president of Scientific Committee of the Symposium is Branimir Jovančičević.

The languages of the symposium will be Serbian and English, alternatively. Professionals from industry, administration, health protection, and other areas that deal with environmental problems are specially encouraged to attend and participate, since one of the intentions of the symposium is to inform them of the new knowledge acquired in the scientific area and, on the other hand, to let them convey to the scientific community the current problems and topics of interest to the areas they cover.

All information on the symposium will be available at:

<http://www.vin.bg.ac.yu/envirotara>.

5. THESIS

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Thesis title: Application of Organic Geochemical Methodologies on Environmental Analytical Problems

Supervisors: Prof. Dr. Ralf Little, RWTH Aachen University, Germany, Prof. Dr. Detlef Leythaeuser, University of Cologne, Germany. The work was supported by Dr. Jan Schwarzbauer.

Polymeric organic compounds, for example some flocculants and plastics, are produced in high tonnages and are applied almost ubiquitous. Therefore, there is high potential for environmental exposition, which is so far rarely investigated.

Non extractable organic xenobiotics, termed bound residues, are an important aspect of natural attenuation. Although bound residues are intensively investigated in soils, only a few corresponding investigations have been performed in aquatic systems.

Also compound specific stable carbon isotope ratios of riverine water organic contaminants are rarely investigated. Since isotope signatures of single organic pollutants are potentially useful for describing behaviour and fate of anthropogenic organic compounds in aquatic systems, there is a necessity for investigations concerning isotopic fractionation processes in riverine systems.

Characterization of natural polymers and macromolecules such as lignin and kerogen by pyrolysis and thermochemolysis as well as compound specific isotope analysis are well established approaches in organic geochemistry. Consequently, the goal of the investigation was the application of established organic geochemical methods on the analysis of anthropogenic polymers and bound residues. A further attempt was the characterization of isotope ratios of organic pollutants in complex water extracts. Pyrolysis, TMAH (tetramethyl ammonium hydroxide)-thermochemolysis, chemical degradation procedures as well as compound specific isotope analysis served as analytical tools for this purpose. Identification of the analytes have been performed by gas chromatography-mass spectrometry.

Objects of investigation were subaquatic sediments from the Teltow Canal, Berlin as well as from the German rivers Ems, Mulde and Lippe. Furthermore, polyacrylamide based flocculants, correspondingly contaminated sewage sludges and spiked soils have been investigated.

The experimental work comprised four parts:

1) Thermochemolysis experiments on polyacrylamide based flocculants revealed glutarimide related degradation products which can serve as marker compounds, specific for the polymeric substrate, enabling the unequivocal detection of the polymers. Degradation experiments on spiked soils and sediments revealed that cationically modified polyacrylamide based flocculants are detectable and quantifiable within natural matrices.

Additional experiments facilitated quantitative analyses of the polymers in sewage sludges.

2) For analyzing bound residues in the sediments of the Teltow Canal, the samples have been treated by TMAH-thermochemolysis and pyrolysis. These approaches revealed several structure-related compounds of the insecticide DDT(1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane). Additionally, the so far unknown degradation products DDPU (3,3-bis(4-chlorophenyl)-1-propene) and DDPS (1,1-bis(4-chlorophenyl)propane) were identified, which represent either so far unknown metabolites or formerly bound residues, which were incorporated by carbon-carbon bonds.

3) Combined application of thermochemical and chemical degradation methods (acidic and alkaline hydrolysis, BBr₃-degradation, RuO₄-oxidation) on preextracted riverine sediments from Ems and Mulde rivers revealed more detailed analytical results than the investigation of the Teltow Canal sediments, due to the expanded methodological diversity. A structure related interpretation of the detected degradation products revealed new insights into compound specific modes of incorporation of bound residues. The quantitative results demonstrated comparable concentration levels of the bound and the extractable fraction.

4) A further investigation considered compound specific stable carbon isotope analysis of selected anthropogenic compounds in complex water samples of the Lippe river. Interpretation of the data with respect to spatial distribution and the comparison with a corresponding data set of the Rhine river demonstrated that some compounds are characterized by systematic trends concerning their isotopic signatures along the riverine course. For example, confluence of tributaries into the Rhine river were correlated with isotopic shifts of di-n-butylphthalate. Despite of the similar structure of the synthetic musks AHTN and HHCB, the compounds are characterized by different isotopic trends along riverine courses.

The performed investigations demonstrated that analytical methods used in organic geochemistry provide a great potential for solving environmental analytical problems.

Publications :

- Plitzner, E., Schwarzbauer, J., Kronimus, A., (submitted), Detection of polyacrylamide-based flocculants in sewage sludge by off-line TMAH-

thermochemolysis-gas chromatography- mass spectrometry., J. Chromatogr. A.

- Kronimus, A., Schwarzbauer, J., (2007), Analysis of structurally modified polyacrylamides by on-line thermochemolysis-GC-MS., J. Anal. Appl. Pyrolysis (80) 471-476.

- Kronimus, A., Schwarzbauer, J., (2007), Non Target Screening of Extractable and Non Extractable Organic Xenobiotics in Riverine Sediments of Ems and Mulde Rivers, Germany. Environ. Poll. (147) 176-186.

- Kronimus, A., Schwarzbauer, J., Ricking, M., (2006), Analysis of Non Extractable DDT-Related Compounds in Riverine Sediments From the Teltow Canal, Berlin, by Pyrolysis and Thermochemolysis., Environ. Sci. Technol. (40) 5882-5890.

- Kronimus, A., Schwarzbauer, J., Dsikowitzky, L., Littke, R. (2006), Compound Specific Stable Carbon Isotope Analyses of Riverine Water Organic Contaminants. Environ. Chem. Lett. (4) 23-28.

6. PRIZES AWARDED AT EMEC7

EMEC7 prizes awarded by the ACE were:

The award for the best oral presentation at EMEC7 was given to Carolina Nebot for the paper "HUMAN PHARMACEUTICALS IN SCOTTISH NATURAL WATERS" by C. Nebot, K.G. Boyd, S.W. Gibb, Environmental Research, North Highland College, UHI Millenium Institute, Thurso, KW14 7JD, Scotland. UK, Carolina.Nebot@thurso.uhi.ac.uk



The award of the best poster presentation at EMEC7 was awarded to Lucie Blahova from Centre for Cyanobacteria, Institute of Botany, Academy of Sciences of the Czech Republic, for the poster entitled "Extraction Efficacy and Analyses of Multiple Cyanobacterial Toxins in Environemntal Samples and Drinking Waters" by

L. Blahova, O. Adamovsky, J. Kohoutek, P. Babica, L. Blaha) blavoba@recetox.muni.cz



7. NEW WEBSITE FOR THE ACE

Dear ACE members,

The annual EMEC meeting has been a great success and is now a fixture on the international environmental chemistry calendar. There are further exciting new developments underway for the ACE, which we hope will enhance the experience of members and allow them to contribute fully to the organisation. A main development will involve the unveiling of a new and much improved ACE website in the near future. The website will contain all of the information that you would expect from the association and will have the following additional facilities:

- On-line membership application and renewal
- On-line receipt
- A blog for announcements, questions, requests etc.
- On-line discussion
- Table of Contents for Environmental Chemistry Letters

We are hoping from a wide participation of members to make the blog facility a success and I will be encouraging/urging/forcing contributions from you all at every opportunity. The new website development is at the heart of our plans to make the ACE a dynamic and

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inclusive association, and to realise the potential value for members and the external community at all levels. I look forward to hearing your feedback and ideas and hope to see you at Inverness.

Regards,

Mark Fitzsimons (Website Manager)

8. ACE MEMBERSHIP FOR 2008

Your ACE membership can now be extended for 2008. Membership application or renewal can be made at the same time as registration for the EMEC8 meeting. For all members who will not be attending the EMEC conference can apply or renew membership on-line at the ACE website: <http://www.research.plymouth.ac.uk/ace/>

CONTRIBUTORS TO THIS ISSUE

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