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Newsletter 06

European Association of Chemistry and the Environment

October 2003

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CONTENTS OF THIS ISSUE

1. EDITORIAL

Welcome! to Issue 6 of the official newsletter of the European Association of Chemistry and the Environment (ACE). I would like to take this opportunity to invite readers of *Environmental Chemistry Letters* to join our friendly association and participate in our annual European-based symposia. The ACE is a non-profit-making scientific association, founded in October 2000 by a group of dedicated European scientists. Targeted at scientific research and debate surrounding the protection of the environment, it encourages collaborations between academics, education, private firms, and social representatives.

Since environmental issues can not be addressed by the contribution of a single scientific field (e.g. chemistry), without the contribution of others fields (e.g. toxicology, agronomy, water science, sociology); since environmental issues can not be addressed by the study a single medium, (e.g. soil), without studying the whole ecosystem (water, plant, atmosphere, living organisms, etc.); because pollutants have no borders; ACE wishes to encourage a balanced approach to the protection of the environment, by promoting collaboration of scientists from all scientific fields. To this end our association appeals to scientists from diverse fields, including biology, geology, sociology, toxicology, soil science, chemistry, water science, atmosphere science, geochemistry and medicine, to participate, learn and encourage others.

Application forms are available on-line via the Links page of the ACE meeting website: http://www.emec4.org.uk. The 2004 membership fee is 50 Euros, which includes the cost of all 2004 issues of the journal *Environmental Chemistry Letters*.

We warmly welcome new members to this year's meeting in Plymouth, UK.

Dr. Stephanie N. Dudd
Newsletter Editor-in-chief

2. 4th EUROPEAN MEETING ON ENVIRONMENTAL CHEMISTRY *- UPDATE*

After three very successful meetings, preparation is well underway for the 4th European Meeting on Environmental Chemistry (EMEC4). The meeting will be held in Plymouth, England, from 10th —13th December 2003, in the Moat House Hotel, and organised on behalf of the European Association of Chemistry and the Environment (ACE) by the University of Plymouth.

Plymouth is a famous maritime city and has also achieved global recognition for the marine research carried out by its institutes. Two eminent invited speakers, Professor Walter Giger from the Swiss Federal Institute of Environmental Science and Technology, and Professor Ron Beckett from Monash University in Australia - both World leaders in their fields - will give keynote addresses. A full programme of high quality and exciting novel science is anticipated, with oral presentations in the fields of: (1) Detection and Removal of Endocrine

Disrupting Chemicals; (2) Pollution Remediation; (3) Pollutant Cycling in Soils; (4) Ecotoxicology; (5) Particle Chemistry; (6) Clean Technology; (7) Atmospheric Chemistry and Air Pollution; (8) Water Pollution: Detection and Treatment; (9) Marine Chemistry and Marine Pollution, and (10) Analytical Methods in Environmental Science. The latter is the subject of a special session, being held on Saturday 13th December, sponsored by Waters Corporation and features presentations on the latest mass spectrometry, optical sensor and radiocarbon tracer techniques for monitoring environmental contaminants.

Of course, much attention has been given to the social side of the conference and we hope that delegates will also take the opportunity to explore our beautiful region of South West England. The conference diner will be held at Kitley House, an historic manor located close to Plymouth in the scenic South Hams District. Local food and fine local wine will be served, to be followed by a disco where we can all get on down (no regional bias with the music!). After the close of the conference you can also nip out to the shops for those last minute Christmas presents.

We very much look forward to welcoming you to Plymouth.

Contact: **Mark Fitzsimons** (on behalf of the local organising committee), Petroleum and Environmental Geochemistry Group, School of Environmental Sciences, University of Plymouth, Drakes Circus, Plymouth PL4 8AA, UK.
Tel: +44 1752 232971; Fax:+44 1752 233035
Email: m.fitzsimons@Plymouth.ac.uk
Website: http://www.env.Plymouth.ac.uk/pegg/pegg.htm; http://www.emec4.org.uk

3. EMEC4 SPONSORS

Meet some of our generous sponsors at the EMEC4 exhibition:

Waters Corporation

Waters Corporation (Milford, MA) is the worldõ leading supplier of high performance liquid chromatography, mass spectrometry, and thermal analysis products. Around the world Waters products are used by pharmaceutical, life science, industrial, environmental and food safety scientists in research and development, quality assurance and other laboratories. Our technologies provide these customers with fundamental data on their samples. Then, by turning this analytical data into useful information, we help scientists understand the complexities of chemistry and life itself.

Waters MICROMASS MS TECHNOLOGIES

Oxford University Press

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide. The Chemistry list comprises of books from the American Chemical Society, graduate textbooks and research monographs, all written by leading experts in the field.

OXFORD UNIVERSITY PRESS

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Visit our books website at: www.wileyeurope.com

WILEY

Sponsors of the 2003 ACE European Young Researcher of the Year Award

This award, presented annually, promotes recognition of the work of young scientists in the field of environmental chemistry. This year, the award is generously supported in 2003 by the ACE, the Gareth Rieley Memorial Fund, Waters Corporation (Milford, MA) and Springer-Verlag (Heidelberg, GER).

The award consists of 500 Euros cash,

free registration to EMEC4 in Plymouth UK, where the award will be presented and travel expenses (up to 144 Euros) to the meeting.

The recipient of the 2003 award will be notified by 31st October 2003 and invited to give a paper at the meeting.

Please see the website for details of sponsorship opportunities, including the wide range of low cost options available: http://www.emec4.org.uk. Sponsors will be featured in ECL Issue 1, 2004.

4. LOST AT SEA! WHAT HAPPENS TO ALL OF THE PLASTIC THAT SOCIETY THROWS AWAY?

A new research grant has been awarded to the University of Plymouth by the Leverhulme Trust.

University of Plymouth biologists and environmental scientists have been awarded over £180,000 to try to discover whether microscopic pieces of the 100 million tonnes of plastics which are produced each year, have any undesirable effects on marine life.

In a pilot study, Dr Richard Thompson of the School of Biological Sciences, working with colleagues at the Universities of Plymouth and Southampton showed that tiny bits of plastic were building up in sandy beaches and muddy estuaries around the UK. Under a microscope the scientists could even see small pieces of fibres in the guts of barnacles and other organisms living on the seashore.

Now Dr Thompson along with Tamara Galloway of the School of Biological Sciences and Professor Steve Rowland of the School of Environmental Sciences plans to find out whether leaching of chemicals from the plastics causes any unwanted effects on the wildlife.

For further information, please contact:
Tammy Baines, Public Relations Assistant
Tel: +44 1752 233981
Dr Richard Thompson Tel: +44 1752 232966;
Email: rthompson@Plymouth.ac.uk

5. THE WORLDÕS FIRST DEGREE IN ENVIRONMENTAL FORENSICS

Students are about to enrol on the world's first ever degree course in Environmental Forensics. This degree extends the University of Wales, Bangor's excellent reputation for teaching and research in environmental disciplines.

In a pro-active move to ensure that the UK has the skills to cope with anticipated changes in environmental legislation, Dr Stephen Mudge at the University of Wales, Bangor's School of Ocean Sciences, has developed the new degree in Environmental Forensics. Dr Mudge is one of the UK's leading environmental forensics experts. The degree will fill an urgent and growing need for multi-disciplinary graduates with the ability to play biological, physical or chemical detective to explain the cause or source of changes to any given ecosystem. Principally needed in environmental protection and remediation, other industries and environmental management agencies also increasingly need personnel who possess these multi-disciplinary analytical skills.

Currently, European legislation means that the polluter pays an often paltry fine for pollution incidents. Mudge predicts that European legislation is set to converge with current US practices. In the US, the polluter pays the hefty clean up costs of any incidents. There, multi-billion dollar law suits to ascertain responsibility for clean up costs following recent or not so recent pollution incidents are not uncommon. Changes to European legislation will require personnel with credible and established expertise in Õtraceability', to ascertain who or what caused the pollution and when.

As Mudge explains, "The legal framework in Europe will probably move towards the Õpolluter remediates' principle taken in the US. In this situation, it is vital to establish the source of the pollution to determine who is responsible for its remediation, whether a previous owner of a piece of contaminated land or an adjacent piece of land. The need to establish original cause of any form of pollution calls for a greater number and level of environmental forensic experts to deal with such cases."

"There are also wider applications. Currently, scientists from various disciplines and working for a range of governmental agencies or consultancies are increasingly becoming involved in this type of work. The forensic side requires a broad multi-disciplinary tool kit. The forensic skills are the same whether the situation involves the classic industrial pollution and clean up of Õbrown' industrial land, establishing the cause of a decline in fisheries stock, whether caused by overfishing, the effects of agricultural Õrun off' or the introduction of an alien biological organism, to tracing the likely source of a river or estuarine pollution incident.

The International Society of Environmental Forensics has welcomed the creation of this new Environmental Forensics degree at the University of Wales, Bangor. Dr Stephen Mudge, who developed the degree course is also an Associate Editor of the International Journal of Environmental Forensics.

"The innovative degree in Environmental Forensics offered by the University of Wales, Bangor is an enlightened response to the global demand for environmental forensics information," said Robert Morrison, Editor of the International Society of Environmental Forensics.

"The degree represents the first institution offering this cutting edge information to the next generation of environmental scientists. The University of Wales, Bangor and especially Dr. Stephen Mudge, are applauded for their recognition of this need and for the creative program designed to provide this knowledge," he added.

The degree will allow specialisation in marine or terrestrial forensics, although the principals are the same whichever route is chosen. The course will include international laws and directives as regard pollution levels. An industrial problem will provide a project for the second year and much of the learning on the course will be dynamic, incremental, problem solving and team based as opposed to individual linear learning.

Further information: Dr Stephen Mudge, School of Ocean Sciences, University of Wales, Bangor, Tel: +44 1248 382879;
e mail: s.m.mudge@bangor.ac.uk; degree course information can be found at: http://www.sos.bangor.ac.uk/ugrad/prospectus/f410.htm.

6. EMPLOYMENT OPPORTUNITY - STABLE ISOTOPE SCIENTIST/ MASS SPECTROMETER ENGINEER

For our National Isotope Centre, we are seeking a suitably qualified person for the position of Stable Isotope Scientist/Mass Spectrometer Engineer. The successful appointee is expected to be in charge of the maintenance and operation of five stable isotope mass spectrometers. The laboratory routinely analyses rocks and minerals, water, gas, and environmental samples for D/H, C, N, O and S isotopes and conducts world class research projects. Technical equipment comprises five mass spectrometers (PDZ Europa and VG Micromass) and periphery units. Other duties will involve vacuum technology, data handling, statistical analyses, sample collection and preparation. In addition to contributing to existing research and commercial projects, candidates are also expected to propose own research projects in their areas of expertise.

The successful candidate will have the following qualifications and experience: (1) a post-graduate qualification in geo/biosciences or engineering experience in analytical stable isotope mass spectrometry, including electronic and mechanical skills for extensive troubleshooting of the instruments experience in database management; (2) programming and instrument automation experience in working in a research/consulting environment knowledge of analytical chemistry, including quality control and assurance is desirable; (3) good computer skills, and (4) a reasonable level of physical fitness. The closing date is 18th November 2003.

An application form and position description can be obtained from our website application form or by phoning +64 04 570 4609. Applications should include an application form, a covering letter and a full curriculum vitae and should be sent to:
Jo Grenfell, Human Resources Adviser, Institute of Geological and Nuclear Sciences, PO Box 30 368, Lower Hutt, New Zealand or email to careers@gns.cri.nz.

7. PH.D. STUDENTSHIP IN ATMOSPHERIC CHEMISTRY

A studentship is available in the group of Theodore Dibble at the Environmental Science and Forestry campus of the State University of New York. The general area of research is experimental and/or computational studies related to atmospheric chemistry. Current work focuses on radical intermediates formed in the degradation of biogenic volatile organic compounds (VOCs). Future work will emphasize heterogeneous processes related to tropospheric chemistry.
http://web.syr.edu/%7etsdibble/dibble.html

For more information contact:
Theodore S. Dibble, Department of Chemistry, SUNY College of Environmental Science and Forestry, One Forestry Drive, Syracuse NY 13210 Tel: +1 315 470-6596; Fax: +1 315 470-6856 Email: tsdibble@syr.edu ; Website: http://www.esf.edu/chemistry/faculty/dibble.htm

8. POSTDOCTORAL ASSOCIATE VACANCY IN ENVIRONMENTAL PHOTOCHEMISTRY

A twelve-month appointment at the postdoctoral associate level is proposed in the department of Plant Health and Environment at INRA, Versailles, France. Main topics of the group include advanced oxidation processes, environmental fate of micropollutants, insect mediating substances, trace analysis, mass spectrometry techniques and applications. The successful candidate will be in charge of a research project on the degradation of pesticides in water under photolytic conditions at the interface of eco-toxicology. This will involve the design of reaction procedures representative of processes susceptible to occur in natural waters. Investigations will include kinetics, characterization of by-products (LC-UV, LC-MS-MSÉ) and degradation schemes, with special effort to determine the influence of the environmental parameters. Participation to the development of the necessary analytical tools involved in this project is expected.

Requirements: Ph.D. in any relevant discipline and prior research experience in photolysis or photocatalytic degradation of organic pollutants, advanced oxidation processes for water treatment and related analytical techniques.

Salary and availability : Euros 20,000 (12-month contract with INRA), January 2004. Send curriculum vitae, publication list, letter of motivation and names of references to :
Dr. Jacques Einhorn, Directeur de Recherche, Phytopharmacy Unit, INRA, Route de St Cyr, 78026 Versailles cedex, France
Tel: +33 1 30833120; Fax: +33 1 30833119
E-mail: einhorn@versailles.inra.fr

9. THESIS REVIEWS

Author: **Erik Teinemaa**
National Institute of Chemical Physics and Biophysics (NICPB), Tallinn, Estonia & Tartu University, Tartu, Estonia

Thesis title: Environmental fate of the particulate matter and organic pollutants from an oil shale power plant
Supervisors: Prof. Dr. Uuve Kirso (NICPB), and Prof. Dr. T. Tenno (Tartu University)

Abstract:

Total identified PAHs content of oil shale fly ash was about 350 ng/g, which included compounds listed as 16 U.S. EPA "Priority pollutants" such as phenanthrene, pyrene, fluoranthene, chrysene, benz[a]anthracene, and benzo[a]pyrene. Different *n*-alkanes and phthalates were also identified in the fly ash. PAHs were preferentially bound with fine particles, forming a stable aerosol. This aerosol has a bimodal distribution with mass median diameter maximums 0.1 and 1.7 mm. Geometrical standard deviations of both fine and coarse fractions were 2.1 and 2.0 respectively.

Relative concentration of different PAHs on fly ash particles increased 15 to 50 times during the long-range transport with the deposition of coarser particles. Selected PAHs were resistant toward photolysis when adsorbed to oil shale fly ash. For anthracene the half-life in fly ash was 70 to 140 times longer when compared with silica and alumina. Leaching of the PAHs from fly ash particles was a rapid process. PAHs showed strong affinity to two soil samples investigated.

Author: **V ronique Lenoble**
Laboratory of Aquatic & Environmental Sciences, Faculty of Sciences, University of Limoges, 123 Avenue Albert Thomas, 87060 Limoges (France).
E-mail: veronique.lenoble@netcourrier.com.

Thesis title: Arsenic removal during drinking water production: chemical oxidation and adsorption onto innovative solid substrates
Supervisor: Prof Jean-Claude Bollinger.

Abstract:

Arsenic is a toxic trace element occurring in natural waters in a variety of forms including soluble, particulate and organic-bound, but mainly as inorganic trivalent As(III) and pentavalent As(V) oxidation states. In many parts of the world, groundwater is polluted with arsenic. This pollution can be caused by human activities (mining, pesticidesÉ) but usually, the main source of arsenic is geogenic. Epidemiological studies have demonstrated a significant increase in the risks of cancers associated with high levels of arsenic in drinking water. Consequently, in the case of arsenic, the European standard level in drinking water has been lowered to 10 µg/L and similar reductions in arsenic levels have been adopted elsewhere, including the USA. The aim of this study was to develop new and reliable methods to analyse arsenic even at low concentrations, and simple removal techniques, easy to handle and to apply to low-flow drinking production plants (flow rate < 10 m^3/h).

As(III) and As(V) adsorption was studied, first on iron (oxy)hydroxides then on pillared clays: a montmorillonite modified with iron, titanium and aluminium polycations. Adsorption was carried out under various experimental conditions. It appeared that arsenic was better adsorbed on iron (oxy)hydroxide. Yet, iron pillared clay was the only media which could be regenerated.

Speciation being a preponderant factor in adsorption, As(III) oxidation study is of great importance. Different common reagents used for As(III) oxidation were studied: H_2O_2, NaOCl, $FeCl_3$, $KMnO_4$ and MnO_2(s). In order to test their efficiencies through As(V) determination, a colorimetric method was developed, based on phosphate measurement. The results showed that the oxidants which could easily be applied to low-flow drinking production plants were $FeCl_3$ and $KMnO_4$. Thereafter, a polystyrene resin loaded with manganese oxide was synthesised. This solid presents simultaneous oxidation and adsorption behaviour, and its adsorption capacities towards As(III) and As(V) were above many studied adsorbents.

The last part of this study allowed us to work closer to natural conditions, through the preparation of an artificial water of granitic type, such are waters usually polluted with arsenic. The compilation of major ions common concentrations led to the preparation of a model water, spiked with As(III) or As(V), and used to validate our analysis methods and removal mechanisms. The results proved that the major ions did not have any influence on these processes, showing their possible use in a low-flow drinking production plant.

Publications:
Lenoble, V., Bouras, O., Deluchat, V. Serpaud, B. & Bollinger, J.C. (2002) Arsenic Adsorption onto Pillared Clays and Iron Oxides; *J. Colloid Interface Sci.* **255**, 52-58.

Lenoble, V., Deluchat, V. Serpaud, B. & Bollinger, J.C. (2003) Arsenite Oxidation and Arsenate Determination by the Molybdene Blue Method, *Talanta* **61**, 267-276.

10. A NEW REPORT - MITIGATION OF THE GREENHOUSE EFFECT

A 36-page report on the assessment of the feasibility of increasing stocks of carbon in French agricultural soils is available at http://www.inra.fr/actualites/rapport-carbone/synthese-anglais.pdf

11. RECENT MEMBERS PUBLICATIONS

Kollmann, A., Brault, A., Touton, I., Dubroca, J., Chaplain, V. & Mougin, C. (2003). Effect of nonylphenol surfactants on fungi following the application of sewage sludge on agricultural soils. *J. Environ. Qual.* **32**:1269-1276.

Mougin, C., Jolivalt, C., Briozzo, P., Madzak, C. (2003). Fungal laccases: from structure-activity studies to environmental applications. *Environ. Chem. Letters* **1**, 145-148.

Mougin, C., Kollmann, A., Dubroca, J., Ducrot, P.-H., Alvinerie, M. & Galtier, P. (2003). Fate of the veterinary medicine ivermectin in soil. *Env. Chem. Letters* **1**, 131-134.

Teinemaa, E., Kirso, U., Strommen, M. R. and Kamens, R. M. (2003) Deposition flux and atmospheric behavior of oil shale combustion aerosols. *Oil Shale* **20**, No 3 Special, 429-440.

12. THE ENVIRONMENTAL CHEMISTRY BOOK - SOON TO BE PUBLISHED

A compilation of selected papers from the 2001 ACE meeting, edited by Eric Lichtfouse, Jan Schwarzbauer and Dider Robert is soon to be published by Springer Verlag (Heidelberg). Please find below the titles of chapters and articles (article order is not definitive).

Green Chemistry

- Diffuse Infrared Fourier Transform Spectroscopy in environmental chemistry.
- Mechanochemistry: an old technology with new applications to environmental issues. Decontamination of polychlorobiphenyl-contaminated soil by High Energy Milling in the solid state with ternary hydrides.
- Enhanced solubilization of organic pollutants through complexation by cyclodextrins.
- Photodecomposition of organic compounds in the aqueous solution in the presence of titania catalysts.
- Carbon dioxide, a solvent and synthon for green chemistry.
- Development of bioreactor for cometabolic biodegradation of gas-phase trichloroethylene.
- Chemical samples recycling: the MDPI samples preservation and exchange project.
- Depollution of waters contaminated by phenols and chlorophenols using catalytic hydrogenation.
- Several ways to treat wastewater containing dimethyl sulfoxide (DMSO).

Ecotoxicology

- A new bioassay for detection of chemical substances in environment using green paramecia, Paramecium bursaria.
- On site evaluation of water-borne toxicity using bioluminescent bacteria.
- Development of environmental biosensors and biomonitoring systems using recombinant bioluminescent bacteria.
- Detection of toxic pollution by short-term respirometry.
- Environmental metal cation stress and oxidative burst in plants. A review.
- Bacteria-degraders based microbial sensors for detection of surface active compounds and organic pollutants.
- The LUX-FLUORO test as a rapid bioassay for environmental pollutants.
- Effects of two cyanotoxins, microcystin-LR and cylindrospermopsin, on Euglena gracilis.
- Study of Cr(VI) and Cd(II) ions toxicity using the Microtox bacterial bioassay.
- Cultured human cells as biological detectors for assessing environmental toxicity.
- Genotoxic impact of ERIKA petroleum fuel on liver of the fish Solea solea.
- Heavy-metal resistant actinomycetes.

Toxic metals

- A model for predicting heavy metal concentrations in soils.
- Leaching of selected elements from coal ash dumping.
- Mercury recovery from soils by phytoremediation.
- Electrodialytic removal of Cu, Cr and As from treated wood.
- Binding toxic metals to new calmodulin peptides.
- Electrodialytic remediation of heavy metal polluted soil.
- Phytoremediation of thallium contaminated soils by Brassicaceae.
- Effect of cadmium and humic acids on metal accumulation in plants.
- Treatment of wastewater contaminated by mercury by adsorption on the crandallite mineral.
- Selection of micro-organisms for bioremediation of agricultural soils contaminated by cadmium.
- A framework for interpretation and prediction of the effects of natural organic matter heterogeneity on trace metal speciation in aquatic systems.
- Storm-driven variability of particulate metal concentrations in streams of a subtropical watershed.
- Low cost materials for metal uptake from aqueous solutions.
- Removal of copper (II) and cadmium(II) from water using roasted coffee beans.

Pesticides

- Pesticide mobility studied by nuclear magnetic resonance.
- Photo- and biodegradation of atrazine in the

presence of soil constituents.
- Behaviour of imidacloprid in fields. Toxicity for honey bees.
- Impact of a sulfonylureic herbicide on growth of photosynthetic and non-photosynthetic protozoa.
- Abiotic degradation of the herbicide rimsulfuron on minerals and soil.
- Binding of endocrine disrupters and herbicide metabolites to soil humic substances.
- Potential exposure to pesticides during amateur applications of home and garden products.

Polycyclic aromatic hydrocarbons

- Polycyclic aromatic hydrocarbons (PAHs) removal during anaerobic and aerobic sludge treatments.
- Degradation of polycyclic aromatic hydrocarbons in sewage sludges by Fentonõs reagent.
- Evaluation of the risk of PAHs and dioxins transfer to humans via the dairy ruminant.
- Atmospheric polycyclic aromatic hydrocarbons (PAHs) in two French alpine valleys.
- Analysis of high-molecular-weight polycyclic aromatic hydrocarbons by laser desorption-ionisation/time-of flight mass spectrometry and liquid chromatography/atmospheric pressure chemical ionisation mass spectrometry.
- Productive use of agricultural residues: cements obtained from rice hull ash.
- Photodegradation of pyrene on solid phase.

Organic pollutants

- Biodegradation of benzothiazoles by Rhodococcus bacteria monitored by 1H nuclear magnetic resonance (NMR).
- A reactive transport model for air pollutants.
- Behaviour of dioxin in pig adipocytes.
- Degradation of the indigo carmine dye by an anaerobic mixed population.
- Bioremediation for the decolorization of textile dyes, a review.
- Chemical characteristics and source reconciliation of organic aerosols in Algiers city area.
- Anthropogenic organic contaminants incorporated into the non extractable particulate matter of riverine sediments from the Teltow Canal (Berlin).
- Quantification of in situ trichloroethene dilution versus biodegradation using a novel chloride concentration technique.
- Biotransformation of nonylphenol surfactants in soils amended with contaminated sewage sludges.
- Control of halogenated by-products during surface water potabilisation.

Analytical Chemistry

- ^{2}H and ^{18}O isotopic study of ground waters under a semi-arid climate.
- Analysis of toxic metals by micro-total analytical systems (mTAS) with chemiluminescence.
- Study on the large volume stacking for analysis of EDTA by capillary electrophoresis.
- Organic petrology: a new tool to study contaminants in soils and sediments.
- Detection of biomarkers of pathogenic bacteria by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry.
- The comminution of large quantities of wet sediment for analysis and testing with application to dioxin-contaminated sediments from Lake Ontario.
- $^{13}C/^{12}C$ ratio in peat cores from Poland to record past climates.
- Isotopic composition of Cd in terrestrial materials: new insights from a high-precision, double spike analytical method.
- In situ method for analyzing the long term behavior of particulate metal phases in soils.
- Multi-isotopic approach (^{15}N, ^{13}C, ^{34}S, ^{18}O and D) for tracing agriculture contamination in groundwater.

13. MEETING ANNOUNCEMENTS

Environmental Assessment in the Information Society

A joint SETAC Europe and ISIE meeting, entitled Œ*Environmental Assessment in the Information Society*Ówill be held 3-4 December 2003, Lausanne, Switzerland. The meeting will combine the 11th LCA Case Studies Symposium, the 2003 European Meeting of the International Society for Industrial Ecology and the 21st Swiss LCA Discussion Forum, intended to cross-fertilize the competences of these different communities. See the SETAC website for further info: http://www.setac.org.

New methods of evaluating, and minimizing the impact of organic wastes applied to agricultural soils

A meeting, organised by the ADEME and INRA, will be held in Paris (20th and 21st January 2004) concerning the application of organic wastes (sewage sludge, compost, etc.) on agricultural soil. Further information is available from the INRA website:
http://www.inra.fr/actualites/colloques.html.

14. LOOKING FORWARD TO BARI IN 2004

Michele Aresta would like to announce that the 2004 European Meeting on Environmental Chemistry will be held in the Hotel Villa Romanazzi Carducci in Bari. Immersed in an immense garden park richly decorated with flowers, exotic plants, evocative fountains and swimming pool, the Mercure Hotel Villa Romanazzi Carducci offers an exclusive location for the 2005 conference. Bari has a rich history and a visit to the Trulli Area (UNESCO patrimony), cathedrals (Roman Apulian style, ca. 1100-1250), the medieval city, museums and castles (1100-1200) are highly recommended.

Today the city is known as the ÒCalifornia of the SouthÓthe capital of the region that is the most progressive in comparison with to the other areas of the South, more active and commercially competitive. Italy has many active environmental research groups as well as the consortia of universities that carry out research, and ENEA, the national agency for alternative energy. Topics such as water treatment, soil remediation, waste disposal, bio-gas from fermentables, metal recovery, gas separation, biomass utilization, etc are widely studied in Italy.

Contact:
Dr. **Michele ARESTA**
METEA Research Center, University of Bari, via Celso Ulpiani 27, 70126 Bari, ITALY.
aresta@metea.uniba.it

15. CONTRIBUTORS TO THIS ISSUE

Mark Fitzsimons, Petroleum and Environmental Geochemistry Group, School of Environmental Sciences, University of Plymouth, Drakes Circus, Plymouth PL4 8AA, UK

Uuve Kirso, National Institute of Chemical Physics and Biophysics, 12618 Tallinn, Estonia

Stephen Mudge, School of Ocean Sciences, University of Wales, Bangor

Jo Grenfell, Human Resources Adviser, Institute of Geological and Nuclear Sciences, New Zealand

Theodore S. Dibble, Department of Chemistry, SUNY College of Environmental Science and Forestry, Syracuse NY

Erik Teinemaa, National Institute of Chemical Physics and Biophysics (NICPB), Tallinn, Estonia

Jacques Einhorn, Directeur de Recherche, Phytopharmacy Unit, INRA, Versailles Cedex, France

Christian Mougin, Equipe Xenobiotiques et Environnement, Unite de Phytopharmacie et Mediateurs Chimiques, INRA, Versailles Cedex, France

Jean-Claude Bollinger, Laboratoire des Sciences de l'Eau et de l'Environnement, Facult des Sciences, Universit de Limoges, Limoges, France

16. NEW ACE MEMBERS

ACE welcomes new members:

ESTEVE-CANO Vicente, Castellon SPAIN
DELGADO-SABORIT Juana Maria, Burriana Castellon SPAIN
VIONE Davide, Torino ITALY
MUELLER Stephan, D bendorf SWITZERLAND

ACE ASSOCIATION of CHEMISTRY and the ENVIRONMENT

designed by: Brigitte.Elbisser@libertysurf.fr, photos: ACE

http://www.science.plym.ac.uk/ace