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

Newsletter 05

European Association of Chemistry and the Environment

May 2003

European Association of Chemistry and the Environment Newsletter, n¡5, pp. 1-6, 2003.

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1. EDITORIAL

This is an exciting year for the European Association of Chemistry and the Environment —as several of the primary objectives of this relatively young Association are now coming to fruition. We have seen the publication of the first two issues of *Environmental Chemistry Letters*, the official journal of the association, enabling the rapid publication of articles, whilst maintaining a very high standard of scientific communication; the environmental chemistry book reflecting the success of the annual ACE meetings is soon to be released, and we are currently undergoing reorganisation of the board to enable the participation of more members in the running of the Association. 2003 is election year for the board —and all board positions below are open for a 3-year term until 2006. All ACE members who have paid the 2003 ACE membership fee can apply to fill one of the positions.

ACE board positions open:
- Chairperson
- Secretary
- Treasurer
- Assistant Treasurer
- Webmaster
- Collaboration Network Officer
- ACE Marketing Officer (2 positions available)
- European Information Manager
- European Regional Officer (Eastern Europe)
- European Regional Officer (Western Europe)

For more information on the duties of those positions, please see the last ACE Newsletter at http://link.springer.de/link/service/journals/10311/fpapers/esc/tocs/t3001001.htm - Item 18.

To apply, please send your full name and contact details, specifying the board position you are interested in, accompanied by a short statement of your suitability for the position, to Didier.Robert@iut.univ-metz.fr, ACE Secretary.

We are also preparing for the 4th European Meeting of Environmental Chemistry (EMEC4), the annual meeting of the ACE, being held in Plymouth, UK in December. Both members and non-members are warmly invited to participate in this lively, festive annual event, which facilitates the communication of novel research from a range of exciting areas of environmental chemistry. I would like to gratefully acknowledge Mark Fitzsimons, Denise Horne and colleagues at the University of Plymouth for their tremendous work in preparation for this meeting, which every year provides new insights into topical issues and opens new doors to those looking to build rewarding research collaborations. Invited speakers include Prof Walter Giger, of the Swiss Federal Institute for Environmental Science and Technology and Prof Ron Beckett, of the Water Studies Centre, Monash University, Clayton, Australia.
Please also note that the new address of the ACE website set up by Mark Fitzsimons and Anthony Lewis at the University of Plymouth is http://www.science.plym.ac.uk/ace.

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

2. 4th EUROPEAN MEETING ON ENVIRONMENTAL CHEMISTRY: *CALL FOR PAPERS*

At the mouth of the River Tamar, where it forms the border between Devon and Cornwall, beneath the wild uplands of Dartmoor and above the sparkling waters of the Sound, is the magnificent natural setting of the city of Plymouth. This is the venue for the 4th European Meeting on Environmental Chemistry (EMEC4).

The meeting will be held at the Guildhall, Plymouth, England, from 10-13th December 2003 and is being hosted by the University of Plymouth on behalf of the Association of Chemistry and the Environment. EMEC4 will facilitate the communication of research from a range of exciting areas of environmental chemistry. Plymouth, with its strong tradition of excellence in this field, is the perfect setting for such an event.

Suggested topics for papers are shown below. Novel research themes outside these areas are also welcome.

1. Soil Pollution
2. Green Chemistry
3. Ecotoxicology
4. Stable Isotopes for Environmental Science
5. Water Pollution (toxic metals and organic pollutants, including pharmaceuticals)
6. Atmospheric Chemistry and Air Pollution
7. Marine Chemistry and Marine Pollution
8. Analytical Methods for Environmental Science
9. Particle Chemistry

The abstract submission form, which includes formatting instructions, is available to download from the conference website: www.emec4.org.uk. The deadline for submissions is **Monday 8th September 2003**.

In addition to oral presentations, the Scientific Committee strongly encourages posters as a highly effective means of presenting new research. Posters will have a high profile throughout the conference, with at least one dedicated poster session each day.

Further details regarding the location of the conference including maps can be found on the conference website www.emec4.org.uk.

3. EXHIBITION AND SPONSORSHIP OPPORTUNITIES AT EMEC4

Complimentary advertising is offered for exhibitors / sponsors in *Environmental Chemistry Letters* if applications are received before 20th October 2003!

Profile - The annual meeting of the Association of Chemistry and the Environment presents a unique opportunity for scientists to keep up with research trends and analytical developments in their own specialist field, whilst also actively breaking down the boundaries between application areas. The meetings have a proven track record as a venue for promoting novel ideas and opening new avenues of research and collaborations between ACE members.

Enjoy a delicious Devonshire cream tea with us at EMEC4 in Plymouth!

The multidisciplinary nature of the meeting has also proven highly advantageous to corporate sponsors, providing a platform from which to present and promote new analytical developments to researchers working across the Environmental Chemistry arena. The meeting is based in Europe, but continues to have a growing International appeal and is building a reputation as a loci for encouraging innovation, co-operation, the adoption of new ideas and the promotion of cross-boundary analytical tools and technologies.

Exhibitor Presentations - As part of the meeting programme, we propose to give sponsoring manufacturers an opportunity to give a poster presentation, for which they will be allocated a short time slot in which to introduce the subject during the meeting. In addition, as part of the meeting programme, we will be holding a session dedicated to ÒAnalytical Methods for Environmental ScienceÒ Exhibitors will have an opportunity to submit abstracts for presentations in this session.

A 50-word description of products and/or services will be published in this newsletter if payment and text are received before **October 20th 2003.**

Full details of sponsorship opportunities are available on-line at www.emec4.org.uk.
Thank you for your support of the Association of Chemistry and the Environment.

4. 2003 ACE YOUNG RESEARCHER OF THE YEAR: *Application Forms On-Line*

In 2001 the ACE introduced a new award set to promote recognition of the work of young scientists in the field of environmental chemistry Nominations are now welcomed for the 2003 award. Applications will be considered from researchers who have made an outstanding contribution to furthering our understanding of environmental processes. This 2nd award will be presented at EMEC4, December 10th-13th, hosted by the University of Plymouth, Plymouth, UK.

Information and application forms are available on line at www.emec4.org.uk. Entries should be submitted before September 1, 2003. This award consists of 500 Euros and free registration to the next annual ACE meeting. The recipient of the award will be invited to present a paper detailing their research interests at the meeting and will be featured in the early 2004 issue of this newsletter.

Springer-Verlag (http://www.springer.de) has generously offered to support this award, through the presentation of a selection of their

books and journals to the winner. We are grateful to all those who have contributed to the Gareth Rieley Memorial Fund, and for the continued support provided by the ACE committee. Enquiries relating to sponsorship for future awards, or donations to the fund, may be made to ace.news@totalise.co.uk.

5. BIOWASTE – A NEW EUROPEAN PROJECT

Bioprocessing of sewage sludge for safe recycling on agricultural land - BIOWASTE

Jens Ejbye Schmidt[1], Irini Angelidaki[1], Nina Christensen[1], Damien John Batstone[1], Gerasimos Lyberatos[2], Katerina Stamatelatou[2], Eric Lichtfouse[3], Brigitte Elbisser[3] , Kayne Rogers[4], Valérie Sappin-Didier[5], Laurence Denaix[5], Giovanni Caria[6], Laure Metzger[7], Veronica Borghi[8] and Eloi Montcada[8]

[1] Denmark; [2] Greece; [3] Dijon, France; [4] New Zealand; [5] Bordeaux, France; [6] Arras, France ; [7] Aspach le Bas, France; [8] Spain

http://www.biowaste.dk, jes@er.dtu.dk

Disposal and handling of sewage sludge are increasing problems in Europe due to the increasing quantities of the sewage sludge produced. A large amount of the sewage sludge contains small fractions of toxic chemicals, which results in problems with safe use of the sewage sludge on agricultural land. From an ecological and economical point of view, it would be essential to establish methodologies, which could allow sewage sludge to be reused as fertilizers on agricultural land. Energy-efficient biotreatment processes of organic waste are, therefore, of crucial importance. BIOWASTE will offer an integrated study of this area. The typical composition of sewage sludge will be characterised with regard to key contaminating compounds. The following compounds will be in focus: Emulsifying agents such as nonylphenols and nonylphenol ethoxylates (NPE), polycyclic aromatic hydrocarbons (PAHs) derived from incomplete combustion processes, and phthalates, which are used as additives in plastics and surfactants such as linear alkyl benzene sulfonate (LAS). Analytical techniques suitable for qualitative and quantitative evaluation of the chemical species involved in the processes under investigation will be determined. Bacteria that are able to degrade selected contaminating compounds under anaerobic and aerobic conditions will be isolated, characterised and bioaugmented for decontamination of sewage sludge through bioprocessing. Aerobic, anaerobic and combination of aerobic/anaerobic bioprocessing of sewage sludge will be applied. A mathematical model will be developed to describe the biodegradation processes of the contaminating compounds after establishing the kinetic parameters for degradation of contaminating compounds. The bioprocessed sewage sludge will be used in eco- and plant- toxicology tests to evaluate the impact of the xenobiotics on the environment. The cleanliness of the new developed bioprocess will be assessed by means of Life Cycle Analysis.

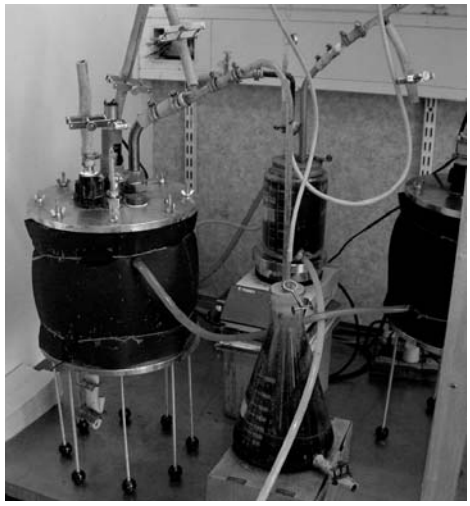
The intensive use of wastewater treatment in Europe has resulted in production of large amounts of sewage sludge. There are currently over 50,000 wastewater treatment plants operating in the European Union, yielding a total of about 7.9 million tons of dry solids in the year 2000. The amount of sludge will continue to increase as the Urban Wastewater Treatment Directives continue to be implemented. There have been several disposal routes for sludge, including ocean dumping, incineration, spreading on agricultural land, soil incineration, land re-vegetation, land reclamation, land spreading in forestry or land filling. At present, the disposal of sludge by land filling accounts for 40% of the waste and is the most important means of treatment in the EU, followed by land spreading, which accounts for 37% of the produced sewage sludge. The amount of sewage sludge requiring disposal is expected to increase significantly in the future due to recent environmental developments. With increasing sludge protection in the EU, the wastewater industry will seek to recycle larger amounts of sewage sludge for agricultural purposes. This approach seems to be reasonable since agricultural land becomes nutrient deficient due to the intensive cultivation used in modern agriculture, if no fertilizer is added. Hence, bioprocessed sewage sludge application on agricultural soil would diminish the use of artificial fertilizer.

Man-made chemicals of organic origin are found widespread in the biosphere as contaminants, and their adverse effects on human health and other biological life have received increasing attention in the European Union. Many organic contaminants have a broad spectrum of uses in society, and a major part eventually ends up in the sewage sludge generated in municipal wastewater treatment plants. Recent findings have detected organic contaminants in municipal sewage sludge in such concentrations that could be toxic to many organisms due to direct exposure or due to biomagnification within the food web. Emulsifying agents, such as nonylphenols and nonylphenol ethoxylates (NPE), polycyclic aromatic hydrocarbons (PAHs) derived from incomplete combustion processes, and phthalates, which are used as additives in plastics and surfactants such as Linear Alkylbenzene Sulfonate (LAS) are the major anthropogenic organic contaminants in sewage sludge. These compounds have adverse effects on biological life and some of them are carcinogenic and mutagenic. Also estrogenic effects caused by some of these contaminants in sludge have been observed on aquatic organisms lately, and a deterioration of human fertility is suspected.

The recycling of nutrients and organic matter from organic wastes, e.g. sewage sludge, to agricultural soils is essential in reducing the need for fertilization and maintaining the soil quality with respect to organic matter content.

However, the presence of the named contaminants in high concentrations may be the major obstacle that prevents recycling of sewage sludge as one of the tools in developing sustainable agricultural practices.

From an ecological and economical point of view, it would be essential to establish methodologies, which could allow sewage sludge to be reused as fertilizers on agricultural land. Energy efficient biotreatment processes of organic waste are, therefore, of crucial importance. The BIOWASTE project aims to offer an integrated approach to conditioning sewage sludge for removal of xenobiotics, and safe application on agricultural land.



BIOWASTE involves 5 partners from 4 EU countries, with 9 interdependent sub-projects (work packages). It was started in October 2002, and will last for three years. Each sub-project has one partner with overall responsibility for coordination. Sub-projects include the following scientific activities:

- Characterisation of typical sewage sludge with respect to xenobiotic components.
- Analytical techniques suitable for qualitative and quantitative evaluation of the chemical species involved in the processes under investigation will be determined. Bacteria that are able to degrade selected contaminating compounds under anaerobic and aerobic conditions will be isolated, characterised and bioaugmented for decontamination of sewage sludge by bioprocessing.
- Aerobic, anaerobic and combination of aerobic/ anaerobic bioprocessing of sewage sludge will be applied.
- A mathematical model will be developed to describe the biodegradation processes of the contaminating compounds after establishing the kinetic parameters for degradation of contaminating compounds.
- The bioprocessed sewage sludge will be used in eco- and plant- toxicology tests to evaluate the impact of the xenobiotics in the environment.
- Methods will be developed and applied to assess the cleanliness of the bioprocessing as a safe method for waste recycling.

This research project is supported by the European Commission under the Fifth Framework Programme and contributing to the implementation of the Key Action "Sustainable Management and Quality of Water" within the Energy, Environment and Sustainable Development
(http://www.cordis.lu/eesd/ka1/home.html).

6. ANNOUNCEMENTS

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

Sixth Framework Programme
Information can be found at
http://fp6.cordis.lu/fp6/calls.cfm
ACE members may publicise their own projects funded as part of the Framework Programs in this newsletter. Information should be sent to ace.news@totalise.co.uk.

10-13 December 2003 - 4th European Meeting on Environmental Chemistry
PLYMOUTH, UNITED KINGDOM

Invitation and Call for Papers 4th European Meeting on Environmental Chemistry (EMEC4), Plymouth, UK. EMEC4 will be held in Plymouth from 10th-13th December 2003. The meeting is being hosted by the University of Plymouth on behalf of the Association of Chemistry and the Environment, and will facilitate the communication of research from a range of exciting areas of environmental chemistry. Plymouth, with its strong tradition of excellence in this field, is the perfect setting for such an event.

Information regarding the Conference as well as the Call for Papers is available from the conference website
http://www.emec4.org.uk

The Wildlife Incident Investigation Scheme (WIIS)
This UK-based scheme continues to investigate the suspected pesticide poisoning of wildlife, including beneficial insects and companion animals. This poisoning may have arisen from approved uses of pesticides, a misuse or deliberate abuse of the compounds. The forensic analysis for England and Wales is carried out by the Central Science Laboratory (CSL) who also compile an annual report of the findings. The report for incidents in 2001 has recently been published and can be found with previous reports at the website:
http://www.pesticides.gov.uk/citizen/caip.htm.
For further information contact Michael Wilson of the Pesticides and Veterinary Medicines Group, Central Science Laboratory, Sand Hutton, York UK
Email: m.wilson@csl.gov.uk
Web - http://www.csl.gov.uk.

2003 Geochemistry Division Medal presented to Dr John M. Hayes

The ACS Division of Geochemistry recently announced that Dr John M Hayes has been awarded the 2003 Geochemistry Division Medal. Dr Hayes is being recognised for his visionary contributions to an understanding of organic geochemistry, cosmochemistry, isotope geochemistry and paleoenvironmental analysis.

John Hayes has been a significant influence to many in his pioneering work in the field of isotope biogeochemistry, including the young researcher in whoÕs memory the ACE proudly presents the Young Researcher of the Year Award. Gareth Rieley (PhD) was himself greatly influenced by the time he spent in John Hayes laboratories at Woods Hole in the 1990Õs — an increadibly exciting time in the development of continuous-flow isotope ratio mass spectrometry techniques. GarethsÕsuccess owed much to the teachings and experience of John Hayes, particularly with respect to compound-specific isotopic analysis, which he went on to apply to investigations of both modern and ancient biogeochemical processes.

Environmental Chemistry Book

The Association of Chemistry and the EnvironmentÕs environmental chemistry compilation incorporates key peer-reviewed articles first presented at the ACE meeting in Dijon, December 2001. This book has now reached the stage of final corrections by the Editors, and is scheduled for publication by Springer in 2003. Of the 102 articles submitted, 69 articles have been selected for publication. The chapter titles are Green Chemistry (9 articles), Ecotoxicology (12), Toxic Metals (14), Pesticides (7), Fossil Fuels (7), Organic Pollutants (10), and Analytical Chemistry (10).

Applying the best scientific knowledge to everyday situations

A recent report entitled "Environmental Conflict, Science for Solutions" is now available for download from the Centre for Ecology and Hydrology (CEH) website (http://www.ceh.ac.uk/products_services/publications/online/evconf/envconflict.htm).

European Science Foundation (ESF)

announces its vision for future European research funding

A new report is available from http://www.esf.org, entitled ÔNew structures for the support of high-quality research in EuropeÓ This is a report from a High Level Working Group constituted by the European Science Foundation to review the option of creating a European Research Council, responsible for funding the highest quality Ôresearcher initiatedÓ science, said to be essential for the future development of Europe.

Eighteen months ago, the European Science Foundation (ESF) started a debate on the construction of a new European research funding structure, with substantial funding capacity for research in the forefront of knowledge in Europe. This idea of creating a European Research Council would complement the European Commissions vision, of a true European Research Area with more open competition and collaboration between European researchers and a strengthening of the funding structures of research in Europe.

A High Level Working Group was formed by the ESF in April 2002 to review the case for establishing a new funding structure and to prepare recommendations. The ESF High Level Working Group chaired by Sir Richard Sykes, Rector of Imperial College, London, has now produced a report, which advocates the need for an ERC, and shapes the scope of its remit and basic principles, its mode of operation, institutional development, and its funding sources.

Chemistry Week 2003

a week of events, from 7-16 November 2003, highlighting the way chemistry makes all our lives that little bit more pleasurable. To find out more, and see a copy of the first chemistry's pleasure poster, visit http://www.rsc.org/pleasure.

7. FORTHCOMING EVENTS

July 16-18 2003
The Impact of Global Environmental Problems on Continental and Costal Marine Waters
Geneva, Switzerland
http://www.unige.ch/sciences/desne

August 10-13, 2003
10th Canadian Continuous-Flow Isotope Ratio Mass Spectrometry Workshop
Winnipeg, USA
http://www.uwinnipeg.ca/~geograph/CF-IRMS/CF-IRMS.htm

August 24-29, 2003
DIOXIN 2003 - The 23rd International Symposium on Halogenated Organic Pollutants and Persistent Organic Pollutants
Boston, MA, USA
http://www.dioxin2003.org

September 7-12, 2003
2003 Goldschmidt Conference
Japan
http://www.ics-inc.co.jp

September 8-10, 2003
Integrating Novel Approaches to Pollution Research in Terrestrial and Marine Environments
Aberdeen, UK
http://www.soils.org.uk (BSSS)
http://www.setac-uk.org.uk (SETAC)
Organised jointly by the British Society of Soil Science (BSSS) and the Society of Environmental Toxicology and Chemistry (SETAC)

September 21-23, 2003
8th Annual Meeting of the SETAC-German Language Branch (SETAC-GLB)
Heidelberg, Germany
www.setac.org
This is a regional branch of the SETAC-Europe with about 300 members from Germany, Austria and Switzerland. Since its foundation in 1996, there have been seven annual meetings at Braunschweig, Aachen, Zittau, Weihenstephan, Hamburg-Harburg, Berlin and Braunschweig.

For the Annual Meeting 2003 the Department of Zoology of the University of Heidelberg and SETAC-GLB are proud of inviting to Heidelberg, Germany. For the first time, young scientists will be involved in organization and management of sessions at the SETAC-Meeting 2003. Young scientists will be encouraged by the low meeting charges, young scientist awards, and arrangements of low cost accommodation. A free evening event after the opening ceremony by the vice president of the German EPA (Dr. Thomas Holzmann) will be organized under the title ÒNew Blood in EcotoxicologyÓ

September 28-October 1, 2003
41st Congress of the European Societies of Toxicology - EUROTOX 2003
Florence, Italy
http://www.eurotox2003.org
Hosted by the Italian Society of Toxicology (SITOX)

October 5-8, 2003
International Conference on Mechanisms and Regulation of Organic Matter Stabilisation in Soils
Munich, Germany
http://www.wzw.tum.de/bk/hk

October 13-17, 2003
1st IMEKO TC 19 Conference on Environmental Measurements
Budapest, Hungary
Hosted by the International Measurement Confederation (IMEKO), Technical Committee on Environmental Measurement (TC 19), the Hungarian Chemical Society and the Hungarian Scientific Society of Measurement, Automation and Informatics
http://www.icem2003.mtesz.hu/

October 15–17, 2003
20th Montreux Symposium on Liquid Chromatography/Mass Spectrometry
Savannah, Georga, USA
http://www.lcms2003.org

November 2-6, 2003
Soil Science Society of America Symposium
Denver, CO, USA
The symposium will consist of invited and volunteered papers on the environmental fate of agricultural pharmaceuticals. Papers should address microbial, physical, or chemical processes that affect the persistence and fate of agricultural pharmaceuticals.
http://www.soils.org/divs/s2

April 19-23, 2004
4th International Conference on Applications of Stable Isotope Techniques to Ecological Studies
Wellington, New Zealand
http://207.195.94.13/isoecol/

July 11–16, 2004
10th International Congress of Toxicology (ICTX-2004)
Tampere, Finland
http://www.ictx.org

August 20-28, 2004
32nd Session of the International Geological Congress
Florence, Italy
http://www.32IGC.org

8. NEW BOOK

L'analyse du sol : Minéralogique, organique, minérale by M. Pansu, J. Gautheyrou
(IRD, Montpellier, France)
Springer-Verlag 2003 (http://www.springer.de)
ISBN 2-287-59774-3

Written to conform with accepted analytical standards, this new book provides a useful guide to the different methodologies used in the analysis of soils. Methods for determining the physicochemistry of the mineralogical and organic components of soils, characterisation and availability of pesticides and pollutants, and analysis of trace elements and isotopes are described. This book will be particularly useful for researchers, engineers, technicians, professors and students specialising in pedology, agronomy, earth and environmental sciences, as well as related disciplines such as geology, hydrology, ecology, climatology and civil engineering (French language).

9. RECENT MEMBERS PUBLICATIONS

Piutti S., Semon E., Landry D., Hartmann A., Dousset S., Lichtfouse E., Topp E., Soulas G., Martin-Laurent F. (2003) Isolation and characterisation of Nocardioides sp. SP12, an atrazine-degrading bacterial strain possessing the gene trzN from bulk- and maize rhizosphere soil. *FEMS Microbiology Letters* **221**, 111-117.

10. NEW ACE MEMBERS

ACE welcomes new members:
NIEMEYER Jürgen, G ttingen, GERMANY
BLACKWELL Paul, Derby, UK
LEWIS Anthony, Plymouth, UK

11. THE FUNNY SIDE…

"The main thing you need to learn is doubt. Don't believe anything you're told without good reason and argument. Doubt underpins science. The greatest scientific advances couldn't be, and weren't, predicted. If you're committed to what you're doing, you don't need to be a genius, you just need determination."

Sir Harold W. Kroto, Chemistry Nobel Prize 1996

12. THANKS!!

Our thanks go out to all the contributors to the newsletter and their colleagues/collaborators. Please send your news/reviews to ace.news@totalise.co.uk for publication in the next issue.

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

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

European Association of Chemistry and the Environment
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APPLICATION FOR MEMBERSHIP 2003

(please write in BLOCK LETTERS)

Please fill this form and send it together with the membership fee (cash: 50 Euros*) by POST MAIL (only) to:

*This fee includes the receipt of all 2003 issues of the journal "*Environmental Chemistry Letters*"

European Association of Chemistry and the Environment
Memberships
Dr. Eric LICHTFOUSE
Centre des Sciences de la Terre, Universit de Bourgogne
6, Boulevard Gabriel
21000 Dijon FRANCE

LAST NAME:
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FIRST NAME:
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MALE: ☐ FEMALE: ☐

INSTITUTE:
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POST ADDRESS:
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ZIP CODE: .....

TOWN: .....

STATE: .....

COUNTRY: .....

EMAIL ADDRESS(ES): .....

WEB SITE: http://.....

Date: .....

Signed:

ASSOCIATION of CHEMISTRY and the ENVIRONMENT

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