

# Newsletter 01

ACE MEMBER n°

<http://www.u-bourgogne.fr/ACE>

August 2001

## European Association of Chemistry and the Environment

Welcome! to the first issue of the newsletter, designed to distribute information and news relating to chemistry and environment. We hope you enjoy reading. Please forward this letter to colleagues you think may be interested.

*European Association of Chemistry and the Environment Newsletter, n°1, pp. 1-4, 2002.*

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- The ACE will soon launch a new international journal, entitled "Environmental Chemistry Letters". So watch this space!

- Finally, of course, you are reading the very first issue of the association's newsletter, of which the primary aim is to distribute information of interest to our members and draw together news and views, which will be posted on the Association's web site:

<http://www.u-bourgogne.fr/ACE>

### 1. WELCOME TO ACE, THE NEW EUROPEAN ASSOCIATION

The Association of Chemistry and the Environment (ACE) is a European non-profit-making scientific association founded in France in 2000. The primary aim of the association is the protection of the Environment, and to this end we promote contacts between academics, education, private firms, and social representatives. English-speaking meetings are held annually in December. We are promoting the annual ACE symposia as a major forum for disseminating information to members, developing new links and building on communications initiated at the 1<sup>st</sup> meeting of ACE in 2000.

Please forward this newsletter to anyone you think may be interested in participating. We look forward to receiving any comments or short communication in the form of meeting reviews and announcements, new books, papers or theses abstracts in order to promote interest in a broad range environmental topics and to include something of interest to everyone.

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most gratefully  
acknowledged.

### 2. WHAT'S HAPPENING IN 2001?

- Following the success of the 1<sup>st</sup> ACE European Meeting on Environmental Chemistry in 2000 (see review below) we are looking forward to continued success with the 2<sup>nd</sup> symposia being planned for Dijon, France (December 12-15, 2001). Join us in celebrating the delights of Burgundy in the middle of the festive season.

- Selected papers from the 1<sup>st</sup> French Meeting on Environmental Chemistry, held in Nancy 2000, will soon be published in a special issue of "The Science of the Total Environment".

### 3. ACE SYMPOSIA 2000: A HARD ACT TO FOLLOW

#### REVIEW

1<sup>st</sup> European Meeting on Environmental Chemistry  
<http://www.ensaia.inpl-nancy.fr/colloque/>

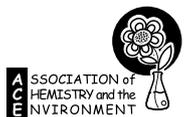
In December 2000, around 360 participants from all over Europe and also Russia, New Zealand and Mexico, attended the first ACE Environmental Chemistry meeting in Nancy, France. We heard two invited lectures in addition to the 80 oral presentations and 140 poster presentations on various environmental topics. Sessions were organised around the topics of fossil fuels, toxic metals, pesticides, chlorinated pollutants, greenhouse gases, water-air pollution, analytical development and biogeochemical cycles.

Besides the variety and extremely high quality of the scientific presentations and discussions, attendees fully enjoyed the festive colour, decoration and charm of the city in the build up to Christmas; the food at the beautiful City Hall conference dinner; the scientific movie show, and of course, receiving the meeting mug! Selected papers from the meeting will soon be published in a special issue of The Science of the Total Environment. Further information may be obtained from [Didier.Robert@iut.univ-metz.fr](mailto:Didier.Robert@iut.univ-metz.fr)

#### ANNOUNCEMENT

Register NOW! to attend the 2<sup>nd</sup> European Meeting on Environmental Chemistry.  
<http://www.u-bourgogne.fr/ACE>

The success story of the 2000 meeting will be a hard act to follow, however with such an enormous response right from the start the meeting planned for later this year is a great



opportunity for everyone. We look forward to welcoming you to Dijon, where you will enjoy good science, good food and wine, and Christmas time in one of the most charming town of Burgundy - an unmissable experience!

#### ANNOUNCEMENT

December, 12-15, 2001, Dijon, France

Abstract deadline: October 1<sup>st</sup>, 2001.

Abstract and general information on submitting a research paper can be obtained from the ACE web site: <http://www.u-bourgogne.fr/ACE>

Specific questions may be directed to: ACE.MEETING@u-bourgogne.fr

This year's invited lecture will be "Environmental Monitoring by Instrumental Analysis and Bioassays", given by Antonius A. Kettrup, Professor for Ecological Chemistry and Environmental Analysis, Technical University of Munich. The ACE board will also be awarding the 2<sup>nd</sup> Environmental Chemistry Award.

## 4. OTHER DATES FOR YOUR DIARY

#### SHORT COURSE ANNOUNCEMENT

Short courses in Environmental Palaeoecology will be held at the Environmental Change Research Centre (ECRC), London, during the academic year 2001-2002. Full details of all courses, as well as on-line registration, can be found on the web site:

<http://www.geog.ucl.ac.uk/ecrc/teaching.stm>

Gail Crick, Environmental Change Research Centre, Dept of Geography, University College London, 26 Bedford Way, London, WC1H 0AP. E-mail: Gail Crick: [g.crick@UCL.AC.UK](mailto:g.crick@UCL.AC.UK)

#### FORTHCOMING

20<sup>th</sup> INTERNATIONAL MEETING ON ORGANIC GEOCHEMISTRY, 10-14 September, 2001, Nancy, France <http://www.imog.uhp-nancy.fr>

#### FORTHCOMING

IV Yugoslav symposium: CHEMISTRY AND THE ENVIRONMENT, 23-26 September 2001, to be held at the Culture Centre and the Baroque Hall in Zrenjanin, Yugoslavia.

Included in the programme will be sessions on analytical methods, monitoring systems and environmental pollution; transformation and transport of harmful chemicals; effects of harmful chemicals on materials and biochemical processes; environmentally effective technologies and equipment, and standards, regulations and terminology in the protection of the environment. A special "Young Scientists" section is also planned and exhibition space is available in the hall of the Culture Centre.

Additional information may be obtained from Serbian Chemical Society, Tel/Fax: +381-11-337 04 67 E-mail: [SHD@elab.tmf.bg.ac.yu](mailto:SHD@elab.tmf.bg.ac.yu) or Prof. Dragan Veselinovic, Tel: +381-11-630-551

#### ANNOUNCEMENT

ACHIEVING CLIMATE PREDICTABILITY USING PALEOCLIMATE DATA:

Euroconference on Abrupt Climate Change Dynamics, 10<sup>th</sup> - 15<sup>th</sup> November 2001, Castelvechio Pascoli, Italy

With the growing awareness that the Earth's climate system can shift abruptly, and without warning, from one climate state to another, comes the imperative to develop the scientific understanding needed to anticipate climate "surprises" of the future.

<http://www.esf.org/euresco>

#### ANNOUNCEMENT

SPEA2: The 2<sup>nd</sup> European Meeting on "Solar-chemistry and Photocatalysis : Environmental Applications" to be held in Saint-Avold, France, 29<sup>th</sup>-31<sup>st</sup> may 2002. Web site : <http://www.photocatalysis.fr.st> Subject of communications will be as follows:

- 1- Water treatment and disinfection
- 2- Air and soil treatment
- 3- Green synthesis by solar-chemistry, photochemistry and photocatalysis
- 4- Developments of new materials for photochemistry and photocatalysis
- 5- Development and perspectives in environmental photochemistry
- 6- Commercial applications

End of call for papers: 15 February 2002

Announcement of acceptance to the authors: 20 March 2002

Further information is available from the Secretary (Secretariat du Colloque): The Secretariat-SPEA2, c/o Dr. Didier Robert, Laboratoire de Chimie Appliquée, Synthèses, Produits et Procédés, IUT-Université de Metz Rue Victor Demange 57500-Saint-Avold, France Tél. : 33 (0)3 87939108 / Fax : 33 (0)3 87939101 E-mail : [drobert@iut.univ-metz.fr](mailto:drobert@iut.univ-metz.fr)

## 5. NEWS AND REVIEWS OF MEETINGS IN 2001

#### European Geophysical Society (EGS) Nice, France 25<sup>th</sup> – 30<sup>th</sup> March 2001

The European Geophysical Society holds a general assembly each year, preferably in Nice, France. EGS is an international Society, which accommodates scientists from the very broad spectrum of geophysics ranging from Solid Earth Geophysics, Geodesy, Hydrology, Oceans and Atmosphere, Solar-Terrestrial Sciences to Natural Hazards. Of particular interest to members of ACE are the hydrology sessions. Primary focus is still given on the assessment and modeling of flow processes in the various aquatic systems such as rivers, soil systems or aquifers.

The link to environmental chemistry was strengthened during this year's meeting, with additional focus on pesticide, metal and radionuclide transport and a new session on nutrient management. Growing interest in plant-soil interaction was given notice by a new session on hydrology and rhizosphere processes. The conference made it clear that mathematical models exist for most hydraulic systems relevant to environmental chemists, but that the lack of data on critical parameters or even the availability of methods to measure those still remains. Also of interest was a session on water and ethics, which addressed scientific knowledge in the field of hydrology and water pollution in relation to social and ethical constraints.

<http://www.copernicus.org/EGS>

Review by Dr. Achim Albrecht ETH Zürich, Institute for Plant Sciences, Group of Plant Nutrition, Postfach 185, Eschikon 33, CH - 8315 Lindau Switzerland E-Mail: [achim.albrecht@ipw.agrl.ethz.ch](mailto:achim.albrecht@ipw.agrl.ethz.ch)

#### World Meteorological Organisation Global Atmosphere Watch (WMO GAW) 2001 WMO, Geneva, 2<sup>nd</sup> - 4<sup>th</sup> April 2001

The World Meteorological Organisation Global Atmosphere Watch (WMO/GAW) was established in 1989 under the responsibility of the United Nations. WMO/GAW co-ordinates



research on the composition of atmosphere and the monitoring of the ozone layer, greenhouse gases, atmospheric pollutants, and urban environment studies.

The first WMO GAW get-together meeting took place in Geneva (2-4 April 2001) in co-ordination with the EC Panel meeting. Representatives of all components in WMO/GAW were invited to participate: the EC Panel, President and vice-president of the Commission for Atmospheric Sciences, Chairmen of the Scientific Advisory Groups, Managers of the World Data Centres, World Calibration Centres and Service Activity Centres and the WMO Secretariat. Important international organisations such as EC Joint Research Centre, BIPM (International Bureau of Weights and Measures), EMEP (Environment Monitoring Evaluation Program), NIST (National Institute for Standards and Technology) and WHO (World Health Organisation) also took part in this meeting. Working groups were established to discuss main topics such as network of stations, satellite activities, data handing, and cooperation between different organisations.

Review by Olivier Bréas

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Institute for Reference Materials and  
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**19<sup>th</sup> European meeting of the Society for  
Environmental Geochemistry & Health  
Manchester Metropolitan University,  
Manchester, UK, 9<sup>th</sup> - 11<sup>th</sup> April 2001**

The 19<sup>th</sup> European Meeting of the Society for Environmental Geochemistry & Health was organised by Dr Kevin Taylor from MMU. The meeting covered a wide range of issues associated with environmental geochemistry of contaminated urban environments. The presentations included contributions from invited key note speakers on Contaminated Land, The Historical Development of Environmental Geochemistry; Water Quality improvements in the Mersey Basin and Environment and Health. These were supported by a full program of over 30 oral and over 25 poster presentations from academics, experienced researchers. Topped off with a great social program and the traditional end of conference field trip, which investigated some of the unique urban environments of the Manchester area. Hoping to achieve the same success, the 20<sup>th</sup> European Meeting will be held in Hungary in 2002. For SEGHS Membership Details contact Dr Malcolm J. Brown, SEGHS secretary, British Geological Survey, Nottingham Email: [mjbro@bgs.ac.uk](mailto:mjbro@bgs.ac.uk)

Review by Andrew Hursthouse:  
[hurs-ch0@wpmail.paisley.ac.uk](mailto:hurs-ch0@wpmail.paisley.ac.uk)

**The Second European Workshop on Water,  
Air and Soil Treatment by Advanced  
Oxidation Technologies: Innovative and  
Commercial Applications,  
Ecole Supérieure d'Ingénieurs de Poitiers  
(ESIP), Université de Poitiers, France  
February 28 – March 2, 2001**

It has been frequently observed that pollutants not amenable to biological treatments may also be characterised by high chemical stability and/or can only be completely mineralised with great difficulty. Thus it is necessary to adopt significantly more effective reactive systems than

those adopted in conventional purification processes. Many studies have tried to address this problem in the last decade, with the prevalence of a particular class of oxidation technique defined as Advanced Oxidation Processes (AOP), which usually operate at or near ambient temperature and pressure. AOP are characterised by a common chemical feature: the capability to exploit the high reactivity of HO radicals in driving oxidation processes. This is suitable for achieving the complete abatement and thorough mineralisation of even less reactive pollutants. The versatility of AOP is also enhanced by the fact that they offer different methods for the production of OH radicals, thus allowing a better compliance with the specific treatment requirements.

In this workshop, the different AOP were presented through work performed by scientific groups from different European countries with reference, whenever possible, to real applications for water pollution abatement. This workshop was the second organised in Europe (the first one was organised in Lausanne, Switzerland, 1998) on this subject, with around 70 presentations dealing with Ozone, photo-fenton (illuminated Fe<sup>2+</sup> + H<sub>2</sub>O<sub>2</sub>), photocatalysis (illuminated semiconductors, mainly TiO<sub>2</sub>), combined treatments /AOPs + biological), non-thermal plasma and wet air oxidation.

For further information about participants, abstracts, etc. contact Dr. Sixto Malato,  
E-Mail: [Sixto.Malato@psa.es](mailto:Sixto.Malato@psa.es)



**6. KEEP UP TO DATE WITH  
OUR RECENT PUBLICATIONS LIST**

1. C. Laurent, C. Feidt, E. Lichtfouse, N. Grova, F. Laurent and G. Rychen (2001) Milk-blood transfer of <sup>14</sup>C-tagged polycyclic aromatic hydrocarbons (PAHs) in pigs. *Journal of Agricultural and Food Chemistry* 49, 2493-2496.
2. E. Lichtfouse (2000) Compound-specific isotope analysis (CSIA): Application to archaeology, biomedical sciences, biosynthesis, environment, extraterrestrial chemistry, food science, forensic science, humic substances, microbiology, organic geochemistry, soil science and sport. *Rapid Communications in Mass Spectrometry* 14, 1337-1344.
3. B. Jovancicevic and P. Polic (2000) n-Alkanes as a tool for estimation of the biodegradation of oil-type pollutants in alluvial sediments (Danube, Yugoslavia). *Fresenius Envir. Bull.* 9, 232-237.
4. M. Dawitt, I. D. Williams and M.F. Fitzsimons (2001). Determination of 1-aminopropan-2-one, a dissolved sewage component, in water samples. *Water Research* 35 (5), 1151-1156.
5. S. Malato, J. Blanco, C. Richter and M. I. Maldonado (2000) Optimization of pre-industrial solar photocatalytic mineralization of commercial pesticides: Application to pesticide container recycling. *Appl. Cat. B: Envir.* 25, 31-38.

**NEW BOOK**

"Chemical and Biological Sensors for Environmental Monitoring", edited by Ashok Mulchandani and Omowunmi A.Sadik, Oxford University Press, 2000, 340 pp. Presents an account of five categories of sensors, including chemical, enzyme and protein, microbial, affinity and nucleic acid based.

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## 7. NEED INFORMATION? CHECK OUT OUR WEB LINKS

1. The Royal Society of Chemistry - Environmental Chemistry Group:  
<http://www.rsc.org/lap/rsccom/dab/scaf003.htm>
2. The National Society for Clean Air & Environmental Protection (the UK's oldest environmental society):  
<http://www.greenchannel.com/nsca>
3. NICOLE network (contaminated land):  
<http://www.nicole.org>
4. A useful international web address for jobs is the Earthworks site:  
<http://ourworld.compuserve.com/homepages/eworks>
5. The Web Site of the Global Network for Isotopes in Precipitation (GNIP) and Isotope Hydrology Information System (ISOHIS):  
<http://isohis.iaea.org>
6. The CSL "LIAISON" system; a very useful source of information for anyone interested in the use of pesticides in agriculture and, of course, their environmental impact. It provides up-to-date information on what is being used in Great Britain, how, when and by whom and on what crops. It also provides users with details of relevant regulations concerning pesticide use and much more:  
<http://www.csl.gov.uk/liaison>
7. University of Paisley - Environmental Research Activities:  
<http://environment.paisley.ac.uk>
8. United States Environmental Protection Agency climate change web site:  
<http://www.epa.gov/ghginfo>
9. Information on the varied activities of UNESCO's natural science organisation:  
<http://www.unesco.org/science/activities.htm>

New members to the association are always welcome and details regarding membership are available at <http://www.u-bourgogne.fr/ACE>

New subscribers to the newsletter or contributions in the form of announcements, reviews or comment are welcomed and should contact the e-news desk at [ACE.news@totalise.co.uk](mailto:ACE.news@totalise.co.uk)

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**Dr. Stephanie N. Dudd**  
[ACE.news@totalise.co.uk](mailto:ACE.news@totalise.co.uk)

If you think that a friend or colleague might find <http://www.u-bourgogne.fr/ACE> useful, don't forget to forward them this message.

## 8. WHAT'S NEW IN 2001: THESIS REVIEW

1. Equilibrium and kinetic adsorption of molecular probes on commercial active carbons  
Laurent Cossarutto, University of Metz, France. Research Advisor Pr J.V. Weber

**Abstract:** This fundamental study is devoted to the influence of activated carbon properties (porosity and surface chemistry) towards adsorption of Volatile Organic Compounds (VOC). Both the adsorption kinetics and thermodynamics are of critical importance in assessing the performance of active carbon beds for the adsorption of VOCs, in term of selectivity.

First, energetic heterogeneity of the carbonaceous materials surface was analysed. This was carried out by both inverse gas chromatography at infinite dilution and low pressure argon adsorption methods. The results shown that adsorption energies between two kinds of activated carbon (chemical or physical activation) are markedly different.

The second part of this work is devoted to the study of equilibrium and kinetic adsorption of few molecular probes. Adsorptives with varying hydrophilic/hydrophobic character were used. Water vapour adsorption experiments suggested that there exists a

critical micropore size leading to a change in the dynamic adsorption process. The study of the adsorption alcohols has still showed discrepancies on adsorption mechanisms between the two classes of commercial active carbon.

**Acknowledgement:** This work was carried out inside the European Research Group (GDRE - CNRS - PIR ECODEV - ADEME) "Carbonaceous Adsorbents and Environment".

2. Descontaminación de aguas de lavado de envases de plaguicidas mediante fotocatalisis solar  
Manuel I. Maldonado Rubio. Department of Chemical Engineering, University of Almería, Spain. Directed by Dr. Sixto Malato Rodríguez (CIEMAT) and Prof. Dra. D<sup>a</sup>. Ana Agüera López (University of Almería).

**Abstract:** One of the most important sources of polluted water with high pesticide content is the rinsing of empty pesticide containers. In this work, a pre-industrial TiO<sub>2</sub>-solar photocatalytic treatment is used to prevent such pollution of continental waters and ten commercial pesticide are used at various initial concentrations to demonstrate the treatment. Additional oxidants have also been used for improving the treatment. All the experimental work have been done at pilot plant scale (247 L) using solar energy. A kinetic model is proposed for fitting experimental data by an approximate kinetic solution which has the analytical form of a Langmuir-Hinshelwood equation but without its original significance. Finally, an example of calculation of solar plant size from experimental and solar radiation data is shown. The results obtained from these experiments have been used to decide the dimensions and operating conditions of a solar photocatalytic plant, the final objective of which is the treatment of rinsates produced by washing pesticide containers (a residue from Almería greenhouses agriculture, which is the most important of Europe).

3. The influence of combustion conditions and coal characteristics on Sulphur retention in ash.  
V. Manovic. Department of Chemistry, University of Belgrade. Directed by B. Jovancicevic.

**Abstract:** An attempt was made to estimate the influence of coal characteristics (carbonification degree, granulation) and combustion conditions (fluidised bed combustion or furnace combustion, temperature) on the quantity of sulphur oxides emission. For this purpose, in lignites, soft coal and hard coal of various granulation, total, sulphate, pyrite and organic sulphur were determined. On the basis of these data the self-desulphurisation degree was calculated.

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