



NEWSLETTER

INTERNATIONAL HUMIC SUBSTANCES SOCIETY

Number 18

Summer, 1997

EDITORIAL

Dear Member,

the second 1997 issue of the IHSS Newsletter is ready. Big changes have occurred lately in in the structure of the IHSS concerning either the Board of Directors or the peripheral Chapters. New members are joining the Society and new chapters have been founded in various countries. Older chapters have promoted various initiatives and activities along with their national chapters meetings.

Well, now again after few years, a World Membership List of the IHSS is almost ready. It has been generated with a universally known software, FileMaker Pro, and will be available next Fall.

The Meeting of the IHSS Board of Directors has been held in Atlanta in March 1997. The

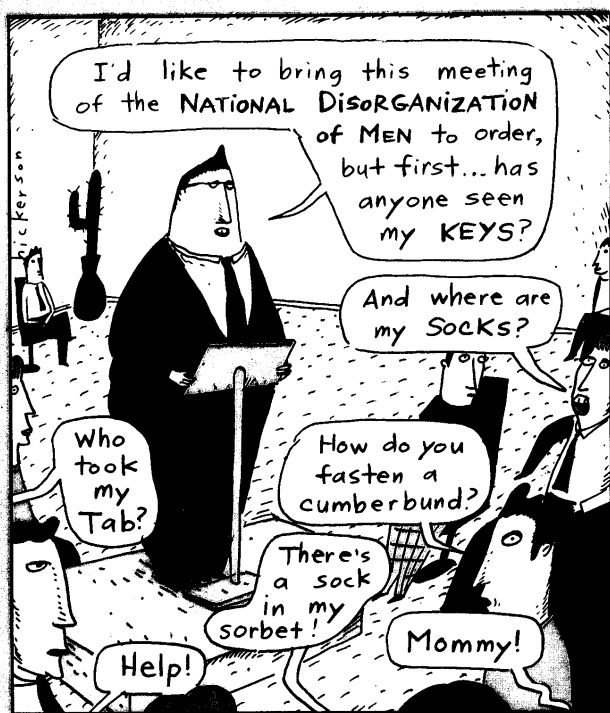
Agenda of the Meeting was very long and the schedule was tight and intense !!. Main items discussed during the Meeting concerned:

- * *Sample Collection and replenishing of humic substances*
- * *Future elections of IHSS Board members: deadlines, election procedure, Nominating Committee*
- * *9th International Meeting of the IHSS*
- * *IHSS publications*
- * *IHSS Bylaws modifications*
- * *Int. Journal of Humic Substances Research*

The IHSS is still on "The Net" and our home page improves "as the time goes by...". Everybody is strongly encouraged to join the party even though not many "visitors" showed up on the page.

At last, I really like to express my gratitude to friends and colleagues who sent their contribution to the Newsletter (not many !) and I strongly look forward to hearing also from the rest of the members.

*Teodoro M. (Ted) Miano
Secretary*



INTERNATIONAL HUMIC SUBSTANCES SOCIETY

BOARD OF DIRECTORS

1997

Past President

Dr. Michael H.B. Hayes
School of Chemistry
University of Birmingham
Edgbaston, Birmingham
B15 2TT, United Kingdom
Tel. (+) 44 121 414 4405
Fax. (+) 44 121 414 4426
M.H.B.Hayes@bham.ac.uk

President

Dr. Nicola Senesi
Istituto di Chimica Agraria
Università di Bari
Via Amendola, 165/A
70126 Bari, Italy
Tel. (+) 39 80 544 2853
Fax. (+) 39 80 544 2813
nsenesi@mail2.clio.it

Vice President

Dr. James J. Alberts
Marine Institute
University of Georgia
Sapelo Island
GA 31327, USA
Tel. (+) 1 912 485 2221
Fax. (+) 1 912 485 2133
jalberts@uga.cc.uga.edu

Secretary

Dr. Teodoro M. (Ted) Miano
Istituto di Chimica Agraria
Università di Bari
Via Amendola, 165/A
70126 Bari, Italy
Tel. (+) 39 80 544 2857
Fax. (+) 39 80 544 2813
tmiano@mail2.clio.it

Treasurer

Dr. C.E. Clapp
Dept. Soil, Water, Climate
University of Minnesota
1991 Upper Buford Circle
St. Paul, MN 55108, USA
Tel. (+) 1 612 625 2767
Fax. (+) 1 612 625 2208
eclapp@soils.umn.edu

Chairman, Samples Collection

Dr. Paul R. Bloom
Dept. Soil, Water, Climate
University of Minnesota
1991 Upper Buford Circle
St. Paul, MN 55108, USA
Tel. (+) 1 612 625 4711
Fax. (+) 1 612 625 2208
pbloom@soils.umn.edu

Board Position

Dr. Michael E. Perdue
School of Earth and
Atmospheric Sciences
Georgia Inst. of Technology
Atlanta, GA 30332, USA
Tel. (+) 1 404 894 3942
Fax. (+) 1 404 894 5638
michael.perdue@eas.gatech.edu

Board Position

Dr. J.-P. Croué
Ecole Sup. d'Ingenieurs de Poitiers
Lab. Chimie de l'Eau et Nuisances
40, Av. du Recteur Pineau
86022 Poitiers Cedex, France
Tel. (+) 33 49 45 3915
Fax: (+) 33 49 45 3768
croue@hermes.univ-poitiers.fr

Honorary Members

Dr. Wolfgang FLAIG
Dr. Morris SCHNITZER
Dr. Frank J. STEVENSON
Dr. Ronald L. MALCOLM

IHSS STANDARD AND REFERENCE COLLECTION

In the last IHSS Board Meeting held in Atlanta in mid March 97, one of the main point debated about the IHSS Collection was the need of replenishing the Peat Fulvic Acid Standard and Reference samples. After a thoroughful discussion, the Board agreed to replenish the sample, possibly sampling the same source, in the same area, in order to obtain a sample extremely close to the original one and, in respect of the membership, making sure the integrity of the Collection is made. The Board agreed also that the new Peat FA sample will be isolated according the new IHSS procedure, which is without HF treatment. At the same time, the Board expressed strong interest in searching an additional peat source representative of the peatlands around the world for future collection materials.

Dr. Clapp reported about the Collection situation before the new Chairman was appointed and of the **very good response** obtained by advertizing the sample Collection on the IHSS WEB page.

The Chairman of the IHSS Collection, Dr. P.R. Bloom, illustrated the new, updated situation of the IHSS Materials, including the list of purchasers, the balances, and a proposal of small changes concerning the Collection price list and the selling fluxes of each single sample. Dr. Bloom explained that changes in prices, mainly **rebates**, are

directly related to the amount of each sample sold in the last years. The Board agreed with Dr. Bloom proposal and decided to offer the Leonardite Standard Humic Acid sample to the membership at a very affordable price of 50 US\$ for 1 g (minimum amount 1 g).

HUMIC SALE
LEONARDITE Standard Humic Acid
1 g for 50 US \$

Leonardite Sample should be considered a usable, cheap humic material to work and play with but still isolated with the IHSS Standard Procedure. An additional item discussed at the Board Meeting in Atlanta was the preparation of a *booklet* or a *report* with all characterization and analyses data available on the samples of the IHSS Collection. After a short discussion, the Board agreed to prepare only a small booklet containing general information about techniques, methods, and instruments used to produce the data, and possibly a general interpretation of results obtained. The Board appointed Dr. Bloom as coordinator of this project, in charge of collecting various articles, comments, interpretations of data, contacting colleagues and so on.

**International Humic Substances Society on the
World Wide Web**

Visit our home page at:

<http://www.gatech.edu/ihss/ihss.html>

Prof. E.M. Perdue and Ms. Jian Li are coordinating the development of the IHSS WEB page. Progresses toward this goal may be followed at the above WEB site which resides on a server located at the Georgia Institute of Technology, Atlanta, USA.

Main items on the WEB page are:

- General Information about IHSS
- Standard and Reference Collections
- IHSS Membership
- Conferences
- IHSS Newsletter
- IHSS News Group

Suggestions and comments regarding the content and organization of the WEB pages are actively requested from all IHSS members.

E-mail Dr. E.M. Perdue at michael.perdue@eas.gatech.edu for more information.

LIST OF NATIONAL CHAPTERS COORDINATORS (& contact persons)

Prof. Ramon A. **Rosell**
Univ. Nacional del Sur
Dpto Agronomia - LAHBIS
8000 Bahia Blanca
Argentina

Dr. Kaye M. **Spark**
CRC Water Quality & Treatment
Private Mail Bag 3
Salisbury 5108
Australia

Dr. Georg **Haberhauer**
Austrian Research Centre Seibersdorf
Division of Life Sciences
A-2444 Seibersdorf
Austria

Prof. Andre **Maes**
K.U. Leuven
Lab. voor Colloidchemie
Kardinal Mercierlaan, 92
B-3001 Heverlee - **Belgium**

Dr. Ladislau Martin **Neto**
EMBRAPA - CNPDIA
Rua XV Novembro, 1452
Caixa Postal 741
13560-970 Sao Carlos, SP - **Brazil**

Dr. Todor **Boyadgiev**
N. Pouskarov Institute
Soil Sci. & Yield Programming
5, Shosse Bankya POB 1369
1080 Sofia - **Bulgaria**

Dr. P.M. **Huang**
Univ. of Saskatchewan
Dept. of Soil Science
51 Campus Drive
S7N 5A8 Saskatoon, SK - **Canada**

Dr. Jianming **Xu**
Dept. of Soil and Water Resources
Zhejiang Agricultural University
286 Kaixuan Road
Hangzhou 310029, **P.R.China**

Prof. Braj K. **Singh**
EARTH University
Apdo Postal 4442-1000
San José
Costa Rica

Dr. Peter **Dolejs**
W&ET Team
Box 27, Pisecka 2
37011 Ceske Budejovice
Czech Republic

Dr. Elham A. **Ghabbour**
Agricultural Research Center
Soil & Water Research Institute
Bacos, 21616 Alexandria
Egypt

Dr. M.H.B. **Hayes**
University of Birmingham
School of Chemistry
Edgbaston
B15 2TT Birmingham - **England**

Dr. J.-P. **Croué**
Ecole Sup. d'Ingenieurs de Poitiers
Lab. Chimie de l'Eau et Nuisances
40, Av. du Recteur Pineau
86022 Poitiers Cedex - **France**

Dr. Gudrun **Abbt-Braun**
University of Karlsruhe
Dept. of Water Chemistry
Richard Willstätter Allee 5
76131 Karlsruhe - **Germany**

Dr. Etelka **Tombacz**
Attila Jozsef University
Dept. of Colloid Chemistry
Aradi Virtamik tera, 1
H-6720 Szeged - **Hungary**

Prof. Yona **Chen**
Hebrew Univ. of Jerusalem
Dept. Soil & Water - Agriculture
P.O. Box 12
76100 Rehovot - **Israel**

Prof. Nicola **Senesi**
Università di Bari
Ist. di Chimica Agraria
Via Amendola, 165/A
70126 Bari - **Italy**

Prof. Koyo **Yonebayashi**
Kyoto Prefectural Univ.
Dept. of Agricultural Chemistry
Faculty of Agriculture
Shimogamo, Kyoto 606 **Japan**

Dr. Maris **Klavins**
University of Latvia
Raina Blvd. 19
LV-1568 Riga
Latvia

Dr. M.H.A. **Husni**
Department of Soil Science
U.P.M. Serdang
43400 Selangor
Malaysia

Prof. Lenom J. **Cajuste**
Colegio de Postgraduados
Centro de Edafologia
Km. 34 Carr. Mexico-Texcoco
56230 Montecillo - **Mexico**

Prof. W.H. **van Riemsdijk**
Agricultural University
Soil Science & Plant Nutrition
P.O. Box 8005
6700EC Wageningen **Netherlands**

Dr. Egil T. **Gjessing**
Agder College [HiA]
Inst. naturvitenskapelige fag
Tordenskjolds gate 65, Post.
4604 Kristiansand - **Norway**

Prof. Jerzy **Drozd**
Agricultural Univ. Wroclaw
Inst. Soil Sci. Agric. Env. Prot.
Grunwaldzka 53
50-357 Wroclaw - **Poland**

Prof. Armando C. **Duarte**
Universidade de Aveiro
Dept. of Chemistry
Campus Univ. Santiago
3800 Aveiro - **Portugal**

Dr. Alexandra **Vasu**
Res. Institute. Soil Science
and Agrochemistry
Bd. Marasti nr. 61
71331 Bucuresti - **Romania**

Dr. Yana M. **Ammosova**
Moscow State University
Dept. of Soil Science
119899 Moscow
Russia

Dr. Gabriela **Barancikova**
Soil Fertility Res. Institute
Research Station - Presov
Reimannova 1
08001 Presov - **Slovakia**

M.Sc. Marjeta **Krajnc**
"Jozef Stefan" Institute
Dept. Phys. & Environ. Chem.
Jamova 39 - PO Box 100
61111 Ljubljana - **Slovenia**

Dr. Asuncion **Roig**
C.S.I.C.
Centro Edafol. y Biologia Aplic. Segura
Apartado de Correos
4195-30080 Murcia - **Spain**

Dr. Christopher D. **Woolard**
University of Port Elisabeth
Dept. of Chemistry
P.O. Box 1600
6000 Port Elisabeth - **South Africa**

Dr. Karl **Ramseyer**
University of Bern
Geologisches Institute
Baltzerstrasse, 1
CH 3012 Bern - **Switzerland**

Dr. Selwyn M. **Griffith**
The Univ. of West Indies
Dept. of Soil Science
Sr. Augustine
Trinidad

Dr. James A. **Rice**
South Dakota State University
Chemistry Department
Shepard Hall 121, Box 220
57007-089 Brookings, SD - **U.S.A.**

Dr. Carmen **Rivero**
Univ. Central de Venezuela
Inst. Edafologia - Fac.Agronomia
Estado Aragua
A.P. 4579 Maracay - **Venezuela**

Dr. Liu **Ruilong**
University of Minnesota
Dept. Soil, Water & Climate
439 Borlaug Hall
55108 St. Paul, MN - **U.S.A.**
(China Repres. in the U.S.)

MEMBERSHIP DUES (1997)

20 US \$ / year (10 US \$ for students):

- **European Union** (including Norway)
- **Switzerland**
- **Israel**
- **United States**
- **Mexico**
- **Canada**
- **Australia-New Zealand**
- **Japan**
- **Malaysia**
- **Philippines**
- **Argentina (10 US \$)**
- **Venezuela**
- **Brazil**
- **South Africa**

5 US \$ / year (2 US \$ for students):

- **Poland**
- **Czech R.**
- **Slovakia R.**
- **Hungary**
- **Slovenia**
- **Croatia**
- **Caribbean Countries**
- **Developing countries in Africa, Asia and Central and South America**

1 US \$ / year:

- **former USSR countries**, including Baltic republics
- **Bulgaria**
- **Romania**
- **Albania**
- **P.R. China**

National Coordinators should collect the fees from members of their chapters in local currencies, deduct 20-25 % out of the fees (postage, copying, etc.), and then send the balance in US \$ to the Treasurer, Dr. C.E. Clapp, Univ. Minnesota, St. Paul, MN, USA.

Coordinators from 5\$-group chapters are invited to collect dues for two years (\$10, and save converting to US \$ not so often) and are allowed to keep up to 50% of the fee. Coordinators from 1\$-group chapters can keep the entire fee.

IHSS Members are reminded that membership dues are payable at the beginning of each year directly to their National Coordinators.

National Coordinators are reminded that they can take orders for the Trinidad book, collect money in their currency and send it to Dr. C.E. Clapp in US \$. Dr. M.H.B. Hayes will send out the books to the Chapter Coordinators.

IHSS VOLUMES (and related publications)

HUMIC SUBSTANCES IN TERRESTRIAL ECOSYSTEMS

Edited by Alessandro Piccolo. Elsevier, 1996 (675 pp).

This very interesting and valuable book is the results of ideas generated from a meeting sponsored by the European Union in 1991. One of the objectives was to gather scientists from various disciplines to pool their different disciplinary approaches and come up with a common perspective for future research on soil organic matter.

This book has the double objective of attempting to give an updated account of the scientific issues relating to the nature and function of humic substances in terrestrial

ecosystems, and of addressing concerned ecologists towards an advanced understanding of the fundamental role played by humic substances in the ecological equilibrium.

The 16 chapters have been written by specialists in interdisciplinary fields relating to the still unresolved issues of soil humic substances, such as their chemical nature (C. Saiz-Jimenez), their distribution in world soils (F. Andreux), their influence on soil biological activity (H. Insam, P. Nannipieri), their nutritional value (K. Kelley and F.J. Stevenson, Y. Chen, F.J. Zhao, J. Magid), and their influence on soil conservation (A. Piccolo). Other chapters are devoted to aspects of growing ecological concern such as the role of humic substances in the physiological stimulation of plant cells (S. Nardi), their impact on the activity of soil organisms (L. Brussaard and N.G. Juma), their influence on the formation and preservation of forest layers (W. Zech), their interaction with inorganic soil particles (J. Cornejo and M.C. Hermosin) and organic chemicals reaching the soil (J. Kozak), their role in biomass recycling (N. Senesi, G. Brunetti and T.M. Miano), and their behaviour when dissolved in water (A. Zsolnay).

HUMIC SUBSTANCES IN SOIL AND WATER ENVIRONMENTS

Characterization, Transformations and Interactions.

Proceedings 7th Int. Meeting of the IHSS. St. Augustine, Trinidad, 1994 (493 pp).

Edited by C.E. Clapp, M.H.B. Hayes, N. Senesi, and S.M. Griffith and published by IHSS.

This Volume of Proceedings contains 57 Volunteered papers intended to be presented in the 7th International Conference of IHSS. Because of the difficulties to attend the Conference, not all papers were actually presented at the Conference. The book *Humic Substances IV*, which is in the process of preparation, will contain the invited papers presented at the Conference. The purchase procedure that is recommended is that members place their orders with the coordinator of their Chapter, and make payment in local currency to the coordinator. The books will be supplied by the coordinator, or by Dr. Hayes as soon as possible after the order is placed and payment is received. **Please note that the costs to members are \$30 US plus \$5 for mailing charges.** [If an order is made directly to Dr. Hayes the cost is £20 (GB) plus £3 for postage]. Members are encouraged to invite their libraries to purchase copies of the Proceedings. The cost to libraries (and to non-members) is the equivalent of \$50 US plus \$5 for mailing charges.

The **Proceedings of the VIIIth Int. Meeting of IHSS, Wroclaw, Poland, September, 1996**, is in preparation by the Polish colleagues who were responsible for the Organization.

NATIONAL CHAPTERS NEWS

Italian Chapter

On December 17 and 18, 1997, the Italian Chapter of the IHSS will hold its 3rd National Meeting in Bologna, a large and very active city in the north of the country, whose University dates back the year 1000 (yes, right, 9 hundred years old !!). **Prof. Carlo GESSA**, Professor of Soil Chemistry at the Institute of Agricultural Chemistry of the University of Bologna, has been appointed as Chairperson of the event. The theme of the Meeting is: **“Humic Substances in Biogeochemical Cycles: their Role in Anthropic and Natural Systems”**. Oral and poster presentations will be scheduled during the Meeting. The Annual General Assembly of the Italian Chapter of the IHSS will be held during the Meeting. For further information please contact: Scientific Secretariat, III Convegno Nazionale della Sezione Italiana, International Humic Substances Society, Istituto di Chimica Agraria, Università di Bologna, Viale Berti Pichat, 10 - 40127 Bologna, Italy. Ph.+39.51.259790, Fax:+39.51.243362, e-mail:ciavatta@flash.iaca.unibo.it.

MISCELLANEOUS

WANTED

USED ANALYTICAL LABORATORY INSTRUMENTS FOR UKRAINIAN ENVIRONMENTAL SCIENTISTS

Ukraine is easily one of the most polluted countries on Earth. With extensive mining and heavy industry, environmental contamination of every possible kind reaches every corner of the country and probably affects every citizen. On top of all of this is the radioactive contamination from the Chernobyl accident.

Ukrainian universities and research institutes are not equipped to begin to deal with these problems. Some of **the analytical instrumentation is so antiquated** that it is impossible to describe the situation with words - I have seen equipment in use which dates from the 1930's. For Ukrainian scientists trying to study environmental pollution, all kinds of **modern analytical instruments are desperately needed**.

***“modern
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During the past two years, in my spare time, I have been collecting used lab instruments in Switzerland and delivering them directly to Ukrainian scientists. All of the donated instruments have been in very good working condition. While perhaps outdated by exacting Swiss standards, **this equipment has been gratefully received in Ukraine with heartfelt thanks.**

I wish to continue my efforts to help these people. If you have any used lab instruments which are in good condition but are no longer needed, please contact me at the numbers given below. The greatest need is in the area of **trace metal analyses**: atomic absorption spectrophotometers (flame and graphite furnace), ICP, X-ray fluorescence, polarography. Chromatography equipment (HPLC, GC, and ion chromatography) is also sought. In addition, analytical balances, pH meters, titrators, and so on, can also be used. Finally, there is a dire shortage of personal computers and related equipment. **If you have any items to donate, please simply call or write.**

Dr. William Shotyk, Geological Institute, Univ. Berne,
Baltzerstrasse 1, 3012 Berne - Switzerland
tel. +41.31.631.8761 / direct +41.31.631.8770, **fax. +41.31.631.4843**
email: shotyk@geo.unibe.ch

THANK YOU VERY MUCH FOR YOUR CONSIDERATION

IHSS Extraction Method

One of the most common questions we are asked is "Where is the IHSS extraction method published?". Up till now there has been no satisfactory answer to this question but with recent publication of the new edition of 'Methods of Soil Analysis' by the Soil Science Society of America, this problem has been solved.

The 'IHSS Method' for the extraction of humic substances is given in Chapter 35, 'Organic Matter Characterisation' written by Roger Swift, a former President of IHSS. The reference details are:

Swift, R.S. 1996. Organic Matter Characterization. Chapter 35 in 'Methods of Soil Analysis, Part 3 - Chemical Methods (Eds. D. L. Sparks et al), Soil Science Society of America, Madison, Wisconsin, USA pp 1011-1069.

Roger has a number of reprints of this chapter and will be happy to supply a copy to the first 100 members of the Society to request a copy. Write to Dr. R.S. Swift, CSIRO Land and Water, PMB2 Glen Osmond, SA 5064, Australia.

SEMINAR ON HUMIC SUBSTANCES I

Northeastern University, Boston, MA 02115, USA, March 21, 1997

A note by Geoff Davies

The first Seminar on Humic Substances had a regional audience of about 60 with a range of disciplines, experience and interests. Special guest Robert Wershaw (USGS, Denver) spoke on advantages of ^{13}C spectroscopy in understanding product fractions and pathways in leaf litter composting. He pointed out spectral resolution limitations (a new pulse sequence (Cook, Langford, Yamdagni and Preston, *Anal. Chem.* **68**, 3979 (1996)) may help). He cautioned against excessive spectral deconvolution. Susan Jansen and Larry Sein (Temple University) have concluded (after allowance for mineral, polysaccharide and protein contents) that soil-derived HAs from many sources and many labs are hydrates with empirical formula $\text{C}_{36}\text{H}_{30}\text{O}_{15}\text{N}_2 \cdot x\text{H}_2\text{O}$ ($x = 0$ to ≈ 15) that results from phenylalanine and tryptophan oxidation by rational biosynthesis. The lowest energy conformation of this chiral "TNB" HS monomer links through amide bonds to form a hollow helix with opposite highly functionalized hydrophilic and hydrophobic faces and a polar group-lined interior. The TNB HA structure is consistent with Wershaw's membrane-micelle model and explains many HA properties, including water retention, metal and mineral binding and dual mode solute sorption. Geoff Davies (Northeastern) described the "site creation" model of HA-hydrophilic solute adsorption, supporting it with extensive data for nucleic acid constituent solutes. Baoshan Xing (UMass, Amherst) gave evidence for dual Langmuir-partition sorption of heavy organic compounds, herbicides and pesticides on HAs and SOM. Through comparisons of equilibrium constants and site capacities in isotherms for Cu(II), Fe(III) and Mn(II) binding by purified Irish peat- and New Hampshire soil-derived HAs, Amjad Fataftah (Northeastern and Arctech) has shown they both have "tight" binding site A. The Irish sample tightly binds Cu(II) at sites A, B and C, Fe(III) at sites A and B and Mn(II) at site A. Wolfgang Buermann and coworkers (Physics, UConn) have used X-ray absorption near-edge spectroscopy (XANES) and X-ray absorption fine structure (XAFS) to identify the number of nearest oxygen atoms in HA-bound Cu(II) (four), Fe(III) (six, distorted) and Mn(II) (six, undistorted). The data agree with EPR spectra from Temple. Daman Walia (Arctech, Inc.) gave a fascinating account of how high yields of HAs are obtained by biotransformation of lignite and other coals. The products have many uses in agriculture and bioremediation and are driving new approaches to energy utilization. The Seminar was enjoyed by all. Lecture slides with cassette tapes are available for \$50 (bank \$\$ check only with order) from Phyllis Mitzman, Barnett Institute, 341 Mugar Hall, Northeastern University, Boston, MA 02115, USA: (int+)6173734818; fax: (int+)6173732855; e-mail: pmitzman@lynx.neu.edu. Allow six weeks for delivery. The Seminar on Humic Substances II will be held at Northeastern March 27 and 28, 1998 (see separate announcement).

MEETINGS

9th International Meeting of IHSS "Humic Substances Downunder. Understanding and managing organic matter in soils, sediments and waters", Adelaide, Australia, 21-25 September 1998. The conference will be held at the University of Adelaide, Adelaide, Australia. This venue is in the city centre and offers modern conference facilities, surrounded by parklands and is close to all amenities. Adelaide is on the southern coast of Australia, and in September the average temperature is in the range 17-20 oC. The city is serviced by international airlines and has a wide range of interests for both national and international visitors. These include beautiful beaches, wineries, national parks, and cosmopolitan attractions.



The aim of this international conference is to advance the field of humic substance and organic matter research by providing a forum for the sharing of current expertise between researchers in these disciplines and to enhance the communication and collaboration of researchers in Australia with those from other parts of the world. Topics: 1. *Characterisation* - Size, structure and functional group content; 2. *Origin and fate* - Bio-markers, C-cycling, degradation, adsorption; 3. *Aquatic*

systems -Transport, pollutants, transformation, sediments; 4. *Soil systems* - Interactions, amelioration, pollutants and transport; 5. *Geochemical systems* - Coal and petroleum industry, mineral processing; 6. *Water treatment* - Removal or transformation, disinfection products

The Conference Organization is being carried under the direction of the National Chapter of the IHSS in Australia. The chairman of this committee is **Dr Roger Swift**, a Past President of the IHSS. If you are interested in receiving further information about the conference, please contact Dr Kaye Spark, IHSS-9 Conference Secretary, CRC for Water Quality and Treatment, PMB 3, Salisbury, SA 5108, AUSTRALIA. Ph: +61 8 8259 0347. Fax: +61 8 82590228.

E-mail: IHSS-9@sawater.sa.gov.au. internet: <http://www.clw.csiro.au/conferences/ihss9/>

◆ **Co-sponsored by IHSS**

- ◆ XIII International Symposium on Environmental Biogeochemistry “**Matter and Energy Fluxes in the Anthropocentric Environment**”, Monopoli (Bari), Italy, 21-26 September 1997. The International Symposia on Environmental Biogeochemistry (ISEB) are a long-established and renowned forum for communication, discussion, and exchange of information and new ideas on interdisciplinary aspects of the biogeochemistry of the global environment. The objectives of the ISEB include the promotion of scientific knowledge, stimulation of scientific investigations, and improvement of education in environmental biogeochemistry and related subjects. The 2nd Circular containing detailed information on ISEB XIII is now ready and available to all those who are interested. [For information](#)



contact: **Prof. Nicola Senesi**, Istituto di Chimica Agraria, Università di Bari, Via Amendola, 165/A, 70126 Bari - Italy. Tel. +39.80.5442853; fax: +31.80.5442813; e-mail: nsenesi@mail2.clio.it.

- ◆ *Colloque* on “**Analyse et diversité des substances humiques naturelles**”, Dijon, France, 27-28 November 1997. The Seminar is organized by the *Equipe Géosol* of the Center for Earth Sciences of the University of Bourgogne, Dijon, under the auspices of the French Chapter of the International Humic Substances Society. Organizers of this Seminar are Dr. **Jean Lévesque**, Dr. **Philippe Amiotte-Suchet**, and Dr. **Francis Andreux**. Equipe Géosol, Centre des Sciences de la Terre, Université de Bourgogne, 6 Bd. Gabriel, 21000 Dijon, France. Jleveque@u-bourgogne.fr, phamiots@u-bourgogne.fr, fandreux@u-bourgogne.fr.

◇ Others relevant to IHSS activities

- ◇ Symposium on “**Refractory Organic Substances in the Environment**”, Karlsruhe, Germany, 6-8 October 1997. Refractory Organic Substances in the aqueous phase of the Environment (ROSE) are in the focus of an interinstitutional research project funded by the Deutsche Forschungsgemeinschaft (DFG). Nearly three years have been spent working on the different aspects of the role of these substances, and there will be some further years to go. We take pleasure in inviting the interested specialists to come to Karlsruhe and to discuss the recent scientific achievements. Several leading experts have already agreed to be with us. Karlsruhe is not only home of the oldest Technical University in Germany, it also offers - situated at the River Rhine and the northern border of the Black Forest - the possibility to sample Baden Wine and see nature. Come and join us in 1997 to characterize the ROSE !



The scientific program and main topics are: *Analytical Aspects and Structure (1)*; *Biological Aspects and Transformation (2)*; *Ecological Aspects and Genesis (3)*; *Physical-Chemical Aspects and Application (4)*. Invited and voluntary papers will be divided into several major topics. Papers will be presented either orally or as posters. The poster session will have

adequate time for discussion. Each topic will be introduced by an invited keynote speaker and followed by voluntary oral papers.

Chairman of the symposium: Prof. Dr. F. H. Frimmel. Secretary and further information: Dr. G. Abbt-Braun. Engler-Bunte-Institut, Universitaet Karlsruhe, 76128 Karlsruhe, Germany. Tel.: +49.721.608.2580, Fax:+49.721.69.91.54. e-mail: ursula.schaefer@ciw.uni-karlsruhe.de, gudrun.abbt-braun@ciw.uni-karlsruhe.de

**MARK YOUR CALENDAR, THEY SAY IT'S THE BEST!
NORTHEASTERN SEMINAR ON HUMIC SUBSTANCES II
Boston, USA, March 27 and 28, 1998**

Where: Northeastern University (first-class facilities; 5 miles from Logan Airport (pick-up available); great historical location; hub of Northeast, downtown, museums and many sites nearby). **When:** Fri+Sat, Mar. 27+28, 1998 (9am-5pm+Banquet). **Seminar Committee:** W. Ziechmann (Hon. Chair), G. Davies (Chair), J. Alberts, P. Bloom, J. Budnick, A. Cherkasskiy, Y. Chen, C. E. Clapp, S. Erich, A. Fataftah, E. Ghabbour, T. Gilbert, M. Hayes, S. Jansen, G. Jones, B. Karger, C. Langford, J. LePage, A. McGovern, T. Miano, C. Nelson, K. O'Donoghuy, H. Patterson, M. Perdue, A. Piccolo, A. Radwan, J. Rice, D. Ryan, L. Sein, Jr., N. Senesi, L. Sikora, K. Sills, D. Sparks, C. Steelink, J. Varnum, R. Wershaw, D. Walia, G. Wallace, C. Wilkinson, R. Willey, B. Xing). **Focus:** Structures (Theory, Data: **S**), Properties (**P**), Uses (**U**) of Humic Substances. **All Participants Must Register. Fees:** Corporate \$395; Individual \$195; Graduate student (with signed certification) \$95; Undergraduate student (with signed certification) \$0. Includes session refreshments, 2 lunches, Banquet, advance schedule, Participant List, Abstracts booklet and your 1998 IHSS dues. Banquet only \$40. Pay in US\$\$ only with certified bank check to "Northeastern University" or Visa/Mastercard/Amex (registration form sent on request). Include address, phone, FAX and e-mail address. **Free registration and travel grant:** to one Individual, 2 graduate students and 2 undergraduate students (early application advised with Vita and supporting letters. Include with Abstract(s). Decisions faxed November 15, 1997).

No Refunds of Registration or Hotel Payments will be made unless Seminar is cancelled, but all Payments made are transferable to another Participant on written request. **Registration Limit:** Strictly set at first 120 who pay Registration. **Program:** Fri.: Invited Plenaries (45 min, nominations welcome), Oral presentations (30 min), Exposition and Banquet; Sat.: Oral presentations (20 min) and Poster Sessions (no conflicts, plenty of room). **Abstracts (indicate preferred Section S, P or U/oral (O/H or 2x2 slide) or poster (4 ft x 8 ft); 3 copies, must include WORD® file, self-addressed acknowledgment card and self-addressed manuscript envelope for advance schedule and Participant List. Include your address, phone, FAX and e-mail address):** One page limit, IHSS 8 format (sent on request), please include refs. **Contribution Limit:** 2 per group. New work only, please. No cameras or electronic recorders allowed. Abstracts booklet with Introduction, but no Proceedings. However, authors should bring copies of their slides or poster panels with notes on each and a title for distribution after the Seminar. **Exposition (Fri., 12-5). Limit: 10 exhibitors:** Fee \$995 + Registration. **Hotel (optional, 10 min walk):** \$99 single, \$99 double, \$109 triple, \$119 quad, per night. Pay with Registration. **ABSOLUTE DEADLINE for Receipt of Registration, Abstract(s) and Hotel Reservations with Full Payment: December 15, 1997. Advance Schedule, Participant List, Instructions, and Directions airmailed to Registrants Feb. 1, 1998. Travel Agent:** Adam Travel, Inc. (int+)6173677155, fax: (int+)6172276509. **Sponsor:** Northeastern University. **Proceeds:** Used to support IHSS and student research on HSs. Contact and mailing address: Phyllis Mitzman, Barnett Institute, 341 Mugar Hall, Northeastern University, Boston, MA 02115, USA: (int+)6173734818; fax: (int+)6173732855; e-mail: pmitzman@lynx.neu.edu. **See you there!**