NEWSLETTER

INTERNATIONAL HUMIC SUBSTANCES SOCIETY

Number 37 SUMMER 2007

Dear IHSS Members,

The Board recently returned from our meeting in Joensuu, Finland where we met in conjunction with the Nordic Baltic Chapter meeting (see article on page10). We thank Prof. Jussi Kukkonen and Dr. Jarkko Akkanen and the whole host committee for their kind hospitality, and for expending extra effort to accommodate us.

This was our first Board meeting operating under the new bylaws, which were overwhelmingly ratified by the vote of the membership in April (see article on page 3). This was also the first Board meeting where we could see financial reports generated by new the computer accounting program. The access to easily generated financial reports will assist us both with tracking sales of humic materials and in financial planning.

The Board discussed the proposal of our webmaster, Mike Perdue, for a major revamping of the IHSS website. If you have ideas for changes please contact Dr. Perdue at mperdue@eas.gatech.edu. We also discussed the possibility of collecting of dues and conducting elections online and we will be looking into the feasibility and cost for implementing those services.

Currently membership dues are collected by Chapter Coordinators and if you have not yet paid your membership dues for 2007, please do so soon. The contact information for Coordinators is on our website (http://www.ihss.gatech.edu).

Early next year we will be conducting elections for vice president, secretary and an at-large board member. The nominating committee that will choose the candidates consists of Dan Olk (US), chair, Jerzy Drozd (Poland), Kay Spark (Australia) and Claire Richard (France). The committee is tasked to present a list of candidates by November 30, 2007. If you have ideas for good candidates, contact Dan Olk (dan.olk@ars.usda.gov).

Our next international membership meeting will be in September 2008 on board a ship sailing from Moscow to St. Petersburg, Russia (see the announcement on page 12). Like many of you, I am excited by the opportunity to attend an IHSS meeting at this unique venue.

The success of our international meetings depends on the willingness of groups to volunteer to host the meeting. Currently we are working with a group from Sweden to host the meeting in Uppsala in 2010. We are looking for others to host future meetings. If you are interested in pursuing the idea of hosting a meeting please contact me at prb@umn.edu,

Paul Bloom
IHSS President

BOARD ACTIVITIES

The Board of Directors of IHSS held a board meeting during the 11th symposium of the Nordic-Baltic chapter, Joensuu, Finland. The Board discussed several pending issues and examined new ones. A brief summary of which is given hereafter.

Training Bursaries:
Starting from 2005 the IHSS supported a limited number of training bursaries. Now for the second run bursaries were awarded and the names of the young scientists are listed below.

Financial Report:
The Treasurer presented to the Board his report along with a detailed description of actual balances, income, etc from the year 2006, and 2007 (up to now). IHSS is in good standing as far as membership, finances and collection activities are concerned.

Standard and Reference Collection:
Paul Bloom, President and Chairman of the Collection Committee presented a detailed report concerning annual HS sales for year 2006 and a partial report on year 2007 sales. Provisions for the rest of the year were also given. See enclosed a report of the new reference sample "Pony Lake Fulvic Acid: A Microbially-Derived Fulvic Acid Collected from a Hypereutrophic Coastal Pond in Antarctica". A list of the reference and standards samples available is enclosed in this newsletter.

Travel Support for the next International Meeting in Moscow:
The IHSS will support a limited number of young scientists by a travel support. For further details, see the announcement in this newsletter.

New Bylaws:
The Secretary presented the results of the elections. A short report is given below. The new bylaws are attached to this newsletter.

Gudrun Abbt-Braun, Secretary IHSS

IN MEMORIAM

Long-Time IHSS Member and Noted Soil Organic Nitrogen Expert Passed Away

John 'Jack' Bremner, 85, passed away Wednesday July 25, at his home in Palm Desert, Calif. John was born January 18, 1922, in Dumbarton, Scotland and he married Mary Williams September 30, 1950, in Luton, England. He was a research scientist at Rothamsted Experimental Stations in England from 1944 to 1959 and a researcher and professor of agronomy and biochemistry at Iowa State University from 1959 to 1992. He authored more than 300 scientific publications and made seminal contributions to the fields of soil chemistry and biochemistry. He was a world leader in research developing methods of reducing environmental problems associated with the use of nitrogen fertilizers. He received numerous national and international awards for his contribution to science, including Carnegie, Rockefeller, and Guggenheim fellowships. He was elected to the National Academy of Sciences in the USA in 1984 and received an honorary doctor of science degree from the University of Glasgow in 1987.

Paul Bloom and Ed Clapp

IHSS BYLAWS

Committee:
Dr. Gudrun Abbt-Braun, Head of Committee, Secretary of IHSS, Karlsruhe
Prof. Dr. Fritz Frimmel, Member of IHSS, former President of IHSS, Karlsruhe
Ute Schlegel, student at Engler-Bunte-Institut, Waterchemistry, Karlsruhe

The letters announcing the voting were sent to each IHSS member by air mail at the beginning of January, 2007 by the secretary of the IHSS, Dr. Gudrun Abbt-Braun (letter see enclosed). Together with the letter ballots for the elections, blank blue envelopes (provided to ensure anonymity), and a pre-prepared addressed white envelope were sent to each member. In addition, the secretary announced the voting to the National Coordinators in January and in February via email to ensure that the envelopes have been received by each member.

The envelopes with the ballots had to be sent to the Secretary of IHSS, Gudrun Abbt-Braun, until 30th April, 2007.

806 letters were sent to the IHSS members, 14 letters were undelivered and were sent back to sender, 2 letters were sent back, as the members have passed away.
Votes counted have been in the pre-prepared blue envelopes.

Results:

Revision of the bylaws	**215 yes**	3 no	218 total

The results show, that the change of bylaws is accepted by the members

Karlsruhe, May 2007

Gudrun Abbt-Braun
Secretary IHSS

TRAINING BURSARIES 2007/2008

The Past President Maria De Nobili reported about the training bursaries. The training bursaries were announced in the IHSS webpage and in the newsletter, deadline for submission was December 15, 2006.
Seven applications were received, examined and accepted by the bursaries committee appointed by the President, composed of Maria De Nobili, chair, Claudio Ciavatta, Etelka Tombacz and Jerzy Weber, members. Applications were given a score by each member of the committee according to the following general guidelines:

a) Originality of scientific program (0 poor to 6 excellent)
b) Level of achievement as shown in the CV and age of applicant (0 to 4)
c) Degree of support from supervisor (0 to 2, 0 indifferent, 1 supporting, 2 partial financial support provided)
d) Degree of support from hosting institution (0 to 2, same as above)
e) Geographical balance (0 to 2) i.e. 2 for under represented countries, 1 for average representation and 0 for over representation).

A copy of all applications and letters by supervisors and hosting supervisors was sent by the head of the committee to the Training Bursaries Committee. After single evaluation and collegial discussion, the committee decided that all applications were of a sufficient standard and decided that they should all be funded.
75 % of the money will be paid to the applicants when they are ready to travel, the final 25 % will be paid after the receipt of the final report.

Applicant	From	Hosting Country	Host Scientists
Byrne Corinna Maria	Ireland	Canada	A. Simpson
Diouri Nabila	Marocco	Portugal	A. Duarte
Fraga Pereira Betânia	Brasil	Germany	F. H. Frimmel & G. Abbt-Braun
Ghaemi Negin	Iran	Italy	M. DeNobili
Granit Tzafrir	Israel	Germany	N. Hertkorn
Kovács Krisztina	Hungary	Germany	Ph. Schmitt-Kopplin
Mueller Nicole	Germany	Norway	R. Vogt
Stathi Panagiota	Greece	France	M. Benedetti

Maria De Nobili, Past President

TRAVEL SUPPORT 2008

Students can apply for a **Travel Support Award** to attend next year's conference in Moscow**.** The complete application for the award should follow the guidelines for travel support reported on the IHSS web page and has to be sent before **February 28, 2008** to **Dr. Jerzy Weber (weber@ozi.ar.wroc.pl, jerzyweber@wp.pl,** and see address below).

For more information please look below and into the website of the IHSS: **http://www.ihss.gatech.edu; "Travel Support".**

The aim of an IHSS Travel Support Award is to:
Allow students to present their work and participate in the biannual International IHSS meetings
Ten awards will normally be granted. The number and amount of the awards will be determined by the President in consultation with the Treasurer and members of the travel support selection committee.
The award normally covers all or part of the costs of travel and subsistence for the conference.
Recipients of travel support awards will be honored at the conference banquet, where they will receive a cash award, a certificate and a one year membership in IHSS.

Malcolm Award: The committee will select the top applicant for a special award: the Malcolm Award. This individual will receive a certificate and cash award of 250 US$ in addition to the regular travel bursary.

Evaluations and notifications of awards will be given to the applicants four (4) months prior to the IHSS International Meeting.

Eligibility Guidelines for Travel Support to participate in IHSS meetings
Travel support will be granted only to students. Investigators who have completed their PhD degrees are not eligible.
Awards will be based primarily on the quality and originality of the scientific content of the manuscript and the applicant's record of scientific achievement. It should be made clear that the student has had a major part in designing and conducting the research and wishes to pursue a career in a field in which humic substances science is important.
A committee consisting of the IHSS President, Vice President, Past President and Board Members will evaluate the applications for travel support awards.

IHSS Travel Support - How to apply

The electronic application should be sent to the Vice President of IHSS, to the email address indicated below.
The deadline for receipt of the applications is **February 28, 2008**
Applications must include:

- a letter of application
- Curriculum Vitae including a record of studies, (courses and grades)
- a letter of evaluation from the applicant's main supervisor
- a manuscript of the paper to be presented (4 pages in total).

Dr. Jerzy Weber

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Inst. Soil Sci. & Agric. Env. Protection

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STANDARD AND REFERENCE COLLECTION

IHSS Pony Lake Fulvic Acid: A Microbially-Derived Fulvic Acid Collected from a Hypereutrophic Coastal Pond in Antarctica

IHSS now has a microbially-derived reference fulvic acid that is offered for sale. Until the collection of the Pony Lake FA (1R109F) the IHSS Collection has been limited by the lack of availability of a reference from a purely microbially based aquatic ecosystem. During the austral summer of 2005-2006 a team consisting of Diane McKnight, Kaelin Cawley, and Christopher Jaros from the University of Colorado, Ryan Fimmen, Jennifer Guerard, and Yu-Ping Chin from The Ohio State University, Penney Miller from Rose-Hulman Institute of Technology, and Markus Dieser and Christine Foreman from Montana State University collected and processed a FA sample from Pony Lake in Antarctica.

From 1992 through 2006 McKnight and her coworkers have been studying the chemistry of fulvic acids from Pony Lake, a eutrophic, saline coastal pond named after the ponies brought to Antarctica during Ernest Shackelton's Nimrod expedition in 1907. The chemical characteristics of the fulvic acid fractions isolated over this time period, as well as the microbial community, show remarkable consistency despite dramatic changes in physical conditions, such as extent of ice cover and timing of surface melt. Pony Lake was chosen as the water source for an aquatic microbial end-member fulvic acid for several reasons: (1) The landscape surrounding the site is devoid of terrestrial plants. Therefore, all of the dissolved organic matter in the pond is of microbial origin. (2) The dissolved organic carbon content of that water is very high compared to other Antarctic lakes and ponds. (3) The site was accessible by helicopter, making it possible to bring the water sample back to the laboratory at McMurdo Station for processing. (4) There is extensive background information about the biogeochemistry of the site and it appears to have been a stable ecosystem since the site was occupied by Shackelton in 1907.

In January 2006, 15 m^3 of Pony Lake water was collected and filtered through a 100 µm spiral wound pre-filter, a 25 µm Balston glass fiber filter, and finally a 0.5 µm Balston glass fiber filter. Following filtration, the water was pumped into acid washed and DI rinsed 55 gal drums made from high-density polyethylene. The drums were filled on site with filtered water at a rate of one every 30 minutes. The drums were transported via helicopter to Crary Laboratory (McMurdo Station, Antarctica) where the water was acidified within 48 hours to pH 2 (+/- 0.1) and then processed using the method described in Thurman and Malcolm (1981). Briefly, the acidified water was run through a 4 L column packed with XAD-8 resin. The Pony Lake water was applied to the column at a rate of about 900 mL min^{-1}. Once 360 L of Pony Lake water was applied, the column was eluted using 0.1N NaOH. The eluate was immediately acidified and stored in a 4°C environmental room covered in foil to prevent photochemical degradation. The eluate was then reconcentrated on a 2 L column. While on the 2 L column, the sample was rinsed with distilled water to remove chloride. Following the DI rinse, the 2 L column was eluted using 0.1 N NaOH. The eluate was applied to a cation exchange column in order to lower the pH to neutral and hydrogen saturate the fulvic acid isolate. Once the sample had been cation exchanged twice, it was lyophilized on site using a tray freeze-dryer. The freeze-dried powder was then packaged in acid washed and DI rinsed polyethylene bottles for transport and storage.

Chemical analysis of fulvic acid samples isolated from Pony Lake since 1994 show characteristics strongly indicative of microbial origin, such as high nitrogen content and low aromaticity (Tables 1 and 2). The ^{13}C NMR data were collected using the methods of Dria et al. (2002). NMR analysis shows that the ratio of aromatic (110-160ppm) to aliphatic carbon (0-60ppm) is low, indicating that the fulvic acid contains few aromatic functional groups, while it does have abundant carbohydrate-type functional groups from cellular structures and by-products.

Table 1: Elemental analysis for fulvic acid isolates from Pony Lake.

Sample date	C	H	N	O	S	Ash
1/1994	48.9	6.2	4.4	40.4	-	10.1
12/1997[1]	49.9	6.09	4.9	35.8	3.22	7.53
1/2005	49.97	5.94	6.09	34.73	3.03	3.07
1/2006 (1R109F)	52.47	5.39	6.51	31.38	3.03	1.25

1. Brown et al., 2004

Table 2: ^{13}C NMR analysis of fulvic acid isolates from Pony Lake. The chemical shifts correspond to: 0-60 ppm aliphatic and methoxy groups, 60-90 ppm 0-alkyl, 90-110 ppm anomeric carbon, 110-160 ppm aromatic groups, 160-190 ppm amides and esters, and 190-230 ppm ketones.

Sample date	0-60ppm	60-90ppm	90-110ppm	110-160ppm	160-190ppm	190-230ppm
1/1994	42	16.6	6.6	16.5	16.7	2.2
12/1997	53.3	16.3	3.8	11.7	13.8	1.1
1/2005	62.3	10.9	0.9	10.9	17.3	2.2
1/2006 (1R109F)	60.8	8.4	0.2	12.1	17.4	1.2

Acknowledgements

Thanks to Amber Roche, and Dena Rosenberger for lab and field work in Antarctica. Field support: Raytheon Polar Services and Petroleum Helicopters Inc. Funding: The National Science Foundation (OPP-0338299) and The International Humic Substances Society.

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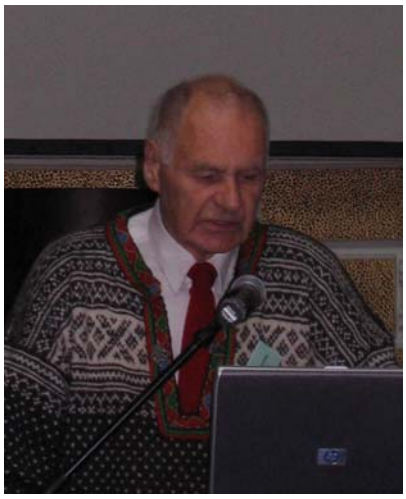
LIFE HISTORIES OF HONORARY IHSS MEMBERS

Egil T. Gjessing



Egil Trygvesøn Gjessing was born in Saltdalen, Norway. A small village located just north of the Arctic Circle. Children of a physician who practiced medicine at a tuberculosis sanitarium in the isolated mountains, he and his brothers and sister grew up in an area with few human inhabitants. However, Egil always enjoyed the open air of his native Norway and this led to a life-long love of outdoor sports, including skiing, which for a Norwegian is a skill learned at about the time one learns to walk.

He began his journey in higher education and science at the University of Bergen, where he received his Bachelor of Science degree (Candidatus magisterii), with emphasis in Chemistry, Physical Geography and Applied Mathematics. He followed this degree with the Master of Science (Candidatus Scientiarum) degree in Organic Chemistry from the same university.

Following receipt of his Candidatus Scientiarum, Egil took a position as a research assistant for the Norwegian Fisheries Research Institute in the western part of Norway. For two years, he supervised two research projects: “Effects of Salting on Hard Herring Roe” and “Insecticides for Protection against Blow-flies in the Stockfish Industries.” Subjects that did not indicate his later interests.

In 1962, Egil took a position with the Norwegian Institute for Water Research (NIVA). During his early years at NIVA, he was responsible for all research on humic substances in aquatic systems. In 1965, he took leave to participate as a post-doctoral associate in the Water Chemistry Laboratory of the University of Wisconsin, Madison. For one year, he conducted studies on organic matter in water. He returned to NIVA and remained there is various capacities until his retirement in 1994.

Egil was extremely active while at NIVA, publishing 40 papers on humic substances in aquatic systems. From 1972-1986, he was Project Leader in the SNSF –Project ("Acid Precipitation - Effects on Forest and Fish”). During this period, he worked on problems connected to the effects of polluted precipitation on Norwegian surface waters. He was in charge of the hydrobiological and hydrochemical part of this-Norwegian Interdisciplinary Research Project. He also was engaged in a program on toxic pollutants in the aquatic environment, and again was in charge of the activities on drinking water problems at NIVA.

Despite his busy schedule at NIVA, he managed to complete and receive his Doctor Philos from the Department of Limnology at the University of Oslo in 1981. With all of these accomplishments, the one that perhaps is closest to his heart and is certainly one that many researchers in the field know him by was the publication in 1976 of the first book on the topic: Physical and Chemical Characteristics of Aquatic Humus. In this volume, Egil succinctly summarized the knowledge base of humic substances in aquatic systems by treating them from the point of view of naturally

occurring materials and the problems they cause in water treatment. In this writer's opinion, a major contribution of this book is its consideration of the importance of biological processes in the cycling of aquatic organic matter, which had been largely overlooked at the time. However, more important is the final chapter, "Further Work". In only three pages, Egil identifies and outlines four areas of study: "Source of Energy to Microorganisms," "Humus as a Pollutant Carrier," "Charge and Electromobility" and "Decomposition of Humus", which refers to the UV irradiation and hydrogen peroxide oxidation of the materials. In addition, he correctly points out the potential interest in these materials in the field of medicine. All of these areas have since produced an enormous literature and continue to be major areas of research today.

Following the publication of this book and completion of his Doctor Philos degree in 1981, he initiated the first-ever international meeting on humic substances. Co-chaired and hosted by his close friend and colleague Dr. Russ Christman at the University of North Carolina, Chapel Hill and funded by NIVA and the U.S. Environmental Protection Agency, this 1981 meeting produced a symposium volume entitled, "Aquatic and Terrestrial Humic Materials" with an author list that reads like a Who's Who of natural organic matter studies at the time. The symposium and volume turned into the springboard for the formation of the International Humic Substances Society and the 1983 inaugural IHSS Biennial Meeting in Estes Park, Colorado. Egil was a founding member of the IHSS and subsequently served on the Board of Directors.

Founding members at the Meeting in Estes Park,
from left to right, front row: P. McCarthy, H. P. Ringhand, F. Andreux, M. Schnitzer, S. Kuwatsuka, P. Sequi;
back row : D. Reckhow, E. T. Gjessing, E. M. Thurman, R. S. Swift, R. L. Malcolm.

Back at NIVA, Egil continued his long-time interest in the effects of acid precipitation on the fragile aquatic ecosystems of Norway, many of which are buffered by the natural organic matter in their waters. In 1987-88, he was Division Manger of the Environmental Engineering Division of NIVA and had strong interactions in the Canadian-Norwegian Project RAIN (Reversing Acidification in Norway). Simultaneously, he was Secretary-General of the Norforsk Project on Drinking Water. From 1988-90, now a Senior Research Scientist at NIVA, he concentrated on the role of humic substances in water as they interact with acidification and the mobilization of micropollutants. This led to his being named in 1990 the Scientific Leader of the HUMOR Project (Humic Substances, Modifiers of the Response of Aquatic Systems to Acidification), an international research program involving 6 countries. During this period he was also named Scientific and Administrative Leader of Project HUMEX (Humic Lake Acidification Experiment), which involved partitioning a lake and artificially acidifying one side of the lake and its attendant watershed. This latter project included literally tens of scientists from many countries. He continued in this role until his retirement from NIVA in 1994.

As if the above duties weren't enough, it was during this time that Egil hosted Dr. Ron Malcolm of the U.S. Geological Survey. Together, they headed a team that isolated the Nordic Humic and Fulvic Acid Reference Materials now housed in the IHSS Standards and Reference Collection.

Retirement wasn't the end of Egil's work on natural organic matter in aquatic systems. From 1994-2001, he served as a lecturer and researcher in the Department of Chemistry at Agder College in Kristiandsand, Norway, where he shared his vast knowledge of environmental chemistry and drinking water safety and hygiene with the students while supervising 2 Master's of Science degrees. During this time, he also led the team that isolated the Nordic NOM Reference sample for the IHSS Collection.

In 1996, Egil Gjessing was awarded the Norwegian Water Prize for his long-standing research on the "Color of Water", and in 1999, was elected to Honorary Member status by the organization that he help found, the IHSS.

Egil moved to Oslo in 2001, still not retired but as Professor Emeritus in the Department of Chemistry at the University of Oslo. There, he continues to lecture on environmental chemistry, and publish "old data" continually adding to his list of over 100 publications. He still exercises everyday, although he and Goya must settle for walks in downtown Oslo rather than romps in the hills and woods behind his home in Dyvik. Though Egil may tell you that the last move was to get closer to where he had begun his work on color in water, some of us feel that the real reason was to be closer to his two daughters and 6 grandchildren.

Egil is easy to pick out in a crowd. Not only for his physical stature, but for his quiet manner, infectious laugh and intense dedication he has always had for the subject of natural organic matter in aquatic systems and their importance for the ecosystem we humans inhabit. These features coupled with his ever-present willingness to help students and colleagues and easy-going nature, make him more than the sum of the parts. He is an honored and cherished colleague to many who are grateful for having him as a friend.

Jim Alberts

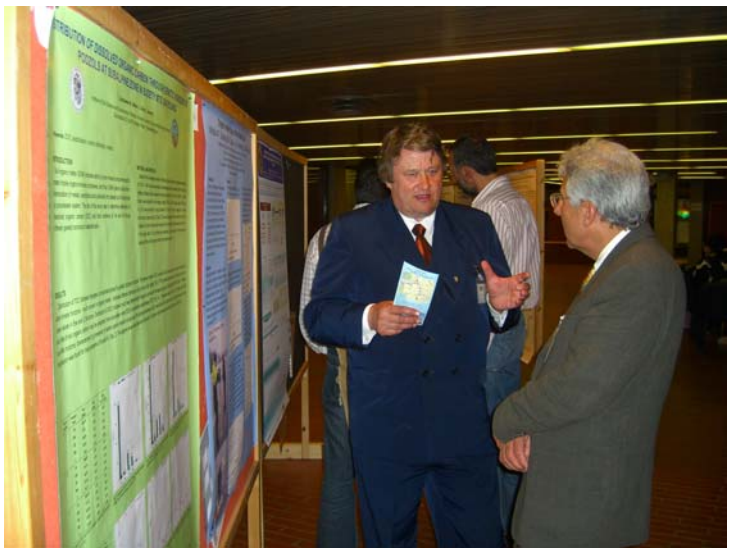
PAST CONFERENCES

The 11th symposium of Nordic-Baltic chapter, Joensuu, Finland

The 11th symposium of Nordic-Baltic chapter of IHSS was organized at the University of Joensuu, Joensuu, Finland between 10th and 13th of June 2007. The title of the symposium "Functioning of NOM in the Environment" reflects the current focus on research and the multidisciplinary nature of humus research and the environmental research in general. We also would like to open the discussion more towards the different types of organic materials present in the environment and their role in different phenomenon. The responsible for the organization of the meeting were Dr. Jarkko Akkanen as the chair of the organization committee and Prof. Jussi Kukkonen as the chair of the scientific committee.

The symposium themes:
I Advances in the characterization of natural organic matter
II Biological implications of natural organic matter
III Occurrence and origin of natural organic matter in the environment
IV Effects of natural organic matter on the environmental fate of contaminants and nutrients
V Role of natural organic matter in the global carbon cycle

With 28 platform presentations and 30 poster presentations the five themes were well covered. As a first keynote speaker Jukka Alm (Finnish Forest Research Institute, Joensuu, Finland) introduced the importance of land use and climate change for the fate of terrestrial NOM. Second keynote about the formation of bioavailable metabolites during photodegradation of NOM given by Fritz Frimmel (Universität Karlsruhe, Karlsruhe, Germany) was followed by four platform presentations on different aspects of light-related reactions.



Scientific discussions during poster sessions.

The meeting also included lively social programs starting with an excursion to enjoy the national landscape in the Koli National Park continuing with get-together evening with good food and meeting old and also new colleagues. On Monday evening there was a reception in the old main building of the University of Joensuu, kindly provided by the University of Joensuu. The social program culminated to the conference dinner. Before the dinner the participants had a cruise on M/S Satumaa upstream River Pielisjoki that runs through the centre of Joensuu. Over the dinner in the great surroundings three poster presentations were awarded. The candidates for the awards were selected by jury chaired by Paul Bloom and consisting of IHSS board members. The poster awards went to Sabrina Halladja (Ensemble Universitaire des Cézeaux, France), Vladimir Kholodov (Dokuchaev Soil Science Institute of RAAS, Moscow, Russia) and Anssi Vähätalo (University of Helsinki, Finland).

Announcement of the poster awards.

Jarkko Akkanen

FUTURE CONFERENCES

Invitation to IHSS-14 in Russia

Dear colleagues!

We are glad to inform you that the 14th International Meeting of the International Humic Substances Society (IHSS) will be held on September 14-20, 2008 aboard the ship traveling from Moscow to Saint Petersburg, Russia.

Discover Russia: the scenic rivers, channels and lakes which connect Moscow and St. Petersburg. Follow the path of Peter the Great, who sailed from Moscow to St. Petersburg on a quest to modernize Russia. Enjoy quiet Northern landscapes.

Visit us at conference website:

http://www.ihss-14.humus.ru

General Information

The conference venue will be four-decks ship Nikolay Bauman. The opening ceremony and the first keynote lectures will take place at the Lomonosov Moscow State University together with the opening of the 2nd International IUPAC Conference on Green Chemistry. Satellite exhibition "Humic materials - resources for the 21st century" will take place during the conference.

Scientists, engineers, and humate manufacturers are invited to use this conference for intensive discussions of the recent findings in the field of basic and applied research on humic materials.

The scientific program will include keynote lectures (30 min), oral presentations (15 min), poster presentation, round table and work group discussions.

Number of participants is limited to 300 persons due to ship capacity.

Details on the ship and tour description see at the website of the tour-operator www.mosturflot.com

Goals and Highlights of the Conference

The ambitious goals of this conference are to demonstrate, firstly, the growing importance of humic substances in the context of global climate change, and, secondly, to draw attention of chemists to humic materials containing huge resources of humified biomass as to alternative feedstock for chemical industry best suited to bio-based economy.

The scientific highlights include contribution of HS to global climate change; humic-like substances in the air(“HULIS”) – hot-spot of atmospheric chemistry, role of natural organic matter in carbon cycling in marine ecosystems, other “burning questions” like non-covalent interactions within HS and use of ultra high resolution analytics (e.g., FTICR MS) for unfolding complexity of HS. The important focus of the conference will be also technology and innovative applications of humic materials based on molecular understanding of their structures. This topic is of special significance today being closely connected to the concept of bio-based products.

Main Topics of Scientific Program

1. Molecular understanding of humic substances (HS) and natural organic matter (NOM)
2. HS and NOM in the changing environment
3. Physical-chemical and biological properties
4. Knowledge-based design and advanced separation of humic materials
5. Industrial production and innovative applications of humic materials

Conference Proceedings

Extended abstracts will be published as conference proceedings. Abstracts should be 2 or 4 pages long (authors' choice).

Conference Exhibition

"Humic materials - resources for the 21st century".
The exhibition will be held aboard the ship. The humates manufacturers and other companies are kindly invited for participation. Catalogue of the Exhibition will be available in Russian and English.

Important Deadlines

- **Registration fee:**
  Immediate payment - November 15, 2007;
  Later payment - February 15, 2008;
  Final payment - May 15, 2008.
- **Accommodation payment** - May 31, 2008.
- **Abstract submission** - November 15, 2007.
- **Notification on abstract acceptance** - January 15, 2008.

Route description

Follow the path of Peter the Great, who sailed from Moscow to St. Petersburg on a quest to modernize Russia. Travel along ancient trade routes with small towns and villages on the banks of the Volga river. Explore the Golden Ring town Uglich and Kirillo-Belozersky monastery in Goritsy. Marvel wooden churches of Kizhy Island built without a single nail. Indian Summer weather and exciting scientific atmosphere are expected.

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WELCOME TO IHSS-14 IN RUSSIA

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Dr. E. M. Perdue coordinates the updating of the IHSS WEB page which is located on the server of the Georgia Institute of Technology, Atlanta, GA, USA.

Contributions, suggestions and comments regarding the content and organization of the WEB pages are welcome from all IHSS members.

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PRICE LIST

Standard Humic and Fulvic Acids

Cat. No.	Item	Unit	Price(US$)
2S101H	Suwannee River Humic Acid Standard II	100 mg	$175
1S101F	Suwannee River Fulvic Acid Standard	100 mg	$125
2S101F	Suwannee River Fulvic Acid Standard II	100 mg	$125
1S102H	Elliott Soil Humic Acid Standard	100 mg	$15
2S102F	Elliott Soil Fulvic Acid Standard II	100 mg	$150
1S103H	Pahokee Peat Humic Acid Standard	100 mg	$15
2S103F	Pahokee Peat Fulvic Acid Standard II	100 mg	$150
1S104H	Leonardite Humic Acid Standard	100 mg	$5
1S104H-5	Leonardite Humic Acid Standard	5 g	$130

Reference Humic and Fulvic Acids

1R101F	Suwannee River Fulvic Acid Reference	100 mg	$75
1R103H	Pahokee Peat Humic Acid Reference	100 mg	$10
1R103H-2	Pahokee Peat Humic Acid Reference	2 g	$125
1R105H	Nordic Aquatic Humic Acid Reference	100 mg	$125
1R105F	Nordic Aquatic Fulvic Acid Reference	100 mg	$75
1R107H	Waskish Peat Humic Acid Reference	100 mg	$15
1R107F	Waskish Peat Fulvic Acid Reference	100 mg	$30
1R109F	Pony Lake (Antarctica) Fulvic Acid Ref.	100 mg	$150

Reference Aquatic NOM (reverse osmosis isolation)

1R101N	Suwannee River NOM (RO isolation)	100 mg	$20
1R108N	Nordic Reservoir NOM (RO isolation)	100 mg	$20

Bulk Solid Sources of HA and FA

BS102M	Elliot Silt Loam Soil	500 g	$50
2BS103P	Pahokee Peat Soil II	250 g	$50
BS104L	Gascoyne Leonardite	500 g	$50

Books

	Description	Price	Shipping
P89101	NMR Data (Thorn et al., 1989)	Free	$5.00 US & Canada; $10.00 outside US
P89102	Proc. of the 7th IHSS meeting, Trinidad, 1994	$10.0	$8.00 US & Canada; $15.00 outside US
P89103	Proc. of the 9th IHSS meeting, Australia, 1998	$30.0	$10.00 US & Canada; $20.00 outside US
P89104	Proc. of the 12th IHSS meeting, Brazil, 2004	$40.0	$10.00 Western Hemisphere $20.00 Other locations

ANNOUNCEMENT

Aquatic Humus-/NOM- Isolates

Since 1986 several Humus-/NOM- isolates have been "produced" in the Nordic countries. Considerable numbers of characterization data exist on these samples. However, as more can be done, we offer limited amounts of these materials free of charge to colleagues and especially to those who plan to study a whole serie, e.q. the "NOM-Typing" serie and/or the "NOMINIC"- serie. In return we ask for a full report of all results.

We strongly believe that it is important to exchange samples and results in order to learn more about this important matter and not at least use the relative limited resources we all have, in the best way.
We are working on collecting published data on the isolates. The list will be available for all interested parties.

On behalf of the Norwegian group

Egil Gjessing

An overview of RO - isolates from Nordic water sources and published results. Samples of these materials may be available from Dag Olav Andersen; Agder University College, Kristiansand, Norway (dag.o.Andersen@hia.no)

Project /(initiator)		Name		Amount (gram)			%	Publ.
				Total	UiO	HiA (stock)	org. mat.	Ref.
					rdv[3)]	doa[2)]		
HUMEX 1994 (etg[1)])								A)
RO[a)]		Acidified half [Oct.]	HUMA	**13,3**	4,0	9,3	60	
RO[a)]		Control half [Oct.]	HUMB	**14,3**	4,3	10,0	62	
NOM-typing 1996 (etg[1)])								B)
RO[a)]	1	Trehørningen [May]	TRE	**25,4**	7,6	17,8	43	
RO[a)]	2	Hellerudmyra [May][e)]	HEM	**30,0**	9,0	21,0	67	
RO[a)]	3	Aurevann [May]	AUR	**9,9**	3,0	6,9	44	
RO[a)]	4	Maridalsvann [May]	MAR	**15,1**	4,5	10,6	32	
RO[a)]	5	Birkenes [May]	BIR	**25,0**	7,5	17,5	32	
RO[a)]	6	Humex B [May]	HUM	**18,4**	5,5	12,9	63	
RO[a)]	7	Gjerstad (limed) [May]	GJL	**22,6**	6,8	15,8	39	
RO[a)]	8	Gjerstad(unlimed) [May]	GJU	**21,8**	6,5	15,3	50	
RO[a)]	9	Hellerudmyra [Oct.][e)]	HEO	**35,8**	10,7	25,1	73	
EVA[b)]	1	Trehørningen [May]	TRE	**0,5**	0,5	0,0	n.a.	B)
EVA[b)]	2	Hellerudmyra [May][e)]	HEM	**0,3**	0,3	0,0	n.a.	
EVA[b)]	3	Aurevann [May]	AUR	**0,4**	0,4	0,0	n.a.	
EVA[b)]	4	Maridalsvann [May]	MAR	**0,1**	0,1	0,0	n.a.	
EVA[b)]	5	Birkenes [May]	BIR	**0,2**	0,2	0,0	n.a.	
EVA[b)]	6	Humex B [May]	HUM	**3,4**	3,4	0,0	n.a.	
EVA[b)]	7	Gjerstad (limed) [May]	GJL	**0,8**	0,8	0,0	n.a.	
EVA[b)]	8	Gjerstad(unlimed) [May]	GJU	**0,7**	0,7	0,0	n.a.	
EVA[b)]	9	Hellerudmyra [Oct.][e)]	HEO	**1,9**	1,9	0,0	n.a.	
TERJEVANN [oct 1996] (doa[2)])								C)
RO[a)]	1	Innlet brook 1	TV1	**25,0**		15,0	29,7	
RO[a)]	2	Innlet brook 2	TV2	**25,0**		15,0	29,8	
RO[a)]	3	Outlet	TV3	**25,0**		15,0	20,9	
NOMONIC (1999-2000] (rdv[3)])								D)
RO[a)]	1	Hietajarvi [Oct.-99]	HIH	**9,8**	1,7	8,1	56,4	
RO[a)]	2	Hietajarvi [May-00]	HIV	**7,8**	1,4	6,4	48,4	
RO[a)]	3	Valkea-Kotinen [Oct-99]	VKH	**13,9**	3,0	10,9	52,1	
RO[a)]	4	Valkea-Kotinen [May-00]	VKV	**18,6**	4,4	14,2	50,6	
RO[a)]	5	Svartberget [Oct.-99]	SBH	**14,9**	3,3	11,6	43,4	
RO[a)]	6	Svartberget [May-00]	SBV	**22,3**	5,8	16,5	68,9	
RO[a)]	7	Birkenes [Sept-99]	BIRH	**6,7**	1,1	5,6	44,8	
RO[a)]	8	Birkenes [April-00]	BIRV	**5,6**	0,8	4,8	33,8	
RO[a)]	9	Skjervatj. Humex B [Oct -99]	STH	**4,9**	0,3	4,6	71,1	
RO[a)]	10	Skjervatj. Humex B [April-00]	STV	**3,7**	0,5	3,2	57,8	

Project /(initiator)		Amount (gram)						%	Publ.
Name		Total	UiO	UiO	NIVA	UMB	HiA (stock)	org. mat.	Ref.
			rdv[3]	doh[5]	kas[6]	gur[4]	doa[2]		
NORDIC NOM- Ref. (IHSS) [Oct-Nov]									E)
RO[a] Vallsjøen (Sør-Odal w/w)	NOR	**16,3**	4,9				11,4	57	
CLUE- Project [Nov. 2005] (gur[4])									F)
RO[a] Storgama 1	STO1	**9,6**				7,2	1,0	n.a.	
RO[a] Storgama 2	STO2	**6,4**				4,8	1,0	n.a	
Langtjern Project [May 2006] (doh[5])									G)
RO[a] Langtjern Outlet	LAE	**21,6**		16,2			1,5	n.a.	
XAD Hellerudmyra [June-Aug. 1986]	NOFA	**2,8**	2,4		0,4			99	H)
eva[c] Hellerudmyra [June-Aug.1986]	NEVA	**2,3**	2,0		0,3			89	I)

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[a] Reverse Osmosis

[b] Evaopration (low pressure at 35°C) - filtration - freezedrying

[c] Evaopration (low pressure at 35°C) - centrifugation - freezedrying. Same water as the Nordic and Humic acid. (June – August 1986)

[d] Sampled at the same place and at the same time as the Nordic Reference Fulvic- and Humic acid. (June - August 1986)

[e] Sampeled at the same place as the Nordic Reference Fulvic- and Humic acid. (June - August 1986)

[f] Available from IHSS Standard collection

References

A) Gjessing et al. (1989): Multi-method characterization of natural organic matter isolated from water: Characterization of Reverse Osmosis-isolates from water of two semi-identical dystrophic lakes basins in Norway.Wat.Res.:32:10: 3108-3124

B) Special Issue Environmental International (1999): Typing og natural organic matter. Workshop in Kristiansand, Norway 2-6 June 1998. Environ Int. 25:2/3. 143-375

C) Andersen et al. (2000): Nature of natural organic matter (NOM) in acidified and limed surface waters. Wat. Res. 34: 266-278. Work on an literature overview is in progress by Dag Olav Andersen (HiA)

D) Work on an literature overview is in progress by Rolf Vogt (UiO)

E) Work on an literature overview is in progress by Egil Gjessing (UiO)

F) No results reported yet

G) No results reported yet

H) Work on an literature overview is in progress by Egil Gjessing (UiO)

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