Recent progress of chemistry as scientific tool for environmental assessments—ICCE 2017

The 16th EuChemS International Conference on Chemistry and the Environment—ICCE 2017
Oslo, 18–22 June 2017

Roland Kallenborn¹ · Georg Becher² · Yngvar Thomassen^{1,3}

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The 16th International Conference on Chemistry and the Environment (ICCE 2017) took place in the period of 18–22 June 2017, in Oslo, the Capitol of Norway. The Blindern Campus of the University of Oslo was chosen as the appropriate venue for the conference. The University of Oslo is gratefully acknowledged for hosting ICCE 2017 in the beautiful setting and for generously making available a great conference environment for the attendees comprising lecture halls, foyer for posters and exhibition stands, and food and refreshment facilities. We also wish to thank all of the people involved in the efficient and smooth organization (University personnel, students and all members of the committees) and particularly the conference organizing team of “Congress-

Conference” headed by Øyvind Lie. The ICCE is organized as a biennial conference by the Division of Chemistry and the Environment (DCE) of the European Chemical Society (EuChemS). ICCE 2017 was officially hosted by the Division of Analytical Chemistry of the Norwegian Chemical Society (NKS). The organizing committee consisted of the following members: Roland Kallenborn (NMBU, conference chairman), Yngvar Thomassen (STAMI, Finances, abstract handling), Georg Becher (UiO, abstract handling, public relations), Balasz Berlinger (STAMI, Internet, IT), Pawel Rostkowski (NILU, Vendors and exhibitions), Katrine Borgå (UiO, Student program), and Rolf Vogt (UiO, Venue liaison). Seven satellite events were organized on Sunday, 18 June 2017 and on Thursday, 22 June 2017 at the venue prior to and after the official conference program.

Under the motto “Advancements in chemical methods for environmental research,” ICCE 2017 provided a well-suited communication and discussion forum for environmental scientists focusing on environmental chemistry and toxicology. The conference was opened by Øyvind Mikkelsen, the President of the Norwegian Chemical Society (NKS) and Morten Dæhlen, the Dean of the Faculty of Mathematics and Natural

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✉ Roland Kallenborn
roland.kallenborn@nmbu.no

¹ Norwegian University of Life Sciences, Ås, Norway

² University of Oslo, Chemical Institute, Oslo, Norway

³ Department of Chemical and Biological Work Environment, National Institute of Occupational Health, Oslo, Norway

Sciences, University of Oslo (UiO). Santiago Luis, the Chairman of the EuChemS Division of Chemistry and the Environment (DCE) welcomed the delegates during the opening ceremony. Leiv K. Sydnæs from the University of Bergen (UiB), past IUPAC president, delivered the opening lecture on Chemistry in the Service of Society. During the 3-day program, three additional plenary keynotes were delivered by highly reputable experts as follows:

1. Åke Bergman, Sweden, Director of the Research Centre for Chemicals, Health and Environment: Persistent Organic Pollutants (POPs): History, lessons learned and the way ahead.
2. Lars-Otto Reiersen, Secretary General of the Arctic Monitoring and Assessment Programme (AMAP): Arctic pollution issues.
3. Rupert Simon, European Chemical Agency: Reach(ing) sustainable development.

During three weekdays, 217 lectures and 200 posters were presented in 21 thematic sessions illustrating the broadness of the scientific program. The sessions were introduced by 23 invited speakers and covered the following themes:

- Poly- and Perfluorinated Alkyl Substances (PFAS)
- Natural Organic Materials
- Chemicals of Emerging Concern
- Radioecology
- Environmental Modelling Persistent Organic Pollutants and Waste
- Regulation of Chemicals
- Marine Toxicology and Chemistry
- Mass Spectrometry in Environmental Research
- Soil and Sediments
- Challenges in Environmental Chemistry
- University Education in Food and Environmental Chemistry
- Water Treatment
- Advancements in Analytical Chemistry
- Arctic Pollution
- Passive Sampling
- Sustainable Environmental Chemistry
- Persistent Inorganic Pollutants
- Atmospheric Aerosols and Pollutants
- Bioactive Substances and Biotoxins
- Microplastics
- Nanomaterials

During Sunday and Thursday, in total, seven satellite events were organized addressing the following topics:

1. New contaminants, new risks: Analysis and environmental implications
2. Algae toxins: Methods and implications
3. New emerging PFAS: International regulation strategies
4. Isotopic techniques and their applications in environmental research
5. Strategies and challenges for sanitation technology and sewage treatment in the high north
6. NORMAN: Suspect and non-target screening with high resolution mass spectrometry – current status and new developments
7. Scientific writing and publishing

The conference (without satellite events) was attended by 409 registered participants from 42 countries. ICCE 2017 provided a solid base for professional knowledge exchange, inspiration and networking through the high-level scientific program with both oral and poster presentations. During the opening session of ICCE 2017, the 50th anniversary of the discovery of polychlorinated biphenyls as environmental pollutants by Sören Jensen, at Stockholm University was celebrated. On this occasion, Professor emeritus Sören Jensen received the DCE Lifetime Achievement Award for his pioneering work in the identification and fate assessment of persistent organic pollutants. The awardee, who recently celebrated his 90th birthday, responded with personal impressions and notes on his highly productive career.

The special issue published here contains eight representative papers that are based on the presentations at ICCE 2017. The following topics are covered: Rodenticides in suspended particulate matter and fish, Analysis of polar perfluoroalkyl carboxylates in water, Disinfection by-products in drinking water, Intake of copper and lead in sheep, Certified reference material for POPs in marine sediments, Chlorinated dioxins/furans and polybrominated diphenylethers in sediment, Sources of poly- and perfluorinated alkyl substances in the Arctic, and NIR spectroscopy for characterization of microplastics in soil.

The 17th ICCE will take place in Thessaloniki, Greece, 16–20 June 2019 and will be organized by the Association of Greek Chemists in co-operation with the DCE. The local organizing committee will be chaired by Ioannis Katsoyiannis, Aristotle University of Thessaloniki.

On behalf of the ICCE 2017 organization team,

Roland Kallenborn, Georg Becher, and Yngvar Thomassen.

Dr. Roland Kallenborn is a Professor for organic analytical chemistry at the Norwegian University of Life Sciences (NMBU), Faculty of Chemistry, Biotechnology and Food Sciences (KBM). Furthermore, he holds an adjunct Professor position at the University Centre in Svalbard (UNIS), Dept. of Arctic Technology. Kallenborn is an environmental chemist with his main research interest in method development for identification and characterization of organic

environmental pollution (including contaminants of emerging concern and transformation products). Currently, his research focuses on the elucidation of pollutant profiles in food processing and Arctic environments. In his early career, he was instrumental in establishing new research facilities for environmental chemistry at the Basel University (CH), the current FRAM Center in Tromsø (former Polar Environmental Center), and at the University Centre in Svalbard (UNIS) in 2005. During his research in Norway, he introduced many new quantitative validated analytical methods for the determination of new priority pollutants, identified and reported for the first time in Norway (1994: enantiomers of chiral pesticides, 1996: chlorobornanes, 1998: synthetic musks, 2000: pharmaceuticals and personal care products, 2003: poly- and perfluoroalkyl substances). The first report about atmospheric long range transport of persistent organic pollutants (POPs) in Antarctica was published in 1998 and the first trend study on Antarctic atmospheric POP monitoring was reported in 2012. Kallenborn is an elected initial member of the Norwegian Scientific Academy for Polar Research (NVP) and the Armenian National Academy of Engineering Sciences. In addition, he represents the Norwegian Chemical Society (NKS) as national delegate in the Division of Chemistry in the Environment (DCE) of the European Association of Chemistry and Molecular Sciences (EuChEMS) where he also serves as financial responsible. He is an active member and Norwegian delegate in the expert group for persistent organic pollutants (POPs) for the Arctic Monitoring and Assessment Program (AMAP). Kallenborn is the author/co-author of 120 peer reviewed publications, 12 books/ monographs (author, chapter author and editor), 20 contract

reports, 10 popular science papers, and more than 300 presentations (poster/ oral) in international conferences and seminars (ISI H-index 32, scholar google 41). He serves as editor for the IF-registered scientific Journals, “Fresenius Environmental Bulletin (FEB),” “Environmental Science and Pollution Research” (Springer) and “Chemosphere” (Elsevier). For more details on current projects and research activities, please visit www.nmbu.no/ans/roland.kallenborn.

Dr. Georg Becher is a Prof. emeritus at the Department of Chemistry, University of Oslo. His scientific work comprises structural characterization and chemical analysis of organic compounds in the environment and humans. His scientific production comprises more than 170 articles in peer-reviewed international journals. His present h-index = 58.

He received his PhD in structural organic chemistry in 1974 at the University of Göttingen, Germany. He held positions at the University of Oslo, Norway (Postdoc), and University of Regensburg, Germany (Associate Professor), as Research Scientist at the Centre for Industrial Research, Oslo, Research Director and Department Director at the Norwegian Institute of Public Health, and as Adjunct Professor at the Department of Chemistry, University of Oslo.

His main research was directed towards assessment of human exposure to organic pollutants and toxicants through the use of chemical biomarkers. Examples are heterocyclic amines in hair, metabolites of acrylamide, phthalates, and organophosphate flame retardants in urine. Biomonitoring of persistent organic pollutants such as dioxins, PCBs, brominated flame retardants and perfluoroalkyl compounds in human blood and breast milk have been performed extensively in epidemiological studies.

Yngvar Thomassen is currently a research director emeritus at the National Institute of Occupational Health and a professor emeritus at the Norwegian University of Life Sciences outside Oslo. He is also the leading scientist of a Russian mega-project at the Northern Arctic Federal University in Arkhangelsk, Russia.

Thomassen's academic training (and real) was obtained in the Department of Analytical Chemistry at the University of Oslo from where he graduated in

1973. He spent 1 year at the Norwegian Defense Institute before taking a post research associate position at the Department of Analytical Chemistry at the University of Oslo, where he conducted research for 2 1/2 years. In

1978, he visited the University of Toronto, Department of Environmental Studies and Geology, for 1 year with a Royal Norwegian grant (visiting scientist).

Thomassen is the author or co-author of 190 scientific publications, the majority focusing on atomic spectrometry and other spectrometric methods for the determination of essential and toxic elements with special emphasis on electrothermal atomic absorption spectrometry. In recent years, more focus has been given to other spectrometric methods as inductively coupled plasma atomic emission and mass spectrometry. His main scientific activity during the last 10 years has been in the field of environmental and occupational exposure characterization and assessment in human health studies. His research focuses on clinical aspects of analytical chemistry and the application of atomic spectroscopy within the context of environmental and occupational health.

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