Open Ceremony of International Joint Research Center for Arctic Environment and Ecosystem (IJRC-AEE)

Harbin, China
January 11, 2018

ORGANIZED BY

Harbin Institute of Technology (HIT), China

FOUNDING MEMBERS

Harbin Institute of Technology (HIT), China

North-East Federal University, Russia

Norwegian University of Life Sciences (NMBU), Norway

University Centre in Svalbard (UNIS)

University of Ottawa, Canada

Zhejiang University, China

Research Center for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences

Jinan University, China

Yantai Institute Coastal Zone Research, Chinese Academy of Sciences, China

Nanjing University of Information Science & Technology, China

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Dr. Zhiyong Xie, Research Scientist, GKSS Research Center, Institute for Coastal Research, Germany

Dr. Qing-Hua Zhang, Professor and Research Scientist, Research Center for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences, China

Dr. Tian-Liang Zhao, Professor, Nanjing University of Information Science & Technology, China

Dr. Chongguo Tian, Research Scientist, Yantai Institute Coastal Zone Research, Chinese Academy of Sciences, China

OBJECTIVE

It has long been recognized that the Arctic is no longer a pristine environment, free of anthropogenic contaminants such as persistent organic pollutants (POPs), heavy metals, acids or radionuclides. Though it is remote, the Arctic is surrounded by populated continents to which it is well connected by the currents of atmosphere and oceans. The establishment of the International Joint Research Center for Arctic Environment and Ecosystem (IJRC-AEE) aims the state-of-art Arctic research, focusing on Arctic environment and ecosystem, the impact of global climate change to the Arctic environment, long-range transport (LRT) of POPs through air and ocean currents, the budget of these pollutants in the Arctic Ocean, their future trends in the Arctic, and their impact to the Arctic biota.

A short Arctic Environment Research Symposium will be held for some invited international experts to give presentations on the results of their current Arctic research work.

INVITED SPEECHS

1) **Roland Kallenborn** (Norwegian University of Life Sciences (NMBU), Norway and University Centre in Svalbard (UNIS)): **(1) New pollutants in Arctic environments, (2) Sources, distribution and fate of persistent organic pollutants in a changing Arctic climate.**
   Introduction of speaker: Professor Roland Kallenborn is an international renowned scientist in the field of organic analytical chemistry, environmental chemistry and environmental risk assessment. bioaccumulation and food web responses to environmental contaminants

in different ecosystems. Currently, his research focuses on the elucidation of pollutant profiles in food processing and Arctic environments. As responsible scientist, he was instrumental in establishing new research facilities for environmental chemistry at Basel University (CH) in 1995, the current FRAM Center in Tromsø (former Polar Environmental Center) in 1996, and at the University Centre in Svalbard (UNIS) in 2005. Kallenborn served as chairman of the ecotoxicology group at the **Polar Environmental Centre** in Tromsø (1998-2002) and was Department leader of the UNIS department of **Arctic Technology** (2005 – 2008). Kallenborn was and is project leader for numerous national and international research. During his research, he introduced many new quantitative validated analytical methods for the determination of new priority pollutants, identified and reported for the first time in Norway. 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 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. 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). He is the appointed chairman for the organization of the 16th International Conference of Chemistry in the Environment (ICCE) held in Oslo in June 2017 (www.icce2017.org). Kallenborn is author/co-author of 102 per reviewer publications, 12 books/ monographs (author, chapter author and editor), and 10 popular science papers. He serves as editor for IF registered scientific Journals "Environmental Science and Pollution Research" (Springer) and "Chemosphere" (Elsevier).

2) **Yi-Fan Li** (Harbin Institute of Technology, China): **Major pathways for POPs entering the Arctic: A critical Review**

Introduction of speaker: Dr. Yi-Fan Li was a Senior Research Scientist in Environment Canada before 2013, and is now a professor of School of Environment, Harbin Institute of Technology (HIT), China, and the Chief Scientist of the International Joint Research Center for Persistent Toxic Substances (IJRC-PTS). Prof. Li's research interests include environmental modeling and monitoring. During working in Environment Canada, he received a Four-Season Award in 2010-2012 for his research work on sources, occurrence

and pathways of POPs to Arctic. Based on his single-handedly built global and emissions inventories, Dr. Li discovered the direct evidence that the major pathway for α-HCH to enter the Arctic through atmospheric long-range transport (LRT). By careful comparative research between α-and β-HCH, for the first time, Dr. Li and co-workers found that while the atmosphere may be a preferred pathway for LRT of most POPs, there are certain others, such as β-HCH, for which the ocean currents are the major vehicle for LRT. This finding has resulted in a major shift in generally accepted norms for LRT of POPs. Recently during his research carried out in (HIT), based on steady state theory of gas-particle partitioning for PBDEs established by him and his students, Dr. Li and co-workers discovered that, like other semi-volatile organic compounds, BDE-209 cannot be sorbed entirely to atmospheric particles; and there is a significant amount of gaseous BDE-209 in global atmosphere, which is subject to atmospheric LRT. Therefore, it is not surprising that BDE-209 can enter the Arctic through atmospheric LRT mainly by air transport rather than by particle movement. By challenging the current view that BDE-209 enters the Arctic through LRAT by particle movement, this is a significant advancement in understanding the global transport process and the pathways entering the Arctic for chemicals with low volatility and high octanol–air partition coefficients, such as BDE-209.

Dr. Li has authored/co-authored more than 200 peer-reviewed papers and 5 Canadian National Reports and 2 AMAP reports, and has been one of the Most Cited Chinese Researchers for the past three years by Elsevier. Dr. Li serves on editorial advisory board of Ecotoxicology and Environmental Safety. He served as a member of the expert group to revise the "Climate Change and Persistent Organic Pollutants (POPs)", Stockholm Convention on POPs (2011), Director of Database for Population and Cropland, Global Emissions Inventory Activities (GEIA) (1998-2005), and the Committee member, POPs and Heavy Metals Program, GEIA (1998-2005).

3) **Qing-Hua Zhang** (Research Center for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences, China), **Five-year air monitoring of persistent organic pollutants in Arctic using XAD-2 resin passive air sampler**

Introduction of speaker: Dr. Qing-Hua Zhang is a Professor of Environmental Science in the State Key Laboratory of Environmental Chemistry and Ecotoxicology at Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences. His education

includes a BS degree in Genetics from Wuhan University, MS and PhD in Environmental Science from the Graduate School of Chinese Academy of Sciences. His research focuses on developing sampling and analytical methods for persistent organic pollutants (POPs), especially for dioxins, PCBs, and emerging POPs and investigating sources, process and impact of POPs in China and polar regions. He has authored/co-authored more than 100 peer-reviewed papers and 3 book chapters. Dr. Zhang serves on editorial board of "Environmental Chemistry" (in Chinese), "Scientific Reports" and "Science China Chemistry" (Young Scientists Committee).

4) **Jianmin Ma** (Peking University), **Feature extraction of climate change signals in persistent organic pollutants in the Arctic**

Introduction of speaker: Dr. Jianmin Ma is a Thousand Talent Program distinguished professor in the College of Urban and Environmental Sciences, Peking University, and adjunct professor of CAS Center for Excellence in Tibetan Plateau Earth Sciences. He obtained his PhD degree in 1995 from James Cook University, Australia. He was a research scientist with Environment Canada from 1997 to 2014 and Canadian chair of Long-range Transport Working Group of Great Lakes Binational Toxic Strategy (2009-2013). Dr. Ma joined Lanzhou University in 2013 and moved to Peking University in 2017. He has been carrying out the studies in modeling of persistent organic pollutants, trace gases, heavy metals, and impact of climate change and human activities on environmental cycling and human health of air contaminants. He has authored and coauthored more than 100 peer reviewed scientific papers in SCI journals and scientific assessment reports for several international organizations. Dr. Ma now also serve as the editorial board member of Environmental Science & Technology.

5) **Tian-Liang Zhao (**Nanjing University of Information Science & Technology, China**), A three-dimensional model study on the production of BrO and Arctic boundary layer ozone depletion**

Introduction of speaker: Dr. Tianliang Zhao is currently a professor in School of Atmospheric Physics, Nanjing University of Information Science and Technology. He got his PhD degree in Munich University, Germany in 1998, worked as a research scientist in Karlsruhe University (TH), Germany from 1998-2001, as a post-doctor fellowship in University of Toronto, Canada from 2001-2004 and as a research scientist in Environment

Canada from 2001-2011. He has focused his research on the environment and climate changes including the coupling a comprehensive atmospheric chemistry module MECCA into a global environment model GEM-AQ and application of the 3-D global model to simulate the halogen chemistry in Arctic ozone depletion events, Arctic Haze and intercontinental transport, and development of a global 3-D dynamic model for semi-volatile persistent organic pollutants for characterization of global transports and budgets of PCBs. He has published more than 60 papers in high-quality scientific journals such as Atmospheric Chemistry and Physics (ACP), Journal of Geophysical Research (JGR) and Atmospheric Environment (AE).

6) **Le Cao (**Nanjing University of Information Science & Technology, China**), Numerical investigations of the Ozone Depletion Events and the Halogen Release during the Arctic Spring**

Introduction of speaker: Dr. Le Cao is currently an associate professor in Nanjing University of Information Science and Technology. He has focused his research on the numerical study of ozone depletion events (ODEs) occurring during Arctic spring and the associated "bromine explosion" mechanism. Le Cao got his PhD degree in Heidelberg University, Germany in 2014. In Heidelberg, he was trying to capture the temporal evolution of atmospheric components during ODEs as well as the role of the boundary layer in the occurrence and termination of ODEs by using various numerical models. After obtaining his doctoral degree, Le Cao joined the School of Atmospheric Physics in Nanjing University of Information Science and Technology, and focused on obtaining a reduced reaction mechanism of ODEs using different mechanism reduction techniques. He has published a number of publications in high-quality scientific journals such as Atmospheric Chemistry and Physics (ACP) and Atmospheric Environment (AE).

VENUE

State Key Laboratory of Urban Water Resource and Environment (SKLUWRE), Harbin Institute of Technology, Harbin, China

HOTEL INFORMATION

(1) Huaqi Hotel, No.301 Hongqi Street， Nangang District, Harbin, 150090, China, tel: 86-451-8186-8888（黑龙江省哈尔滨市南岗区红旗大街 301 号，华旗酒店）

(2) Longhai Century Hotel, No.88 Songshan Road, Nangang District, Harbin, 150090, China, tel: 86-451-8597-5999（黑龙江省哈尔滨市南岗区嵩山路 88 号，龙海世纪大酒店）

(3) Minfang Business Hotel, No.270 Hongqi Street, Nangang District, Harbin, 150090, China, tel: 86-451-8227-9888（黑龙江省哈尔滨市南岗区红旗大街 270 号，民防商务酒店）

(4) Spring Hotel, No.128 Huanghe Road , Nangang District, Harbin, 150090, China, tel: 86-451-8796-4111（黑龙江省哈尔滨市南岗区黄河路 128 号，春天宾馆）

(5) 7 Days Hotel, No.117 Songshan Road， Nangang District, Harbin, 150090, China, tel: 86-451-8717-0777（黑龙江省哈尔滨市南岗区嵩山路 117 号，7 天连锁酒店）

CORRESPONDENCE

If you have any inquiries, please contact to the symposium secretariat:

Dr. Wan-Li Ma （马万里）
Tel: 13624618186
E-mail: mawanli002@163.com

Dr. Zi-Feng Zhang （张子峰）
Tel: 18045012677
E-mail: zifeng_zhang@aliyun.com

Dr. Li-Yan Liu （刘丽艳）
Tel: 18686826950
E-mail: llyan7664@163.com

Dr. Wei-Wei Song （宋维薇）
Tel: 18646567216
E-mail: weiweiwendysong@126.com