Sino-Swedish Mercury Management Research Framework

SMaReF

瑞中汞研究框架计划

newsletter: June-August 2015. 7th issue

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Words from the leadership

It has been a long time since I spent the better part of the week as a student! Hearing about the work which the four post-docs in the Umeå group had accomplished in their first few months was a very nice indication that SMaReF has definitely moved from the "start-up" phase, into full-fledged activity. At the end of this newsletter you will find a listing of course participants which is one measure of how much is being accomplished. Please feel free to contact me or other Senior SMaReF colleagues in Sweden and China if you see possibilities for further deepening of the Sino-Swedish cooperation in mercury research!
Kevin Bishop

SMaRef PhD course "The biogeochemical fundamentals of mercury speciation and its transformation"

Uppsala 1 Sep 2015--- During 17-22 Aug 2015, Umeå became the August Hg "hotspot" in the period of SMaRef's special PhD course on Hg biogeochemistry. Organized by Professor Ulf Skyllberg and Erik Björn, 5-days of intense lectures were given to interested students at the Umeå campus of SLU.

Participants include a group of 14 graduate students from SKLEG-CAS, and PhD students from Sweden's universities with a shared research focus on Hg. Jeffra Schaefer and Haiyan Hu, who both travelled from Rutgers University in the US, were specially invited to give talks on fundamentals of microbial genomics and their research projects.

Topics on chemical speciation, theoretical and experimental tools, and Hg stable isotope were highlighted from Monday to Tuesday. Case study on experimental work of Hg kinetics were shared on the third day by Ulf and Erik's new post-docs, in order to give students a better example of applying theoretical and experimental tools in research work. Thursday was filled with fundamental knowledge on genomics, especially microbial community analysis using current technology and theory of understanding. Our final day was presented in the form of workshop talks, covering a series of presentations from chemical, ecological, and microbial aspects of understanding Hg biogeochemistry.

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Swedish University of Agricultural Sciences, Department of Aquatic Sciences and Assessment

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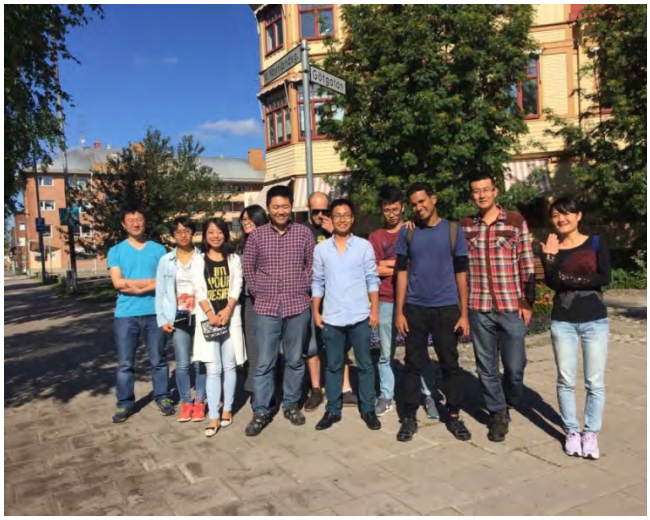
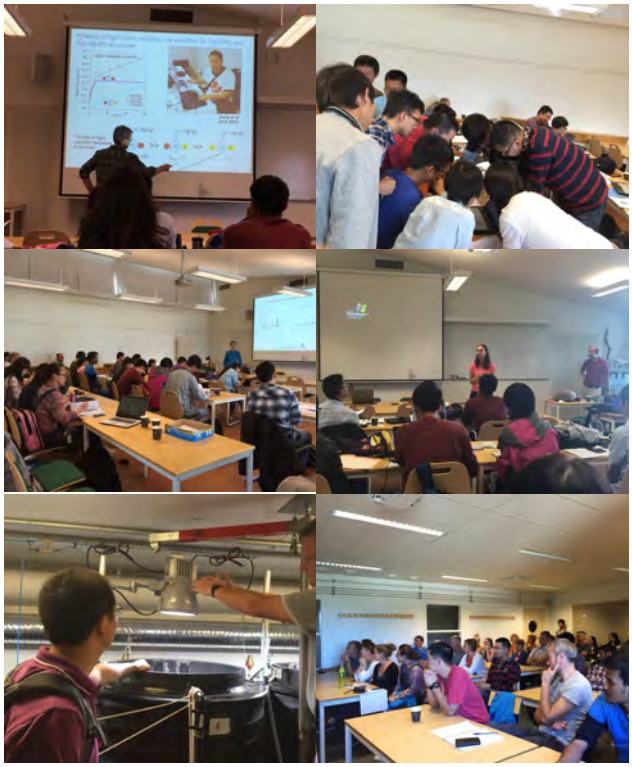
Thanks to the arrangement by Ulf and Erik, the whole course group visited Umeå Marine Sciences Centre (UMSC) at Umeå University. Staff from UMSC kindly introduced the facility, particularly the advanced experimental mesocosms developed for scaled in-door experiments. For many of the students from SKLEG-CAS, it wasn't only the first time visiting Sweden, but also their very first chance to experience a research centre by the sea.

A Saturday excursion to peatland field sites and relaxation activities by the shore of the Baltic Sea's Bothnian Bay, concluded the course. All of us, students from SKLEG-CAS and elsewhere, enjoyed the whole week in Umeå. We look forward to further opportunities of seeing them through other research activities.



Chinese graduate students group on the first day of arrival in Umeå. Photo from Haiyu Yan



Students in the course—Upper left: Ulf Skyllberg giving a talk on Hg speciation in DOM-rich environments; upper right: group discussion on a course assignment; middle left: new post-doc Wei Zhu, also from SKLEG-CAS giving a talk on his recent research project on Hg speciation in sediments from fibre banks; middle right: Jeffra Schaefer giving the talk on the fundamentals of microbial genomics; bottom left: Staff from Umeå University Marine Science Centre introducing the mesocosm design to students; bottom right: Students in a research seminar given by visiting researcher Karen Kidd on her group's recent work in Hg bioaccumulation. Photos from Pianpian Wu

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Research funding and new position for Haiyu Yan at SKLEG-CAS

Haiyu Yan got promoted to the position of "researcher", which is equivalent to professor at her home institute SKLEG-CAS; Haiyan Hu received new research funding, approximately 750,000 RMB, from the Chinese National Science Foundation to work on relevant Hg methylation/demethylation microbial genomics.

Hongming Cai: new Chinese PhD student at Stockholm University

Hongming Cai, PhD student from SKLEG-CAS, arrived in Sweden in early Aug and will stay for 3 months. Supervised by Markus Meili at Stockholm University during his stay, Hongming will take part in field sampling work for Hg isotopes study.

New publications

Li, P. Feng, X. Chan, H-M. Zhang, X. and Du, B. 2015. Human Body Burden and Dietary Methylmercury Intake: The Relationship in a Rice-Consuming Population. *Environmental Science & Technology.* 49 (16). 9682-9689 doi: 10.1021/acs.est.5b00195

Beal, S. A. Osterberg, E. Zdanowicz, C. M. and Fisher, D. A. 2015. Ice Core Perspective on Mercury Pollution during the Past 600 Years. *Environmental Science & Technology. 49 (13).* 7641-7647 doi:10.1021/acs.est.5b01033

Eklof, K. Kraus, A. Futter, M. Schelker, J. Meili, M. Boyer, E. W. and Bishop, K. 2015. Parsimonious Model for Simulating Total Mercury and Methylmercury in Boreal Streams Based on Riparian Flow Paths and Seasonality. *Environmental Science & Technology. 49 (13).* 7851-7859 doi:10.1021/acs.est.5b00852

Li, P. Du, B. Chan, H. M. and Feng, X. Human inorganic mercury exposure, renal effects and possible pathways in Wanshan mercury mining area, China. Environmental Research. 140. 198-204 doi:10.1016/j.envres.2015.03.033

Scheduele of things to come in SMaReF

2015

October 5: SMaReF council meeting

November: Quangle Qiu will come to Uppsala University as a visiting professor at Limnology Department.

November 30: SMaReF steering committee meeting

December 7: SMaReF council meeting

2016

May: Joint course with CHEMSTRRES about bioaccumulation of pollutants in aquatic foodwebs (exact dates not decided yet)

Contact: Staffan Åkerblom (staffan.akerblom@slu.se)
Swedish University of Agricultural Sciences, Department of Aquatic Sciences and Assessment

2017

July 16-21, Providence, Rhode Island, USA. The 13th edition of the International Conference on Mercury as a Global Pollutant.

Next newsletter

Planned to be released in December 2015. We encourage you to send newly published Hg-related papers that also can be added to this newsletter.
Send this to: Staffan.akerblom@slu.se

SMaRef Hg biogeochemistry PhD course 17-21 Aug 2015

List of participants

Institutes

Swedish University of Agricultural Sciences **SLU**

Stockholm University **SU**

Umeå University **UMU**

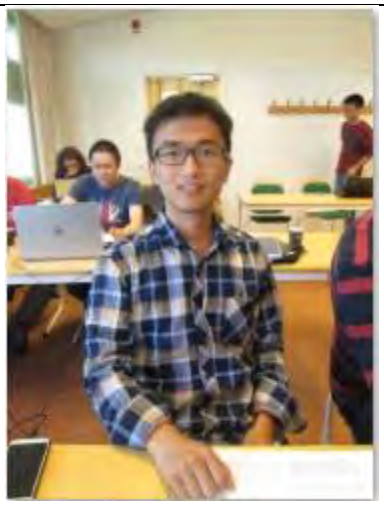
Tongji University **TU**

Uppsala University **UU**

Rutgers University **RU**

State-Key Laboratory of Environmental Geochemistry, Chinese Academy of Sciences **SKLEG-CAS**

Zongqiang Zhu496995211@qq.com
SKLEG-CAS
Current: Master student, work on atmospheric Hg along the coast in China



Kai Li
418549929@qq.com
SKLEG-CAS
Current: Master student

Wei Yuan
yuan.420@163.com
SKLEG-CAS
Current: PhD student, work on atmospheric Hg mass balance in Ailao Mountain, a natural rainforest in south China

Huifang Zhao
zhaohuifang0327@163.com
SKLEG-CAS
Current: Master student work on land-atmopsheric Hg exchange via determination of Hg mass balance in leaf and soil in different rice paddy fields in China

Xiaohang Xu
xxh1119@foxmail.com
SKLEG-CAS
Current: First-year PhD student, work on microbial community analysis in rice paddy fields situated both in contaminated sites and reference sites

Jicheng Xia
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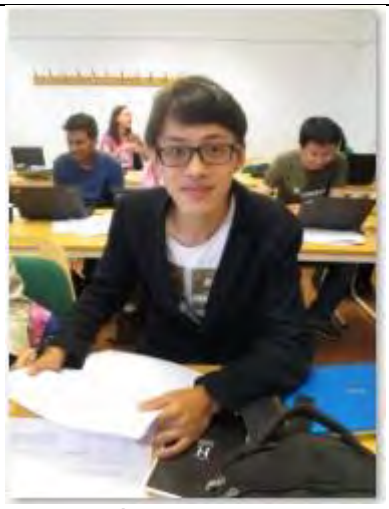
SKLEG-CAS
Current: Master student work on Hg in different crops in China, aiming in finding strategies to reduce Hg exposure from crops

Chongyang Qin
616767101@qq.com
SKLEG-CAS
Current: PhD student, work on Hg isotope fractionation in Ailao Mountain, a natural rainforest in south China



Hongming Cai
caihongming@outlook.com
SKLEG-CAS
Current: PhD student work on Hg isotope fractionation in liquid phase (precipitation), currently staying in Sweden for 3 months for sampling

Guangyi Sun
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SKLEG-CAS
Current: PhD student work on Hg isotope fractionation throughout a series of photoreduction process in gas phase

Zhidong Xu
xuzhidong2010@foxmail.com
SKLEG-CAS
Current: Master student work on Hg in rice paddy fields in contaminated sites

Yi Liu
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SKLEG-CAS
Current: Master student work on soil Hg mass balance in Ailao Mountain, a natural rainforest in south China

Lu Mei
512106676@qq.com
SKLEG-CAS
Current: Master student work on hydrological Hg mass balance in Ailao Mountain, a natural rainforest in south China

Kasun Abeysinghe
abeysinghekasun@yahoo.com
SKLEG-CAS
Current: Master student, research on conservative biology, Hg in terrestrial food web in contaminated sites, also interested in selenium, C and N isotopes

Adlane Bayou
bayou.adlane88@gmail.com
SKLEG-CAS
Current: PhD student, research on Hg and MeHg interaction with NOM, Se in Hg mining area. Previous: background in hydrology

Ulf Skyllberg
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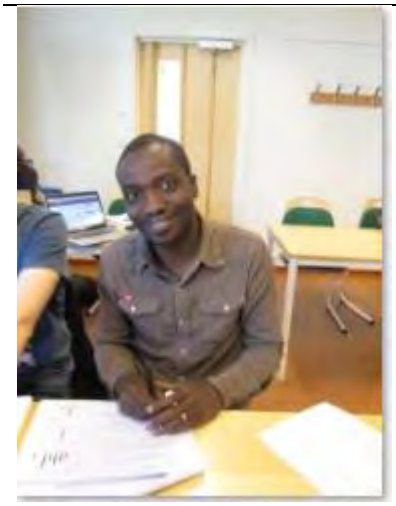
SLU
Current: Professor at SLU Umeå, research on fundamental understanding of the linkage between chemical speciation and transformation processes of mercury in soils and waters

Erik Björn
erik.bjorn@umu.se
UMU
Current: Research on trace element speciation analysis-biogeochemical processes & metallomics of trace element compounds

Wei Zhu
wei.zhu@umu.se
UMU
Current: Post-doc work on Hg kinetics in contaminated sites in fibre banks along Swedish coast



Gbotemi Adediran (Temi)
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UMU
Current: Post-doc work on Hg and MeHg speciation from contaminated sites under different sulfur conditions. Previous: PhD at UK

Aleksandra Skrobonja
aleksandra.skrobonja@umu.se
UMU
Current: First-year PhD student, work on Hg speciation using isotope tracers

Yingying Liu

UMU
Current: Rhenium-osmium dating of Pb-Zn ore deposit. Previous: PhD on radiogenic isotope

Kevin Bishop
kevin.bishop@slu.se
SLU
Current: Research focus on how hydrology in boreal catchment moves Hg from forests to watersheds and leading SMaRef project

Pianpian Wu
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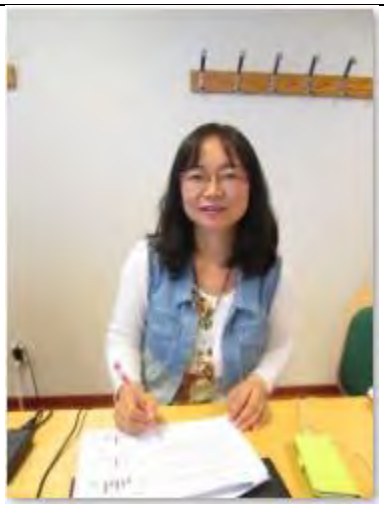
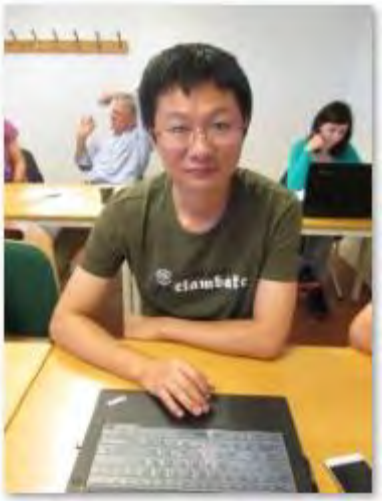
SLU
Current: Second-year PhD student, research project on Hg bioavailability and bioaccumulation in freshwater ecosystems at the base of the food chain



Haiyu Yan
haiyu.yan@slu.se
SLU, SKLEG-CAS
Current: Guest researcher at SLU Uppsala Hg bioaccumulation in food webs in aquatic ecosystems. Previous: Researcher at SKLEG-CAS



Baolin wang
baolin.wang@slu.se
SLU
Current: First-year PhD student, research focus on genomic analysis of microbial community between Swedish peatland and Chinese rice paddy field

Tao Jiang
tao.jiang@slu.se
SLU
Current: Post-doc research on Hg speciation and interaction with NOM to answer how changes of NOM lead to changes in Hg speciation. Previous: NOM characteristics and Hg speciation at Southwest University in Chongqing, China

Yu Song
yu.song@slu.se
SLU
Current: Post-doc research project focus on thermodynamics modelling of Hg speciation in fibre banks and the effect of sulfur to different models

Jeffra Schaefer
jschaefer@envsci.rutgers.edu
RU
Current: Researcher at Rutgers University, Hg biogeochemist and microbiologist. Research focus on Hg transformation under anaerobic conditions by Hg methylating bacteria, mainly on peatlands in Alaska. Intersted in Hg biodegradation

Haiyan Hu
haiyanhu83@gmail.com
RU, SKLEG-CAS
Current: Post-doc at Rutgers University, work on microbial genomics of Hg methylating bacteria. Previous: PhD at Oak Ridge National Laborotory and SKLEG-CAS. Thesis work highlight on elemental Hg oxidation and methylation by anearobic bacteria

Liem Nguyen Van
liem.nguyen@umu.se
UMU
Current: PhD student work on developing methodologies in trace element speciation analysis

Andrea Garcia Bravo
andrea.garcia@ebc.uu.se
UU
Current: Post-doc at Uppsala University, work on microbial genomics of Hg methylating bacteria from Swedish freshwater environments. Previous: Hg methylation by iron reducing bacteria and sulfur reducing bacteria, as well as bioaccumulation in contaminated sites

Markus Meili
Markus.Meili@aces.su.se
SU
Current: Interested in Hg isotopes, specifically Hg isotope fractionazation.
Previous: biologist, Hg bioaccumulation in Swedish lakes

Rui Wang
wangr@tongji.edu.cn
TU
Current: Interested in Hg speciation and Hg-Se interaction in Eastern China sea from sediment to food chain.
Previous: PhD in Hg bioaccumulation and kinetics modelling

SmaReF Catalog Information:

First (given) Name:

Last (family) Name:

E-mail address1:

E-mail address2:

University/Institute:

Short description of research interst:

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