



Preliminary Program

INEF 2018

Annual Conference of the International Network of
Environmental Forensics



University of Utah, Salt Lake City, Utah, USA
June 25-27, 2018

www.rsc.org/inef



MONDAY, June 25, 2018	
8:00 - 9:00	REGISTRATION - Fort Douglas Officer's Club
Plenary Session - Fort Douglas Officers Club - South Conference Room	
8:30 - 8:45	Welcome and Introduction Gwen O'Sullivan, INEF Secretary, INEF 2018 Co-Chair, Mt. Royal University, Canada
8:45 - 9:00	Orientation: The University of Utah and Conference Overview Glenn Johnson, INEF 2018 Chair, University of Utah, USA
9:00 - 9:45	Big Data Visual Analysis Chris Johnson, Distinguished Professor of Computer Science, University of Utah
9:45 - 10:30	Isotopes and Environmental Forensics Thure Cerling, Distinguished Professor of Biology and Geology & Geophysics, University of Utah
10:30 - 11:00	COFFEE/REFRESHMENT BREAK – Fort Douglas Officers Club - North/West Conference Room
BREAKOUT SESSIONS	
	South Conference Room Session 1: Isotope Forensics Moderator: Paul Philp
	East Conference Room Session 2: Data Analysis and Visualization Moderator: Mike Bock
11:00 - 11:20	Isotope Forensics of Perchlorate Neil Sturchio, University of Delaware, Newark, DE, USA
11:00 - 11:20	Visualization of Chemometric Methods in Budd Inlet, WA Will Hafner, NewFields, Edmonds, WA, USA
11:20 - 11:40	Evidence Recorded in Fingernails: Carbon, Oxygen, and Strontium Isotopes Reveal Diet and Travel Histories Christy Mancuso, University of Utah, Salt Lake City, UT, USA
11:20 - 11:40	An Identification Index of Environmental Damage of Hazardous Waste Contaminated Sites Yuanxun Zhang, Univ. Chinese Acad. Sciences, Beijing, China
11:40 - 12:00	Expanding the framework for natural attenuation assessments of chromium through the use of isotopes Jun Lu, Hefei University of Technology, China
11:40 - 12:00	Reconstructing Fate and Transport Using Moss Data Steve Mudge, Norwegian Institute for Air Research, Norway
12:00 - 12:20	Isotopic identification of chlorinated solvent sources: potential pitfalls in using carbon-chlorine cross-plots Farrukh Mohsen, Princeton HydroGeo LLC, Cranbury, NJ, USA
12:00 - 12:20	Integrated Application of RSIMCA, tSNE, and PVA for Chemometric Mapping of PCDD/F Congeners Rob Barrick, Infinity Solutions Group, Seattle, WA, USA
12:20 - 13:20	LUNCH – HERITAGE CENTER
	South Conference Room Session 3: Isotope Forensics Moderator: Neil Sturchio
	East Conference Room Session 4: Multivariate Fingerprinting Methods Moderator: Glenn Johnson
13:20 - 13:40	The Evolution and Future of Stable Isotopes in Environmental Forensics Paul Philp, University of Oklahoma, Norman, OK, USA
13:20 - 13:40	Emerging Statistical Methods for Source Apportionment Mike Bock, Ramboll, Portland, Maine, USA
13:40 - 14:00	Advances in oil spill forensic using biomarkers and isotope ratio technique. Harry Behzadi, SGS North America, Rutherford, NJ, USA
13:40 - 14:00	Determination of Sources of Organic Pollutants and Trace Elements in the Environment Erik R. Christensen, University of Wisconsin-Milwaukee, USA
14:00 - 14:20	Isotopic Reconnaissance of an Urban Water Supply System Yusuf Jameel, University of Utah, Salt Lake City, UT, USA
14:00 - 14:20	Examining Uncertainty Associated with Positive Matrix Factorization Source Apportionment Models Court Sandau, Chemistry Matters, Alberta, Canada
14:20 - 14:40	Stable Isotopes - A Tool for Traceability and Fraud Detection Thuan Chau, Isoforensics, Inc., Salt Lake City, UT, USA
14:20 - 14:40	Challenges and Considerations of Using Disparate Datasets in Multivariate Forensic Analysis Nicholas Rose, TIG Environmental, New York, NY, USA
14:40 - 15:20	COFFEE/REFRESHMENT BREAK - Poster Session
	South Conference Room Session 5: Fate & Transport Moderator: Steve Mudge
	East Conference Room Session 6: Human Exposure Moderator: Daniel Mendoza
15:20 - 15:40	Fingerprinting dust from desert playas to the Wasatch Front, Utah Michael Goodman, Brigham Young University, Provo, UT, USA
15:20 - 15:40	Applying a "Hard Science" Disciplined Approach to Identify and Verify Chemical Properties for Safe Response, Handling, and Disposal Cliff Holland, Spill Management Inc., Stoney Creek, ON, CA
15:40 - 16:00	Characterization of PCBs and Mercury Fate and Transport in the Berry's Creek Estuary Todd Martin, Integral, Salt Lake City, Utah, USA
15:40 - 16:00	Fine Particulate Matter Exposure across the Salt Lake School District Daniel Mendoza, University of Utah, Salt Lake City, USA
16:00 - 16:20	Use of Analytical Contaminant Fate and Transport Modeling in Forensic Source Evaluation Gregory Schnaar, Daniel B. Stevens & Assoc., Silver Spring, MD, USA
16:00 - 16:20	Background Levels of PCDD/Fs, dIPCBs and PXDD/Fs in sera of pregnant Ghanaian women Pennante Bruce-Vanderpuije, University of Buffalo, USA
16:20 - 16:40	Successful Use of Visual Forensics at a Smelter Site Melanie Edwards, Exponent, Bellevue, WA, USA
16:20 - 16:40	Assessment of Ecological Risk of Heavy Metals in Farmland: A Case Study in China Yuxian Liu, Univ. of Chinese Acad. of Sciences, Beijing, China
16:40 - 17:00	Volatilization and Atmospheric Transport of Chlorpyrifos and Chlorpyrifos Oxon under Field Conditions Supta Das, University of Otago, New Zealand
16:40 - 17:00	An untargeted exposure study of small isolated populations Adam Ladak, Waters Corporation, Milford, MA, USA
17:30 - 18:30	DINNER – HERITAGE CENTER
18:30 - 21:30	Waters Welcome Event at the Natural History Museum of Utah

TUESDAY June 26, 2018		
8:00 - 9:00	REGISTRATION - Fort Douglas Officer's Club	
Plenary Session - Fort Douglas Officers Club - South Conference Room		
8:45 - 9:00	Introduction and Overview of Day 2 David Megson, INEF 2018 Co-Chair, Manchester Metropolitan University, UK	
9:00 - 9:45	Airborne PCBs released from Aroclor and Non-Aroclor Sources in Indoor Environments Keri Hornbuckle, University of Iowa, Iowa City, Iowa, USA	
9:45 - 10:30	PCB Contamination in Anniston, Alabama: A Social History Ellen Griffith Spears, University of Alabama, Tuscaloosa, AL, USA	
10:30 - 10:50	COFFEE/REFRESHMENT BREAK – Fort Douglas Officers Club - North/West Conference Room	
BREAKOUT SESSIONS		
	South Conference Room Session 7: PCBs Moderator: David Megson	East Conference Room Session 8: Oil Spill Forensics Moderator: Court Sandau
10:50 - 11:10	PCB Deposition to Glacier Surfaces on Svalbard Mark Hermanson, Hermanson & Assoc. Minneapolis, MN USA	PAH Apportionment at a Site with Severely Weathered Crude Oil Deborah Chiavelli, Anchor/QEA, Woodcliff Lake, NJ, USA
11:10 - 11:30	Open Book, Open Source: Chronicling PCB Usage in Book Adhesives Jeffrey Parker, Pacific Groundwater Group, Seattle, WA, USA	Forensic PAH Fingerprinting Techniques and Source Apportionment for Oil Spills Court Sandau, Chemistry Matters, Calgary, AB, Canada
11:30 - 11:50	Bottle Liquid-Liquid Extraction for Economical Extraction of PCBs from Challenging Wastewater Samples Brendon A. Parsons, Los Alamos Natl. Lab., NM, USA	Weathering of Diesel Contaminated Sediments Colin S. Chen, Kaohsiung Normal University, Taiwan
11:50 - 12:10	Understanding PCB Processing in Biota Using Factor Analysis Lisa Rodenburg, Rutgers, New Brunswick, NJ, USA	PAH Patterns and Ratios David Mauro, Meta Environmental, Fairport, NY, USA
12:10 - 12:30	PCBs at Transformer Sites Ezekiel Ibrahim, Plateau State University, Nigeria	Following traces of biodegradation using thermal fingerprints. Jun Lu, Hefei University of Technology, China
12:30 - 13:30	LUNCH – HERITAGE CENTER	
	South Conference Room Session 9: Congener Analysis Moderator: Mark Hermanson	East Conference Room Session 10: Metals Moderator: Gwen O'Sullivan
13:30 - 13:50	How Many PCBs Are There In The Environment And Where Do They Come From? David Megson, Manchester Metropolitan Univ., UK	Source(s) of Metals & Metalloids in Sediments – Geogenic or Anthropogenic Mark Sorensen & Jeff Hess, Gilbane, Concord, CA, USA
13:50 - 14:10	CongeneR: A Tool for Comparing PCB-Congener Data with Different Co-elution Patterns Koshlan Mayer-Blackwell, Pacific Groundwater Group, Seattle, WA, USA	Application of Pine Needles as Bioindicators of Trace Metals in Urban Air Gwen O'Sullivan, Mt. Royal Univesity, Calgary, AB, Canada
14:10 - 14:30	A PCDD/F fingerprint study using the 190 nontoxic congeners: first results Carlo Monti, TIG, Pregassona, Lugano, Switzerland	Lead in Great Salt Lake Sediments Lihai Hu, University of Utah, Salt Lake City, UT, USA
14:30 - 14:50	A Simple Regression Method for Calculating Aroclor Mixing Proportions using PCB Congener Data Glenn Johnson, Univ. Utah, Salt Lake City, UT, USA	Implementation of Circular Economy in Treatment of Landfill Leachate Aditi Podder, University of Utah, Salt Lake City, UT, USA
14:50 - 15:20	COFFEE/REFRESHMENT BREAK - Posters	
	South Conference Room Session 11: Emerging Contaminants Moderator: Ingrid Ericson Jogsten	East Conference Room Session 12: Air Pollution Moderator: Ben Williams
15:20 - 15:40	Environmental Forensics and Per (Poly)-fluorinated Alkyl Substances: A State of the Science Discussion Laurel Royer, Exponent, Atlanta, GA, USA	NOx Emissions from Switch Yard Locomotives Identified with a Light-Rail Public Transit Platform Logan Mitchell, University of Utah, Salt Lake City, UT, USA
15:40 - 16:00	Sources and Sinks of PBDEs in Treatment Plant Sludges İpek İmamoğlu, Middle East Tech. Univ., Ankara, Turkey	Towards Improved Bioaerosol Source Apportionment and Modelling Assessments Ben Williams, Univ. West England, Bristol, UK
16:00 - 16:20	Microbial binding of perfluoroalkyl substances Ingrid Ericson Jogsten, Orebro University, Sweden	Household Indoor Particulate Matter Measurement Using a Network of Low-Cost Sensors Shruti Hegde, University of Utah, Salt Lake City, UT, USA
16:20 - 16:40	The effects of dilution on biodegradation of pharmaceuticals and metagenomics analysis: implication for environmental risk assessment Simone Bagnis, Plymouth University, UK	Rigorous Use of a Conceptual Site Model to Guide Development of Multiple Lines of Evidence at Vapor Intrusion Sites Steve Luis, Blayne Hartman, Ramboll, Irvine, CA, USA
16:40 - 17:00	Chlorinated and Brominated Flame Retardants Eric Reiner, MOECC, Toronto, ON, Canada	AQandU Project: evaluation of a low-cost air quality sensor network in the Wasatch front, United States Tofigh Sayahi, University of Utah, Salt Lake City, UT, USA
17:30 - 19:00	DINNER – HERITAGE CENTER	
19:00 - 21:00	Saints and Sinners / Ice Cream Social and Downtown SLC Pub Crawl	

WEDNESDAY June 27, 2018		
8:00 - 8:45	REGISTRATION - Fort Douglas Officer's Club	
Plenary Session - Fort Douglas Officers Club - South Conference Room		
8:45 - 9:00	Day 3: Introduction and Overview Stephen Mudge, Chairman, International Network of Environmental Forensics	
9:00 - 9:45	A Decade of Environmental Forensic Investigations Related to Shale Gas Exploration – What's Been Learned? Frank L. Dorman, Penn State University, University Park, PA, USA	
9:45 - 10:30	Admissibility And Use Of Environmental Forensics In The Courtroom Jeff Caufield, Esq., Caufield and James, LLP, San Diego, CA, USA	
10:30 - 11:00	COFFEE/REFRESHMENT BREAK – Fort Douglas Officers Club - North/West Conference Room	
BREAKOUT SESSIONS		
	South Conference Room Session 13: Forensics in Litigation Moderator: Michael Wade	East Conference Room Session 14: Emerging Analytical Methods Moderator: Alina Muscalu
11:00 - 11:20	Centredale Manor Superfund Site – A Litigation Case History Graham Ansell, Integral, Annapolis, MD, USA	Tools for non-target chem analysis Kirk O'Reilly, Exponent, Bellevue, WA, USA
11:20 - 11:40	The Peer Reviewed Literature and the Litigation Process Urs Furrer, Esq. Harriton & Furrer, Armonk, NY, USA	Emerging Contaminants in Wastewater: Characterization and Identificaiton of Benzotriazole Derivatives BY GCXGC-TOFMS Kyra Murrell, Penn State University, University Park, PA, USA
11:40 - 12:00	No Smoking Gun? Environmental Forensic Methods to Still Build a Winning Case Emily Vavricka, Orange, CA, USA	Monitoring VOCs w/ GC-FID GC-TOF-MS Matthew Edwards, SepSolve Analytical, Peterborough, UK
12:00 - 12:20	Environmental Remediation Study Design: Thinking Through to a Forensic/Litigation End Michael J. Wade, Wade Research, Marshfield, MA, USA	Nuclear Magnetic Resonance: An Improved Source Fingerprinting Analytical Tool Julie Konzuk, Geosyntec Consultants International, Toronto, ON, Canada
12:20 - 12:40	Using Thermodynamics to Identify an Atmospheric PCB Source Mark Hermanson, Hermanson & Assoc. Minneapolis, MN USA	Identifying and Quantitating Non-target Environmental Pollutants by using a Routine Comprehensive Two-dimensional Gas Chromatography Method Alina Muscalu, Ministry of the Environment and Climate Change, Toronto, ON, M9P 3V6, Canada
12:40 - 13:30	LUNCH – HERITAGE CENTER	
13:30 - 14:30	Closing Ceremonies and Student Paper Awards INEF Committee	

Posters		
West Conference Room		
Monday June 25 to Tuesday June 26		
	Exposure detection of a variety of pharmaceuticals and personal care products in domestic reclaimed wastewater reuse practices, in Northern Utah Leila Ahmadi, Utah State University, Logan, UT	Characterization of Community Urban Air Quality Using Trees as Biomonitors Kevin Hayes, Mt. Royal University, Calgary, AB, Canada
	Hexabromocyclododecane (HBCDD) Biodegradation in Anaerobic Sediment Mesocosms İpek İmamoğlu, Middle East Tech. Univ., Ankara, Turkey	Method optimization and validation of comprehensive multidimensional gas chromatography using response surface methodology for the application of ignitable liquid residue analysis Nadin Boegelsack, University of Saskatchewan, Saskatoon, SK, Canada
	Physiological responses of Chinese cabbage to pyrene stress in three growth periods Yuexian Liu, University of Chinese Academy of Sciences, Beijing, China	Dual-Channel GCxGC-FID for Routine TPH Analyses Matthew Edwards, SepSolve Analytical, Peterborough, UK
	Stochastic Modelling of Effect of Deforestation: Nigeria Lubem Kwaghkor, Nacabs Polytechnic, Nasarawa State, Nigeria	Recent trends in analytical methods for the determination of PCBs Thomas Tennant, Manchester Metropolitan University, Manchester UK
	Advances in oil spill forensic using biomarkers and isotope ratio technique. Harry Behzadi, SGS North America, Rutherford, New Jersey	